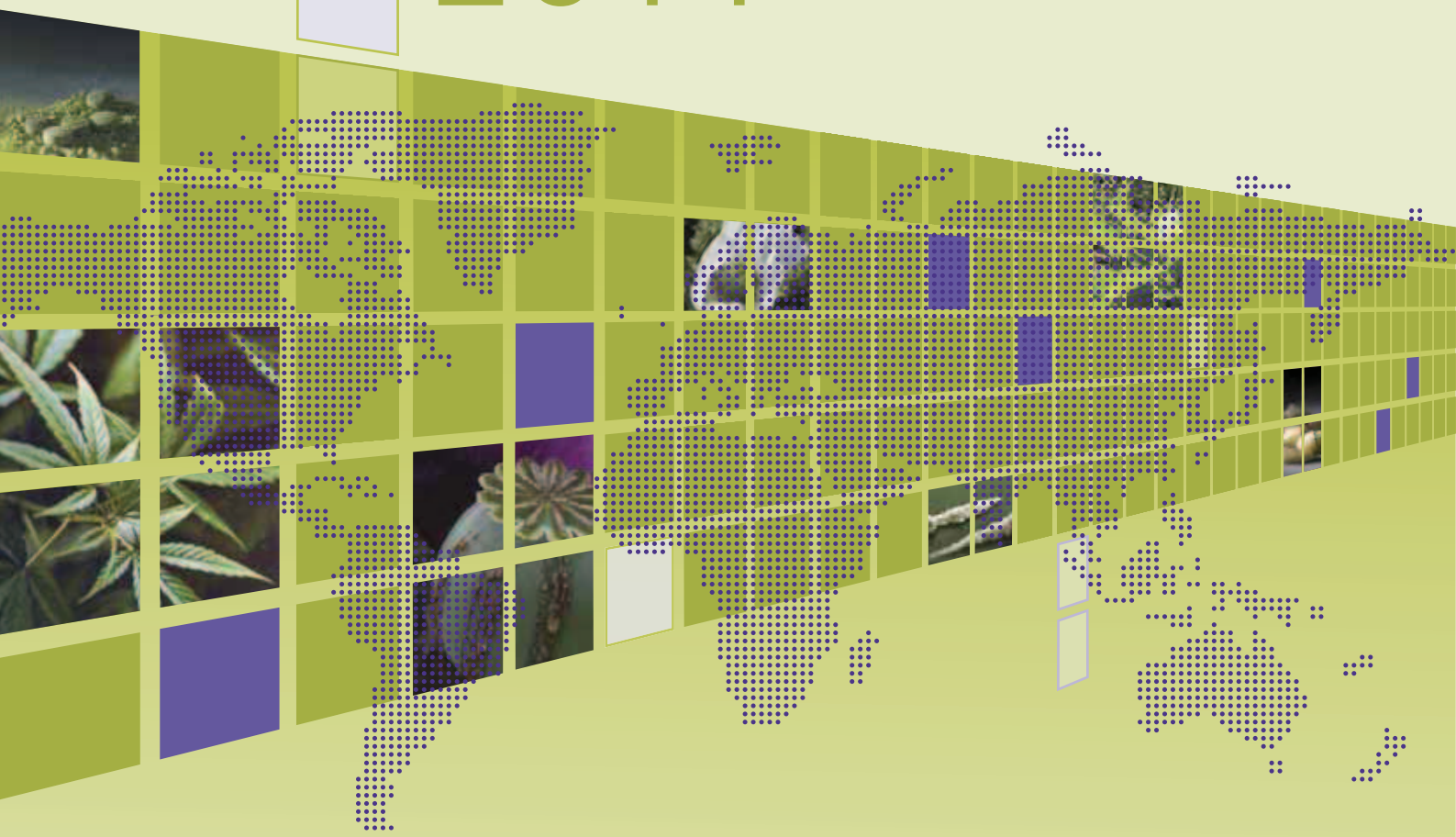
UNODC
United Nations Office on Drugs and Crime

# WORLD DRUG REPORT 2011



**UNITED NATIONS OFFICE ON DRUGS AND CRIME**
Vienna

# World Drug Report
2011

UNITED NATIONS
New York, 2011

ISBN: 978-92-1-148262-1
e-ISBN: 978-92-1-054919-6
United Nations Publication, Sales No. E.11.XI.10



Suggested citation: UNODC, World Drug Report 2011 (United Nations Publication, Sales No. E.11.XI.10).



DISCLAIMERS

This report has not been formally edited.

The contents of this publication do not necessarily reflect the views or policies of UNODC or contributory organizations and neither do they imply any endorsement.

The designations employed and the presentation of material in this publication do not imply the expression of any opinion whatsoever on the part of UNODC concerning the legal status of any country, territory or city or its authorities, or concerning the delimitation of its frontiers or boundaries.

Photos: UNODC, © Edurivero / Dreamstime.com

Comments on the report are welcome and can be sent to:

Division for Policy Analysis and Public Affairs
United Nations Office on Drugs and Crime
PO Box 500
1400 Vienna
Austria
Tel: (+43) 1 26060 0
Fax: (+43) 1 26060 5827

E-mail: wdr@unodc.org
Website: www.unodc.org

UNODC gratefully acknowledges the contribution of the Government of Austria towards the cost of the World Drug Report 2011.

*This report is dedicated to the memory of*

***Leonardo Iván Alfaro Santiago,***
***Patricia Olga Delgado Rúa de Altamirano,***
***Mariela Cinthia Moreno Torreblanco*** *and*
***Stephan Javier Campos Ruiz***

*who lost their lives on 5 May, 2011, while on duty*
*for UNODC in Los Yungas, Bolivia.*

# ACKNOWLEDGEMENTS


## Editorial and production team

The *World Drug Report 2011* was produced under the supervision of Sandeep Chawla, Director, Division for Policy Analysis and Public Affairs.

**Core team**

*Laboratory and Scientific Section*

Justice Tettey, Jakub Gregor, Beate Hammond and Yen Ling Wong.

*Statistics and Surveys Section*

Angela Me, Coen Bussink, Philip Davis, Kamran Niaz, Preethi Perera, Catherine Pysden, Umidjon Rahmonberdiev, Martin Raithelhuber, Ali Saadeddin, Antoine Vella and Cristina Mesa Vieira.

*Studies and Threat Analysis Section*

Thibault Le Pichon, Hakan Demirbüken, Raggie Johansen, Anja Korenblik, Suzanne Kunnen, Kristina Kuttnig, Renee Le Cussan and Thomas Pietschmann.

The production of the *World Drug Report 2011* was coordinated by Sandeep Chawla, with the support of the Studies and Threat Analysis Section.

The report also benefited from the work and expertise of many other UNODC staff members in Vienna and around the world.

# CONTENTS

## 6. STATISTICAL ANNEX



## TEXT BOXES

# PREFACE

Today there is widespread recognition among Member States and United Nations entities that drugs, together with organized crime, jeopardize the achievement of the Millennium Development Goals. It is increasingly clear that drug control must become an essential element of our joint efforts to achieve peace, security and development. At the same time, we must reinforce our commitment to shared responsibility and the basic principles of health and human rights.

The *World Drug Report* documents developments in global drug markets and tries to explain the factors that drive them. Its analysis of trends and emerging challenges informs national and international drug and crime priorities and policies, and provides a solid foundation of evidence for counternarcotics interventions. Drug markets and drug use patterns change rapidly, so measures to stop them must also be quick to adapt. Thus the more comprehensive the drug data we collect and the stronger our capacity to analyse the problem, the better prepared the international community will be to respond to new challenges.

***Recent trends***

Despite increased attention to drug demand reduction in recent years, drug use continues to take a heavy toll. Globally, some 210 million people use illicit drugs each year, and almost 200,000 of them die from drugs. There continues to be an enormous unmet need for drug use prevention, treatment, care and support, particularly in developing countries.

Drug use affects not only individual users, but also their families, friends, co-workers and communities. Children whose parents take drugs are themselves at greater risk of drug use and other risky behaviours. Drugs generate crime, street violence and other social problems that harm communities. In some regions, illicit drug use is contributing to the rapid spread of infectious diseases like HIV and hepatitis.

Heroin consumption has stabilized in Europe and cocaine consumption has declined in North America – the most lucrative markets for these drugs. But these gains have been offset by several counter-trends: a large increase in cocaine use in Europe and South America over the last decade; the recent expansion of heroin use to Africa; and increased abuse of synthetic 'designer drugs' and prescription medications in some regions. Meanwhile, new drug use profiles are also emerging: consumption of combinations of drugs rather than just one illicit substance is becoming more common, and this increases the risk of death or serious health consequences.

On the supply side, illicit cultivation of opium poppy and coca bush is now limited to a few countries, but heroin and cocaine production levels remain high. Although 2010 saw a significant decrease in opium production, this was largely due to a plant disease that affected opium poppies in the major growing regions of Afghanistan. Yet between 1998 and 2009, global production of opium rose almost 80 per cent, which makes the 2010 production decline less significant over the last decade. Meanwhile, the market for cocaine has not shrunk substantially, it has simply experienced geographical shifts in supply and demand. Just a decade ago, the North American market for cocaine was four times larger than that of Europe, but now we are witnessing a complete rebalancing. Today the estimated value of the European cocaine market ($33 billion) is almost equivalent to that of the North American market ($37 billion).

Drug trafficking, the critical link between supply and demand, is fuelling a global criminal enterprise valued in the hundreds of billions of dollars that poses a growing challenge to stability and security. Drug traffickers and organized criminals are forming transnational networks, sourcing drugs on one continent, trafficking them across another, and marketing them in a third. In some countries and regions, the value of the illicit drug trade far exceeds the size of the legitimate economy. Given the enormous amounts of money controlled by drug traffickers, they have the capacity to corrupt officials. In recent years we have seen several such cases in which ministers and heads of national law enforcement agencies have been implicated in drug-related corruption. We are also witnessing more and more acts of violence, conflicts and terrorist activities fuelled by drug trafficking and organized crime.

**A stronger multilateral response to illicit drugs**

In the face of such diverse and complex challenges, we must improve the performance of our global response to illicit drugs.

This year is the 50th anniversary of the keystone of the international drug control system: the 1961 Single Convention on Narcotic Drugs. Its provisions remain sound

and highly relevant, as does its central focus on the protection of health. The international community must make more effective use of all three Drug Conventions as well as the Conventions against Transnational Organized Crime and Corruption. Mobilizing these powerful international legal instruments, together with existing law enforcement and judicial networks, can strengthen transnational cooperation in investigating and prosecuting drug traffickers, combating money-laundering, and identifying, freezing and confiscating criminal assets.

A comprehensive and integrated approach can also help us to confront the global threat from drugs more effectively. We must build new partnerships. Governments and civil society must work together. States have to join forces in promoting regional cooperation. This strategy is already having some success against drugs originating in Afghanistan. The Paris Pact unites more than 50 States and international organizations to counter traffic in and consumption of Afghan opiates. Regional counternarcotics information-sharing and joint cooperation initiatives like the Triangular Initiative (involving Afghanistan, the Islamic Republic of Iran and Pakistan), the Central Asian Regional Information and Coordination Centre and Operation TARCET (initiative to prevent the smuggling of precursors to Afghanistan) have intercepted and seized tons of illicit drugs and precursor chemicals. Building on the lessons of the Paris Pact, the Group of Eight, under the leadership of the French Presidency, recently launched an initiative to create a unified response to tackle the global cocaine market.

We also must ensure that supply and demand reduction efforts work together rather than in parallel. On the supply side, if we are to make real progress against heroin and cocaine, we must address illicit cultivation in a more meaningful and coordinated way. We have many tools at our disposal, including alternative livelihoods. Governments and aid agencies must invest more in development, productive employment and increased security. Crop eradication can also play a role, as a national responsibility with international support and assistance and in combination with programmes that help farmers shift to the cultivation of licit crops. We must also develop new strategies for preventing the diversion of chemicals that are used to make synthetic 'designer drugs' and to turn coca bush and opium poppies into cocaine and heroin.

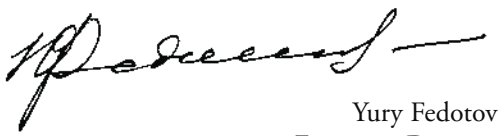
On the demand side, there is growing recognition that we must draw a line between *criminals* (drug traffickers) and their *victims* (drug users), and that treatment for drug use offers a far more effective cure than punishment. We are seeing progress in drug use prevention through family skills training, and more attention is being paid to comprehensive HIV prevention, treatment and care. As an essential part of demand reduction efforts, we also need to more vigorously raise public awareness about illicit drugs, and facilitate healthy and fulfilling alternatives to drug use, which must not be accepted as a way of life.

**Better data and analysis to enrich policy**

A lack of comprehensive data continues to obstruct our full understanding of the markets for illicit drugs. The gaps are more prominent in some regions, such as Africa and Asia, and also around new drugs and evolving consumption patterns.

More comprehensive data collection allows for more and better analysis, which in turn enriches our response to the world drug challenge. I urge countries to strengthen their efforts to collect data on illicit drugs, and I encourage donors to support those countries that need assistance in these efforts. If we can strengthen our research and analysis, we can better understand the drug phenomenon and pinpoint areas where interventions are most likely to achieve positive results.

I would like to thank the teams of skilled surveyors who gather data on cultivation and production levels of illicit crops in the world's major drug-producing regions. The information they collect is of strategic importance to the efforts of both the Governments concerned and the international community to make our societies safer from drugs and organized crime. In addition, their data forms the core of this report. These brave individuals work in challenging and sometimes dangerous conditions. Sadly, in May 2011 a team of UNODC crop surveyors in the Plurinational State of Bolivia lost their lives while on the job. I would like to pay tribute to their courage and commitment, and dedicate this report to their memory.



Yury Fedotov
Executive Director
United Nations Office on Drugs and Crime

# EXPLANATORY NOTES

**Types of drugs:**

*ATS* – Amphetamine-type stimulants (ATS) refers to a group of substances comprised of synthetic stimulants from the amphetamines-group of substances, including amphetamine, methamphetamine, methcathinone and the ecstasy-group substances (MDMA and its analogues). In cases where countries report to UNODC without indicating the specific ATS they are referring to, the term non-specified amphetamines is used. In cases where ecstasy is referred to in enclosed brackets ('ecstasy'), the drug represents cases where the drug is sold as ecstasy (MDMA) but which may contain a substitute chemical and not MDMA.

*Coca paste (or coca base)* – An extract of the leaves of the coca bush. Purification of coca paste yields cocaine (base and hydrochloride).

*Cocaine (base and salts)* – Coca paste, cocaine base and cocaine hydrochloride referred to in the aggregate.

*Crack (cocaine)* – Cocaine base obtained from cocaine hydrochloride through conversion processes to make it suitable for smoking.

*Heroin HCl (heroin hydrochloride)* – Injectable form of heroin, sometimes referred to as 'Heroin no. 4.'

*Heroin no. 3* – A less refined form of heroin suitable for smoking.

*Opioid* – A generic term applied to alkaloids from opium poppy, their synthetic analogues, and compounds synthesized in the body.

*Opiate* – A subset of opioids comprised of the various products derived from the opium poppy plant including opium, morphine and heroin.

*Poppy straw* – All parts (except the seeds) of the opium poppy, after mowing.

**Terms:** Since there is some scientific and legal ambiguity about the distinctions between drug 'use', 'misuse' and 'abuse', this report uses the neutral terms, drug 'use' or 'consumption'.

Annual prevalence refers to the total number of people of a given age range who have used a given drug at least once in the past year divided by the number of people of a given age.

**Maps:** The boundaries and names shown and the designations used on maps do not imply official endorsement or acceptance by the United Nations. A dotted line represents approximately the line of control in Jammu and Kashmir agreed upon by India and Pakistan. The final status of Jammu and Kashmir has not yet been agreed upon by the parties. Disputed boundaries (China/India) are represented by cross hatch due to the difficulty of showing sufficient detail.

**Population data:** The data on population used in this report comes from: United Nations, Department of Economic and Social Affairs, Population Division, World Population Prospects: The 2008 Revision, 2009.

**Regions:** In various sections, this report uses a number of regional designations. These are not official designations. They are defined as follows:

- East Africa: Burundi, Comoros, Djibouti, Eritrea, Ethiopia, Kenya, Madagascar, Mauritius, Rwanda, Seychelles, Somalia, Tanzania (United Republic of) and Uganda.
- North Africa: Algeria, Egypt, Libyan Arab Jamahiriya, Morocco, Sudan and Tunisia.
- Southern Africa: Angola, Botswana, Lesotho, Malawi, Mozambique, Namibia, South Africa, Swaziland, Zambia and Zimbabwe.
- West and Central Africa: Angola, Benin, Burkina Faso, Cameroon, Cape Verde, Central African Republic, Chad, Congo (Democratic Republic of), Congo (Republic of), Côte d'Ivoire, Equatorial Guinea, Gabon, Gambia, Ghana, Guinea, Guinea-Bissau, Liberia, Mali, Mauritania, Niger, Nigeria, Sao Tome and Principe, Senegal, Sierra Leone and Togo.

- Caribbean: Antigua and Barbuda, Bahamas, Barbados, Bermuda, Cuba, Dominica, Dominican Republic, Grenada, Haiti, Jamaica, Saint Kitts and Nevis, Saint Lucia, Saint Vincent and the Grenadines and Trinidad and Tobago.
- Central America: Belize, Costa Rica, El Salvador, Guatemala, Honduras, Nicaragua and Panama.
- North America: Canada, Mexico and the United States of America.
- South America: Argentina, Bolivia (Plurinational State of), Brazil, Chile, Colombia, Ecuador, Guyana, Paraguay, Peru, Suriname, Uruguay and Venezuela (Bolivarian Republic of).
- Central Asia and Transcaucasia: Armenia, Azerbaijan, Georgia, Kazakhstan, Kyrgyzstan, Tajikistan, Turkmenistan and Uzbekistan.
- East and South-East Asia: Brunei Darussalam, Cambodia, China (including Hong Kong, Macao, and Taiwan Province of China), the Democratic People's Republic of Korea, Indonesia, Japan, Lao People's Democratic Republic, Malaysia, Mongolia, Myanmar, Philippines, the Republic of Korea, Singapore, Thailand, Timor-Leste and Viet Nam.
- Near and Middle East/South-West Asia: Afghanistan, Bahrain, Iran (Islamic Republic of), Iraq, Israel, Jordan, Kuwait, Lebanon, Oman, Pakistan, Qatar, Saudi Arabia, Syrian Arab Republic, the United Arab Emirates and Yemen. The Near and Middle East refers to a subregion which includes Bahrain, Israel, Jordan, Kuwait, Lebanon, Oman, Qatar, Saudi Arabia, the Syrian Arab Republic, the United Arab Emirates and Yemen.
- South Asia: Bangladesh, Bhutan, India, Maldives, Nepal and Sri Lanka.
- East Europe: Belarus, Republic of Moldova, Russian Federation and Ukraine.
- South-East Europe: Albania, Bosnia and Herzegovina, Bulgaria, Croatia, Kosovo, Montenegro, Romania, Serbia, the former Yugoslav Republic of Macedonia and Turkey.
- West and Central Europe: Andorra, Austria, Belgium, Cyprus, the Czech Republic, Denmark, Estonia, Finland, France, Germany, Greece, Hungary, Iceland, Ireland, Italy, Latvia, Liechtenstein, Lithuania, Luxembourg, Malta, Monaco, the Netherlands, Norway, Poland, Portugal, San Marino, Slovakia, Slovenia, Spain, Sweden, Switzerland and the United Kingdom.
- Oceania: Australia, Fiji, Kiribati, Marshall Islands, Micronesia, Nauru, New Zealand, Palau, Papua New Guinea, Samoa, Solomon Islands, Tonga, Tuvalu, Vanuatu and other small island territories.

# EXPLANATORY NOTES

**The following abbreviations have been used in this Report:**

| | |
|---|---|
| AIDS | Acquired Immune-Deficiency Syndrome |
| ARQ | UNODC annual reports questionnaire |
| ATS | amphetamine-type stimulants |
| CCDAC | Central Committee for Drug Abuse Control (Myanmar) |
| CICAD | Inter-American Drug Abuse Control Commission |
| CIS | Commonwealth of Independent States |
| COP | Colombian peso |
| DAINAP | Drug Abuse Information Network for Asia and the Pacific |
| DEA | United States, Drug Enforcement Administration |
| DELTA | UNODC Database on Estimates and Long Term Trend Analysis |
| DIRAN | Colombian National Police – Antinarcotics Directorate |
| DUMA | Drug Use Monitoring in Australia |
| EMCDDA | European Monitoring Centre for Drugs and Drug Addiction |
| ESPAD | European School Survey Project on Alcohol and other Drugs |
| EUROPOL | European Police Office |
| Govt. | Government |
| HIV | Human Immunodeficiency Virus |
| HONLEA | Heads of National Drug Law Enforcement Agencies |
| IDS | UNODC individual drug seizures database |
| IDU | injecting drug use |
| INCB | International Narcotics Control Board |
| INCSR | International Narcotics Control Strategy Report (United States Department of State) |
| INTERPOL/ ICPO | International Criminal Police Organization |
| LSD | lysergic acid diethylamide |
| LCDC | Lao National Commission for Drug Control and Supervision |
| MDA | 3,4-methylenedioxyamphetamine (tenamfetamine) |
| MDE | 3,4-methylenedioxyethylamphetamine |
| MDMA | 3,4-methylenedioxymethamphetamine |
| NGO | Non-governmental organization |
| NIDA | National Institute of Drug Abuse (USA) |
| OECD | Organization for Economic Co-operation and Development |
| ONDCP | Office of National Drug Control Policy (USA) |
| P-2-P | 1-phenyl-2-propanone (BMK) |
| SACENDU | South African Community Epidemiology Network on Drug Use |
| SAMHSA | Substance Abuse and Mental Health Services Administration (USA) |
| SRO | safrole-rich oils |
| THC | tetrahydrocannabinol |
| UNAIDS | Joint United Nations Programme on HIV/AIDS |
| UNODC | United Nations Office on Drugs and Crime |
| WCO | World Customs Organization |
| WDR | *World Drug Report* |
| WHO | World Health Organization |
| 3,4-MDP-2-P | 3,4-methylenedioxyphenyl-2-propanone (PMK) |

**Weights and measurements:**

| | |
|---|---|
| l | litre |
| g | gram |
| mg | milligram |
| kg | kilogram |
| mt | metric ton |

# EXECUTIVE SUMMARY

## Global developments in illicit drug consumption, production and trafficking

### Consumption

Globally, UNODC estimates that, in 2009, between 149 and 272 million people, or 3.3% to 6.1% of the population aged 15-64, used illicit substances at least once in the previous year. About half that number are estimated to have been current drug users, that is, having used illicit drugs at least once during the past month prior to the date of assessment. While the total number of illicit drug users has increased since the late 1990s, the prevalence rates have remained largely stable, as has the number of problem drug users,[1] which is estimated at between 15 and 39 million.

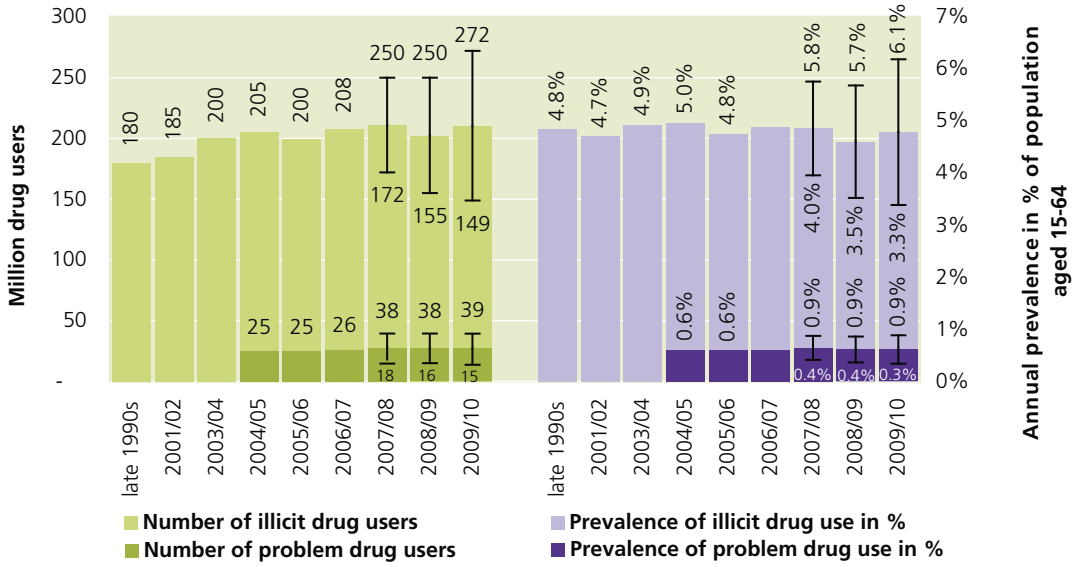
Cannabis is by far the most widely used illicit drug type, consumed by between 125 and 203 million people worldwide in 2009. This corresponds to an annual prevalence rate of 2.8%-4.5%. In terms of annual prevalence, cannabis is followed by ATS (amphetamine-type stimulants; mainly methamphetamine, amphetamine and ecstasy), opioids (including opium, heroin and prescription opioids) and cocaine. Lack of information regarding use of illicit drugs – particularly ATS - in populous countries such as China and India, as well as in emerging regions of consumption such as Africa, generate uncertainty when estimating the global number of users. This is reflected in the wide ranges of the estimates.

While there are stable or downward trends for heroin and cocaine use in major regions of consumption, this is being offset by increases in the use of synthetic and prescription drugs. Non-medical use of prescription drugs is reportedly a growing health problem in a number of developed and developing countries.

Moreover, in recent years, several new synthetic compounds have emerged in established illicit drug markets. Many of these substances are marketed as 'legal highs' and substitutes for illicit stimulant drugs such as cocaine or 'ecstasy.' Two examples are piperazines and mephedrone, which are not under international control. A similar development has been observed with regard to cannabis, where demand for synthetic cannabinoids

**Annual prevalence and number of illicit drug users at the global level, late 1990s-2009/2010**

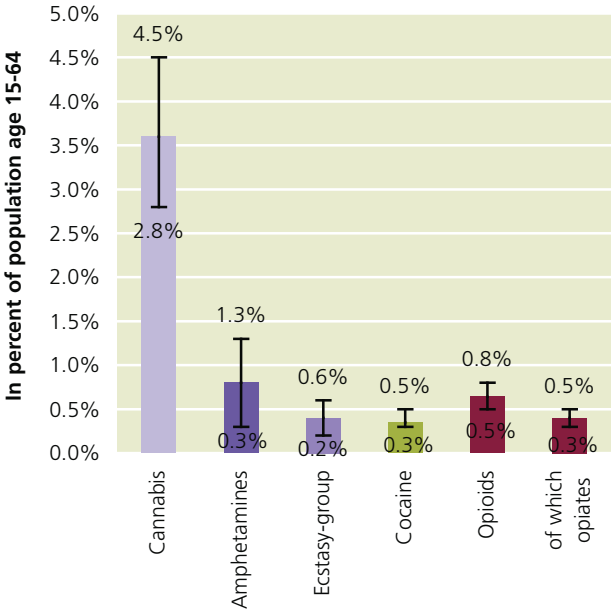
Source: UNODC estimates based on ARQ data and other official sources.




1 While there is no established definition of problem drug users, they are usually defined by countries as those that regularly use illicit substances and can be considered dependent, and those who inject drugs.

**Annual prevalence of drug use at the global level, by illicit drug category, 2009-2010**

Source: UNODC estimates based on ARQ data and other official sources.




('spice') has increased in some countries. Sold on the internet and in specialized shops, synthetic cannabinoids have been referred to as 'legal alternatives' to cannabis, as they are not under international control. The control status of these compounds differs significantly from country to country.

In terms of treatment demand, the picture varies between regions. Cannabis contributes significantly to treatment demand in most regions, but it is particularly prominent in Africa and Oceania. Opiates dominate treatment demand in Europe and Asia, whereas cocaine is the main problem drug in South America. In North America, cannabis, opioids and cocaine make up similar shares of total treatment demand. ATS does not dominate any one region but makes a sizable contribution to treatment demand particularly in Asia and Oceania, but also in Europe and North America.

In terms of the health consequences of drug use, the global average prevalence of HIV among injecting drug users is estimated at 17.9%, or equivalently, 2.8 million people who inject drugs are HIV positive. This means that nearly one in five injecting drug users is living with HIV. The prevalence of Hepatitis C among injecting drug users at the global level is estimated at 50% (range: 45.2%-55.3%), suggesting that there are 8.0 million (range: 7.2 – 8.8 million) injecting drug users worldwide who are also infected with HCV. Deaths related to or associated with the use of illicit drugs are estimated between 104,000 and 263,000 deaths each year, equivalent to a range of 23.1 to 58.7 deaths per one million inhabitants aged 15-64. Over half of the deaths are estimated to be fatal overdose cases.

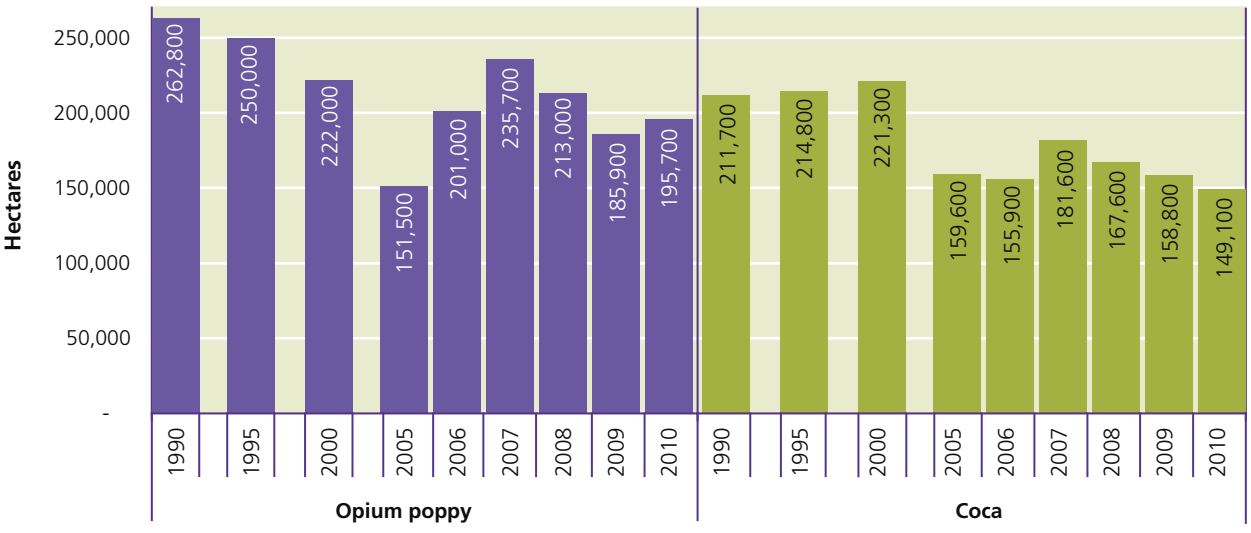
## Production

Global opium poppy cultivation amounted to some 195,700 ha in 2010, a small increase from 2009. The vast bulk - some 123,000 ha - were cultivated in Afghanistan, where the cultivation trend remained stable. The global trend was mainly driven by increases in Myanmar, where cultivation rose by some 20% from 2009. There was a significant reduction in global opium pro-

**Global opium poppy and coca cultivation (ha), 1990-2010***

* For Mexico (opium poppy) and the Plurinational State of Bolivia (coca), in the absence of data for 2010, the estimates for 2009 were imputed to 2010.

Sources: UNODC.



duction in 2010, however, as a result of disease in opium poppy plants in Afghanistan.

The global area under coca cultivation continued to shrink to 149,100[2] ha in 2010, falling by 18% from 2007 to 2010. There was also a significant decline in potential cocaine manufacture, reflecting falling cocaine production in Colombia which offset increases identified in both Peru and the Plurinational State of Bolivia.

While it is difficult to estimate total global amphetamine-type stimulants manufacture, it has spread, and more than 60 Member States from all regions of the world have reported such activity to date. The manufacture of amphetamines-group substances is larger than that of ecstasy. Methamphetamine - which belongs to the amphetamines-group - is the most widely manufactured ATS, with the United States of America reporting a large number of detected illicit laboratories.

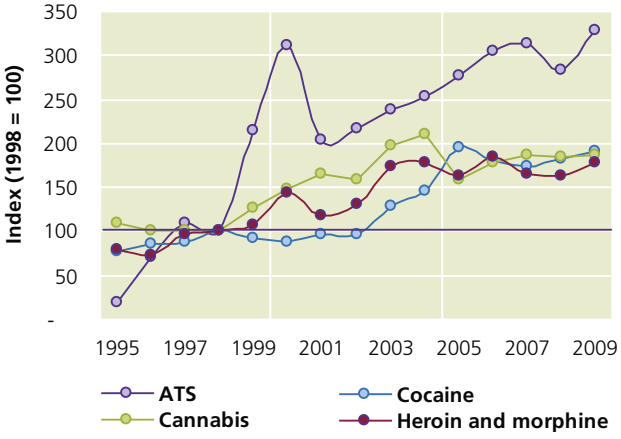
Cannabis herb cultivation occurs in most countries worldwide. Although there was insufficient data available to update the global cultivation estimate, the relatively stable seizure trend suggests a stable level of production. Indoor cultivation of cannabis herb is still largely limited to the developed countries of North America, Europe and Oceania. Cannabis resin production estimates were not updated this year, but based on ARQ replies to UNODC, Afghanistan and Morocco were major producers.

### Trafficking

Trafficking flows vary according to the drug type involved. The most commonly seized drug type, cannabis herb, is often locally produced and thus, international trafficking is limited. Cocaine and heroin are trafficked both intra- and inter-regionally, though considerable amounts are consumed quite far from the countries of cultivation and production. Most ATS-manufacture occurs in the region of consumption, whereas their precursor chemicals are trafficked inter-regionally.

**Trends in the volume of seizures, by main drug categories(index: 1998 = 100)**

Source: UNODC ARQ.




The long-term trends show increased seizures for all the major drug types. Between 1998 and 2009, seizures of cocaine, heroin and morphine, and cannabis almost doubled. ATS seizures more than tripled over the same period.

Though it is still the most commonly seized drug, by far, the relative importance of cannabis in total illicit drug seizures has declined, rendering the other drug types – particularly ATS - increasingly prominent.

Looking at recent trends, global seizures of ATS rose to a record high in 2009, driven by increases in methamphetamine seizures. Ecstasy seizures, on the other hand, decreased. The predominant type of ATS seized varies according to region, with methamphetamine dominating in Oceania, Africa, North America and much of Asia.

Seizures of opiates remained stable in 2009, with the Islamic Republic of Iran and Turkey continuing to account for the largest national seizure totals. Cocaine seizures also remained largely stable, at a high level. For cannabis, seizures of cannabis herb – the most widely consumed variety – increased, whereas resin seizures decreased.

For cocaine and cannabis resin, seizures are shifting away from the main consumer markets to source regions. Both North America and West and Central Europe account for declining shares of global cocaine seizures, while South America is seizing more. Similarly, cannabis resin seizures decreased significantly in Europe but increased in North Africa from 2008 to 2009.

## The major drug markets

### Opiates

Global use of opiates remained largely stable in 2009. UNODC estimates that some 12 to 21 million people used opiates worldwide; some three quarters of them used heroin. In 2009, an estimated 12-14 million global heroin users consumed some 375 mt of heroin. Europe and Asia remain the key global consumption markets, and they are largely supplied by Afghan opium.

In recent years, the non-medical use of various prescription opioids has become increasingly problematic in some areas of the world, particularly in North America. In the United States, many emergency room visits are now related to prescription opioid use, and this drug class is also responsible for an increasing share of treatment admissions in that country.

2 The figure for the Plurinational State of Bolivia was not available at the time of printing of this report. The total area under cultivation in 2010 is based on 2009 figures for Bolivia and will be revised when the 2010 figure becomes available.

Afghanistan accounts for 63% of the total global area under opium poppy cultivation. Cultivation there remained stable in 2010. Increases were registered in Myanmar in 2010, however, which resulted in an increasing global trend (5%). The opium yield is also increasing in Myanmar, causing the country's potential opium production to increase by some 75%.

Nonetheless, global opium production dropped to 4,860 mt in 2010, from to 7,853 mt the year before. This was largely due to a drastic reduction in Afghanistan's opium production as a result of disease in opium poppy plants. UNODC forecasts for Afghan production in 2011 predict a further small decline or at least a stabilization of overall opium poppy cultivation at the lower levels. If opium yield returns to the average level, opium production is likely to increase in Afghanistan in 2011.

Seizures of opium and heroin appeared to stabilize in 2009, amounting to 653 mt and 76 mt, respectively. An estimated 460-480 mt of heroin were trafficked (including seizures) worldwide in 2009, of which 375 mt reached the consumers. Traffickers' use of maritime transportation and seaports has been identified as a key emerging threat.

The global opiate market was valued at US$68 billion in 2009, with heroin consumers contributing US$61 billion of this. Heroin prices vary greatly. Although prices in Afghanistan increased in 2010, one gram costs less than US$4. In West and Central Europe, users pay some US$40-100 per gram, in the United States and northern Europe, US$170-200, and in Australia, the price is as high as US$230–370. While Afghan farmers only earned some US$440 million in 2010, organized crime groups in the main countries of consumption reap the largest profits.

## Cocaine

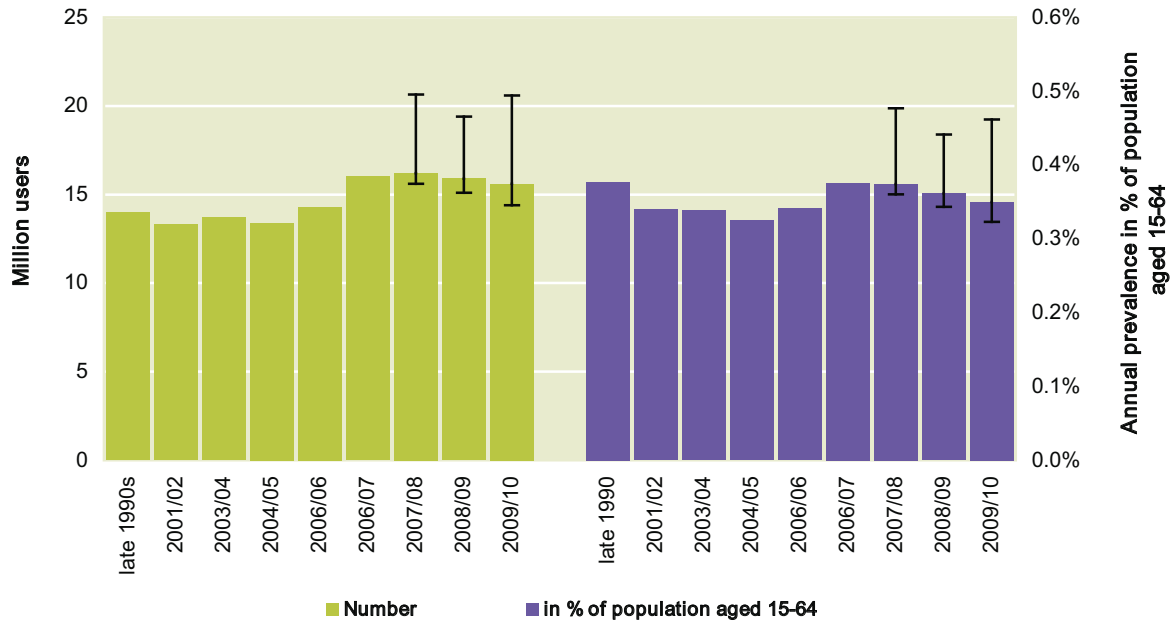
In 2009, the annual prevalence of cocaine use was estimated between 0.3% and 0.5% of the world population aged 15-64, or some 14.2 to 20.5 million people in that age range. Though the lower and upper bounds of cocaine users in 2009 have widened somewhat, consumption remains essentially stable. Taking qualitative information into account, the actual number of cocaine users is probably closer to the lower end of the range.

Despite significant declines in recent years, the largest cocaine market continues to be that of the United States, with an estimated consumption of 157 mt of cocaine, equivalent to 36% of global consumption. The second-largest cocaine market is that of Europe, notably West and Central Europe, where consumption is estimated at 123 mt. Over the last decade, the volume of cocaine consumed in Europe has doubled. In recent years, there are some signs of stabilization, though at the higher levels. Cocaine use in East Europe is limited.

The area under coca cultivation declined by 18% from 2007 to 2010. Considering the past decade (2000-2010), the decrease is even larger, 33%. Global seizures of cocaine have been generally stable over the period 2006-2009, amounting to some 732 mt in 2009. Since 2006 seizures have shifted towards the source areas in South America and away from the consumer markets in

**Annual prevalence and number of cocaine users at the global level, late 1990s-2009/2010**

Source: UNODC.



North America and West and Central Europe. The role of West Africa in cocaine trafficking from South America to Europe might have decreased if judged from seizures only, but there are other indications that traffickers may have changed their tactics, and the area remains vulnerable to a resurgence in trafficking of cocaine. Some countries in the Asia-Pacific, with potentially large consumer markets, registered increasing cocaine seizures in 2008 and 2009.

The value of the global cocaine market is lower than it was in the mid-1990s, when prices were much higher and the market in the United States was strong. In 1995, the global market was worth some US$165 billion, while in 2009, this had been reduced to just over half of that, some US$85 billion (range: US$75-US$100 bn). As with heroin, almost all the profits are reaped by traffickers.

## Amphetamine-type stimulants (ATS)

Global ATS use levels remained essentially stable in 2009. ATS can be divided into two main categories: Amphetamines-group (mainly amphetamine and methamphetamine) and ecstasy-group (MDMA and its analogues). UNODC estimates that the annual prevalence for amphetamines-group substances ranged between 0.3% and 1.3% in 2009, or some 14 to 57 million people aged 15-64 who had used such substances at least once in the past year. For the ecstasy-group, global annual prevalence was estimated at between 0.2% and 0.6% of the population aged 15-64, or some 11 to 28 million past-year users.

The predominant substance used varies between and within regions. Amphetamines-group substances dominate in Africa, the Americas and Asia, whereas for Europe and Oceania, ecstasy-group prevalence rates are higher. In North America, the two groups are nearly on par. On aggregate, experts who reported their assessment of ATS use in their respective countries perceive that the use of amphetamines-group substances is stable or increasing, whereas for ecstasy, the trend was most often reported as stable (decreasing in Asia).

The manufacture of ATS is not geographically bound, and ATS laboratories tend to be located close to the illicit markets for these drugs. Precursors and other chemicals used in the illicit manufacture of ATS are frequently trafficked across regions.

Some 10,600 ATS-related laboratories were reported seized in 2009. The vast bulk of the seized laboratories were manufacturing methamphetamine, most of them located in the United States. Methamphetamine is the most widely manufactured ATS worldwide. Amphetamine and ecstasy manufacture operations tend to be fewer in number but have more sophisticated operations as they require more specialized equipment, precursor chemicals and greater skill levels.

In 2009, global seizures of ATS rose significantly, slightly exceeding the high level of 2007. The increase was mainly driven by methamphetamine seizures, which rose by more than 40% to reach 31 mt. Amphetamine seizures rose by some 10% to 33 mt. Ecstasy seizures decreased somewhat from the already low 2008 level, and amounted to 5.4 mt.

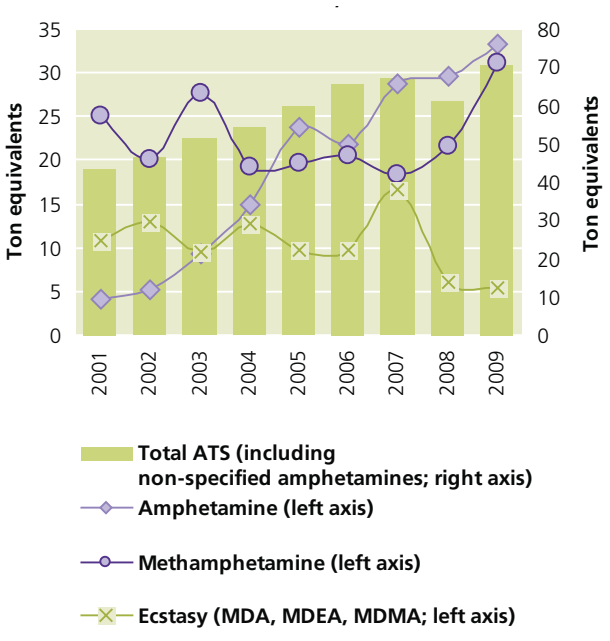
In East and South-East Asia, ATS markets have expanded over the past year. Expert perceptions indicate that increases in ATS use – notably use of methamphetamine - are significant. Government experts have reported that methamphetamine ranks among the top three illicit drugs consumed in several countries in this region, including China, Japan and Indonesia.

Africa is a region of concern with regard to the trafficking of ATS. Trafficking of methamphetamine from Africa was reported first at the end of 2008 and reports have continued since. West Africa, in particular, is emerging as a new source of methamphetamine for illicit markets in East Asia, with couriers transiting Europe, West Asia or East Africa. Precursor chemicals are also frequently trans-shipped through the region.

In India, the first clandestine ATS manufacture operation was detected in May 2003. Since then, several additional facilities have been uncovered. Attempts at illicit ATS manufacture have also been reported from Bangladesh and Sri Lanka. South Asia has become one of the main regions used to obtain ephedrine and

**Seizures of ATS, by type, 2001-2009**

Source: UNODC DELTA.



pseudoephedrine for the illicit manufacture of methamphetamine. India is one of the world's largest manufacturers of precursor chemicals and Bangladesh also has a growing chemical industry. Amphetamine, methamphetamine and ecstasy have been regularly seized in South Asia over the past five years.

## Cannabis

Cannabis remains by far the most widely produced and consumed illicit substance globally. In 2009, between 2.8% and 4.5% of the world population aged 15-64 - between 125 and 203 million people - had used cannabis at least once in the past year. This is similar to last year's estimates. Cannabis herb is the most common type used, produced and seized.

Some increases in cannabis use were reported from the Americas, Africa and Asia in 2009, whereas consumption in western Europe and Oceania remained stable or declined. Over the past 10 years, experts from an increasing number of countries have been reporting stable cannabis use trends. Despite this, cannabis use accounts for the bulk of treatment demand in Africa and Oceania.

Recent studies have shown that intensive (long-term regular use, high doses) exposure to cannabis products with high potency levels may increase the risk of psychotic disorders. The average concentration of the major psychoactive substance in cannabis products (THC) seems to be higher than it was 10-15 years ago, though data for the past five years show a stable trend in some countries. The pattern, however, is not consistent for all products and all countries.

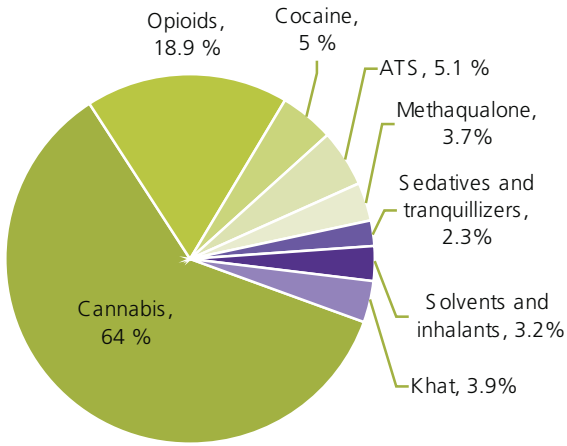
Cannabis herb cultivation is widely dispersed as it is mostly produced for domestic or regional markets. Therefore, an estimation of total global production is fraught with difficulty. Cannabis resin production is more localized and the drug is trafficked over larger distances. The countries most often identified as sources by the cannabis resin consumer markets are Morocco, Afghanistan, Lebanon and Nepal/India.

In Afghanistan, the first UNODC/Government cannabis survey in 2009 indicated that Afghanistan is indeed among the significant cannabis resin-producing countries. Moreover, cannabis has become a competitor to opium poppy as a lucrative crop for farmers in the country. The preliminary second survey in 2010 gave no indications of major changes in the levels of cultivation and production compared to 2009.

Cannabis herb seizures increased somewhat – returning to the levels of 2006-2007 following a drop in 2008 - and amounted to some 6,000 mt. North America accounts for the bulk of herb seizures, and seizures in the United States and Mexico increased in 2009. Cannabis resin seizures, on the other hand, decreased from their peak level in 2008. Resin seizures continued their shift away from West and Central Europe – where seizures are at their lowest level for the last 10 years - to the prominent source region of North Africa, where seizures have increased.

**Africa: Distribution* of primary drug of abuse of people entering treatment, 2009**

*Total is greater than 100% due to polydrug use.
Source: UNODC ARQ.



# 1. OVERVIEW OF GLOBAL AND REGIONAL DRUG TRENDS AND PATTERNS

The following chapter first draws together information on the global drug problem in its three main sectoral dimensions – production, trafficking and consumption, including prevalence, drug-related treatment, drug-related infectious diseases and drug deaths. This is followed by a regional overview. More detailed information on specific drug markets (opiates, cocaine, cannabis and amphetamine-type stimulants) can be found in subsequent chapters.

## 2) Global overview

### a) Production

The world's largest illicit drug product – in volume terms – is cannabis, that is, the production of cannabis herb, followed by cannabis resin. The second largest illicit drug production is related to cocaine, followed by heroin. Amphetamine-type stimulants production seems to be at comparable levels with heroin.

**Cannabis – the most widely produced illicit drug worldwide**

Cannabis herb production takes place across all continents and in almost all countries. Indoor production of cannabis, in contrast, is concentrated in developed countries in North America, Europe and Oceania. No reliable trend information of cannabis herb production at the global level is available. Cannabis herb seizures suggest a stable level of cannabis herb production globally.

Cannabis resin production is geographically more limited. Based on information on the origin of cannabis resin, supplied by Member States, this seems to take place primarily in Morocco – mainly producing for the markets in West and Central Europe and North Africa – and Afghanistan – mainly producing for neighbouring countries in South-West Asia and for the local market. Moroccan authorities report that cannabis resin production has declined in recent years. Cannabis production in Afghanistan – based on joint surveys conducted by UNODC and the Government – seems to show a generally stable level in 2010, compared to a year earlier (which was 1,500-3,500 mt in 2009).

**Opium and cocaine production falling...**

Information on production is more readily available when it comes to heroin and cocaine. UNODC and the Governments concerned conduct regular opium and coca surveys in the main opium and coca producing areas. These surveys showed clear declines over the 2007-2009 period (-21% for opium and -13% for coca). The global area under coca cultivation continued to

**Fig. 1: Global opium poppy and coca cultivation, 1990-2010***

* For Mexico (opium poppy) and the Plurinational State of Bolivia (coca), in the absence of data for 2010, the estimates for 2009 were imputed to 2010.

Source: UNODC, Illicit Crop Monitoring Programme (ICMP).

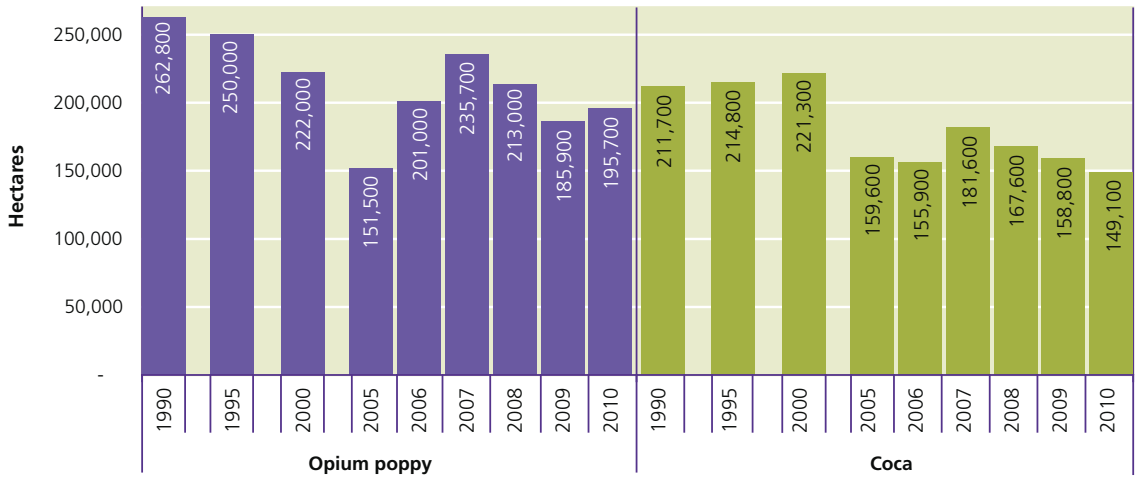
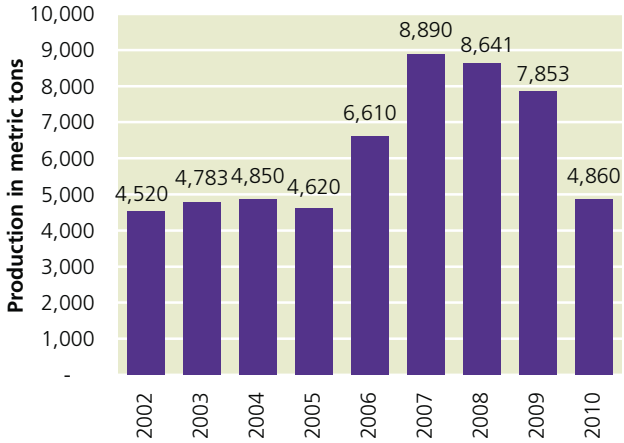


**Fig. 2: Global opium production (mt), 2002-2010**

Source: UNODC, Illicit Crop Monitoring Programme (ICMP).




shrink further to 149,100[1] ha in 2010, thus falling by 18% from 2007 to 2010. The global area under coca cultivation in 2010 was a third lower than in 2000.

The downward trend for the area under opium poppy cultivation did not continue in 2010, mainly due to increases in Myanmar. The global area under opium cultivation in 2010 amounted to some 195,700 ha, which was still some 12% lower than in 2000 and more than a quarter lower than in 1990. Afghanistan continued to account for the bulk of the cultivation with some 123,000 ha (63% of the global total).

In terms of production, opium output declined strongly in 2010 (-38%) due to a massive decline of opium production in Afghanistan (-48%) linked to much lower yields as a consequence of various plant diseases that affected poppy plants. These declines of the yield in Afghanistan more than offset the increases in Myanmar. Nonetheless, Afghanistan remained the world's largest illicit opium-producing country, accounting for 74% of global opium production in 2010, down from 88% in 2009 and 92% in 2007. In parallel, the importance of Myanmar increased, from 5% of total opium production in 2007 to 12% in 2010. Given the declines of opium production in Afghanistan, global opium production declined by 45% between 2007 and 2010.

In parallel, 'potential' heroin manufacture, that is, the heroin that could have been manufactured from the opium produced (less the amounts of opium consumed as is), fell from some 760 mt in 2007 to less than 400 mt in 2010. These calculations, however, do not take into account the stock and inventory of opium. Based on consumption estimates and the amounts seized, it is estimated that the 'heroin available in the market' (prior to seizures) was, on average, around 430 mt per year over the 2002-2008 period and between 460 and 480 mt in 2009.

There has been a significant decline in potential cocaine manufacture in recent years. Between 2007 and 2010, potential cocaine production shrank by about one sixth, reflecting strongly falling cocaine production in Colombia which offset increases identified in both Peru and the Plurinational State of Bolivia.

### … while manufacture of ATS appears to be increasing

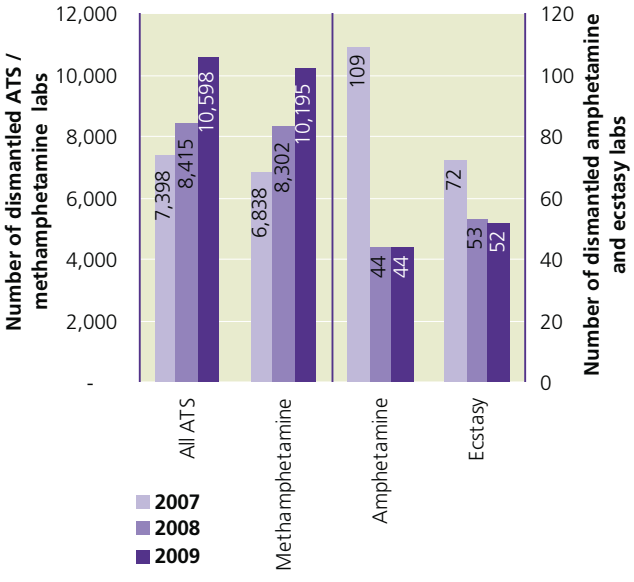
There is no new global ATS production estimate for the year 2009. Available indicators suggest, however, that global manufacture of ATS may have increased in 2009. Seizures of ATS increased by 16% in 2009. The number of ATS laboratory incidents rose by 26% on a year earlier to some 10,600, though this figure was still 46% lower than in the peak year of 2004.

The increase was mainly linked to methamphetamine laboratories dismantled in the United States of America. Global seizures of the main methamphetamine precursor chemicals (ephedrine and pseudoephedrine), taken together, more than doubled in 2009.

In contrast, the number of amphetamine and ecstasy laboratories dismantled globally was lower in 2009 than in 2007 and far lower than in 2004. Seizures of the main amphetamine and ecstasy precursors fell in 2009. The importance of Europe as a key location for the manufacture of ecstasy continued to decline.

**Fig. 3: Global number of dismantled ATS laboratories, 2007-2009**

Source: UNODC ARQ.




1 The figure for the Plurinational State of Bolivia was not available at the time of printing of this report. The total area under cultivation in 2010 is based on 2009 figures for Bolivia and will be revised when the 2010 figure becomes available.

### b) Trafficking

Trafficking flows continue to show distinct patterns:

- Most of the cannabis herb trafficking is intra-regional. In fact, most cannabis is locally produced and locally consumed and thus does not generally leave domestic frontiers.
- Most of the cannabis resin produced in Morocco is destined for consumption in West and Central Europe and North Africa. Cannabis resin produced in Afghanistan is primarily destined for neighbouring regions.
- Cocaine trafficking is both intra-regional and inter-regional. Cocaine produced in the three Andean countries (Colombia, Peru and the Plurinational State of Bolivia) continues to be primarily destined for North America and West and Central Europe. Actual exports out of Andean countries (after deducting seizures and consumption in the Andean region) are estimated at 788 mt. 378 mt are estimated to have left the Andean region for North America in 2009, of which some 200 mt – purity adjusted – were seized in the process. The importance of North America has declined, however, over the last few years. The next main destinations were the countries of West and Central Europe, mostly direct shipments, though some trafficking also takes place via countries in Africa, notably West Africa (around 13% of all trafficking to Europe). About 217 mt of cocaine are thought to have left the Andean region for West and Central Europe, of which almost 100 mt (purity-adjusted) were seized in the process. In addition, a significant share of the cocaine produced is also trafficked to the Southern Cone countries of South America for domestic consumption.
- Heroin trafficking is both intra-regional and inter-regional in nature. Heroin produced in Afghanistan is consumed within the region and/or trafficked to Europe. Some 160 mt of Afghan heroin are estimated to have entered Pakistan in 2009 of which the bulk (some 138 mt) were for final destinations in Europe, South-East Asia, South Asia and Africa. Some 145 mt of heroin is estimated to have been trafficked from Afghanistan to the Islamic Republic of Iran for local consumption and onward trafficking in 2009. Some 75-80 mt of heroin are estimated to have reached West and Central Europe, mostly trafficked via South-East Europe. About 90 mt of Afghan heroin are estimated to have been trafficked to Central Asia, mainly for final destinations in the C.I.S countries, notably the Russian Federation. Heroin manufactured in Myanmar is primarily for the market in other South-East Asian countries. Heroin produced in Mexico and Colombia is mainly destined for the United States and some limited local consumption.
- Trafficking in amphetamines continues to be mainly intra-regional, while the trafficking in amphetamines precursor chemicals continues to be largely inter-regional.
- Ecstasy-trafficking has – traditionally – been intra-regional within Europe (as the origin of most of the ecstasy used to be Europe) and inter-regional for other regions. In recent years, the importance of Europe as a source region has clearly declined. Production has shifted to other regions, notably North America and South-East Asia. Exports from the latter regions to other regions are, however, still very limited.

Seizures of cannabis herb and resin have shown a generally stable trend over the 2007-2009 period. In 2009, cannabis herb seizures increased while resin seizures declined.

Following strong increases over the 2000-2005 period,

**Fig. 4: Global seizures of selected drugs (mt), 2005-2009**

Source: UNODC ARQ. Quantities as reported (not adjusted for purity).

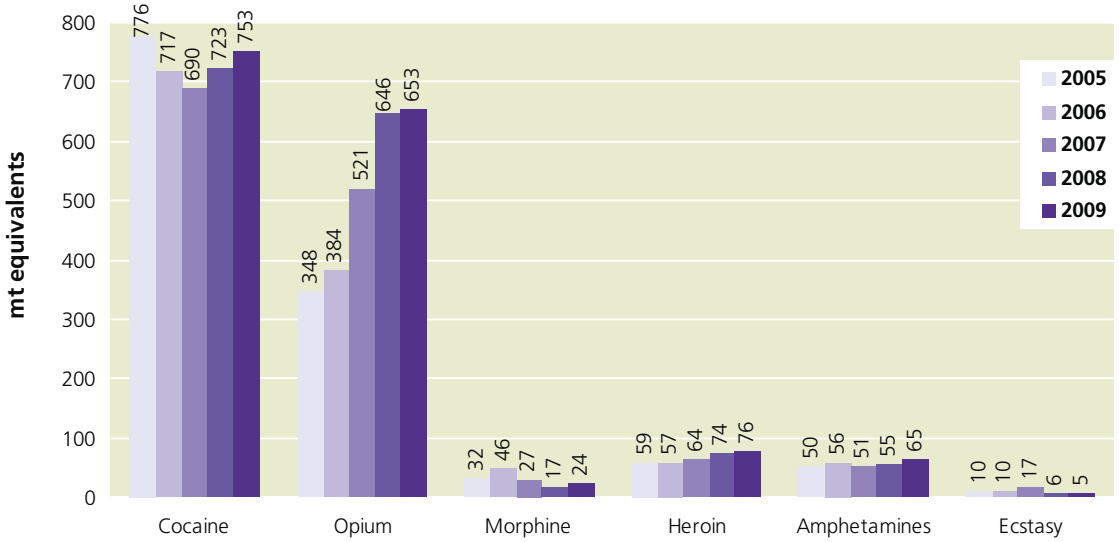
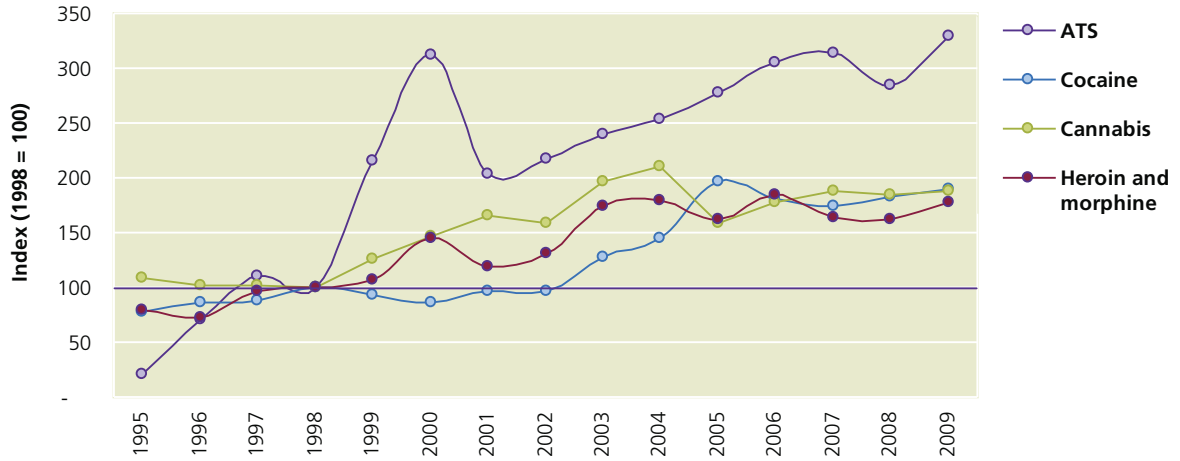


**Fig. 5: Trends in seizures of main drug categories (index: 1998 = 100), 1995-2009**

Source: UNODC ARQ.




global cocaine seizures fluctuated, but did not change significantly between 2005 and 2009. The high cocaine seizures indicate ongoing improvements in the cocaine interception rates, given falling cocaine production at the global level.

Opium seizures almost doubled between 2005 and 2009, while seizures of heroin and morphine, taken together, remained generally stable over the 2005-2009 period. This suggests that the strong increase of opium production in Afghanistan (until 2007) led to increasing opium exports but was not translated into an equally rapid expansion of heroin production at the global level. Similarly, the declines of Afghan opium production after 2007 did not lead to any declines of heroin and morphine trafficking - at least not until 2009.

Seizures of amphetamines increased over the 2005-2009 period, mainly reflecting increases in methamphetamine seizures.[2] Ecstasy seizures, in contrast, declined. Between 2007 and 2009 they fell by more than two thirds, which seems to confirm reports of an ecstasy shortage in several markets.

Long-term seizure trends show that cocaine, heroin and morphine as well as cannabis seizures – in volume terms - almost doubled between 1998 and 2009, while seizures of ATS more than tripled over the same period.

Over the 2005-2009 period, the above-mentioned plant-based drug seizures remained largely stable while ATS seizures, excluding ecstasy, showed a clear increase.

## c) Consumption

### Drug users

Globally, UNODC estimates that between 149 and 272 million people, or, 3.3% to 6.1% of the population aged 15-64 used illicit substances at least once in the previous year. About half that number is estimated to have been current drug users, that is, having used illicit drugs at least once during the past month prior to the survey. Thus, the use of illicit psychoactive substances – for which a global control system is in place - continues to be substantially lower than the use of a legal psychoactive substance such as tobacco.[3] Some 25% of the adult population (15 years and above) are current tobacco smokers, according to the World Health Organization.[4]

**Prevalence rates of illicit drug use have remained generally stable over the last decade**

The overall number of drug users appears to have increased over the last decade, from 180 to some 210 million people (range: 149-272 million). In terms of prevalence rate, the proportion of drug users among the population aged 15-64, however, remained almost unchanged at around 5% (range: 3.4%-6.2%) in 2009/2010.

**Problem drug use remains relatively stable**

Considering only the problem drug users, estimates range from 15 to 39 million people, equivalent to 0.3%-

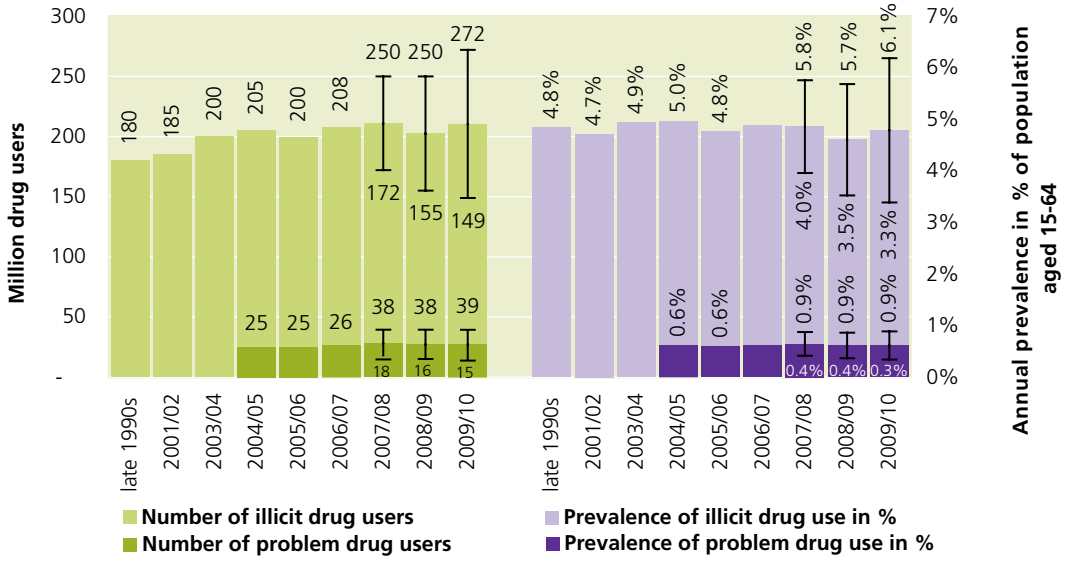
2 Seizures of amphetamines and ecstasy shown in this report differ from those shown in previous reports. Pills have been converted in 'gross weight' terms into amphetamines or ecstasy (instead of the actual amounts of psychoactive substances contained in such pills) as seizures of other substances are also shown in 'gross weight' terms, and not purity-adjusted. The volume of amphetamines and ecstasy, shown in kilogram equivalents, is thus higher than in previous reports.

3 The WHO places tobacco in the group of psychoactive substances (World Health Organization, *Neuroscience of psychoactive substance use and dependence*, Geneva, 2004.)

4 World Health Organization, *World Health Statistics 2010*. Results were derived from the WHO report on the global tobacco epidemic, 2009. Data on male use of tobacco products (41.1% of the male population aged 15 and above) and female use of tobacco products (8.9% of the female population aged 15 and above) are considered by WHO to be the best estimate for the year 2006.

**Fig. 6: Annual prevalence of illicit drug use, late 1990s-2009/2010**

Source: UNODC estimates based on UNODC ARQ and other official sources.

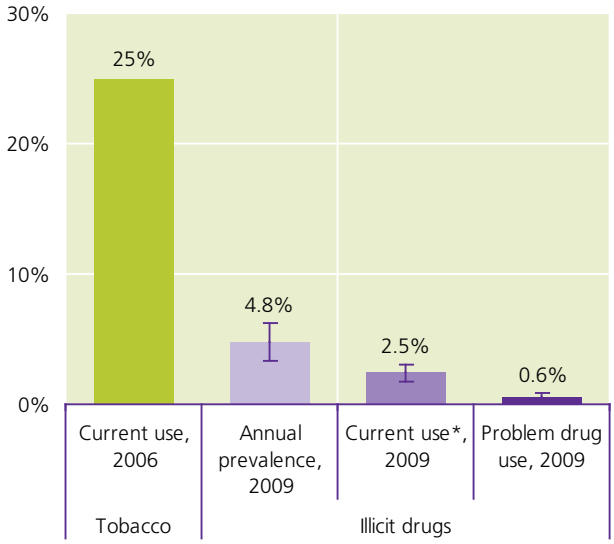



0.9% of the population aged 15-64. While there is no established definition of problem drug users, they are usually defined by countries as those that regularly use illicit substances and can be considered dependent, and those who inject drugs. The European Monitoring Centre for Drugs and Drug Addiction (EMCDDA) defines problem drug use as "injecting drug use or long duration/regular use of opioids, cocaine and/or amphetamines."[5] A comparison of problem drug use since 2004/2005 shows a fairly stable trend.

**Fig. 7: Prevalence of tobacco and illicit drug use among the adult population, in %**

* The calculation of monthly use was based on information from 35 countries for which ratios of past month to annual drug use levels were calculated. In case no total drug use figures were available, the ratio of past month cannabis to past year cannabis use was used as a proxy. The unweighted average showed that past-month prevalence was equivalent to 52% of annual prevalence. Applying this to a prevalence rate of 4.8% results in a past-month prevalence estimate of around 2.5%.

Sources: UNODC estimates for illicit drugs based on UNODC ARQ; tobacco statistics: WHO, World Health Statistics 2010.




5 EMCDDA (2008), *Guidelines for Estimating the Incidence of Problem Drug Use*, Lisbon.

**Table 1: Estimated number of past-year illicit drug users aged 15-64, by region and subregion, 2009**

| | Cannabis users in the past year | | Opioid users in the past year | | Opiate users in the past year | | Cocaine users in the past year | | Amphetamines-group users in the past year | | Ecstasy users in the past year | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| **Region/subregion** | **Number (lower)** | **Number (upper)** | **Number (lower)** | **Number (upper)** | **Number (lower)** | **Number (upper)** | **Number (lower)** | **Number (upper)** | **Number (lower)** | **Number (upper)** | **Number (lower)** | **Number (upper)** |
| **Africa** | **21,630,000** | **59,140,000** | **940,000** | **3,750,000** | **890,000** | **3,210,000** | **940,000** | **4,420,000** | **1,180,000** | **8,150,000** | **350,000** | **1,930,000** |
| Eastern Africa | 2,340,000 | 8,870,000 | 150,000 | 1,790,000 | 140,000 | 1,310,000 | *estimate cannot be calculated* | | *estimate cannot be calculated* | | *estimate cannot be calculated* | |
| North Africa | 4,780,000 | 10,620,000 | 130,000 | 550,000 | 130,000 | 550,000 | 30,000 | 50,000 | *estimate cannot be calculated* | | *estimate cannot be calculated* | |
| Southern Africa | 3,130,000 | 7,810,000 | 240,000 | 320,000 | 210,000 | 280,000 | 270,000 | 730,000 | 280,000 | 780,000 | 190,000 | 300,000 |
| West and Central Africa | 11,380,000 | 31,840,000 | 420,000 | 1,090,000 | 410,000 | 1,070,000 | 550,000 | 2,300,000 | *estimate cannot be calculated* | | *estimate cannot be calculated* | |
| **Americas** | **40,950,000** | **42,860,000** | **12,960,000** | **14,590,000** | **1,180,000** | **1,910,000** | **8,280,000** | **8,650,000** | **5,170,000** | **6,210,000** | **3,770,000** | **4,020,000** |
| The Caribbean | 440,000 | 2,060,000 | 60,000 | 100,000 | 50,000 | 80,000 | 110,000 | 330,000 | 30,000 | 530,000 | 20,000 | 240,000 |
| Central America | 550,000 | 610,000 | 110,000 | 230,000 | 20,000 | 20,000 | 120,000 | 140,000 | 320,000 | 320,000 | 20,000 | 30,000 |
| North America | 32,520,000 | 32,520,000 | 11,950,000 | 13,320,000 | 1,000,000 | 1,630,000 | 5,690,000 | 5,690,000 | 3,460,000 | 3,460,000 | 3,210,000 | 3,210,000 |
| South America | 7,410,000 | 7,630,000 | 850,000 | 940,000 | 110,000 | 170,000 | 2,360,000 | 2,480,000 | 1,340,000 | 1,890,000 | 520,000 | 530,000 |
| **Asia** | **31,340,000** | **67,970,000** | **6,760,000** | **12,520,000** | **6,440,000** | **12,020,000** | **400,000** | **2,300,000** | **4,330,000** | **38,230,000** | **2,390,000** | **17,330,000** |
| Central Asia | 1,950,000 | 2,260,000 | 350,000 | 350,000 | 320,000 | 320,000 | *estimate cannot be calculated* | | *estimate cannot be calculated* | | *estimate cannot be calculated* | |
| East/South-East Asia | 5,440,000 | 24,160,000 | 2,870,000 | 5,050,000 | 2,800,000 | 4,990,000 | 400,000 | 1,070,000 | 3,480,000 | 20,870,000 | 1,480,000 | 6,920,000 |
| Near and Middle East | 6,060,000 | 12,360,000 | 2,120,000 | 3,730,000 | 1,940,000 | 3,540,000 | 40,000 | 650,000 | 460,000 | 4,330,000 | *estimate cannot be calculated* | |
| South Asia | 16,830,000 | 28,110,000 | 1,420,000 | 3,380,000 | 1,380,000 | 3,170,000 | *estimate cannot be calculated* | | *estimate cannot be calculated* | | *estimate cannot be calculated* | |
| **Europe** | **28,730,000** | **29,250,000** | **3,270,000** | **3,730,000** | **3,110,000*** | **3,470,000*** | **4,300,000** | **4,750,000** | **2,540,000** | **3,180,000** | **3,680,000** | **3,920,000** |
| East/South-East Europe | 5,980,000 | 6,380,000 | 2,100,000 | 2,330,000 | 2,100,000 | 2,300,000 | 310,000 | 660,000 | 510,000 | 1,050,000 | 1,190,000 | 1,370,000 |
| West/Central Europe | 22,750,000 | 22,860,000 | 1,170,000 | 1,400,000 | 1,010,000 | 1,170,000 | 3,990,000 | 4,090,000 | 2,030,000 | 2,120,000 | 2,490,000 | 2,560,000 |
| **Oceania** | **2,160,000** | **3,460,000** | **100,000** | **190,000** | **40,000** | **50,000** | **330,000** | **400,000** | **470,000** | **640,000** | **850,000** | **920,000** |
| **GLOBAL ESTIMATE** | **124,810,000** | **202,680,000** | **24,030,000** | **34,780,000** | **11,660,000** | **20,660,000** | **14,250,000** | **20,520,000** | **13,690,000** | **56,410,000** | **11,080,000** | **28,090,000** |

* Opiate estimates for Europe - where countries reported only opioid estimates - were derived by using the distribution of opiate users within the overall number of opioid users in treatment.

**Cannabis remains the most widely used illicit drug, ahead of ATS, opioids and cocaine**

A breakdown of illicit drug use shows that cannabis remains by far the most widely used illicit substance. The number of cannabis users was estimated between 125 and 203 million in 2009, equivalent to a prevalence rate of 2.8%-4.5% of the population aged 15-64.

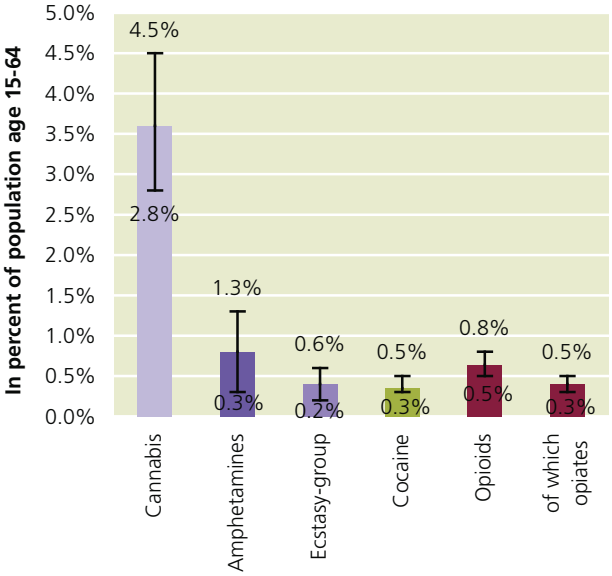
The second most widely used group of substances seems to be the ATS (including methamphetamine, amphetamine, methcathinone and ecstasy). Within ATS, the 'amphetamines' (methamphetamine, amphetamine and methcathinone) is still the most prominent group of substances, used by 14-56 million people in 2009, equivalent to a prevalence rate ranging from 0.3% to 1.3% of the population aged 15-64. The broad ranges are mainly due to major uncertainties regarding the extent of amphetamines consumption in the world's two most populous countries, China and India, as well as uncertainties regarding the spread of amphetamines use in Africa. The same applies to the broad ranges for ecstasy use (11-28 million people, or a prevalence rate ranging from 0.2-0.6% of the population aged 15-64).

The third most widely used group of substances appears to be the opioids, with estimates ranging from 24 to 35 million people, equivalent to a prevalence rate of 0.5%-0.8% of the population aged 15-64. The most problematic opioids[6] at the global level, as reflected in treatment demand, are the opiates, that is, the various psychoactive substances derived from the opium poppy plant, notably opium and heroin. About 12-21 million people are estimated to have consumed illicit opiates in 2009, equivalent to a prevalence rate ranging from 0.3% to 0.5%. The most problematic opiate in the world's illegal drug markets continues to be heroin. UNODC estimates that there were some 12-14 million heroin users in the world in 2009. In recent years, problem drug use has also been related to the non-medical use of various prescription opioids, such as oxycodone, fentanyl or pethidine.

Cocaine appears to rank fourth in terms of global prevalence, with estimates ranging from 14 to 21 million people,[7] equivalent to an annual prevalence rate ranging from 0.3%-0.5% of the population aged 15-64. The global use of cocaine seems to be less widespread than the use of opioids, similar to the use of opiates, and more widespread than the use of heroin.

**Fig. 8: Annual prevalence of drug use at the global level, in percent of the population aged 15-64, 2009/2010**

Source: UNODC estimates based on ARQ and other official data.




**Generally stable trends for use of main drug categories at the global level…**

The total number of users for the individual drug categories mentioned above does not appear to have changed significantly over the last few years. All changes occurred well within the existing ranges. If there has been a general trend, it has been – for most drugs - towards a widening of existing ranges (that is, increases of the upper level and declines of the lower level of the estimates), reflecting greater uncertainty about the actual number of drug users. Some of this is a result of statistical good practice, whereby prevalence estimates older than 10 years are now not being used to estimate prevalence. Since a large number of countries in Africa and Asia do not have recent data on drug use, the levels of uncertainty increase.

Using a five-point scale from large decrease to large increase, most government experts perceived a stabilization of drug use in 2009, as reported through the ARQ. This applied to cannabis, amphetamines, ecstasy, cocaine and the opioids, including heroin.

**… while new drugs are emerging**

The generally positive trends for the 'traditional' drugs, however, do not apply to all illicit drug markets. These markets continue to evolve and every year new products, not under control, are manufactured to supply an increasingly diversified demand for psychoactive substances.

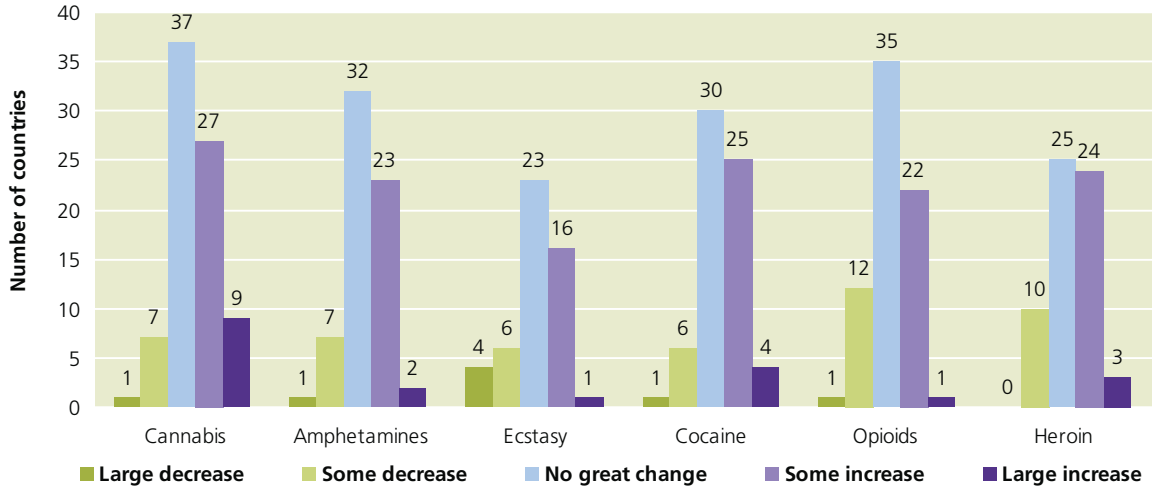
Synthetic drugs are the fastest evolving substances in this

6 Opioid is a generic term applied to alkaloids from opium poppy, their synthetic analogues, and compounds synthesized in the body. In general, a distinction is made between 'opiates' (that is, the various products derived from the opium poppy plant) and synthetic opioids. More detail is available in the chapter on the opium/heroin market.

7 Taking qualitative information into account (regarding Africa and Asia), the best estimate is probably less than 16 million.

**Fig. 9: Government experts' perceptions of trends in illicit drug use,* 2009**

* based on information from 83 countries and territories.
Source: UNODC ARQ.




context, but products based on cannabis, cocaine and opiates are also becoming more diversified. In addition, reports of drug-adulterant combinations involving pharmacologically active substances are increasing.

New psychoactive substances are supplied to the illicit market as a response to a number of factors: i) the use of different chemicals/precursors to evade an established law enforcement pattern; ii) the use of substances which are not nationally or internationally regulated and controlled; iii) the replacement of substances whose supply is decreasing; and iv) the offer of products which can satisfy the evolving requirements of users.

The fact that new psychoactive substances are emerging on the drug markets is not a new development. More recently, the market for new substances detected in seizures has been expanding quickly. In Europe, one of the most 'innovative' regions when it comes to new drugs, 110 new psychoactive substances were reported to the European Monitoring Centre for Drugs and Drug Addiction (EMCDDA) and Europol between 1997 and 2009. In 2010, more than 40 new substances were notified in the European early-warning system, compared to 24 in 2009.[8] These included piperazines, cathinones, synthetic cannabinoids, tryptamines and phenethylamines.

In the last few years, a number of new substances entered the illicit market imitating either the pharmacological properties or chemical structures of existing controlled substances such as amphetamines or ecstasy. Some of these contain unregulated substances and are known as 'legal highs'. The piperazines and the cathinones, for example mephedrone, are examples of unregulated substances which recently entered the markets.

8 EMCDDA, *2010 Annual Report.*

### Piperazines

Piperazine was initially developed as an anthelminthic used in the treatment of parasitic worms. Its best known derivative, benzylpiperazine (BZP), was further developed as an antidepressant but was not marketed for this purpose because it produced similar effects to d-amphetamine, though less potent. These amphetamine-like effects include a sense of euphoria and stimulant properties. Piperazine derivatives such as BZP and 3-trifluoromethylphenylpiperazine (TFMPP) are often sold as 'ecstasy' to overcome the shortage of MDMA.

### Mephedrone

Mephedrone, also known as 4-methylmethcathinone (4-MMC), is chemically related to the internationally controlled substance cathinone, one of the psychoactive substances in the khat plant. Mephedrone was introduced to the drug markets recently and is often touted as a legal alternative to amphetamine or cocaine with increasing reports emanating from Europe, North America and Australia. Although mephedrone and analogues such as naphyrone produce effects similar to those of some internationally controlled substances, there are often no legislative restrictions on their manufacture and distribution due to the chemical differences.

### 'Spice'

The cannabis market has diversified with the introduction of synthetic cannabinoids which emulate the effect of using cannabis. Since 2008, several synthetic cannabinoids ('spice') have been detected in herbal smoking blends. These products typically contain about 3 grams of finely cut plant material to which one or more synthetic cannabinoids have been added. As they do not contain products that are under international control,

these products have often been marketed as 'legal alternatives' to cannabis. Little is known about the pharmacology and toxicology of these compounds, and it is believed that a number of these substances may have a higher addictive potential than cannabis. In response, a number of countries have placed 'spice' and similar products under control, leading to a decrease in the extent of the problem.

**Drug-adulterant combinations: Cocaine adulterated with levamisole**

Street dealers have traditionally 'cut' cocaine with diluents such as lactose to increase profits. Recently, there have been reports of the use of more pharmacologically active adulterants such as atropine, phenacetin and methyphenidate. The presence of some of these adulterants may serve to increase the desired effects of the illicit substances or even reduce or eliminate some of its adverse effects. Data from the Netherlands (confirmed by data from several other European and North American countries) show that in 2008 and 2009, an increased number of cocaine samples contained levamisole, an anthelminthic, effective in infections with the common roundworm.

**Difficulties in controlling new substances…**

The large number of new substances that enter the market worldwide is posing a number of challenges to public health and law enforcement systems which require improved monitoring and a coordinated response across countries and regions. While some countries have tried to address the problem via the application of 'emergency scheduling' mechanisms, others have started to experiment with 'generic scheduling mechanisms' which automatically also put analogue substances under control. This is, however, difficult to implement in many legal systems. Other countries have started to bring the rapidly growing number of new substances under immediate control via the 'Medicines Act' (instead of the 'Narcotics Act'), which typically requires that medicinal products need to be properly tested before they can be sold to the general public.

The precursor chemicals for synthetic drugs also continue to change in response to stricter controls. For example, in some countries, traffickers have started to use norephedrine as a precursor for the manufacture of methamphetamine, instead of ephedrine and pseudoephedrine, which have been under increasing governmental scrutiny.

**… and problems related to the non-medical use of prescription drugs increase**

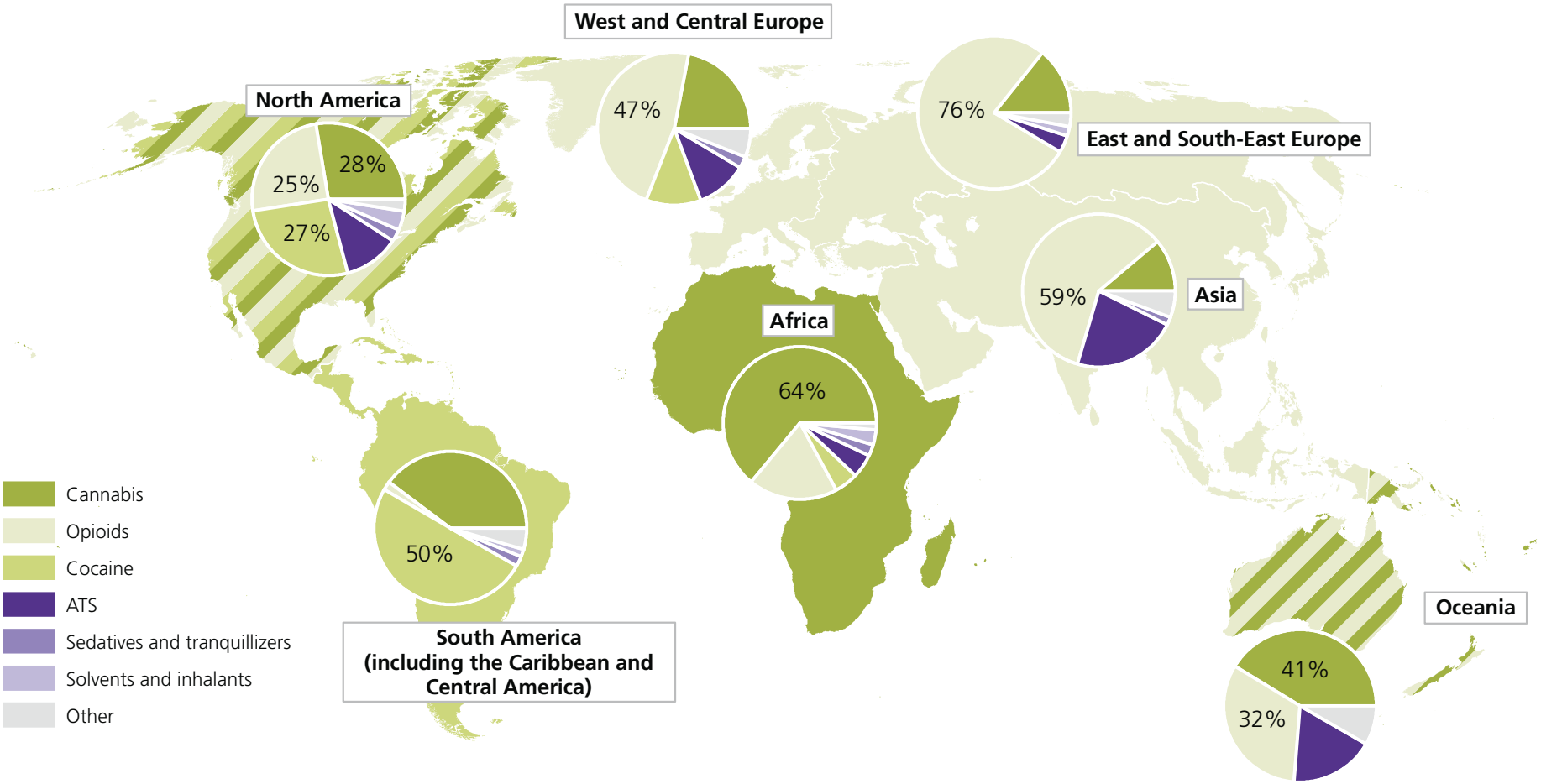
While there are stable trends for traditionally used drugs, and in major consumption regions even some decline for heroin and cocaine, there seems to be an increase in the non-medical use of prescription drugs in a number of countries.

Non-medical use of prescription drugs, such as a number of synthetic opioids, tranquillizers and sedatives or prescription stimulants is reportedly a growing health problem in a number of countries. In the United States, emergency room visits related to the non-medical use of prescription drugs have started to exceed the numbers related to the use of illicit drugs. Prescription drugs may replace certain illicit drugs since their use is perceived to be less harmful, being prescribed by physicians. They are legal, cheaper than illicit drugs and their use is more socially acceptable. Another factor for the growing popularity of prescription drugs is that patients who have been prescribed medications share or sell them to family members, friends or others who approach them. Non-medical use of prescription drugs is a common phenomenon among young adults, women, elderly patients and health care professionals. Another issue of concern is that the growing numbers of polydrug users among illicit drug users also use prescription drugs in combination with their illicit drug of choice to enhance the effects of the main drug.

## Treatment demand

The need to enter treatment reflects problematic drug use, associated with adverse effects on the health of individuals. In most regions of the world, there continue to be clear regional patterns regarding the main problem drug types. In Europe and Asia, opioids (basically opiates, and in particular heroin) are dominant for problematic use. In some of the Asian countries, ATS - notably methamphetamine in South-East Asia and Captagon (that is, amphetamine, often mixed with caffeine) on the Arabian peninsula – has emerged as the most problematic drug group. ATS in treatment demand is also widespread in Oceania, North America and West and Central Europe. The problematic use of cannabis makes a significant contribution to treatment demand across all regions but is particularly prevalent in Africa. In South America (including the Caribbean and Central America), cocaine is the primary drug responsible for drug treatment. In North America, a more diversified pattern has developed where a single, dominant drug type does not emerge. Cannabis, opioids and cocaine are all equally represented. In Oceania, treatment is linked primarily to cannabis, followed by opioids.

## Main problem drugs as reflected in treatment demand, by region, 2009 (or latest year available)




Notes: Percentages are unweighted means of treatment demand from reporting countries.
Number of countries reporting data: Africa (26); North America (3); South America including the Caribbean and Central America (26); Asia (42); East and Southeast Europe (11), West and Central Europe (33), Oceania (3).
Data generally account for primary drug use. Polydrug use may increase totals beyond 100%.
The boundaries and names shown and the designations used on this map do not imply official endorsement or acceptance by the United Nations.
Sources: UNODC, Annual Reports Questionnaire Data/DELTA and National Government Reports

**Opiates are the most harmful drugs as reflected in treatment demand**

One way of 'measuring' the potential harmfulness of drugs is to compare the number of people having to undergo treatment with the total number of persons using the drug in question.

The latest US data[9] show that, on average, three persons per 100 annual drug users had to undergo treatment for drug use in 2008. Opiates use is far more problematic than the use of other illicit drugs. The rate for heroin is much higher than the average, at 22 for 100 users, that is, more than one out of five users enters treatment. Though treatment demand for prescription opioids has been rising far stronger in the USA (460% between 1998 and 2008) than heroin-related treatment demand (8%), only 1 out of 100 people who misuse prescription opioids enter treatment. The corresponding rates amounted to between four and five per 100 users for cocaine and amphetamines ('stimulants') and one per 100 users for cannabis in 2008. Above average treatment demand still exists for crack-cocaine users (14 per 100 users), clearly exceeding overall cocaine-related treatment demand, and for methamphetamine users (14 per 100 users), clearly exceeding overall amphetamines-related treatment demand. For users of tranquillizers and sedatives, the rates are between 0.6 and 0.7 per 100 users.

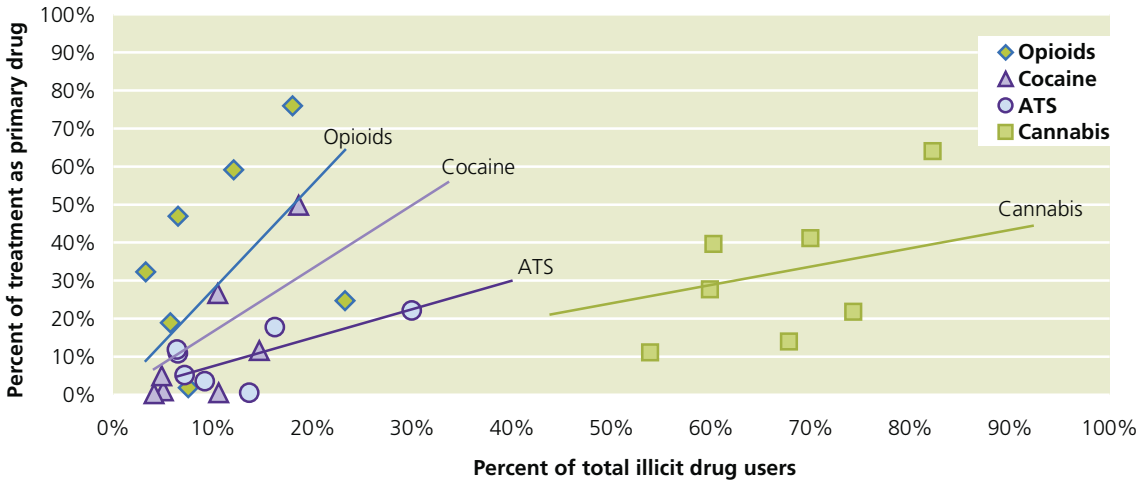
Based on the number of past-year users in European countries and the reported numbers in treatment for the various drug types, data suggest that between one in every four or five opioid users end up in treatment. These rates are comparable to those found in the USA, as most of the reported opioid use in Europe is linked to the abuse of opiates, notably heroin. For cocaine and ATS, available data suggest that around one in every 100 users in Europe end up in treatment, that is, less than in the USA. This would suggest that cocaine and stimulant use in Europe is still not as problematic as in the USA because crack-cocaine and methamphetamine, the two most problematic substances in these categories, are still small in Europe. While treatment related to cannabis use increased in Europe over the last decade, this is still far less common than in the USA. Around one in every 230 cannabis users underwent treatment in Europe, compared to one in every 80 in the USA. Differences in treatment policy (notably with regard to compulsory cannabis-related treatment schemes) and recording practices may explain some of the differences. Consequently, opioid/opiate users in Europe are 20 times more likely to end up in treatment compared to cocaine and ATS users, and 50 times more likely compared to cannabis users. In the USA, the likelihood for opiate users to end up in treatment is about five times higher than for cocaine and stimulant users and 20 times higher than for cannabis users.[10]

The prevalence of opiate use, compared to other drugs, is relatively low. However, opiates dominate treatment with a disproportionately high percentage of demand. This reflects the considerable harm associated with opi-

**Fig. 10: Comparison of drug types between treatment demand and relative number of users,* by region****

* Percentage of illicit drug users does not consider polydrug use. ** Seven regions are represented: Africa, Asia, East and South-East Asia, North America, Oceania, South America, West and Central Europe. Each geometric shape corresponds to one region.

Source: UNODC ARQ; Government reports.




9 SAMHSA, *Results from the 2009 National Survey on Drug Use and Health: Detailed Tables*; SAMHSA, Treatment Episode Data Set (TEDS), 1998-2008; estimates on the number of opioid and opiate users have been derived from ONDCP estimates on the number of heroin users and SAMHSA estimates on the number of prescription opioid users.

10 This analysis is based on macro data and does not take into account polydrug use.

ates (notably heroin) and the high probability that opiate users will require some form of treatment intervention. As for most regions (except North and South America), the opiate and opioid figures are still almost identical.

With the high prevalence rates of ATS in Asia, especially in East and South-East Asia, there remain concerns over an unmet demand for treatment of ATS use there. With most of the treatment services aimed at meeting the needs of opioid and cannabis users, ATS treatment services are relatively scarce and under-resourced.[11]

The vast majority of illicit drug users consume cannabis, and although the harm associated with its use is relatively small in comparison with the opiates, cannabis contributes in no small way to treatment demand. The level of treatment demand for cannabis coincides with regional prevalence rates, with the highest levels of consumption in Oceania and Africa, followed by the Americas, Europe and Asia.

## Infectious diseases among injecting drug users

A systematic review[12] conducted for the Reference Group to the UN on HIV and Injecting Drug Use estimated that there are approximately 15.9 million (range 11.0-21.2 million) injecting drug users worldwide, with the largest numbers in China, the United States and the Russian Federation. These figures suggest that close to 60% of all problem drug users worldwide inject drugs, and that injecting drug users account for about 7.5% of all drug users worldwide.

Injecting drug use is an extreme form of illicit drug use with serious health implications and costs for the individual and the community. Risky injecting and sexual behaviour among drug users becomes a major public health concern because of the high risk for the transmission of blood-borne infections such as HIV, Hepatitis C and B, especially among the marginalized and most at risk populations.

**Around one in five injecting drug users is HIV positive …**

Based on information compiled by UNODC, the global average prevalence of HIV among injecting drug users is estimated at 17.9%, or equivalently, 2.8 million people who inject drugs are living with HIV. This is consistent with the estimate of 3.0 million (range 0.8-6.6 million) presented by the Reference Group to the UN on HIV and injecting drug use.[13] High levels of HIV infections are, in general, found among marginalized populations of drug users as well as among those in prison settings.

According to the Reference Group, there are large geographical variations in the prevalence of HIV among injecting drug users, with the largest numbers and highest rates in Latin America, East Europe, and East and South-East Asia. Combined, these regions account for 73% of the global number of injecting drug users living with HIV. In some countries, the prevalence of HIV among injecting drug users is extremely high, such as in Estonia (72%), Argentina (50%) and Brazil (48%).

**… and around half of all injecting drug users are infected with the Hepatitis C virus (HCV)**

Infections with viral hepatitis C and B also pose significant public health concerns giving rise to considerable morbidity and mortality among drug users.

The hepatitis C virus (HCV) affects around 130-170 million people worldwide[14] (representing 2.2%-3.0% of the global population) and is a major cause of liver disease with the potential for considerable ill health effects and premature death. In developed countries, injecting drug use is the main route for the transmission of HCV.[15] Although HCV and HIV have different viral properties and clinical outcomes, they share parallel risks, and their epidemic follows a similar path. HCV is five times more widespread worldwide than HIV, however, because it is more infectious and has probably been present for longer in human populations.

The prevalence of HCV among injecting drug users at the global level is high, at 50.3% (45.2%-55.3%), with 13 out of 51 countries reporting prevalence rates greater than 70%. Africa and Oceania have the highest rates at 73.2% and 63.8% respectively, although the number of countries reporting rates from these two regions is very low. Applying the estimated global average prevalence suggests that there are 8.0 (7.2-8.8) million injecting drug users worldwide who are also infected with HCV. As with HIV, higher levels of HCV infections are found among marginalized populations of drug users and those in prison settings.

Most of the information reported to UNODC comes from Europe where the average level of infection of HCV among injecting drug users is 47.0%, but eight out of the 29 countries have prevalence rates above 60% and five over 70%.

11 UNODC, *Patterns and Trends of Amphetamine Type Stimulants and Other Drugs Asia and the Pacific*, Global SMART Programme, 2010.

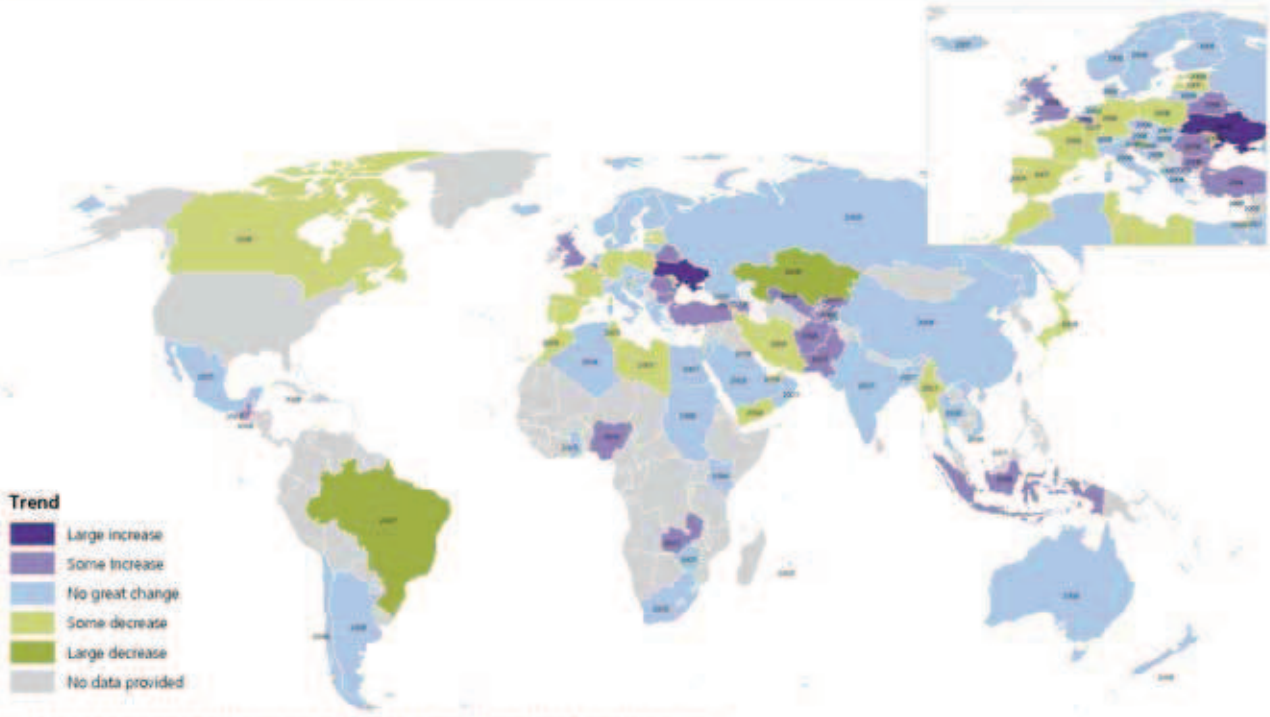
12 Mathers BM, Degenhardt L, Phillips B, et al., (November 2008), 'Global epidemiology of injecting drug use and HIV among people who inject drugs: a systematic review,' *Lancet* 372 (9651): 1733–45.

13 Ibid.

14 Daniel Lavanchy. The global burden of hepatitis C, *Liver International,* 2009; 29(s1): 74–81.

15 Ibid, and Colin W Shepard, Lyn Finelli, Miriam J Alter. Global epidemiology of hepatitis C virus infection. *Lancet Infect Dis* 2005;5: 558–67.

**Map 1: Reported trend in the prevalence of HIV infection among drug injectors, 2009 (or latest year available**




Note: The boundaries and names shown and the designations used on this map do not imply official endorsement or acceptance by the United Nations.
Dotted line represents approximately the Line of Control in Jammu and Kashmir agreed upon by India and Pakistan. The final status of Jammu and Kashmir has not yet been agreed upon by the parties.

**Table 2: Hepatitis B and C prevalence among injecting drug users**

Source: UNODC ARQ and UN Reference Group for HIV among injecting drug users.

| Region | HCV among injecting drug users | | HBV among injecting drug users | |
|---|---|---|---|---|
| | Number of countries* | Prevalence (%)** | Number of countries* | Prevalence (%)** |
| Africa | 2 | 73.2 | 1 | 9.0 |
| Americas | 4 | 58.4 | 2 | 5.9 |
| Asia | 10 | 50.6 | 9 | 22.0 |
| Europe | 28 | 47.0 | 26 | 24.4 |
| Oceania | 2 | 63.8 | 1 | 18.0 |
| **Global** | **46** | **50.3** | **39** | **22.0** |

* Number of countries used in prevalence calculation (requires both an estimate of number of injecting drug users and country-level prevalence). The total number of countries reporting prevalence is 51 (HCV) and 44 (HBV)

** Country-level prevalence weighted by number of injecting drug users.

**...and more than 20% of injecting drug users are infected with the Hepatitis B virus (HBV)**

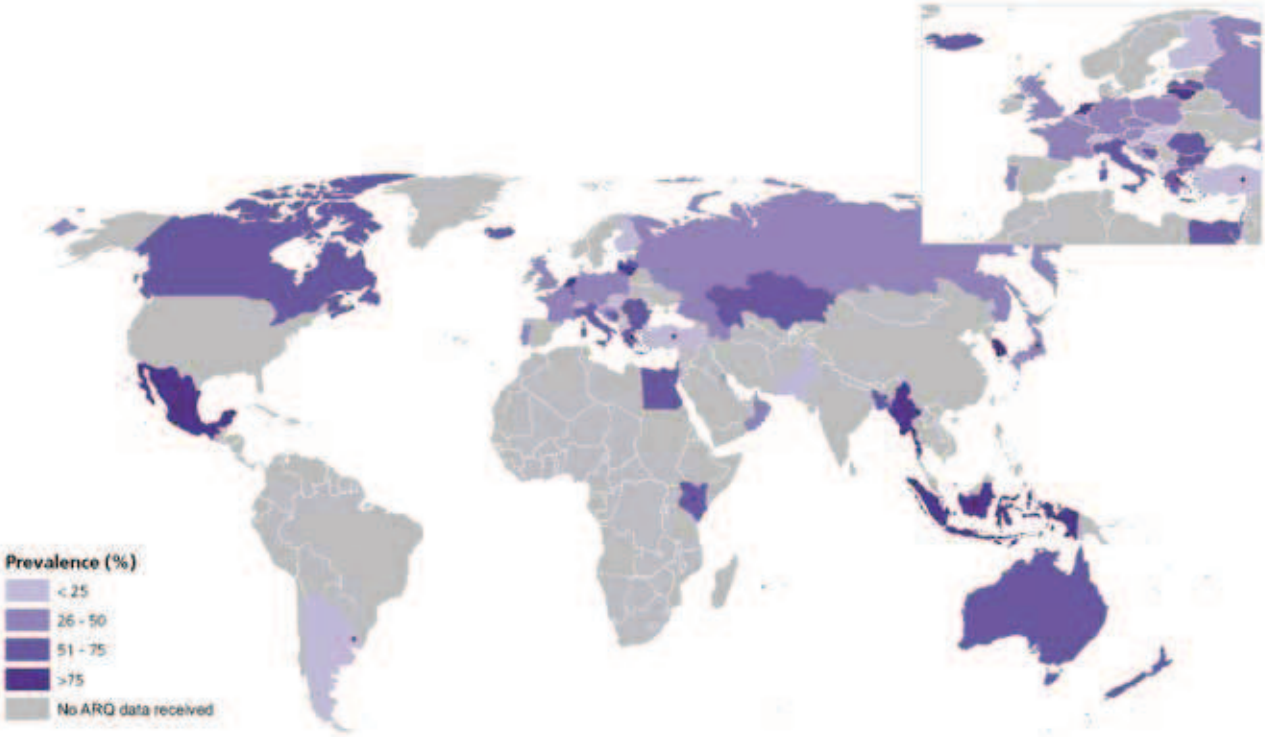
There are an estimated 350 million people worldwide chronically infected with the hepatitis B virus (HBV),[16] a disease that is associated with severe health consequences such as cirrhosis and liver cancer.

It is estimated that 22.0% of injecting drug users are infected with HBV globally. This translates into an estimated 3.5 million HBV-infected injecting drug users. Europe has the highest rate at 24.4% (based on information from 26 countries).

In order to prevent all new HIV infections among people who use drugs by 2015, as outlined in the joint programme strategy of UNAIDS for 2011 – 2015, there is therefore a need for comprehensive, evidence-informed and human-rights-based programmes to be accessible to all people who inject drugs.

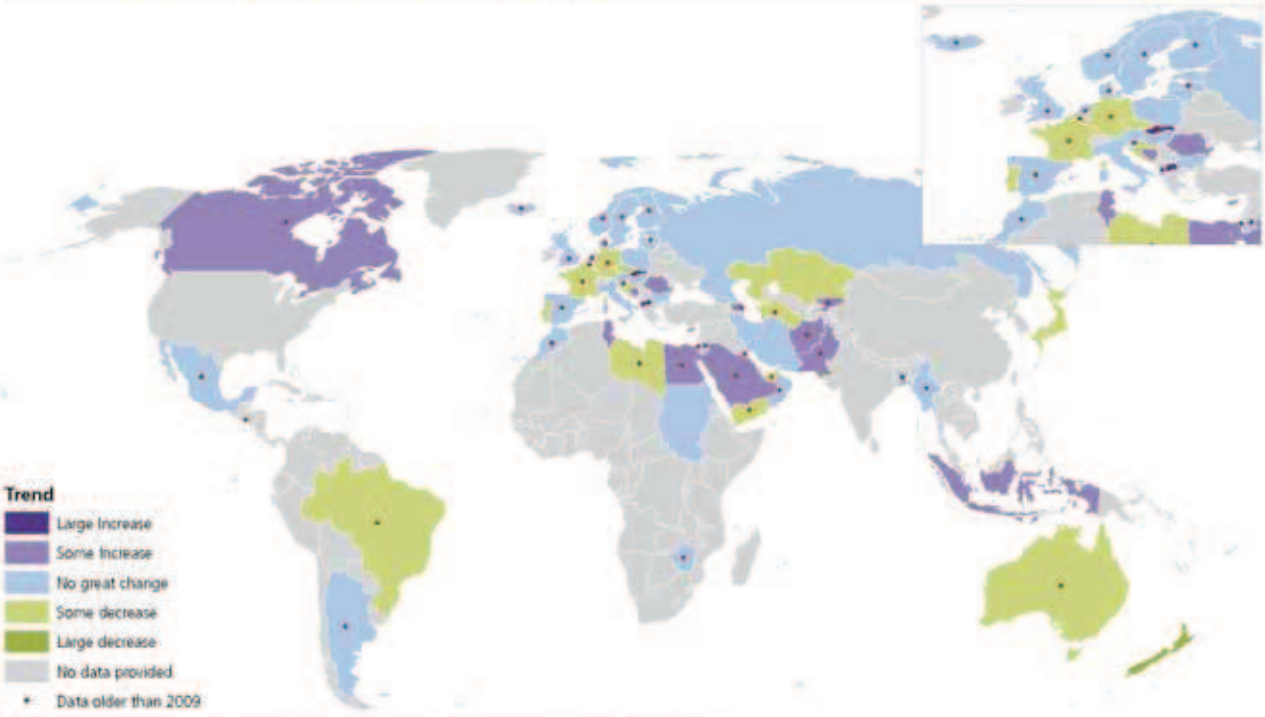
16 Custer B, Sullivan SD, Hazlet TK, Iloeje U, Veenstra DL, Kowdley KV. Global epidemiology of hepatitis B virus, *Journal Clinical Gastroenterology*. 2004 Nov-Dec;38(10 Suppl 3):S158-68.

## Map 2: Prevalence of Hepatitis C among injecting drug users, 2009 (or latest year available)




Note: The boundaries and names shown and the designations used on this map do not imply official endorsement or acceptance by the United Nations.
Dotted line represents approximately the Line of Control in Jammu and Kashmir agreed upon by India and Pakistan. The final status of Jammu and Kashmir has not yet been agreed upon by the parties.

## Map 3: Reported trend in the prevalence of Hepatitis C infection among drug injectors, 2009 (or latest year available back to 2005)




Note: The boundaries and names shown and the designations used on this map do not imply official endorsement or acceptance by the United Nations.
Dotted line represents approximately the Line of Control in Jammu and Kashmir agreed upon by India and Pakistan. The final status of Jammu and Kashmir has not yet been agreed upon by the parties.

## Deaths associated with illicit drug use

Deaths related to or associated with the use of illicit drugs may include: fatal drug overdoses; suicide; accidents (such as motor vehicle accidents) while under the influence of illicit drugs; deaths among injecting and other drug users from infectious diseases such as HIV/AIDS and Hepatitis C transmitted through the use of contaminated needles; or from medical conditions (such as organ failure) associated with long-term drug use. The information on the number of drug-related deaths reported to UNODC is often based on different criteria of classification of diseases and may include some or all of these categories.

Data on drug-related deaths is a measure that provides information on the most extreme consequences and the health impact of drug use in the community. This can also provide essential information on risky patterns of drug use, the risk attributed to certain drugs or combinations of substances, the level of risk among the most vulnerable population groups, and to monitor the prevalence of risks attributed to certain drugs.[17] Toxicological examinations to identify the cause of death are not standard in most countries and even if such examinations are undertaken, they can often only confirm the presence of a psychoactive substance in the dead body but do not provide information on a causal relationship. Thus, drug deaths related to cannabis are often reported, though in most cases, the presence of this drug did not cause the death. Information on drug-related deaths, compiled from different countries using different classification systems, must be treated with caution.

Globally, different estimates of drug-related deaths have been published by the World Health Organization in the past. These estimates include:

- 194,000 (uncertainty interval 113,494 – 276,584) drug-related deaths for the year 2000, based on estimates of the following four causes: AIDS, opioid overdose, suicide among opioid users and trauma.[18]
- 197,400 (uncertainty interval 101,751 – 322,456) for the year 2000, based on all-cause mortality from cohort studies and attributable fractions.[19]
- 245,000 deaths attributed to illicit drug use in 2004, which includes deaths related to heroin and cocaine use, and deaths from HIV/AIDS, hepatitis B and C resulting from illicit drug use.[20]

For 2009, UNODC has compiled information on drug-related deaths based on data reported through the ARQ. The level of reporting on drug-related deaths encompasses nearly half (49%) of the world's population aged 15-64 - although there are large regional differences in coverage: North America - 100%; Europe - 97%; South America (including the Caribbean and Central America) - 64%; Oceania - 62%; Asia - 42%; and Africa, <1%. Since very little data emerged from countries in Africa, an alternative source on drug-related deaths has been used.[21]

According to the data compiled by UNODC, it is estimated that globally, there are between 104,000 and 263,000 deaths each year that are attributable to illicit drug use, or equivalently, that there are between 23.1 and 58.7 deaths per million population aged 15-64 due to illicit drug use. These estimates are consistent with other previously published estimates by the WHO. As reported by Member States, approximately 50% of the deaths are fatal overdose cases. Significantly, drug-related deaths occur among a young age group. For example, EMCDDA reports that the mean age for deaths resulting from overdose in Europe is the mid-30s.[22]

In Europe, drug overdoses account for 4% of all deaths for those aged 15-39[23] - and the rates in some countries exceed 10% in this age group. In a study on drug-related mortality in eight European cities, 10–20% of mortality within the 15-49 age group is attributable to opioid use.[24] Data from Europe also suggest that for each drug-induced death, there are an estimated 20-25 non-fatal overdose cases. As such, drug-related deaths are highly premature (and preventable) and account for a disproportionate contribution to the burden of disease as measured by potential years of life lost.

17 EMCDDA, *An overview of the drug-related deaths and mortality among drug users (DRD) key indicator,* January 2009.

18 Degenhardt L, Hall W, Warner-Smith M, Lynskey M., 'Chapter 13: Illicit drug use,' In: Ezzati M, Lopez A, Rodgers A, Murray CJL, eds. *Comparative quantification of health risks: global and regional burden of disease attributable to selected major risk factors*, Geneva, World Health Organization, 2003.

19 Ibid.

20 World Health Organization, *Global health risks: mortality and burden of disease attributable to selected major risks*, 2009.

21 Darke, S., Degenhardt, L. and Mattick, R., *Mortality Amongst Illicit Drug Users: Epidemiology, Causes and Intervention*, Cambridge University Press, 2007.

22 EMCDDA, *Annual report: the state of the drugs problem in Europe - 2010,* Lisbon, November 2010.

23 Ibid.

24 Bargagli, A.M., Hickman, M., Davoli, M., Perucci, C.A., Schifano, P. et al. (2006), 'Drug-related mortality and its impact on adult mortality in eight European countries', *European Journal of Public Health* 16, pp. 198–202.

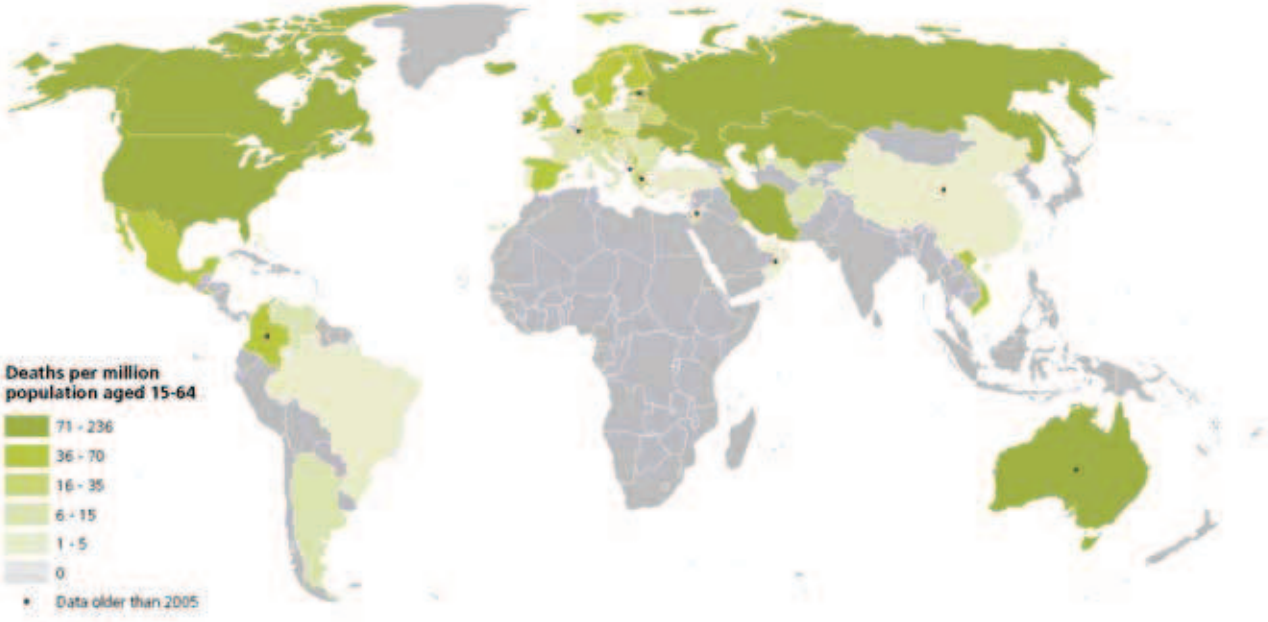
**Table 3: Estimated number of drug-related deaths and rates per million population aged 15-64**

Source: UNODC ARQ (except for Africa: Chapter 13: Illicit drug use, in Comparative quantification of health risks: global and regional burden of disease attributable to selected major risk factors, World Health Organization, 2003.)

| Region | Number of drug-related deaths | | Mortality rate per million aged 15-64 | |
|---|---|---|---|---|
| | Lower estimate | Upper estimate | Lower estimate | Upper estimate |
| Africa | 13,000 | 41,700 | 22.9 | 73.5 |
| North America | 45,100 | 45,100 | 147.9 | 147.9 |
| South America* | 2,200 | 6,300 | 7.0 | 20.5 |
| Asia | 15,300 | 140,200 | 5.6 | 51.5 |
| Europe | 25,200 | 26,700 | 45.6 | 48.4 |
| Oceania | 2,800 | 2,800 | 118.9 | 118.9 |
| **Global** | **104,000** | **263,000** | **23.1** | **58.7** |

* incl. the Caribbean and Central America.

**Map 4: Drug-related deaths, 2009 (or latest year available)**




Note: The boundaries and names shown and the designations used on this map do not imply official endorsement or acceptance by the United Nations.
Dotted line represents approximately the Line of Control in Jammu and Kashmir agreed upon by India and Pakistan. The final status of Jammu and Kashmir has not yet been agreed upon by the parties.

## 3) Regional overview

This overview highlights some of the main characteristics and illicit drug market trends at the regional level.

### a) North America

North America continues to be the world's largest drug market, even though it is – according to all estimates – now smaller, in economic terms, than a decade or two ago.

**Production**

Production of illicit drugs in North America is primarily linked to cannabis (mainly cannabis herb), amphetamine-type stimulants (ATS) and opiates.

Substantial amounts of cannabis are grown in all North American countries and important exports are directed from Mexico to the United States, and, to a lesser extent, from Canada to the United States. Greenhouse cultivation of cannabis is still limited to the USA and Canada.

Manufacture of ATS takes place in all three countries and is mainly of methamphetamine and, to a lesser extent, ecstasy. Some 99% of all methamphetamine laboratories worldwide (though mostly 'kitchen labs') are dismantled in North America, notably in the United States. Significant amounts of methamphetamine continue to be shipped across the border from Mexico to the United States. Manufacture of ecstasy is mainly concentrated in Canada and the USA. A significant share of the Canadian ecstasy production is destined for the US market. Asian groups with links to China and South-East Asian countries are mainly involved in the ecstasy production.

Production of opiates in North America only takes place in Mexico. Mexico's opium production accounted for 5% of the world total in 2009.

**Trafficking**

Trafficking of drugs continues to be primarily directed towards North America. Trafficking of drugs out of the region to other destinations exists, but is limited. Trafficking of cannabis herb is mainly intra-regional, with cannabis herb from both Mexico and Canada being shipped into the United States, in addition to domestic shipments of locally produced cannabis herb across US states. Similarly, methamphetamine trafficking is primarily intra-regional, with flows from Mexico into the United States, as well as locally produced methamphetamine being trafficked domestically in the United States. Ecstasy trafficking used to be intra-regional (from western Europe to North America) but has now become mainly intra-regional, with deliveries from Canada into the United States. Cocaine trafficking, in contrast, remains inter-regional, with shipments of cocaine from the Andean region, notably Colombia, to Central America and Mexico for final destination markets in the United States and, to a lesser extent, Canada.

The largest seizures in North America are reported for cannabis, followed by cocaine and the amphetamines. Expressed as a proportion of the global total, data show that 70% of global cannabis herb and 70% of global ecstasy seizures took place in North America in 2009, followed by amphetamines (21%) [methamphetamine only: 44%], cocaine (18%) and heroin (4% of the world total). Cannabis resin seizures accounted for less than 1% of the total, showing that hashish does not play a significant role in North America.

While cocaine seizures declined markedly between 2005 and 2009 (-43%), reflecting the overall decline of the cocaine market in North America, seizures increased over this period for amphetamines (87%), ecstasy (71%), cannabis herb (32%) and heroin (19%).

**Illicit drug use**

The highest levels of illicit drug use are related to the consumption of cannabis, mainly cannabis herb. With a prevalence rate of 10.7% among the population aged 15-64, cannabis use in North America is above the global average. The region accounts for about one fifth of global cannabis users, far above its share of the global population (around 7%). Following years of decline, cannabis use increased again in 2009 in the United States. The annual prevalence of cannabis use in the

**Table 4: Seizures in North America, in kilogram equivalents, 2005-2009**

Source: UNODC ARQ.

| | 2005 | 2006 | 2007 | 2008 | 2009 | In % of global total in 2009 |
|---|---|---|---|---|---|---|
| Cannabis herb | 3,183,053 | 3,278,467 | 3,930,620 | 3,205,334 | 4,188,620 | 70% |
| Cocaine | 233,605 | 193,601 | 175,316 | 132,970 | 132,355 | 18% |
| Amphetamines | 7,422 | 9,226 | 7,047 | 8,551 | 13,876 | 21% |
| Ecstasy | 2,227 | 3,008 | 3,981 | 3,279 | 3,816 | 70% |
| Heroin | 2,391 | 2,432 | 1,760 | 2,283 | 2,853 | 4% |
| *Memo: Population* | | | | | *458 million* | *7%* |

USA increased from 10.1% of the population aged 12 and above in 2007 to 11.3% in 2009.

The relative importance of North America is larger when it comes to cocaine. Almost 37% of all cocaine users worldwide are found in North America. With a prevalence rate of 1.9% among the population aged 15-64, North America – despite declines in recent years – still has the highest prevalence rate of any subregion, far above the global average (0.4%). The decline was most pronounced after 2006, with the annual prevalence of cocaine use in the USA falling from 3.0% of the population aged 15-64 to 2.4% in 2009. Significant declines in cocaine use were also reported from Canada in recent years, with the annual prevalence rate falling from 2.3% in 2004 to 1.4% in 2009.

About 1.1% of the population in North America uses amphetamines and a similar proportion uses ecstasy. These are – in both cases – above the global average. Use of amphetamine-type stimulants showed a downward trend over the 2006-2008 period and increased again slightly in 2009. The increase was mainly related to the 'recovery' of methamphetamine, rising from 0.3% of the population aged 12 and above in 2008 to 0.5% in 2009. The same applied to the use of ecstasy which rose in the USA from 0.9% of the population aged 12 and above in 2008 to 1.1% in 2009.

If opioids are considered, available estimates suggest that more than 40% of global opioid users are found in North America. These high levels are mainly due to widespread non-medical use of prescription opioids, which rose between 2002 and 2006, before falling until 2008 and rising again in 2009. The abuse of opiates is, at 0.4%, close to the global average. Opiate use levels have remained stable in recent years.

North America has, in general, a significant problem when it comes to the non-medical use of prescription drugs. In the United States, such use of prescription drugs ('psychotherapeutics') has ranked for some years second after cannabis, with an annual prevalence of 6.4% among the population aged 12 and above.[25] The non-medical use of pain relievers (4.9%) which are prescription opioids and of tranquillizers (2.2%) now show higher annual prevalence rates than cocaine (1.9%). The non-medical use of easily available prescription opioids - oxycodone in particular - appears to have increased since 2005. Among the new initiators of drug use in 2009, around 2.2 million people in the USA initiated their drug use with pain relievers, approaching the number of those who initiated their drug use with cannabis.

25 Substance Abuse and Mental Health Services Administration, *Results from the 2009 National Survey on Drug Use and Health: Volume I.* Summary of National Findings, 2010, Rockville, Maryland, USA.

The main pharmaceutical prescription drug categories used in Canada are 'opioid pain relievers', 'stimulants' and 'tranquillizers and sedatives'. In 2009, prescription opioid misuse in Canada was reported at 0.5%, the same level as 2008, while heroin use was estimated at 0.36%.[26]

In Mexico, the annual prevalence of non-medical use of prescription drugs seems to be much lower. The national household survey found prescription opioid prevalence to amount to 0.06% of the adult population in 2008, compared to 0.04% for heroin.[27]

**Drug-related deaths**

North America seems to experience a large proportion of drug-related deaths (45,100 deaths) and the highest drug-related mortality rate (148 deaths per million population aged 15-64). The United States saw an estimated 38,400 deaths from illicit drug use in 2006, corresponding to a drug-related mortality rate of 182 deaths per one million inhabitants aged 15-64.

In the United States, overdoses from prescription opioids have been steadily increasing from 4,000 in 2001 to 11,000 in 2006 (the most recent year available), an increase of 175%, primarily as a result of the non-medical use of diverted prescription opioids.[28] Similar trends in the non-medical use of prescription medicines are also emerging in other countries.[29]

### b) South America, Central America and the Caribbean

South America continues to be primarily a subregion known for large-scale cocaine production and trafficking, though drug use, notably in the Southern Cone countries, has also become significant.

**Production**

Notable illicit drug production continues to take place in the three Andean countries. Colombia, Peru and the Plurinational State of Bolivia are responsible for close to 100% of global coca leaf production, the raw material for the manufacture of cocaine. In 2010, coca was cultivated on 149,100[30] ha in the Andean countries, down

26 Estimated by UNODC based on 1% prevalence of injecting drug use (estimated 220,690 IDU in 2004) reported by the Reference Group to the United Nations on HIV and injecting drug use, 2008.

27 SALUD, *Encuesta Nacional de Adicciones 2008,* Instituto Nacional de Salud Pública, Mexico.

28 U.S. Department of Justice, Drug Enforcement Administration, National Drug Intelligence Centre, *National Prescription Drug Threat Assessment 2009,*and *National Drug Threat Assessment 2010.*

29 Nicholas R., Lee N., and A. Roche, *Responding to pharmaceutical drug misuse in Australia: A Matter of Balance,* NCETA Literature Review to support the development of the National Pharmaceutical Drug Misuse Strategy, March 2011.

30 The figure for the Plurinational State of Bolivia was not available at the time of printing of this report. The total area under cultivation in 2010 is based on old figures for Bolivia and will be revised once the

from 221,300 ha in 2000. Cocaine manufacture in clandestine laboratories also takes place, to a large extent, in the Andean countries. Since 2007, cocaine production has shown a clear downward trend, mainly due to declines of production in Colombia, which also continued in 2010. Cocaine production fell by some one sixth over the 2007-2010 period.

Most of the countries in South America, Central America and the Caribbean have significant levels of cannabis production, notably of cannabis herb. In 2009, 70% of global cannabis plant seizures, an indirect indicator of cannabis eradication, occurred in this subregion. Three quarters of these seizures took place in South America. Cannabis production seems to be - in most countries - primarily for domestic use. Opium production in South America is almost negligible at the global level.

Manufacture of amphetamine-type stimulants is still limited in the region as most of the ATS consumed are still diverted prescription stimulants. However, in recent years, illicit manufacture of ATS has emerged in several countries with little or no previous history of reported manufacture.

**Trafficking**

Trafficking flows are primarily directed out of the cocaine-producing countries in the Andean region towards North America, either directly to Mexico and then the United States, or via Central America to Mexico or via the Caribbean to the United States. Trafficking flows to Europe are either directly from the Andean region or via neighbouring countries to Europe, via countries in the Caribbean region as well as via countries in Africa (notably West Africa) to Europe.

Cannabis trafficking flows are mainly intra-regional. In addition, there are limited trafficking flows of heroin from Colombia to the United States.

In contrast, trafficking flows of amphetamines and ecstasy are still mainly from Europe towards South America, though these appear to be declining as they start to be substituted by local production.

The largest seizures, in volume terms, are those of coca leaf in South America, which accounts for all global coca leaf seizures. Such seizures declined, however, over the 2007-2009 period by some 25%, partly reflecting a decline in coca leaf production. In contrast, cocaine seizures, for which the countries of South America, Central America and the Caribbean accounted for 74% of the world total, showed an increase by 27% over the 2007-2009 period. Increasing interdiction efforts by the Andean countries (notably Colombia) as well as improvements in international cooperation – and thus more 'upstream' interdictions – have been responsible for this.

Seizures of opium and heroin declined markedly between 2005 and 2009. The decline is in line with reports of strong reductions of opium production in South America over the last decade.

**Illicit drug use**

Surveys suggest that about 5% of all cannabis users worldwide are found in South America, the Caribbean and Central America, slightly less than the region's share of the global population. Nonetheless, cannabis is the most widely consumed illicit substance in the region. The prevalence rate for cannabis use in South America ranged between 2.9%-3.0% of the population aged 15-64 in 2009, between 1.6%-7.6% in the Caribbean and between 2.2%-2.5% in Central America.

The prevalence of cocaine use in South America, Central America and the Caribbean is clearly above the global average. About 0.9%-1.0% of the population aged 15-64 consumes cocaine, equivalent to some 2.6-3.0 million people or 17% of the world's cocaine-using population. Following years of increases, the latest data indicate a

**Table 5: Seizures in South America, Central America and the Caribbean, in kilogram equivalents, 2005-2009**

Source: UNODC ARQ.

| | 2005 | 2006 | 2007 | 2008 | 2009 | In % of global total in 2009 |
|---|---|---|---|---|---|---|
| Cannabis herb | 509,265 | 1,065,673 | 1,009,470 | 857,534 | 619,786 | 10% |
| Coca leaf | 3,195,757 | 3,318,645 | 4,698,820 | 4,883,732 | 3,517,918 | 100% |
| Cocaine | 429,740 | 400,266 | 427,685 | 523,040 | 541,070 | 74% |
| Amphetamines | 140 | 87 | 519 | 41 | 189 | 0.3% |
| Ecstasy | 141 | 53 | 103 | 46 | 54 | 1% |
| Heroin | 1,863 | 1,689 | 1,205 | 1,335 | 1,159 | 2% |
| Opium | 2,129 | 263 | 259 | 300 | 74 | 0.01% |
| *Memo: Population* | | | | | *473 million* | *7%* |

2010 figure becomes available.

stabilization at the higher levels. Cocaine continues to be the main problem drug in South America, Central America and the Caribbean, accounting for some 50% of all drug-related treatment demand in the region.

Use of other drugs is below average. This is true for ATS as well as the opioids. Overall opioid use is far more prevalent (some 0.4%) than the use of opiates (0.1%).

The most prevalent prescriptions drugs in the region seem to be prescription opioids. High prevalence of the non-medical use of prescription opioids has been reported by Costa Rica, Brazil and Chile. Most of the ATS use in the region is linked to diverted prescription stimulants (legally prescribed mainly as anorectics or for the treatment of attention deficit disorders). High levels of consumption have been reported for 2009, in particular from Argentina, Brazil and, to a lesser extent, Chile.[31]

**Drug-related deaths**

Countries in South America, including the Caribbean and Central America, report relatively few drug-related deaths (between 2,200 and 6,300) with a mortality rate (between seven and 20 deaths per million aged 15-64) well below the global average. Countries consistently rank cocaine first as the primary cause of death, which is in accordance with high prevalence of cocaine use and the dominance of cocaine in treatment demand.

### c) Europe

**Production**

Illicit drug production in Europe is mainly linked to cannabis, amphetamines and ecstasy.

- Cannabis production in Europe is believed to be increasing, mostly in indoor settings. Twenty-nine European countries reported domestic cultivation of cannabis herb in 2008.
- In the past, ecstasy-group substances used to be manufactured predominantly in West Europe. The Netherlands and Belgium are still the main sources for ecstasy in Europe. However, manufacture has shifted away from the region and only a few laboratories were reported from Europe in 2008 and 2009.
- Most amphetamine seized in Europe is manufactured, in order of importance, in the Netherlands, Poland and Belgium.
- The clandestine manufacture of methamphetamine is concentrated in the Czech Republic, though some production is also taking place in the Baltic countries. Methamphetamine production and consumption are, however, still the exception in Europe.
- In Spain, there is some evidence of the reconversion of cocaine mixed with other substances back into cocaine.
- In East Europe, notably in the Russian Federation and Ukraine, there is domestic production of opium or poppy straw for local consumption purposes ('kompot').

**Trafficking**

Most cannabis seizures are related to cannabis resin in Europe, accounting for 49% of the global total in 2009. Cannabis resin found on the European market originates primarily in Morocco. While cannabis resin seizures declined over the 2005-2009 period, those of cannabis herb increased by 88%, confirming reports of increasing levels of (often hydroponic) cannabis herb production within Europe for local consumption. Despite the increasing importance of cannabis herb, overall cannabis seizures declined by 19% between 2005 and 2009.

Cocaine is trafficked to Europe mainly by sea, though in terms of reported seizure cases, deliveries by air are higher. The trafficking of cocaine into the EU by maritime containers seems to have increased in recent years. While the European cocaine market appears to have been fairly stable between 2006 and 2009 – following strong increases in trafficking over the 1998-2006 period – cocaine seizures declined massively over this period (-53%). This partially reflects improved cooperation with law enforcement counterparts in Latin America and thus improved sharing of information, leading to seizures in South Americas rather than waiting for the cocaine to arrive in Europe. Cocaine seizures are still concentrated in western Europe. The countries of West and Central Europe accounted for 97% of all European cocaine seizures in 2009. In addition to direct shipments from South America, shipments via Africa, notably West Africa, gained strongly in importance over the 2004-2007 period, before decreasing over the 2007-2009 period. Though the Iberian peninsula, followed by the Netherlands and Belgium, continue to be main entry points for cocaine shipments into Europe, there have also been reports of shipping cocaine to the Balkan region (by container or air freight) for final destinations in the European Union.

Heroin seizures made in Europe accounted for 38% of the world total in 2009. Heroin seizures are mostly concentrated in South-East Europe (63% of all heroin seizures in Europe), mainly reflecting the strong seizure efforts of Turkey as heroin is shipped via the Islamic Republic of Iran to Turkey and then along the various branches of the 'Balkan route' to western Europe. While heroin seizures in West and Central Europe remained largely stable over the 2005-2009 period, they doubled in South-East Europe.

Europe is primarily a region of final consumption - except for ecstasy, which is still produced locally and shipped to other destinations as well. Ecstasy exports out of Europe, however, have declined markedly in recent

31 INCB, *Report for 2010 – Psychotropic Substances*.

years, which has been linked to improvements in precursor control and thus shortages of the traditional ecstasy precursor. Europe's share in global ecstasy seizures declined from 90% in 1996 to 18% in 2009.

Europe accounted for 24% of global amphetamine seizures in 2009. Amphetamine seizures remained largely stable over the 2005-2009 period. More than 80% of all European amphetamine seizures in 2009 took place in the countries of West and Central Europe.

Seizures of benzodiazepines and barbiturates increased by more than 50% between 2005 and 2009. Close to 90% of all benzodiazepines and barbiturate seizures worldwide in 2009 were reported from countries in Europe.

Seizures of GHB (gamma-hydroxybutyric acid), frequently known in the illicit drug markets as 'liquid ecstasy' and as a 'date rape drug,' increased four-fold in Europe over the 2005-2009 period. European seizures accounted for almost 80% of the world total.

Seizures of LSD, which in volume terms are hardly noticeable, have shown a downward trend over the 2005-2009 period. Europe accounts for 80% all LSD seizures made worldwide.

**Illicit drug use**

The most prevalent drug in Europe is cannabis, showing an annual prevalence rate of 5.2%-5.3% among the population aged 15-64. Around 18% of the total cannabis-using population lives in Europe. Following years of significant increases, cannabis use appears to have stabilized in Europe.

Cocaine is the second most prevalent drug (0.8%-0.9%). With 4.3 - 4.75 million cocaine users, Europe accounts for almost 30% of all cocaine users worldwide. Cocaine use is still concentrated in West and Central Europe, accounting for some 90% of all cocaine users in Europe. Cocaine prevalence rates in West and Central Europe doubled between 1998 and 2006 but remained basically stable over the 2006-2009 period.

The next most prevalent substance is ecstasy (0.7% of the population aged 15-64). With 3.7-4 million ecstasy users, Europe accounts for about one fifth of the global ecstasy-using population. Most European countries report stable trends of ecstasy use.

Use of amphetamines affects some 2.5-3.2 million people in Europe, or 0.5-0.6% of the population aged 15-64. Most countries report stable trends in amphetamine use. Amphetamine remains the main amphetamines-group substance used in Europe. Methamphetamine use is mainly limited to the Czech Republic, though some consumption also occurs in neighbouring Slovakia, some of the provinces of Germany and Austria bordering the Czech Republic, as well as in the Baltic countries and some of the Nordic countries. If ecstasy and amphetamines-group use are combined, use of ATS constitutes the second most prominent drug group after cannabis.

In contrast to other regions, non-medical use of prescription drugs has not been regarded as a major problem in Europe so far.[32] Denmark, Estonia and Finland are countries with substantial or higher proportions of non-medical use of prescription opioids than heroin. The highest levels of non-medical use of prescription opioids so far have been reported from Northern Ireland (UK). Other countries in Europe reporting a substantial proportion of treatment demand for sedatives and tran-

**Table 6: Seizures in Europe in kilogram equivalents, 2005-2009**

Source: UNODC ARQ.

| | 2005 | 2006 | 2007 | 2008 | 2009 | In % of global total in 2009 |
|---|---|---|---|---|---|---|
| Cannabis resin | 907,423 | 618,448 | 853,654 | 937,027 | 623,369 | 49% |
| Cannabis herb | 105,577 | 132,558 | 144,310 | 178,345 | 198,841 | 3% |
| Cocaine | 106,587 | 121,065 | 79,864 | 62,737 | 56,736 | 8% |
| Amphetamines-group | 9,906 | 11,434 | 11,216 | 9,771 | 9,077 | 14% |
| of which amphetamine | 8,039 | 6,019 | 8,791 | 9,438 | 8,117 | 24% |
| Ecstasy | 4,709 | 5,649 | 5,839 | 1,763 | 995 | 18% |
| Heroin | 22,165 | 22,171 | 26,394 | 29,206 | 28,762 | 38% |
| Opium | 2,059 | 1,292 | 1,445 | 1,324 | 1,379 | 0.2% |
| Benzodiazepines and barbiturates | 1,344.25 | 126.13 | 452.38 | 580.54 | 2,103.22 | 89% |
| GHB | 156 | 38 | 318 | 383 | 675 | 79% |
| LSD | 6.1 | 0.5 | 0.4 | 0.1 | 0.1 | 80% |
| *Memo: Population* | | | | | *808 million* | *12%* |

32 EMCDDA, *The State of Drugs Problem in Europe, Annual Report 2010.*

quillizers are found among the Nordic countries, notably Sweden (11.6%), Norway (10.2%) and Finland (8.5%). The use of benzodiazepines is common among drug users all across Europe, including substitution treatment clients. Studies show that between 11% and 70% of clients report current use of benzodiazepines.[33]

**Drug-related deaths**

For Europe, the best estimates suggest that there are between 25,000 and 27,000 drug-related deaths annually, with a rate between 46 and 48 deaths per one million people aged 15-64, though some estimates give substantially higher figures (about twice these numbers). Drug-related deaths due to overdose amounted to some 7,000 in the countries of the European Union in recent years, down from around 8,000 in 2000.[34] Opioids, mainly heroin, are predominantly ranked as the primary cause of death, followed – at much lower levels – by cocaine. Most drug-related deaths seem to occur in Ukraine, the Russian Federation, the United Kingdom, Spain and Germany. Combined, these five countries account for some 80% of all reported drug-related deaths in Europe. In terms of mortality rates, Ukraine, Iceland, Ireland and Luxembourg seem to experience some of the highest levels in Europe, with over 100 drug-related deaths per one million inhabitants aged 15-64.

### d) Africa

**Production**

Illicit drug production in Africa is mainly focused on cannabis. While cannabis resin is mainly produced in Morocco, cannabis herb is produced all over Africa.

Small-scale opium production is limited to countries in North Africa, notably Egypt, which regularly reports the largest eradication of opium poppy among all countries in Africa.

ATS manufacture appears to be emerging in some African countries. For some time, methamphetamine and methcathinone production has been taking place in South Africa, basically for domestic use. Similarly, Egypt has reported clandestine manufacture of ATS for some years. This production only takes place at low levels and is intended for the domestic market.

In contrast, recent reports of shipments of methamphetamine from countries in West Africa (notably Nigeria) to various destinations in East and South-East Asia is an international concern, and suggest that a more professional ATS production has been emerging in West Africa. Some equipment and chemicals seized in Guinea in 2010 might indicate possible ATS manufacture there.

Finally, khat is cultivated in several East African countries. Khat is not under international control, though a number of countries – including countries in Africa – have introduced national legislation to prohibit its cultivation and trafficking.

**Trafficking**

Most of the cannabis trafficking is for shipments across African countries. Only smaller amounts are destined for overseas markets, mainly in Europe. Most of the cannabis resin production in North Africa is for final consumption in Europe. The largest seizures were reported for cannabis herb, followed by cannabis resin. Africa's share of global cannabis herb seizures amounts to 11% – and is thus below its share of the global population (15%), while its share in global cannabis resin seizures – mostly carried out by countries in North Africa – is equivalent to 25% of the world total.

Africa has been affected by significant shipments of cocaine from South America to Europe in recent years. The amounts trafficked via Africa to Europe, however, seem to have decreased in 2008 and 2009, and only partly resumed in 2010. Estimates for 2009 suggest that some 35 mt of cocaine may have left South America for Africa of which some 21 mt actually arrived in Europe. Most of the rest appears to have been consumed locally. In addition, there are some indications that West African countries are being used to stockpile cocaine which is later trafficked in small quantities to Europe.

In addition, African countries are increasingly being used by traffickers to ship Afghan heroin to final destinations in Europe and other regions. Though East Africa is reportedly the main intermediate target for these trafficking activities, African heroin seizures were highest in Southern Africa and North Africa. Estimates suggest that 40-45 mt of Afghan heroin was trafficked to Africa in 2009.

Methamphetamine seizures have been reported from Nigeria and South Africa. For 2009, however, only South Africa reported such seizures, out of a total of four African countries reporting any ATS seizures in the ARQ. Approximately one half of the ATS seized in Africa was amphetamine. The paucity of the data does not allow for a reliable characterization for the continent as a whole. Several African countries appear to be affected by trafficking in, and consumption of, diverted or counterfeit prescription drugs containing controlled substances whose nature is not always clear, though they appear to include ATS as well as sedatives and tranquillizers.

**Illicit drug use**

Information on drug use in Africa is extremely limited, given the lack of scientific surveys in the region. The

33 EMCDDA, *Polydrug Use: Patterns and responses*, Selected issues 2009.

34 EMCDDA, *Statistical Bulletin*, Number of drug-induced death recorded in EU Member States according to national definition, Dutal drug-induced deaths, 1995-2008.

**Table 7: Seizures in Africa, kilogram equivalents, 2005-2009**

Source: UNODC ARQ.

| | 2005 | 2006 | 2007 | 2008 | 2009 | In % of global total in 2009 |
|---|---|---|---|---|---|---|
| Cannabis herb | 865,974 | 1,220,578 | 694,177 | 936,084 | 639,769 | 11% |
| Cannabis resin | 121,576 | 132,784 | 140,544 | 165,455 | 320,600 | 25% |
| Khat* | 1,522 | 5,691 | 2,490 | 6,219 | 23,442 | 12% |
| Cocaine | 2,575 | 851 | 5,535 | 2,551 | 956 | 0.1% |
| Methaqualone | 159 | 773 | 93 | 1,586 | 828 | 99% |
| Heroin | 325 | 335 | 328 | 311 | 515 | 0.7% |
| Opium | 45 | 33 | 49 | 67 | 57 | 0.01% |
| Amphetamines-group | 2,085 | 851 | 721 | 3,492 | 98 | 0.2% |
| Ecstasy | 3.7 | 74.5 | 9.2 | 0.06 | 0.02 | 0.0% |
| *Memo: Population* | | | | | *1,009 million* | *15%* |

*Not under international control.

high level of uncertainty is reflected in the broad ranges around the best estimates. The available information suggests that cannabis use is widespread, and that other drugs are used as well, notably in urban areas.

The limited information on drug-related treatment in Africa identified cannabis as the main problem drug, accounting for 64% of all treatment demand in the region. This is a far higher proportion for cannabis than in any other region. Cannabis was followed by opioids (19%), cocaine (5%) ATS (5%), methaqualone (4%), khat (3%), solvents and inhalants (3%) and sedatives and tranquillizers (2%).

Given the absence of information on overall drug use patterns, it is also difficult to estimate the extent of non-medical prescription drug use in the region. However, parallel markets exist in many African countries, where prescription drugs are sold outside the control of the health authorities. ARQ data suggest frequent non-medical use of prescription drugs such as buprenorphine, pentazocine and benzodiazepines in several African countries. In Mauritius, the use of buprenorphine was reported to be higher than heroin. In Madagascar, around 38% of the total treatment demand was for tranquillizers, second to cannabis (>60%). Similarly in South Africa, on average 6.9% of people in treatment reported prescription opioids and tranquillizers as either their primary or secondary drug of abuse.[35]

**Drug-related deaths**

Information on drug related deaths in Africa is also limited. The best available estimates suggest that there could be between 13,000 and 41,700 drug-related deaths, equivalent to between 23 and 74 per one million inhabitants aged 15-64. These figures would suggest that drug-related death in Africa is close to the global average. Estimates could of course change substantially were better data to become available.

35 South African Community Epidemiology Network on Drug Use (SACENDU), *Monitoring Alcohol and drug abuse trends in South Africa*, SACENDU Research Brief Vol 13 (01), 2010.

### e) Asia

**Production**

The main illicit drug produced in Asia is opium. The two largest opium-producing countries are Afghanistan and Myanmar. Though the proportion of Asian opium production in the global total declined from 98% in 2007 to 87% in 2010, Asian opium continues to dominate the world opium and thus also the world heroin market. While Afghan opium production declined over the 2007-2010 period, production in Myanmar increased.

Cannabis production is widespread across Asia, including cannabis resin production in Afghanistan and its neighbours in South-West Asia and Central Asia, and cannabis herb production in East and South-East Asia, and South Asia. The preliminary UNODC/Government of Afghanistan cannabis survey found cannabis resin production of 1,200-3,700 mt in Afghanistan in 2010, and Afghanistan was worldwide the second most frequently mentioned source country for cannabis resin shipments after Morocco. Seizures of cannabis plants – an indirect indicator of cannabis eradication – were higher in Asia 2009 than in North America, Europe or Oceania. Only South America showed higher figures.

Asia also plays a major role in the clandestine manufacture of ATS, notably of methamphetamine. Methamphetamine manufacture is mainly concentrated in East and South-East Asia, including the Philippines, China, Malaysia and Myanmar. In addition, since 2009, the Islamic Republic of Iran appears to have emerged as a significant location for the clandestine manufacture of

methamphetamine. Limited production of ecstasy also takes place in Asia, notably East and South-East Asia, including Malaysia, China and Indonesia. ATS production is mainly for consumption within the region. Exports to other regions (with the exception of a few exports to Oceania) hardly take place.

### Trafficking

Trafficking in Asia is dominated by opium and heroin, which are smuggled to final destinations within the region as well as to Europe (from Afghanistan) and China (from Myanmar), though some Afghan opiates also find their way to China (up to 30% of Chinese demand). Overall, Asian opium exports accounted for more than 99% of the world total. Similarly, morphine seizures made in Asia accounted for more than 99% of the world total. More than half of all heroin seizures (56% in 2009) were made by Asian countries. In line with the much larger opium production of Afghanistan compared to Myanmar, opiate seizures have been far larger for the countries surrounding Afghanistan (notably the Islamic Republic of Iran and Pakistan) than for the countries surrounding Myanmar.

Cannabis herb seizures in Asia amounted to just 6% of the world total. In contrast, cannabis resin seizures accounted for 24% of the world total in 2009. Cannabis herb and resin seizures in Asia both showed upward trends over the 2005-2009 period (60% and 30%, respectively). A breakdown shows that 98% of Asian cannabis resin seizures in 2009 took place in the Near and Middle East/South-West Asia. Cannabis herb seizures, in contrast, occurred primarily in South Asia (53% of all Asian seizures) and in East and South-East Asia (36%).

In addition, Asia has developed into a major production and trafficking hub for ATS, accounting for 64% of all such seizures worldwide in 2009. Amphetamine seizures (mainly Captagon) happen primarily in the Near and Middle East, notably the Arabian peninsula, accounting for almost all Asian amphetamine seizures. Methamphetamine seizures, in contrast, affect primarily East and South-East Asia (95% of all Asian methamphetamine seizures). Both amphetamine and methamphetamine seizures increased in Asia over the 2005-2009 period (by 59% and 36%, respectively).

Ecstasy seizures, in contrast, declined over the 2005-2009 period (-58%), which is also in line with reports of improved ecstasy precursor controls. The importance of Asian ecstasy seizures in the global total (9%) is much lower than for the amphetamines.

A problem, for countries in East and South-East Asia as well as South Asia, is the increasing popularity of ketamine, a drug used mainly in veterinary medicine for its analgesic properties. It is not under international control. Ketamine is sometimes sold as 'ecstasy' or mixed with MDMA. Seizures of ketamine tripled over the 2005-2009 period and were in 2009 – in volume terms – some 20 times larger than ecstasy seizures in Asia. Asia accounted for 99% of global ketamine seizures in 2009. Most of the ketamine is produced in the region.

Cocaine seizures reported in Asia accounted for just 0.1% of the global total. Nonetheless, except for countries in Central Asia, all other subregions reported seizures of cocaine in recent years. Relative concentrations of cocaine trafficking seem to exist in East and South-East Asia as well as in the Near and Middle East.

### Illicit drug use

Information on illicit drug use is only slightly better in Asia than in Africa, which also results in broad ranges around the best estimates.

**Table 8: Seizures in Asia, kilogram equivalents, 2005-2009**

Source: UNODC ARQ.

| | 2005 | 2006 | 2007 | 2008 | 2009 | In % of global total in 2009 |
|---|---|---|---|---|---|---|
| Opium | 337,071 | 381,741 | 517,119 | 643,873 | 649,449 | > 99% |
| Morphine | 31,342 | 45,787 | 27,039 | 17,060 | 23,655 | > 99% |
| Heroin | 31,852 | 30,442 | 34,699 | 40,490 | 42,512 | 56% |
| Cannabis herb | 233,808 | 231,786 | 201,030 | 331,322 | 373,522 | 6% |
| Cannabis resin | 236,284 | 227,822 | 308,410 | 543,177 | 306,556 | 24% |
| Amphetamines-group | 29,968 | 32,460 | 31,031 | 32,854 | 41,592 | 64% |
| of which amphetamine | 15,572 | 15,690 | 19,296 | 19,711 | 24,772 | 74% |
| methamphetamine | 12,175 | 12,360 | 11,026 | 13,052 | 16,577 | 53% |
| Ecstasy | 1,202 | 451 | 1,998 | 843 | 506 | 9% |
| Ketamine | 3,256 | 4,455 | 12,098 | 7,913 | 10,693 | 99% |
| Cocaine | 525 | 711 | 568 | 1,136 | 676 | 0.1% |
| *Memo: Population* | | | | | *4,068 million* | *59%* |

Cannabis is the most widely consumed drug in Asia. Despite national differences, overall cannabis use is, however, rather low in Asia, clearly below the global average. While cannabis resin is mostly used in Afghanistan and Lebanon and their respective neighbouring countries, cannabis herb is mainly used in South and South-East Asia.

The second most widely consumed drug type in Asia is the amphetamines, that is, methamphetamine in East and South-East Asia and amphetamine on the Arabian peninsula. Available information suggests that the use of amphetamines increased in recent years.

Asian countries reported mixed trends of ecstasy use. Estimates regarding ecstasy, however, must be treated with caution. Substances other than MDMA are often sold as 'ecstasy' in Asia.

By far the most problematic group of substances for most Asian countries are the opiates. It is estimated that more than half of the world's opiate-using population lives in Asia. Opiate prevalence rates are particularly high in the main opium-producing regions as well as in some of their neighbouring countries. The highest estimates of opiate consumption are found in the countries of South-West Asia.

Cocaine use in Asia is still limited, though there are regular reports that organized crime groups are trying to develop the market, notably in some of the richer parts of Asia, where sufficient purchasing power exists.

Due to the absence of regular prevalence studies for the majority of countries in Asia, information on non-medical use of prescription drugs is scattered and limited. Available reports nonetheless indicate substantial non-medical use of prescription opioids, tranquillizers and amphetamines in many Asian countries.

In Bangladesh, Nepal and India, buprenorphine is commonly injected. In South-West and Central Asia, among the regular heroin users, the non-medical use of prescription opioids, barbiturates and sedatives has been a commonly observed phenomenon. In Afghanistan, an annual prevalence rate of 0.5% for prescription opioids and 0.4% for tranquillizers was reported among the adult population. The annual prevalence of tranquillizer use was about the same among the male and female populations, while other drug use is far more male-dominated.[36]

In South-East Asia, along with the use of ATS, the non-medical use of tranquillizers – especially benzodiazepines – is widely reported from various countries in the region, including Brunei Darussalam, Malaysia, Myanmar, the Philippines and Singapore. In the Republic of Korea and the Philippines, prescription opiates are the predominantly used opioids. Increased use of synthetic and prescription drugs has also been reported in a number of countries, including Jordan, Qatar and the United Arab Emirates. In Kuwait, for instance, around 16% of treatment demand was related to the use of sedatives and tranquillizers.

**Drug-related deaths**

Asia has the largest uncertainty in the estimated range of drug-related deaths: between 6 and 51 deaths per one million persons aged 15-64. This needs to be interpreted with caution, considering the lower coverage and reporting of mortality data. Nevertheless, due to the considerable population in Asia, this translates to between 15,000 and 140,000 deaths. In Asia, opioids are almost exclusively reported as the primary substance in drug-related deaths.

### f) Oceania

**Production**

Drug production in Oceania is limited to the cultivation of the cannabis plant, mainly for the production of cannabis herb. Cannabis production takes place in Australia, New Zealand and most of the small island countries. Cannabis production is for local consumption and there is no information on exports to other regions.

In addition, ATS production has started to gain prominence over the last decade. This is mainly methamphetamine and, to a lesser extent, ecstasy. In addition, some amphetamine is also produced. ATS production is concentrated in Australia and, to a lesser extent, New Zealand.

**Trafficking**

The amounts of drugs seized in Oceania tend to be very small by international standards. Seizures of cannabis herb continued to decline over the 2005-2009 period and account for just 0.02% of the world total – far less than the share of the population of the Oceania region in the global total (0.5%). This is surprising as Oceania has one of the world's highest cannabis use prevalence rates.

The second largest seizures in volume terms were of cocaine, accounting for 0.04% of global seizures. Cocaine seizures increased over the 2005-2008 period, but declined again in 2009. Cocaine is trafficked from South America to Australia, though some recent arrests suggest that Mexican drug cartels may have started to show an interest in the potentially lucrative Australian cocaine market (due to high cocaine prices).

The proportion of Oceania in the global total is higher when it comes to ATS. Seizures of amphetamines-group substances accounted for 0.4% of the world total.

36 UNODC, *Drug Use in Afghanistan: 2009 Survey.*

Amphetamines-group seizures declined by some 85% between 2006 and 2009.

The decline was even more pronounced for ecstasy seizures, falling by 96% between 2005 and 2009, or by 99% between 2007 and 2009. Nonetheless, with a share in global seizures of 1.2%, ecstasy continues to play an above-average role in this region. Significant amounts of ecstasy – by local standards – are still being smuggled into Oceania (notably Australia) from Europe and South-East Asia, in addition to domestic supply.

The importance of heroin seizures in Oceania is also modest (0.3% of global seizures). Heroin seizures, however, showed a clear increase over the 2006-2009 period but were nonetheless some 80% lower than in 2000.

LSD seizures declined by some 95% between 2005 and 2009, but LSD was the only substance where Oceania accounted for a substantial share of global drug seizures (16%).

**Illicit drug use**

Illicit drug use in Oceania is generally characterized by high prevalence rates, notably for cannabis (9.3%-14.8% of the population aged 15-64), but also for ATS, both ecstasy (3.6%-4%) and amphetamines (2%-2.8%), as well as for cocaine (1.4%-1.7%). Only the prevalence rate for opiates (0.2%) is below the global average – a lasting result of the 'heroin drought' in 2001.

At the same time, much progress has been made over the last decade in reducing the prevalence rates. This was particularly true for the opiates, but also for cannabis. Use of ecstasy and cocaine increased. More recently, all indicators show a stabilization of drug use.

Though annual drug use prevalence rates are high, per capita consumption of drugs among drug users tends to be low in Oceania, notably for cocaine. Very high drug prices may explain this.

Non-medical use of prescription drugs also appears to be widespread in Oceania, and it seems to be mainly linked to some prescription amphetamines and prescription opioids.

In Australia, there is substantial non-medical use of both amphetamines (2.7%) and prescription opioids (0.2%) among the general population. Use of tranquillizers is also common. Among students aged 12-17, 16.2% had used tranquillizers without a doctor's prescription in their lifetime. This compares with a lifetime prevalence of 3.8% for amphetamines among students, and 2.3% who had used opiates in their lifetime.[37] Widespread non-medical use of prescription drugs was also reported by New Zealand.

**Drug-related deaths**

For Oceania, although the total number of drug-related deaths is small (approximately 2,800 deaths), the mortality rate seems to be rather high, at 119 deaths per one million inhabitants aged 15-64. Since Australia is the only reporting country, this rate probably does not reflect the situation across Oceania. Moreover, Australia has a better drug-death registration system than many other countries.

**Table 9: Seizures in Oceania, kilogram equivalents, 2005-2009**

Source: UNODC ARQ.

| | 2005 | 2006 | 2007 | 2008 | 2009 | In % of global total in 2009 |
|---|---|---|---|---|---|---|
| Cannabis herb | 3,514 | 2,845 | 2,730 | 1,445 | 1,389 | 0.02% |
| Cocaine | 95 | 285 | 626 | 931 | 290 | 0.04% |
| Amphetamines-group | 338 | 1,753 | 198 | 312 | 253 | 0.4% |
| *of which* methamphetamine | *132* | *216* | *174* | *48* | *171* | *0.6%* |
| Ecstasy | 1,447 | 541 | 4,666 | 58 | 63 | 1.2% |
| Heroin | 152 | 67 | 65 | 80 | 195 | 0.3% |
| LSD | 0.67 | 0.13 | 0.13 | 0.00 | 0.03 | 16% |
| *Memo: Population* | | | | | *36 million* | *0.5%* |

37 White V. and Smith G., *Australian secondary school students' use of tobacco, alcohol, and over-the-counter and illicit substance in 2008*, Drug Strategy Branch, Australian Government Department of Health and Ageing, September 2009.

# 2. The opium/heroin market

## 2.1 Introduction

UNODC estimates that there were between 12 and 21 million opiate users worldwide in 2009. Heroin remains the most commonly used opiate, consumed by a vast majority of global opiate users (about 75%). In 2009, an estimated 12-14 million heroin users consumed some 375 mt of heroin.

Europe and Asia remain the key opiate consumption markets. However, a range of opiates are consumed worldwide, including raw opium, morphine and local types of opiates.[1] Consumption of these substances is limited and generally confined to certain geographical areas. In recent years, problem drug use has also been related to the non-medical use of various prescription opioids, such as oxycodone, fentanyl or pethidine.

Global opium poppy cultivation amounted to some 195,700 ha in 2010, a 5% increase from 2009, mainly driven by increased cultivation in Myanmar. Cultivation in the Lao People's Democratic Republic increased in 2010, but remains at a low level. Over the last three years, although cultivation in Afghanistan has declined, it remains high (63% of global cultivation). The area under opium poppy cultivation in Afghanistan was estimated at some 123,000 ha in 2010, the same level as 2009.

Global opium production amounted to 4,860 mt in 2010, compared to 7,853 mt the year before. This was largely due to a drastic reduction in Afghanistan's opium production as a result of a disease in opium poppy plants. Forecasts for Afghan production in 2011, based on UNODC's *Winter Rapid Assessment* (February 2011), project a further small decline or at least a stabilization of overall opium poppy cultivation at the lower levels. Moreover, if the opium yield returns to the average level, it is likely that opium production will increase in Afghanistan in 2011.

On the basis of production, seizure and consumption data, an estimated 460-480 mt of heroin were trafficked (including seizures) worldwide in 2009. Of this, 375 mt reached the consumers. Opiate trafficking from production countries to consumer markets requires a global network of routes as well as facilitation by domestic and international criminal groups. In particular, traffickers' use of maritime transportation and seaports has been identified as a key emerging threat – one which is largely overlooked by international law enforcement. In 2009, more than 420 million containers were shipped worldwide, yet only 2% of these were inspected. Although the trafficking routes are constantly changing, the global movement of heroin from producers to international consumers follows well-established paths. Heroin from Myanmar is mainly trafficked to China and Mexican heroin is mainly trafficked to the United States of America, while Afghan heroin is trafficked to every region of the world, except South and Central America. Opiates flow from Afghanistan through Pakistan, the Islamic Republic of Iran and Central Asia before moving to the main consumer markets in West and Central Europe, East Europe, and East and South-East Asia.

Opiate users generated an estimated US$68 billion in revenue for traffickers in 2009 – with around US$60 billion from Afghan opiates. Local anti-government ele-

1 Produced by mixing locally grown opium poppy with acetic anhydride.

ments and criminal networks profit from the opiate trade in Afghanistan and neighbouring countries, but the bulk of the profits benefit international drug traffickers. According to conservative estimates (with a 10% net-profit margin[2]) organized crime groups made net profits of at least US$7 billion from the opiate trade.

Organized crime is a threat to political stability, public security and health in transit and destination countries. The underground economy produced by the global opiate trade is undermining legal economies and fuelling corruption in some countries. Opiates, especially heroin, also cause serious health problems, including the transmission of blood-borne infections such as HIV/AIDS and Hepatitis C.

## 2.2 Consumption

UNODC estimates that between 12 and 21 (midpoint: 16.5) million people used opiates at least once in the past year[3] in 2009, with an annual prevalence rate between 0.3% and 0.5% of the world's population aged 15-64. Although this section mainly analyses global 'opiate' consumption (heroin and opium), other opioids[4] are also considered as some Member States only provide overall opioid statistics rather than individual heroin or opium prevalence rates through the Annual Reports Questionnaire (ARQ).[5]

Heroin is the most commonly used opiate, consumed by some three quarters of global opiate users. There were an estimated 12-14 million heroin users worldwide in 2009. A range of opiates are consumed worldwide, however, including raw opium, morphine and local types of opiates, such as *kompot* or *cherniashka*.[6] Raw opium consumption is largely restricted to some parts of Asia, kompot or cherniashka are consumed almost exclusively in East Europe, and illicit morphine has an extremely limited consumer base. In recent years, the non-medical use of various prescription opioids[7] has increased in some countries, becoming one of the drug groups affecting problem drug users.

In terms of absolute numbers of users, most opioid users are in the Americas, particularly in North America, followed by Asia and Europe. However, if only opiate use is considered, more than half of the world's estimated opiate (heroin and opium) users are in Asia, followed by Europe and Africa. The global pattern of opioid use varies considerably by region. In the Americas and Oceania (New Zealand and Australia, in particular) the use of prescription opioids constitutes the main problem, while the use of heroin is limited. In Europe, in contrast, heroin is the main opiate used, with limited non-medical use of prescription opioids reported.[8]

In traditional opium-cultivating countries and some of their neighbours, opium use is more common than heroin use. This is particularly true in Afghanistan, the Lao People's Democratic Republic, Myanmar and the Islamic Republic of Iran. In Africa and Asia, while heroin is the main opiate used, there are reports indicating that non-medical use of prescription opioids is increasingly common in some countries.

In 2009, heroin users worldwide consumed some 375 mt of pure heroin.[9] In Asia, the vast majority of heroin consumption occurred in China, Pakistan, the Islamic Republic of Iran and India.[10] In the Americas, the United States of America dominated heroin consumption. In Europe, several countries, including the Russian Federation[11], the United Kingdom, Italy, France and Germany, are key heroin consumption countries. In Africa, consumption is mainly concentrated in East, West and Central Africa.

Raw opium consumption is much more limited than heroin consumption, both in terms of number of users and geographic reach. In 2008, there were an estimated 4 million opium users worldwide, who consumed 1.1 mt of opium.[12] Of the total number of global users, the vast majority – accounting for more than 80% of global consumption – was in Asia. Cultural practices and tradition may explain the concentration of opium use in Asia. Opium smoking is a traditional practice in some South-West Asian and South Asian countries, especially the Islamic Republic of Iran, Pakistan, Afghanistan and India, as well as in some areas of South-East Asia, nota-

2 This is a minimum profit margin. It could be much higher, but needs to be studied in detail.

3 This refers to the year prior to which the national estimates were derived and not necessarily the year 2009.

4 Opioid is a generic term applied to alkaloids from opium poppy, their synthetic analogues, and compounds synthesized in the body. In general, a distinction is made between 'opiates' (that is, the various products derived from the opium poppy plant including opium, morphine and heroin) and synthetic opioids. For the purpose of description in this section (and in line with the new Annual Report Questionnaire), 'opiates' in this section only refer to opium and heroin while 'prescription opioids' include morphine and codeine as well as synthetic opioids such as methadone, buprenorphine, propoxyphene, fentanyl, pentazocine, et cetera.

5 The ARQ used by Member States until 2010 included the broad category of opioids and the sub-categories of heroin, opium and 'other opioids.' The new ARQ approved by Member States in 2010 added the category 'misuse of prescription opioids' to the 'other opioids.'

6 Produced by mixing locally grown poppy with acetic anhydride

7 Such as oxycodone, fentanyl, or pethidine and in some instances the use of substitution opioids such as buprenorphine or methadone.

8 The extent of prescription opioid use in Europe needs to be further investigated.

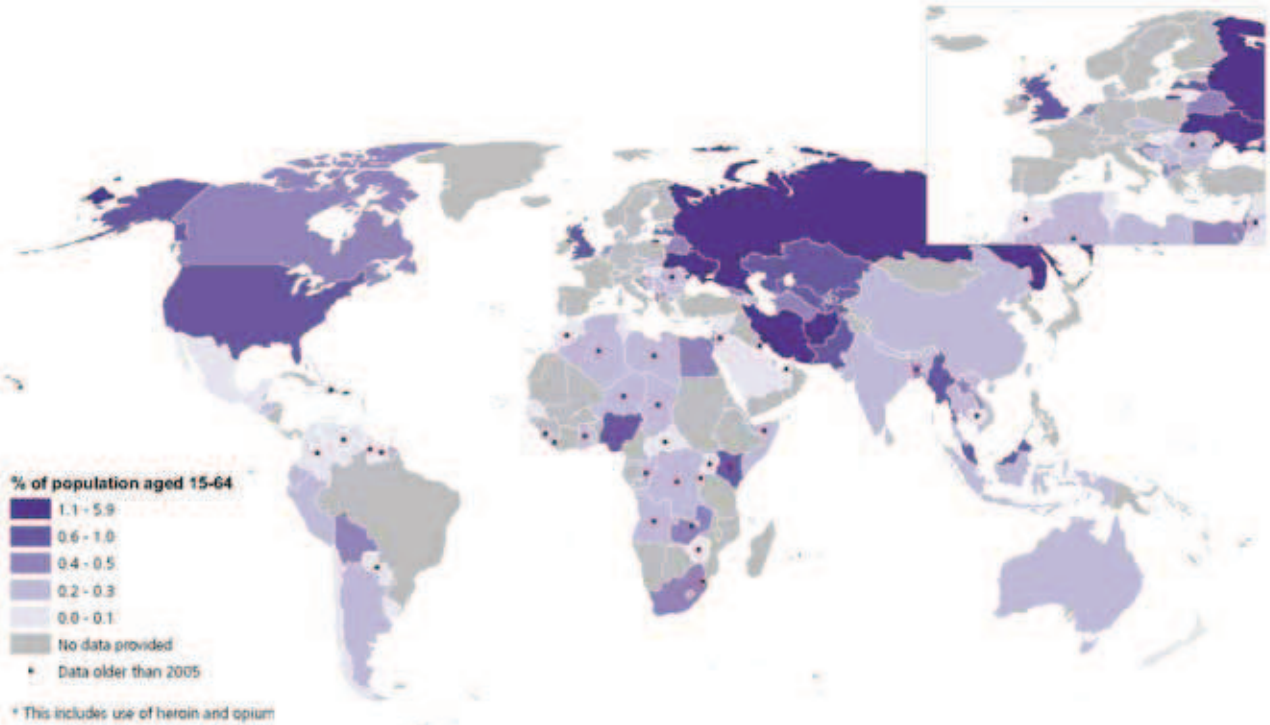
9 'Pure heroin' refers to heroin of 70% purity, which is roughly equivalent to 2,600 mt of heroin of 10% purity.

10 UNODC, *Addiction, Crime and Insurgency: The transnational threat of Afghan opium*, 2009.

11 Based on preliminary estimates by UNODC, since there are no comprehensive studies on prevalence of opiate use in the Russian Federation.

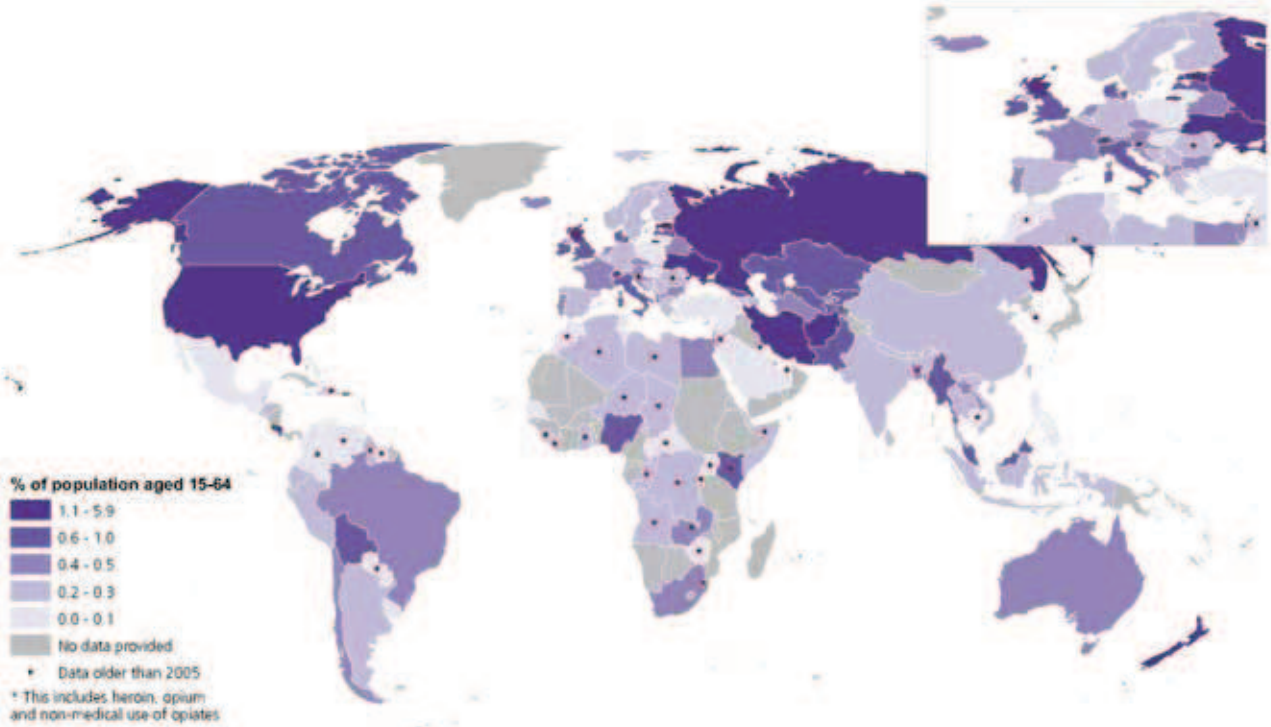
12 UNODC, *Addiction, Crime and Insurgency : The transnational threat of Afghan opium,* 2009.

## Map 5: Annual prevalence of opiates use, 2009 (or latest year available)



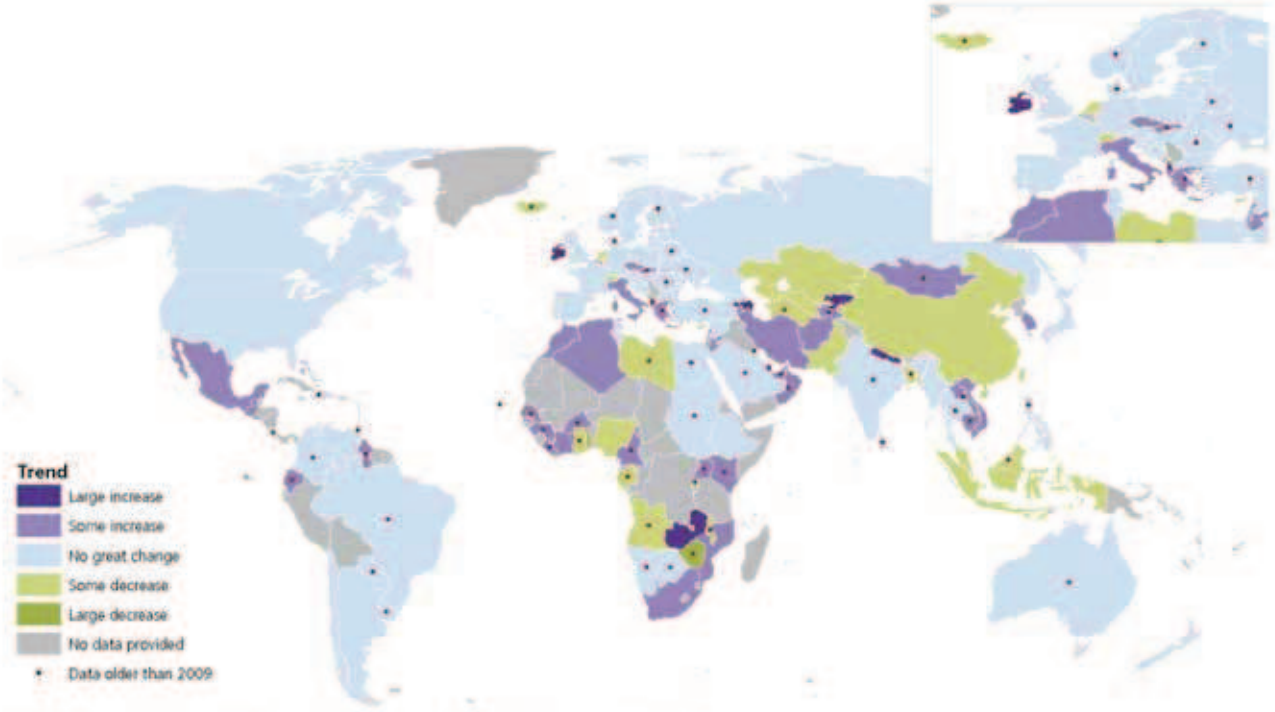

Note: For most West European countries the prevalence estimates are of opioid users without differentiating between opioid types and therefore data for many West European countries do not appear on this map.
The boundaries and names shown and the designations used on this map do not imply official endorsement or acceptance by the United Nations.
Dotted line represents approximately the Line of Control in Jammu and Kashmir agreed upon by India and Pakistan. The final status of Jammu and Kashmir has not yet been agreed upon by the parties.

## Map 6: Annual prevalence of opioids use, 2009 (or latest year available)




Note: The boundaries and names shown and the designations used on this map do not imply official endorsement or acceptance by the United Nations.
Dotted line represents approximately the Line of Control in Jammu and Kashmir agreed upon by India and Pakistan. The final status of Jammu and Kashmir has not yet been agreed upon by the parties.

**Map 7: Expert perceptions of changes in the use of opioids, 2009 (or latest year available)**



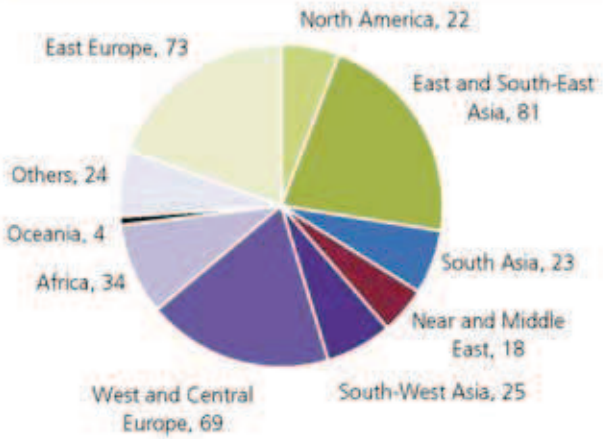

Note: The boundaries and names shown and the designations used on this map do not imply official endorsement or acceptance by the United Nations.
Dotted line represents approximately the Line of Control in Jammu and Kashmir agreed upon by India and Pakistan. The final status of Jammu and Kashmir has not yet been agreed upon by the parties.

bly the Shan State in Myanmar and the northern parts of the Lao People's Democratic Republic.

A number of opiate use trends have emerged over the last couple of years. Compared to 2008, opiate use remained almost stable worldwide. Afghanistan has the highest opiate prevalence rate, with opiate use rates also increasing in almost all of its neighbours. Overall opiate use increased from 1.4% in 2005 to 2.7% of the population aged 15-64 in Afghanistan in 2009. Opium use in Afghanistan increased between 2005 and 2009 by more than 50% to 1.9% of the population and heroin use increased by 140% to 1% of the population – and is thus now higher than in Europe. Although the Islamic Republic of Iran has the second highest opiate prevalence rate in the world, in terms of absolute figures, China and the Russian Federation[13] host the highest numbers of heroin users worldwide.

**Fig. 11: Distribution of heroin consumption by region, 2009 (375 mt)**

Source: UNODC




### Non-medical use of prescription opioids remains a major problem in the Americas

If all opioid use is considered, the annual prevalence rate increases to between 0.5% and 0.8% of the adult population, between 24 and 35 million people. Non-medical use of prescription opioids (normally marketed as pain relievers) is mainly reported from North America.

Estimates of overall annual opioid use in North America range between 3.9% and 4.4% of the population aged 15-64, mainly reflecting the non-medical use of prescription opioids. In 2009, the United States of America reported annual prevalence of opioid use, other than for medical purposes, at 5.6%, compared to 0.5% prevalence for chronic heroin users.[14] In 2009, 1.9 million people in the USA were diagnosed with substance abuse or dependence on prescription opioids.

13 Based on preliminary estimates by UNODC, since there are no comprehensive studies on prevalence of opiate use in the Russian Federation.

14 This is based on an estimate of chronic heroin users by ONDCP in 2000.

## Opioids and opiates

There are a number of terms used in this chapter in relation to opiates, opioids, synthetic opioids et cetera. The purpose of this box is to clarify the technical definition of these terms and explain the terminology used in presenting the data in this chapter.

### Technical definition

Opium is produced by the poppy plants and it contains psychoactive substances including morphine, codeine, thebaine, papaverine and noscapine. Opium, together with its psychoactive constituents and their semi-synthetic derivatives, for example heroin (derived from morphine) are described as opiates. Opioid is a generic term applied to two main sets of substances: opiates and synthetic substances (called synthetic opioids), with actions similar to those of morphine, in particular the capacity to relieve pain. The synthetic opioids include substances such as fentanyl, methadone, buprenorphine, propoxyphene, pentazocine and oxycodone. Another group of substances included in the generic category of opioids is the endogenous opioids, for example, the endorphins (endogenous morphine) and enkephalins. These are naturally produced by the human body and have actions similar to morphine. Some of these substances, such as the enkephalins, have been synthesized and are available from commercial sources.

### Data presented on drug use in relation to opiates and opioids

Data on drug use provided by Member States, have traditionally included the generic category of opioid users and the sub-classification of heroin users, opium users and users of 'other opiates.' In 2010, the Commission on Narcotic Drugs approved a new questionnaire (Annual Report Questionnaire, ARQ) for future data reporting. The ARQ includes the generic category for opioid use and three sub-categories defined as i) use of opiates (heroin and opium), ii) non-medical use of prescription opioids (morphine, codeine and synthetic opioids such as methadone, buprenorphine, propoxyphene, fentanyl, pentazocine and oxycodone) and iii) use of other illicit opioids.

While morphine and codeine are technically classified as opiates, it is important to note that these have been placed under the sub-category of 'prescription opioids' for the purposes of data reporting to UNODC.

Despite far higher levels of non-medical use of prescription opioids, treatment data suggest that the USA is still facing a serious heroin problem: 71% of all opioid-related treatment admissions in 2008 were due to heroin use. But data also showed that treatment for heroin use remained stable over the last decade, while treatment admissions related to prescription opioids increased strongly, raising its share in total opioid-related treatment admissions from 7% in 1998 to 29% in 2008.

With regard to Emergency Department visits, data for 2009 suggest that more visits are related to the non-medical use of prescription opioids (narcotic analgesics: 129.4 visits per 100,000 people) than to the use of heroin (69 visits per 100,000 people).[15]

However, in 2009, data from the US household survey showed a stronger increase in heroin use than non-medical use of prescription opioids. The number of heroin users identified via the household survey rose by 33% compared to 2008, while the number of users of prescription opioids rose by 4%. None of these increases

15 US Department of Health and Human Services, *Highlights of the 2009 Drug Abuse Warning Network (DAWN) Findings on Drug-Related Emergency Department Visits,* 2009.

**Fig. 12: National admissions to substance abuse treatment in the USA, 1998-2008**

Source: SAMHSA, Treatment Episode Data Set (TEDS), 1998-2008

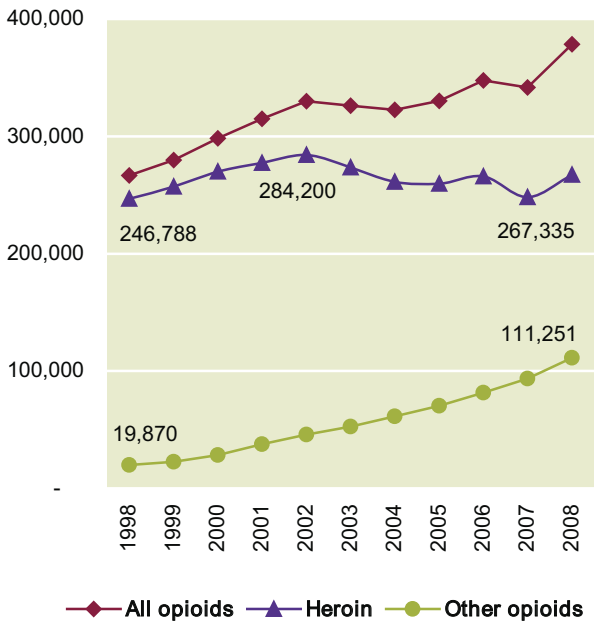


**Table 10: Annual prevalence and estimated number of opiate users,* by region, subregion and globally, 2009**

*Opiate estimates for Europe - where countries reported only opioid estimates - were derived by using the distribution of opiate users within the overall number of opioid users in treatment.

| Region/subregion | Estimated number of users annually (lower) | - | Estimated number of users annually (upper) | Percent of population aged 15-64 (lower) | - | Percent of population aged 15-64 (upper) |
|---|---|---|---|---|---|---|
| **Africa** | 890,000 | - | 3,210,000 | 0.2 | - | 0.6 |
| East Africa | 140,000 | - | 1,310,000 | 0.1 | - | 1.0 |
| North Africa | 130,000 | - | 550,000 | 0.1 | - | 0.4 |
| Southern Africa | 210,000 | - | 280,000 | 0.3 | - | 0.3 |
| West and Central Africa | 410,000 | - | 1,070,000 | 0.2 | - | 0.5 |
| **Americas** | 1,180,000 | - | 1,910,000 | 0.2 | - | 0.3 |
| Caribbean | 50,000 | - | 80,000 | 0.2 | - | 0.3 |
| Central America | 20,000 | - | 20,000 | 0.1 | - | 0.1 |
| North America | 1,000,000 | - | 1,630,000 | 0.3 | - | 0.5 |
| South America | 110,000 | - | 170,000 | 0.0 | - | 0.1 |
| **Asia** | 6,440,000 | - | 12,020,000 | 0.2 | - | 0.4 |
| Central Asia | 320,000 | - | 320,000 | 0.6 | - | 0.6 |
| East/South-East Asia | 2,800,000 | - | 4,990,000 | 0.2 | - | 0.3 |
| Near and Middle East | 1,940,000 | - | 3,540,000 | 0.8 | - | 1.4 |
| South Asia | 1,380,000 | - | 3,170,000 | 0.2 | - | 0.4 |
| **Europe** | 3,110,000 | - | 3,470,000 | 0.6 | - | 0.6 |
| East/South-East Europe | 2,100,000 | - | 2,300,000 | 0.9 | - | 1.0 |
| West/Central Europe | 1,010,000 | - | 1,170,000 | 0.3 | - | 0.4 |
| **Oceania** | 40,000 | - | 50,000 | 0.2 | - | 0.2 |
| **Global** | **11,660,000** | **-** | **20,660,000** | **0.3** | **-** | **0.5** |

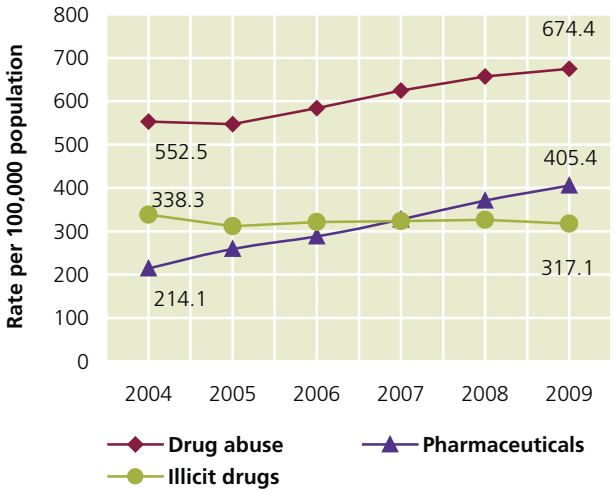
were, however, statistically significant. Nonetheless, the number of first-time heroin users also increased strongly. Around 180,000 persons aged 12 or older had used heroin for the first time within the past 12 months. The number of first-time heroin users in 2009 was significantly higher than the 2002-2008 average, which was slightly above 100,000.[16]

Furthermore, an estimated 2 million people aged 12 years or older had initiated their drug use with prescription pain relievers. Of these, 55.3% obtained the drug from a friend or relative for free, 17.6% from a doctor, 4.8% from a drug dealer or other stranger, and 0.4% bought them on the Internet.[17]

In 2009, non-medical use of prescription opioids in Canada was reported at 0.5%, the same level as 2008,

**Fig. 13: Trends in drug-related emergency department visits per 100,000 inhabitants, USA, 2004-2009**

Source: US Department of Health and Human Services, Highlights of the 2009 Drug Abuse Warning Network (DAWN) Findings on Drug-Related Emergency Department Visits, 2009.




16 SAMHSA, *National Survey on Drug Use and Health (NSDUH)*, 2009.
17 Ibid.

**Fig. 14: Drugs injected by drug users in Canada, 2006**

Source: Public Health Agency of Canada, Enhanced Surveillance of Risk Behaviours among injecting drug users in Canada, Phase I Report, 2006.

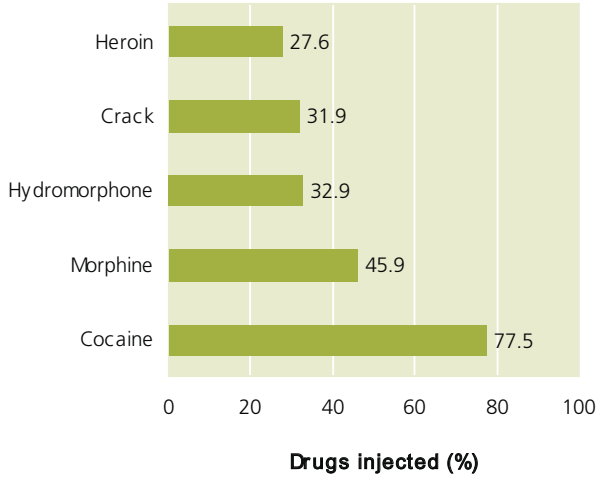
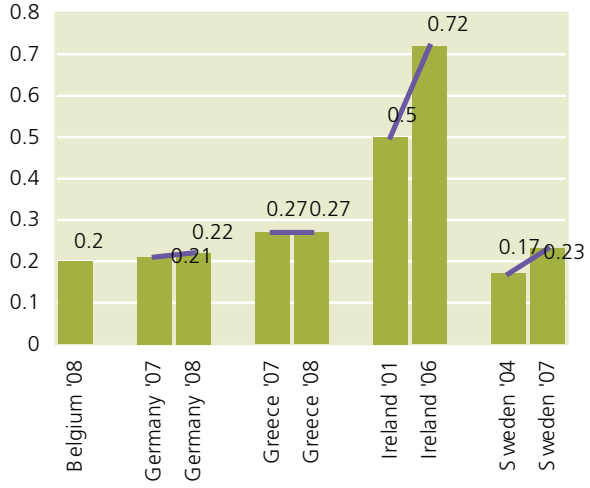



**Fig. 15: Countries with revised estimates of annual prevalence of opioid use in Europe, various years**

Source: UNODC ARQ.




while heroin use was estimated at 0.36%.[18] Like in many other countries, injecting opioids, including heroin, is reportedly common among problem drug users in Canada. Of the injecting drug users participating in a behavioural surveillance study in Canada in 2006, half of the participants reported injecting non-prescribed morphine, while 27.6% reported injecting heroin in the months prior to the interview.[19] In line with results in other countries, the seroprevalence for HIV among the participants was 13.4% while that of Hepatitis C was 65.7%.[20]

In South America, the annual prevalence of opioid use (mainly non-medical use of prescription opioids) is estimated at between 0.3 - 0.4% of the adult population, or between 850,000 - 940,000 people aged 15 - 64. The Plurinational State of Bolivia (0.6%), Brazil (0.5%) and Chile (0.5%) remain countries with high opioid use rates. In Central America, Costa Rica's rate is higher than the global average (2.8%). In South and Central America, codeine-based preparations are among the most commonly used opioids. Treatment demand in the entire region has remained stable over the past few years. In 2009, 9.6% of treatment cases were related to opioid use.

**Despite stabilizing heroin consumption levels in Europe, associated social and health problems are not diminishing**

Heroin is the main opiate used in Europe. Opiate (mainly heroin) prevalence in Europe[21] is estimated at 0.6% of the population aged 15-64, or between 3.1 and 3.5 million people. At 0.9% - 1.0%, the opiate use prevalence in East and South-East Europe is higher than in West Europe. Overall, experts from more than half of the countries in Europe reporting through the ARQ perceived opioid trends to be stable. New or updated prevalence estimates for a number of countries in Europe were published in 2010, including Austria, Belgium, Cyprus, Germany, Greece, Ireland, Italy, Luxembourg and Sweden. Among these, Ireland and Sweden reported an increase in the annual prevalence rates, while other countries reported stable opioid use trends.

The highest opioid use prevalence rates in West and Central Europe were reported from the United Kingdom (estimated 350,000 users), Italy (216,000 users) and France (190,000 users). In East Europe, the Russian Federation (1.7 million opiate users)[22] and Ukraine (370,000 opiate users) had high opiate prevalence rates in 2009. Most of the users in the above-mentioned countries are heroin users.

18 Estimated by UNODC, based on 1% prevalence of injecting drug use (estimated 220,690 IDU in 2004) reported by the Reference group to the UN on HIV and injecting drug use, 2008.

19 Public Health Agency of Canada, *Enhanced Surveillance of Risk Behaviours among injecting drug users in Canada, Phase I Report,* 2006.

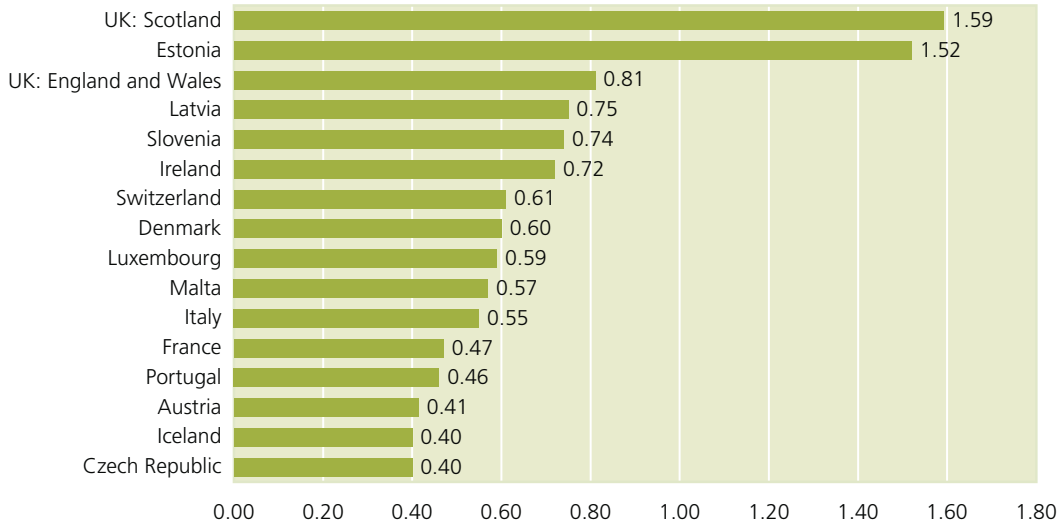
20 Ibid.

21 Opiate estimates for Europe - where countries reported only opioid estimates - were derived by using the distribution of opiate users within the overall number of opioid users in treatment.

22 These estimates are preliminary, since there are no comprehensive studies on prevalence of opiate users in the Russian Federation. The estimate of opiate users ranges from 0.3% - 1.64% of the population aged 15-64. The estimate of 1.64% is based on the number of opiate users in treatment for 2007, using a treatment multiplier of 5.3% taken from a study conducted by the National Addiction Centre of the Russian Federation: *Dynamics of Drug Related Disorders in the Russian Federation, 2007.*

**Fig. 16: Prevalence of opioid use in West and Central Europe, 2009 or most recent year available**

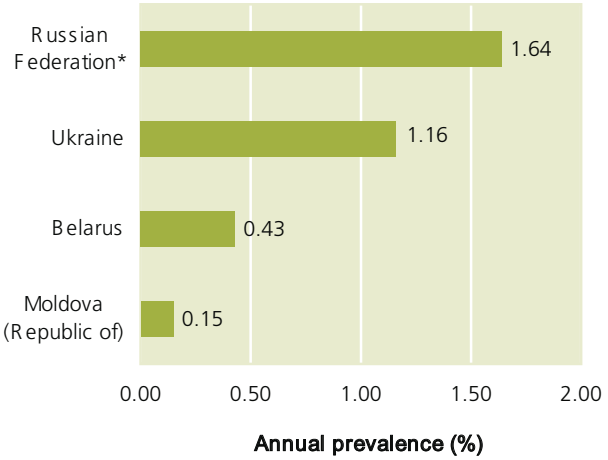
Source: UNODC.




Of the 1 million people in Europe who received treatment for illicit drug use in 2007, more than half received opioid substitution treatment (mainly methadone, to a lesser extent buprenorphine and, in some countries, slow-release morphines). Like in the past, heroin and its metabolites were reported as the main cause of the majority of drug-induced deaths in Europe, accounting for more than two thirds of all cases reported from 20 countries. The average age of those who died due to heroin use was the mid-thirties, suggesting a stabilization or decrease in the number of young heroin users in Europe. The EMCDDA *Annual Report 2010* suggests that for each drug-induced death, there are an estimated 20-25 non-fatal overdose cases.

**Fig. 17: Prevalence of opiate use in East Europe, 2009 or most recent year available**

*Based on preliminary estimates by UNODC, since there are no comprehensive studies on prevalence of opiate use in the Russian Federation.
Source: UNODC ARQ.



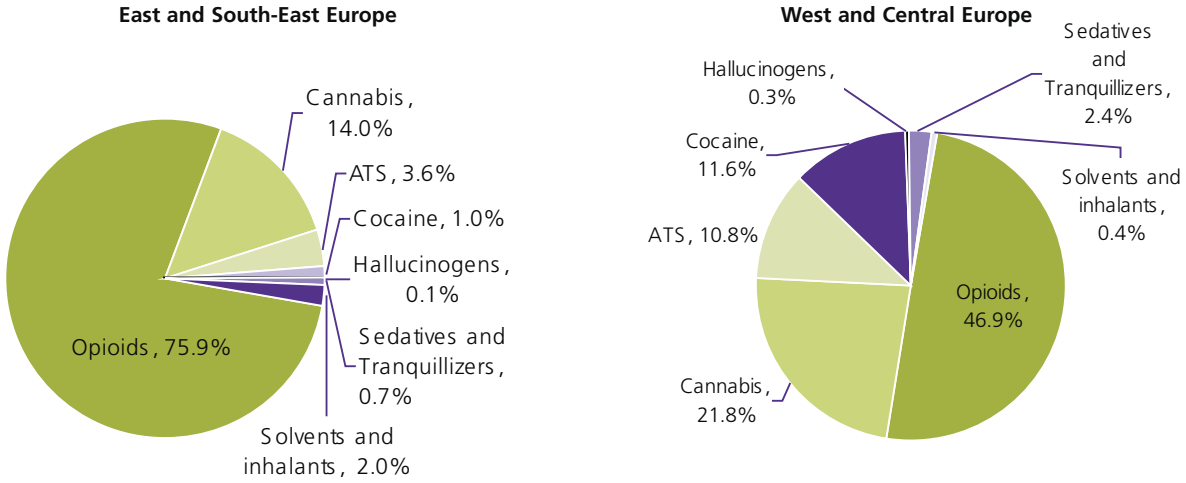

**Heroin use is stabilizing in East and South-East Asia, but is perceived to be increasing in some other parts of Asia**

Asian opiate prevalence estimates range between 0.2 and 0.5% of the population aged 15-64, or an estimated 6.5 to 13.2 million people. Most of the opiate users in Asia reportedly use heroin or opium, and more than half of the world's estimated opiate users live in Asia. Although recent prevalence estimates are not available for most countries in Asia, less than half (46%) of the countries that responded to the ARQ perceived an increase in opioid use. However, 38% of the responding countries, mostly in South-East Asia, perceived a decrease in 2009.

Countries in South-West Asia continue to have high prevalence rates for opiate use. Together, these countries account for nearly one third of opiate users in Asia. In Afghanistan, around 60% of the estimated opiate users use opium. In the Islamic Republic of Iran, 40% of the estimated opiate users consume opium, and the rest mainly consume heroin. In the Islamic Republic of Iran, 83% of treatment admissions in 2009 were for opiate use, in Pakistan, the share was 41% in 2006/2007. Opiates are also the most common cause of drug-related deaths reported in these countries. In the Islamic Republic of Iran, the rate of drug-related deaths was 91 per 1 million people aged 15-64; the majority of these related to opiate use. Moreover, overall opiate use in Afghanistan increased from 1.4% in 2005 to 2.7% of the population aged 15-64 in 2009. Heroin remains the most problematic illicit drug in Central Asia and the Caucasus. Experts in Central Asia perceived a stabilizing trend of opioid use, but the proportion of officially registered heroin users continued to increase, with 47% of registered drug users in Kyrgyzstan identifying themselves as

**Fig. 18: Treatment demand in Europe, 2009 or most recent year available***

Source : UNODC ARQ.
* Treatment definitions and data reporting differ from country to country. Therefore, totals may not sum up to, or may exceed, 100%.



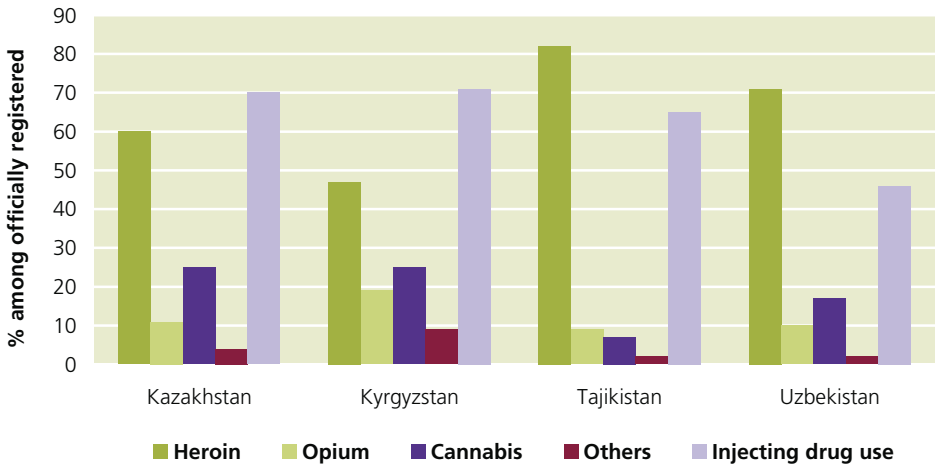

heroin users, and 82% in Tajikistan in 2009.[23] Injecting drug use is also common, with shares ranging from 46% of drug users in Uzbekistan to around 70% in Kyrgyzstan and Kazakhstan.[24] Opiate prevalence in the Caucasus is lower than the world average, ranging from 0.31% in Georgia to 0.22% in Armenia. With the exception of Azerbaijan, opioids is also the main substance group reported in drug-related death cases in the region, with rates ranging from 7 per million people aged 15-64 in Uzbekistan to 115 in Kazakhstan.

Although most of the countries in South Asia lack recent opiate use estimates, use levels seem to vary in the region. A 2006 study of drugs and HIV in South Asia[25] found that 90% of the drug users interviewed in Bangladesh and 2% in Bhutan were currently using heroin (either smoking or injecting). Additionally, among the respondents, the use of prescription opioids ranged from 1% in Bhutan and Sri Lanka to 20% in India. Heroin injection was most common among drug users in Nepal, followed closely by those in India.

In East and South-East Asia, opiates continue to be used at high rates. In 2009, heroin ranked as the main drug used in China, Malaysia, Myanmar, Singapore and Viet Nam. Most countries in the region have reported stable

**Fig. 19: Central Asia: Use of different drugs and injecting drug use among officially registered drug users, 2009**

Source: UNODC, *Compendium of drug related statistics: 2009*, Regional Office for Central Asia, 2009.




23 UNODC, *Compendium of drug related statistics:* 2009, Regional Office for Central Asia, 2009.

24 Ibid.

25 UNODC, *Rapid Situation and Response Assessment of Drugs and HIV in Bangladesh, Bhutan, India, Nepal and Sri Lanka: A regional Report*, 2006.

**Table 11: South Asia: Use of opioids among drug users, 2006**

Source: UNODC Rapid Situation and Response Assessment of Drugs and HIV in Bangladesh, Bhutan, India, Nepal and Sir Lanka: A regional report, 2006.

| | Opium | Heroin smoked | Heroin injected | Propoxyphene | Buprenorphine |
|---|---|---|---|---|---|
| **Bhutan (n=200)** | | | | | |
| Ever used | 0 | 37 | 3 | 32 | 28 |
| Current users | 0 | 4 | 3 | 3 | 2 |
| % of current users | 0 | 2 | 1.5 | 1.5 | 1 |
| **Bangladesh (n=1073)** | | | | | |
| Ever used | 140 | 989 | 46 | 3 | 295 |
| Current users | 7 | 961 | 6 | 1 | 154 |
| % of current users | 0.7 | 89.6 | 0.6 | 0.1 | 14.4 |
| **India (n=5732)** | | | | | |
| Ever used | 1535 | 3017 | 1623 | 1713 | 1466 |
| Current users | 858 | 2123 | 1228 | 1103 | 1115 |
| % of current users | 15 | 37 | 21.4 | 19.2 | 19.5 |
| **Nepal (n=1322)** | | | | | |
| Ever used | 181 | 1159 | 606 | 149 | 1013 |
| Current users | 117 | 880 | 456 | 97 | 858 |
| % of current users | 8.9 | 66.6 | 34.5 | 7.3 | 64.9 |
| **Sri Lanka (n=1016)** | | | | | |
| Ever used | 107 | 558 | 23 | 39 | 6 |
| Current users | 36 | 520 | 4 | 14 | 0 |
| % of current users | 3.5 | 51.2 | 0.4 | 1.4 | 0 |

or decreasing trends in opiate use, except the Lao People's Democratic Republic, Singapore and Viet Nam.[26] Opiate prevalence increased from 0.6% in 2008 to 0.8% in Myanmar in 2010.[27] As in previous years, the prevalence of opium use in the opium-growing villages in Myanmar (1.7%) was higher than in the non-opium growing villages (0.6%). With an estimated prevalence of 0.18% of the population aged 15 and above,[28] heroin use in Myanmar is less widespread than opium use. Treatment demand for heroin dependence remains high across East and South-East Asia, ranging from 50% of all treatment demand in Singapore to around 80% in China and 98% in Viet Nam.

### Opiate use remains low in the Middle East

The opiate prevalence rate remains low in countries in the Middle East, with heroin being the main opiate consumed. In terms of treatment demand, heroin and prescription opioids are reported as the primary substances in many countries, including Oman (100%), the Syrian Arab Republic (95%), United Arab Emirates (64%) and Lebanon (57%). Opiates are also ranked as the main substance among drug-related deaths, with rates ranging from 4.6 per million people aged 15-64 in the United Arab Emirates to 44.3 in Bahrain.[29]

### Heroin use in Africa is perceived to be increasing

In 2009, the annual prevalence of opiate use in Africa was estimated at between 0.2% and 0.6% of the population aged 15-64, or 890,000-3.2 million people. The wide range reflects missing data from most parts of the continent. Heroin remains the main opiate used in Africa, but there are reports of common non-medical use of prescription opioids in some countries.

The majority of African countries that provided information to UNODC reported that opioid use has increased. In 2009, 60% of the countries that responded to the ARQ reported an increase in the use of opioids in

26 UNODC, *Patterns and Trends of Amphetamine-Type Stimulants and other Drugs: Asia and the Pacific*, Global SMART Programme, 2010

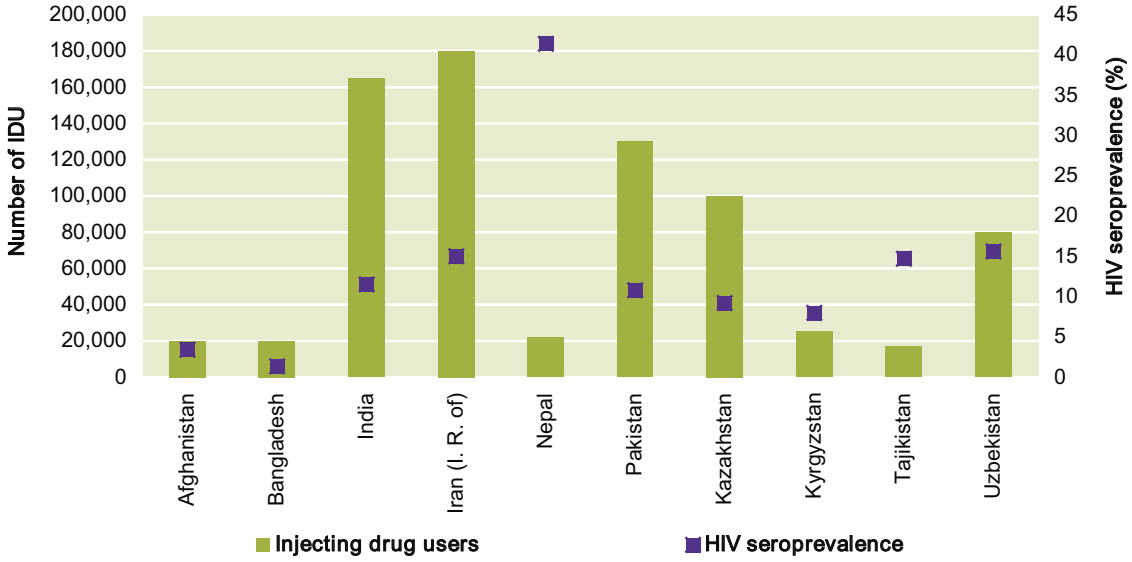
27 UNODC, *South-East Asia Opium Survey 2010: Lao People's Democratic Republic, Myanmar*, 2010.

28 Ibid.

29 UNODC ARQ.

**Fig. 20: Number of injecting drug users and HIV seroprevalence in West, Central and South Asia, most recent year available**

Source: Reference Group to the United Nations on HIV and Injecting Drug Use.




their country, while just 30% reported a decrease.[30] The annual opiate prevalence rate is higher in East Africa – at 0.1-1% – than other subregions.

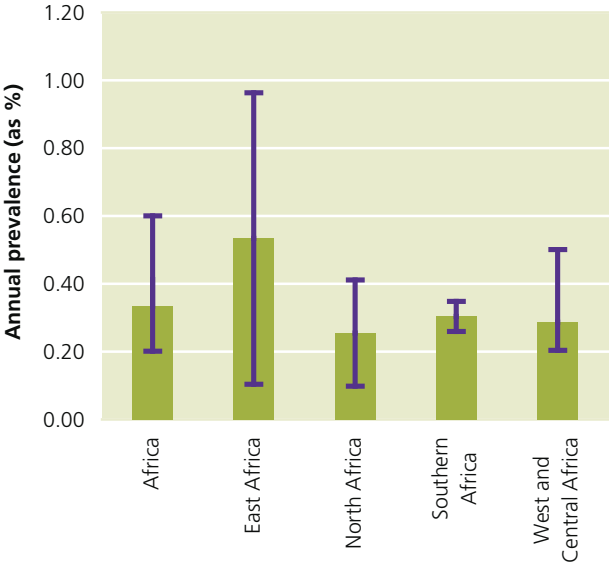
In East Africa, Mauritius (0.91%) and Kenya (0.73%) have high prevalence rates for heroin use. However, at 1.04%, non-medical use of prescription opioids in Mauritius is higher than heroin use. In 2009, a survey of alcohol and drug use was conducted in 4,500 households in the coastal provinces of Kenya; the prevalence of heroin use was reported at 1.9% of the population, with a higher prevalence of 2.5% among young adults aged 18-25.[31] Injecting drug use, especially of heroin, is reportedly common among drug users in Kenya, and the HIV seroprevalence rate for this group was found to be very high, 42.9%.[32]

Although there are currently no reliable estimates of opiate use in the United Republic of Tanzania, increasing trends of injecting heroin have been reported, especially from the coastal areas. An HIV seroprevalence study conducted in 2006 showed HIV seroprevalence levels at 27% among male and 58% among female injecting drug users.[33] Similarly, in a study of HIV among drug users in Zanzibar, injecting drug users accounted for 46% of those interviewed, with 30% HIV infected and 22% showing positive Hepatitis C seroprevalence.[34]

In 2009, the opiate prevalence rate (mainly heroin) was estimated to have increased from 0.57% to 0.70% in Nigeria. This means that Nigeria would host almost 500,000 – 600,000 heroin users.

**Fig. 21: Annual prevalence of opiate use in Africa, by region, 2009**

Source: UNODC ARQ.




30 UNODC ARQ.

31 NACADA, *Report of Survey on Drugs and Substance Abuse in Coast Province, Kenya,* March 2010.

32 Mathers, B., Degenhardt, L., Phillips, B., Wiessing, L., Hickman, M., Strathdee, A., Wodak, A., Panda, S., Tyndall, M., Toufik, A. and Mattick, R., on behalf of the Reference Group to the United Nations on HIV and Injecting Drug Use, 'Global epidemiology of injecting drug use and HIV among people who inject drugs: a systematic review', *The Lancet,* 2008; 372:1733-1745.

33 Timpson, S., et al, 'Substance abuse, HIV risk and HIV and AIDS in Tanzania,' *African Journal of Drug and Alcohol Studies*, 5(2), 2006.

34 Dahoma , J., et al, 'HIV and substance abuse: the dual epidemics challenging Zanzibar,' *African Journal of Drug and Alcohol Studies*, 5(2), 2006.

**Fig. 22: Treatment demand in Africa, 2009 or most recent year available***

* Treatment definitions and data reporting differ from country to country. Therefore totals may not sum up to, or may exceed, 100%.

Source: UNODC ARQ.

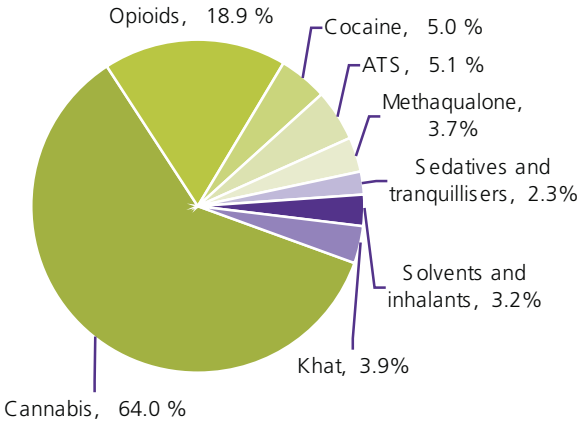



**Fig. 23: Drug of choice, Australia, 2000-2009**

Source: Illicit Drug Reporting System, Australia.

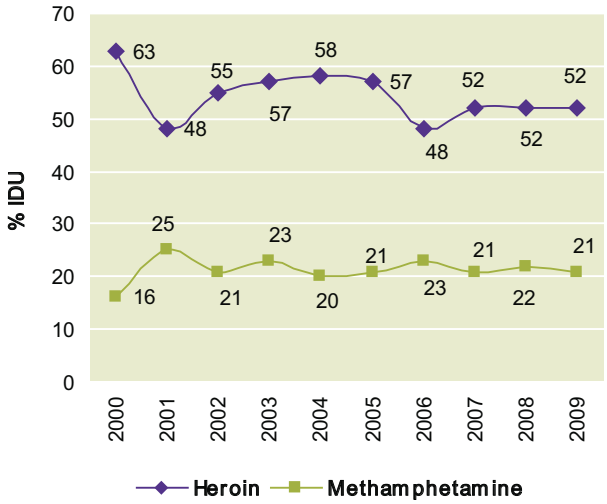
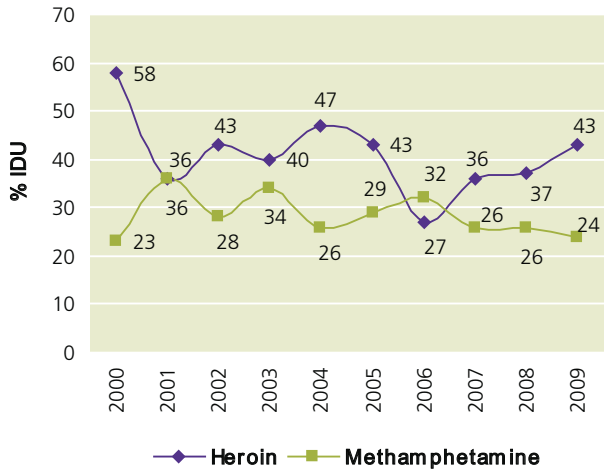



**Fig. 24: Drug injected most often in the last month, Australia, 2000-2009**

Source: Illicit Drug Reporting System, Australia.




Opiates already constitute the main drug group users seek treatment for in many countries in the region, ranging from 81% of those treated in Mauritius, 55% in Mozambique, 45% in Seychelles and 33% in the United Republic of Tanzania. Among the limited countries reporting mortality data, opiates were also ranked as the main substance group responsible for drug-related deaths.

### Stable trend of heroin use in Oceania

In 2007, 0.4% of the population aged 15-64 in Australia, around 57,000 people, were reported to have used heroin, street methadone and/or other opioids in the preceding 12 months. In 2008, 1.7% of students aged 12-17 who participated in the Australian secondary school survey had used opioids, other than for medical reasons.[35]

The Illicit Drug Reporting System (IDRS) in Australia showed that heroin continues to be the main drug of choice among injecting drug users. After a strong decline in 2001, the proportion of such users reporting heroin as the last drug or the drug injected most often declined again over the 2004-2006 period. Since then, however, there has been a steady increase in heroin use among injecting drug users, from 27% in 2006 to 43% in 2009, which could be an early indication that the stabilization of heroin use in Australia may be coming to an end. The proportions of injecting drug users consuming heroin are, however, still substantially lower than in 2000 (58%).[36] Furthermore, morphine, followed by oxycodone, remained the most commonly injected prescription opioids among injecting drug users.

The HIV seroprevalence among injecting drug users in Australia remained low, at 1.5% over the 2005-2008 period, while the Hepatitis C (HCV) seroprevalence was reported at 63%.[37] The rate of HCV seroprevalence was even higher among drug users who reported heroin or

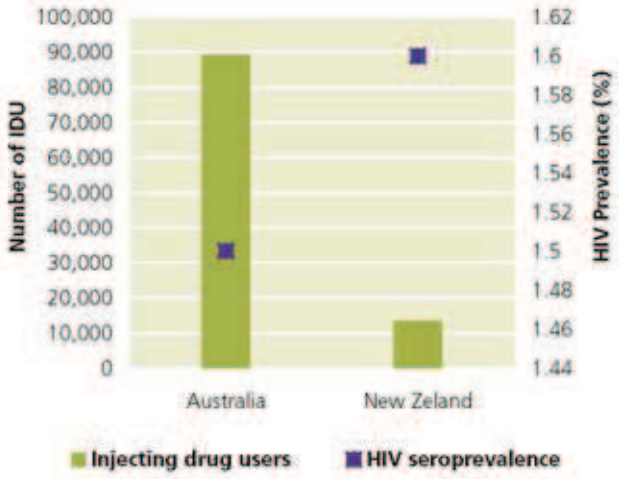
35 White V. and Smith, G., *Australian secondary school students 'use of tobacco, alcohol, and over the counter and illicit substances in 2008*, Drugs Strategy Branch, Australian Department of Health and Ageing.

36 Rainsford, C., Lenton, S. and Fetherston, J., 'Indicators of changing trends in heroin and other opioid use in IDRS data nationally and in Western Australia,' *Drug Trends Bulletin*, April 2010, Sydney: National Drug and Alcohol Research Centre, University of New South Wales.

37 UNODC ARQ.

**Fig. 25: Number of injecting drug users and HIV seroprevalence, Australia (2005-2009) and New Zealand (2006)**

Sources: National Centre in HIV Epidemiology and Clinical Research, Australian NSP Survey National Data Report 2005-2009, The University of New South Wales; Reference Group to the United Nations on HIV and Injecting Drug Use.

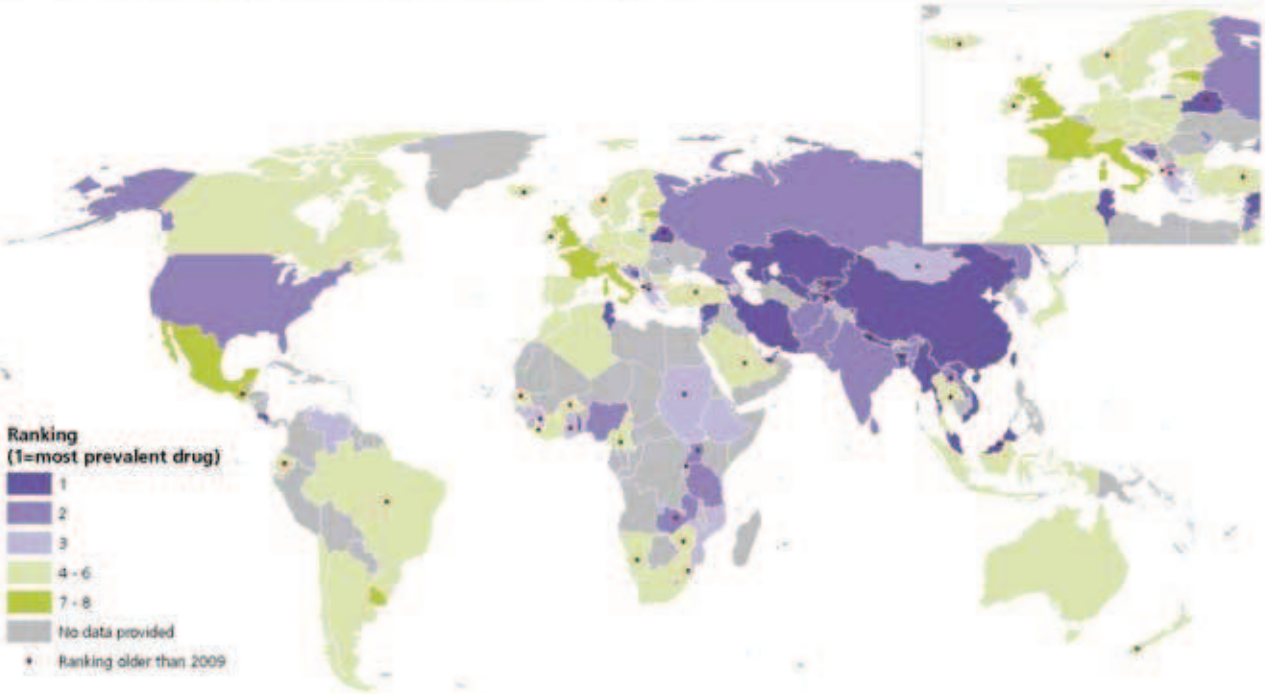



pharmaceutical opioids as the last drug injected.[38] Opioids were also the leading cause of drug-related deaths in Australia, at 118.9 deaths per million people aged 15-64.

According to New Zealand's 2007/08 Alcohol and Drug Use Survey, 1.1% of adults aged 16-64 had used an opioid in the past twelve months. This included heroin and non-medical use of prescription painkillers such as morphine. During the survey period, the non-medical use of prescription painkillers (1%) was much higher than the use of opiates (0.1%).[39] However, among arrestees testing positive for illicit drugs in 2007, 68% tested positive for cannabis, 3.6% for opiates and 1.2% for non-prescription use of methadone.[40] In 2009, the majority of drug users were treated for opioid and cannabis use. The HIV seroprevalence among injecting drug users in New Zealand is reportedly 1.6%, whereas HCV seroprevalence is 70%.

No recent or reliable information is currently available on opioid use for the remaining parts of Oceania, especially the Pacific Island states.

**Map 8: Ranking of opiates in order of prevalence, 2009**




Note: The boundaries and names shown and the designations used on this map do not imply official endorsement or acceptance by the United Nations.
Dotted line represents approximately the Line of Control in Jammu and Kashmir agreed upon by India and Pakistan. The final status of Jammu and Kashmir has not yet been agreed upon by the parties.

38 National Centre in HIV Epidemiology and Clinical Research, *Australian NSP Survey National Data Report 2005-2009*, The University of New South Wales, Sydney, 2010.

39 Drug use in New Zealand, Key Results 2007/08, *New Zealand Alcohol and Drug Use Survey*, Ministry of Health 2010.

40 Hales, J. and Manser, J., NZ-ADAM, Health Outcomes International, New Zealand Police, Annual Report 2007.

## 2.3 Production

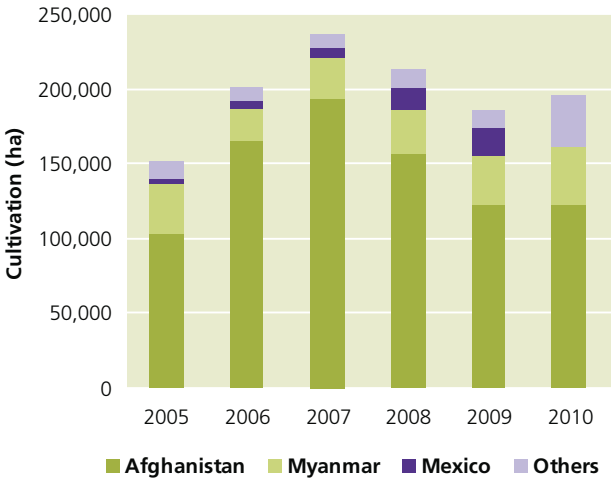
In 2010, the total area under opium poppy cultivation was some 195,700 ha, a 5% increase from 2009. While Afghanistan continued to account for the bulk of the cultivation, some 123,000 ha, increased cultivation in Myanmar was the main driver behind the global increase. In the 3-year period since 2007, opium cultivation in Afghanistan has actually declined, although it remains at high levels. Cultivation in Myanmar and Mexico has increased significantly. In 2006, opium poppy cultivation in Myanmar was 21,500 ha; the lowest since 1996. Since then, it has been steadily increasing. In addition to Myanmar, opium cultivation increased by almost 60% in the Lao People's Democratic Republic in 2010, although it remains at a low level.

A 2010 estimate for opium poppy cultivation in Mexico was not available at the time of writing. Therefore, the 2009 estimate was used to calculate the total global cultivation in 2010. Opium poppy cultivation in Mexico appears to have been steadily increasing over the 2005-2009 period, amounting to 19,500 ha in 2009, the third

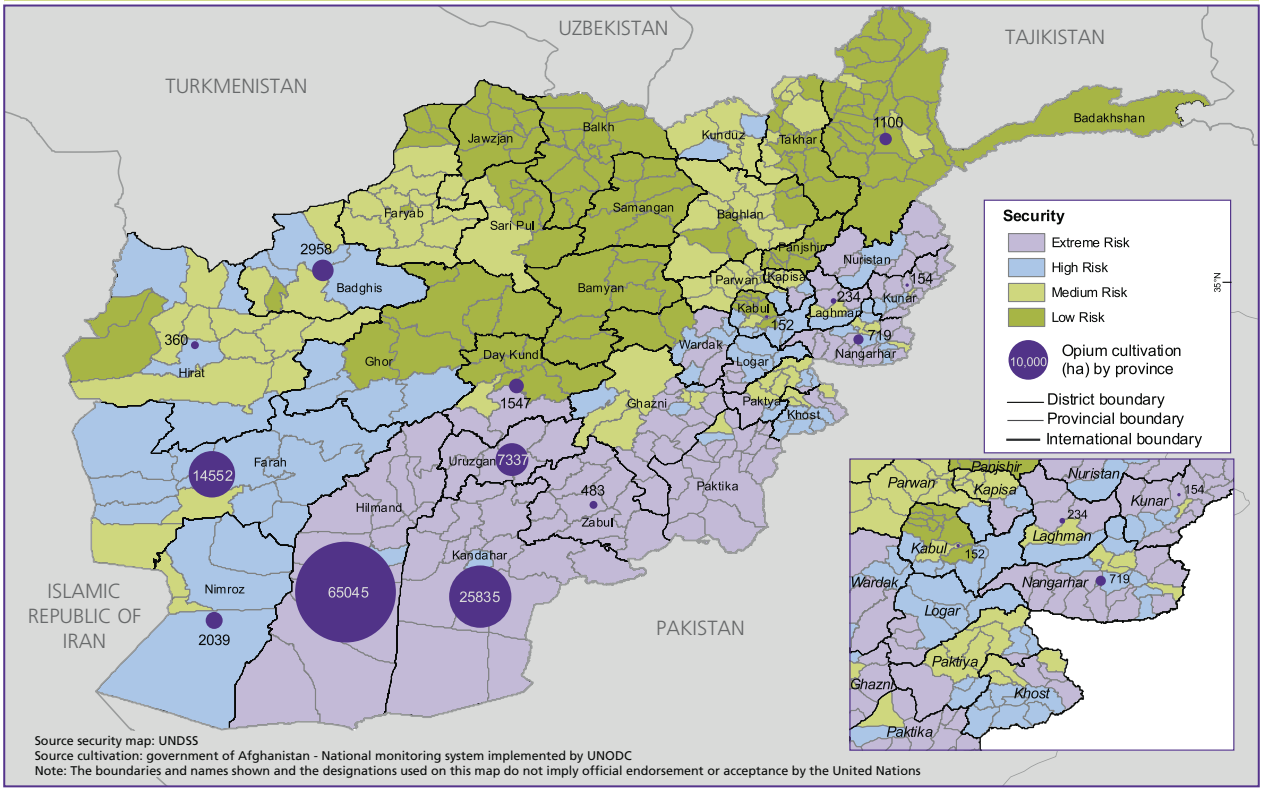
**Fig. 26: Global cultivation of opium poppy (ha),* 2005-2010**

* For Mexico, in the absence of data for 2010, the estimate for 2009 was imputed to 2010.

Source: UNODC ARQ.




**Map 9: Security map (as of 30 March 2010) and opium cultivation in Afghanistan by province, 2010**




Source security map: UNDSS
Source cultivation: government of Afghanistan - National monitoring system implemented by UNODC
Note: The boundaries and names shown and the designations used on this map do not imply official endorsement or acceptance by the United Nations

**Table 12: Reported opium poppy eradication in selected countries (ha), 1996 to 2010**

* Although eradication took place in 2004, it was not officially reported to UNODC.
In this table, only eradication reported in area units is considered. Eradication reported as plant seizures can be found in the seizure annex of the electronic version of the World Drug Report.
Sources: UNODC, Annual Reports Questionnaire, Government reports, reports of regional bodies, INCSR.

| | 1996 | 1997 | 1998 | 1999 | 2000 | 2001 | 2002 | 2003 | 2004 | 2005 | 2006 | 2007 | 2008 | 2009 | 2010 |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Afghanistan | | | | 400 | 121 | | | 21,430 | * | 5,103 | 5,300 | 9,047 | 5,480 | 5,351 | 2,316 |
| Colombia | 6,885 | 6,988 | 2,901 | 8,249 | 9,254 | 2,385 | 3,577 | 3,266 | 3,866 | 2,121 | 1,929 | 375 | 381 | 546 | |
| Egypt | | | | | | | 15 | 34 | 65 | 45 | 50 | 98 | 121 | 89 | |
| Guatemala | | | | | | | | | | 489 | 720 | 449 | 536 | 1,345 | 918 |
| India | | 29 | 96 | 248 | 153 | 18 | 219 | 494 | 167 | 12 | 247 | 8,000 | 624 | 2,420 | 1,022 |
| Lao PDR | | | | | | | | 4,134 | 3,556 | 2,575 | 1,518 | 779 | 575 | 651 | 579 |
| Lebanon | | | | | | | | 4 | 67 | 27 | | 8 | | 21 | |
| Mexico | 14,671 | 17,732 | 17,449 | 15,461 | 15,717 | 15,350 | 19,157 | 20,034 | 15,926 | 21,609 | 16,890 | 11,046 | 13,095 | 14,753 | |
| Myanmar | 1,938 | 3,093 | 3,172 | 9,824 | 1,643 | 9,317 | 7,469 | 638 | 2,820 | 3,907 | 3,970 | 3,598 | 4,820 | 4,087 | 8,268 |
| Nepal | | | | | | | 19 | 19 | 4 | | 1 | | 21 | 35 | |
| Pakistan | 867 | 654 | 2,194 | 1,197 | 1,704 | 1,484 | | 4,185 | 5,200 | 391 | 354 | 614 | 0 | 105 | 68 |
| Peru | | | 4 | 18 | 26 | 155 | 14 | 57 | 98 | 92 | 88 | 28 | 23 | 32 | 21 |
| Thailand | 886 | 1,053 | 716 | 808 | 757 | 832 | 989 | 767 | 122 | 110 | 153 | 220 | 285 | 201 | 278 |
| Venezuela | 51 | 266 | 148 | 137 | 215 | 39 | 0 | 0 | 87 | 154 | 0 | 0 | 0 | | |
| Viet Nam | 1,142 | 340 | 439 | | 426 | | 125 | 100 | 32 | | | 38 | 99 | 31 | |

largest area worldwide after Afghanistan and Myanmar. In contrast to the other countries mentioned above, neither the Government nor UNODC has been directly involved in monitoring such cultivation and the estimates thus cannot be confirmed. In 2009, the Mexican Government reported eradication of almost 15,000 ha of opium poppy, the highest reported total worldwide for that year.

In Myanmar, opium poppy cultivation has increased every year since 2006. Cultivation is concentrated in the Shan State, in the eastern part of the country. At 3,000 ha in 2010, opium poppy cultivation in the Lao People's Democratic Republic was higher than in any year since 2005, and has increased significantly since the lowest level (1,500 ha) in 2007. Cultivation seems to be increasingly concentrated in a few provinces in the northern part of the country.

In Pakistan, opium poppy is mainly grown in the Khyber District of the Federally Administered Tribal Area (FATA), but smaller pockets were also found in Balochistan and Sindh provinces. Since 2006, cultivation in Pakistan has remained below 2,000 ha.

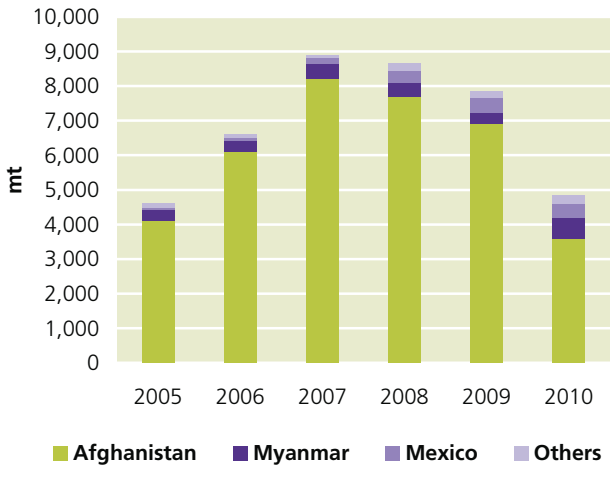
Aside from these countries, reports of opium poppy eradication programmes and seizures of plant material indicate the existence of opium poppy cultivation in many other countries and regions. A considerable level of illegal cultivation is estimated in India, as domestic raw opium consumption and half of domestic heroin demand are met by local production.[41] At least 10,000 ha of opium poppy cultivation is estimated in other countries worldwide, with a 30% increase in 2010.

Overall, in the last five years, global opium poppy cultivation has increased by some 40%. UNODC currently implements programmes to monitor the illicit cultivation of opium poppy in cooperation with the Governments of Afghanistan, Myanmar and the Lao People's Democratic Republic.

In 2010, potential global opium production dropped by at least 38% from 2009, due to significantly reduced opium yield as a result of disease on opium poppy plants in Afghanistan. Although increases in cultivation (and opium yield) in other countries led to an increase in potential opium production outside Afghanistan, this did not offset Afghanistan's decrease. However, opium production may increase if the opium yield returns to

**Fig. 27: Global opium production*, 2005-2010**

* For Mexico, in the absence of data for 2010, the estimate for 2009 was imputed to 2010.
Source: UNODC.




41 UNODC ARQ.

## Table 13: Global illicit cultivation of opium poppy and potential opium production, 1996-2010

**GLOBAL ILLICIT CULTIVATION OF OPIUM POPPY AND PRODUCTION OF OPIATES, 1996-2010**

| | 1996 | 1997 | 1998 | 1999 | 2000 | 2001 | 2002 | 2003 | 2004 | 2005 | 2006 | 2007 | 2008 | 2009 | 2010 |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| **NET CULTIVATION OF OPIUM POPPY IN HECTARES** | | | | | | | | | | | | | | | |
| **SOUTH-WEST ASIA** | | | | | | | | | | | | | | | |
| Afghanistan | 56,824 | 58,416 | 63,674 | 90,583 | 82,171 | 7,606 | 74,100 | 80,000 | 131,000 | 104,000 | 165,000 | 193,000 | 157,000 | 123,000 | 123,000 |
| Pakistan | 873 | 874 | 950 | 284 | 260 | 213 | 622 | 2,500 | 1,500 | 2,438 | 1,545 | 1,701 | 1,909 | 1,779 | 1,721 |
| Subtotal | 57,697 | 59,290 | 64,624 | 90,867 | 82,431 | 7,819 | 74,722 | 82,500 | 132,500 | 106,438 | 166,545 | 194,701 | 158,909 | 124,779 | 124,721 |
| **SOUTH-EAST ASIA** | | | | | | | | | | | | | | | |
| Lao PDR [a] | 21,601 | 24,082 | 26,837 | 22,543 | 19,052 | 17,255 | 14,000 | 12,000 | 6,600 | 1,800 | 2,500 | 1,500 | 1,600 | 1,900 | 3,000 |
| Myanmar [a] | 163,000 | 155,150 | 130,300 | 89,500 | 108,700 | 105,000 | 81,400 | 62,200 | 44,200 | 32,800 | 21,500 | 27,700 | 28,500 | 31,700 | 38,100 |
| Thailand [b] | 368 | 352 | 716 | 702 | 890 | 820 | 750 | | | | | | | | |
| Viet Nam [b] | 1,743 | 340 | 442 | 442 | | | | | | | | | | | |
| Subtotal | 186,712 | 179,924 | 158,295 | 113,187 | 128,642 | 123,075 | 96,150 | 74,200 | 50,800 | 34,600 | 24,000 | 29,200 | 30,100 | 33,600 | 41,100 |
| **LATIN AMERICA** | | | | | | | | | | | | | | | |
| Colombia | 4,916 | 6,584 | 7,350 | 6,500 | 6,500 | 4,300 | 4,153 | 4,026 | 3,950 | 1,950 | 1,023 | 715 | 394 | 356 | |
| Mexico [c] | 5,100 | 4,000 | 5,500 | 3,600 | 1,900 | 4,400 | 2,700 | 4,800 | 3,500 | 3,300 | 5,000 | 6,900 | 15,000 | 19,500 | |
| Subtotal | 10,016 | 10,584 | 12,850 | 10,100 | 8,400 | 8,700 | 6,853 | 8,826 | 7,450 | 5,250 | 6,023 | 7,615 | 15,394 | 19,856 | *19,856* |
| **OTHER** | | | | | | | | | | | | | | | |
| Other countries [d] | 3,190 | 2,050 | 2,050 | 2,050 | 2,479 | 2,500 | 2,500 | 3,074 | 5,190 | 5,212 | 4,432 | 4,184 | 8,600 | 7,700 | *10,000* |
| **TOTAL** | **257,615** | **251,848** | **237,819** | **216,204** | **221,952** | **142,094** | **180,225** | **168,600** | **195,940** | **151,500** | **201,000** | **235,700** | **213,003** | **185,935** | ***195,677*** |
| **POTENTIAL PRODUCTION OF OVEN-DRY OPIUM IN METRIC TONS** | | | | | | | | | | | | | | | |
| **SOUTH-WEST ASIA** | | | | | | | | | | | | | | | |
| Afghanistan | 2,248 | 2,804 | 2,693 | 4,565 | 3,276 | 185 | 3,400 | 3,600 | 4,200 | 4,100 | 6,100 | 8,200 | 7,700 | 6,900 | 3,600 |
| Pakistan | 24 | 24 | 26 | 9 | 8 | 5 | 5 | 52 | 40 | 36 | 39 | 43 | 48 | 44 | 43 |
| Subtotal | 2,272 | 2,828 | 2,719 | 4,574 | 3,284 | 190 | 3,405 | 3,652 | 4,240 | 4,136 | 6,139 | 8,243 | 7,748 | 6,944 | 3,643 |
| **SOUTH-EAST ASIA** | | | | | | | | | | | | | | | |
| Lao PDR | 140 | 147 | 124 | 124 | 167 | 134 | 112 | 120 | 43 | 14 | 20 | 9 | 10 | 11 | 18 |
| Myanmar | 1,760 | 1,676 | 1,303 | 895 | 1,087 | 1,097 | 828 | 810 | 370 | 312 | 315 | 460 | 410 | 330 | 580 |
| Thailand [b] | 5 | 4 | 8 | 8 | 6 | 6 | 9 | | | | | | | | |
| Viet Nam [b] | 9 | 2 | 2 | 2 | | | | | | | | | | | |
| Subtotal | 1,914 | 1,829 | 1,437 | 1,029 | 1,260 | 1,237 | 949 | 930 | 413 | 326 | 335 | 469 | 420 | 341 | 598 |
| **LATIN AMERICA** | | | | | | | | | | | | | | | |
| Colombia | 67 | 90 | 100 | 88 | 88 | 80 | 52 | 50 | 49 | 24 | 13 | 14 | 10 | 9 | |
| Mexico [c] | 54 | 46 | 60 | 43 | 21 | 91 | 58 | 101 | 73 | 71 | 108 | 149 | 325 | 425 | |
| Subtotal | 121 | 136 | 160 | 131 | 109 | 171 | 110 | 151 | 122 | 95 | 121 | 163 | 335 | 434 | *434* |
| **OTHER** | | | | | | | | | | | | | | | |
| Other countries [d] | 48 | 30 | 30 | 30 | 38 | 32 | 56 | 50 | 75 | 63 | 16 | 15 | 139 | 134 | *185* |
| **TOTAL** | **4,355** | **4,823** | **4,346** | **5,764** | **4,691** | **1,630** | **4,520** | **4,783** | **4,850** | **4,620** | **6,610** | **8,890** | **8,641** | **7,853** | ***4,860*** |

Figures in italics are preliminary and may be revised when updated information becomes available. Information on estimation methodologies and definitions can be found in the Methodology chapter of this Report.

Sources: Afghanistan: before 2003: UNODC; since 2003: National Illicit Crop Monitoring System supported by UNODC. Pakistan: ARQ, Government of Pakistan, US Department of State. Lao PDR: 1996-1999: UNODC; since 2000: National Illicit Crop Monitoring System supported by UNODC. Myanmar: before 2001: US Department of State; since 2001: National Illicit Crop Monitoring System supported by UNODC. Colombia: before 2000: various sources, since 2000: Government of Colombia. For 2008 and 2009, production was calculated based on regional yield figures and conversion ratios from US Department of State/DEA. Mexico: Estimates derived from US Government surveys.

(a) May include areas which were eradicated after the data of the area survey.

(b) Due to continuing low cultivation, figures for Viet Nam (as of 2000) and Thailand (as of 2003) were included in the category "Other".

(c) The Government of Mexico reported a gross opium poppy cultivation of 19,147 hectares (2006) and estimated gross opium production at 211 mt (2006), 122 mt (2007), 144 mt (2008), 162 mt (2009) and 170 mt (2010). These gross figures are not directly comparable to the net figures presented in this table. The Government of Mexico is not in a position to confirm the US figures as it does not have information on the methodology used to calculate them.

(d) Eradication and plant seizure reports from different sources between 2006 and 2010 indicate that illicit opium poppy cultivation also exists in the following subregions: North Africa, Central Asia and Transcaucasia, Near and Middle East /South-West Asia, South Asia, East and South-East Asia, East Europe, Southeast Europe, Central America and South America. Starting 2008, a new methodology was introduced to estimate opium poppy cultivation and opium/heroin production in these countries. These estimates are higher than the previous figures but have a similar order of magnitude. A detailed description of the estimation methodology is available in the Methodology section.

**Fig. 28: Potential production of opium and manufacture of heroin of unknown purity (mt), 2004-2010**

* Although eradication took place in 2004, it was not officially reported to UNODC.
In this table, only eradication reported in area units is considered. Eradication reported as plant seizures can be found in the seizure annex of the electronic version of the World Drug Report. Sources: UNODC, Annual Reports Questionnaire; Government reports; reports of regional bodies; INCSR.

| | 2004 | 2005 | 2006 | 2007 | 2008 | 2009 | 2010 |
|---|---|---|---|---|---|---|---|
| Total potential opium | 4,850 | 4,620 | 6,610 | 8,890 | 8,641 | 7,853 | 4,860 |
| Potential opium not processed into heroin | 1,197 | 1,169 | 2,056 | 3,411 | 3,080 | 2,898 | 1,728 |
| Potential opium processed into heroin | 3,653 | 3,451 | 4,555 | 5,479 | 5,561 | 4,955 | 3,132 |
| Total potential heroin | 529 | 472 | 629 | 757 | 752 | 667 | 396 |

average levels in Afghanistan in 2011, despite the expectation that overall opium poppy cultivation will remain stable there.

Despite potential global opium production decreasing to 4,860 mt – a significant decline compared to the peak production from 2006-2009 – this level is similar to average production levels over the past two decades. Afghanistan remained the largest opium-producing country in 2010, with 74% of global potential production (down from 88% in 2009). In 2009, Mexico for the first time had a higher potential opium production than Myanmar. In 2010, potential opium production in Myanmar amounted to 580 mt, a 76% increase. This is the highest level since 2004 in that country.

As in previous years, UNODC has estimated the total potential production of opium and heroin (of unknown purity). According to these estimates, the production of opium in 2010 amounted to 4,860 mt, a 38% decrease from 2009. Potential heroin production amounted to 396 mt, a 40% decline from the 667 mt estimated in 2009. 'Potential heroin production' refers to the amount of heroin that would be produced if all the harvested opium would be either introduced to the market as opium or processed into heroin.[42]

The entire amount of opium produced every year may not be either consumed or converted into heroin, however, as seizures of final or intermediate products may take place and opiate stockpiling may be occurring inside and outside of Afghanistan.[43] The amount of heroin available in the market is directly linked with demand and is likely to be less than the potential production levels (which are calculated by multiplying the cultivated area with yield per hectare). Thus, it is necessary to estimate global opiate demand, taking into account seizures as well as consumption. On this basis, it is estimated that some 460-480 mt of heroin were available in the worldwide market in 2009. Of this, some 375 mt reached the consumers, whereas the rest was seized. Further details regarding these estimates are provided in subsequent sections.

In 2009, there were no reports of laboratories involved in manufacturing heroin outside opium-producing countries. The highest number of laboratories intercepted were in Afghanistan (48[44]), three laboratories were reported in Myanmar and only one in Mexico, although there was a much higher number of methamphetamine laboratories – an unspecified number of which also manufactured heroin. Other laboratories processing heroin were discovered in other countries, but these were not involved in manufacturing. One laboratory in the Russian Federation was producing acetylated opium and seven installations in Greece were involved in repackaging and adulterating heroin.

Afghanistan is currently the only country known to be involved in manufacturing heroin from Afghan opium. Neighbouring countries and other countries along known trafficking routes have not reported domestic manufacturing of morphine or heroin from Afghan opium. High levels of morphine seizures were reported outside of Afghanistan in 2010, however. Morphine is primarily used to produce heroin as there is limited illicit morphine use worldwide. Thus, it is likely that heroin processing is also taking place outside Afghanistan. Given the security situation, the vast majority of Afghan heroin is estimated to be produced in the country, especially in the southern provinces. The high number of heroin manufacturing laboratories destroyed in Afghanistan supports this assumption.

42 UNODC estimates heroin production by calculating the proportion of opium that is converted into heroin as a function of seizures and according to information from key informants.

43 Opium stockpiling by opium farmers is an old tradition in Afghanistan.

44 Information from the Ministry of Interior/Counter-Narcotics Police of Afghanistan.

## 2.4 Trafficking

### Seizures

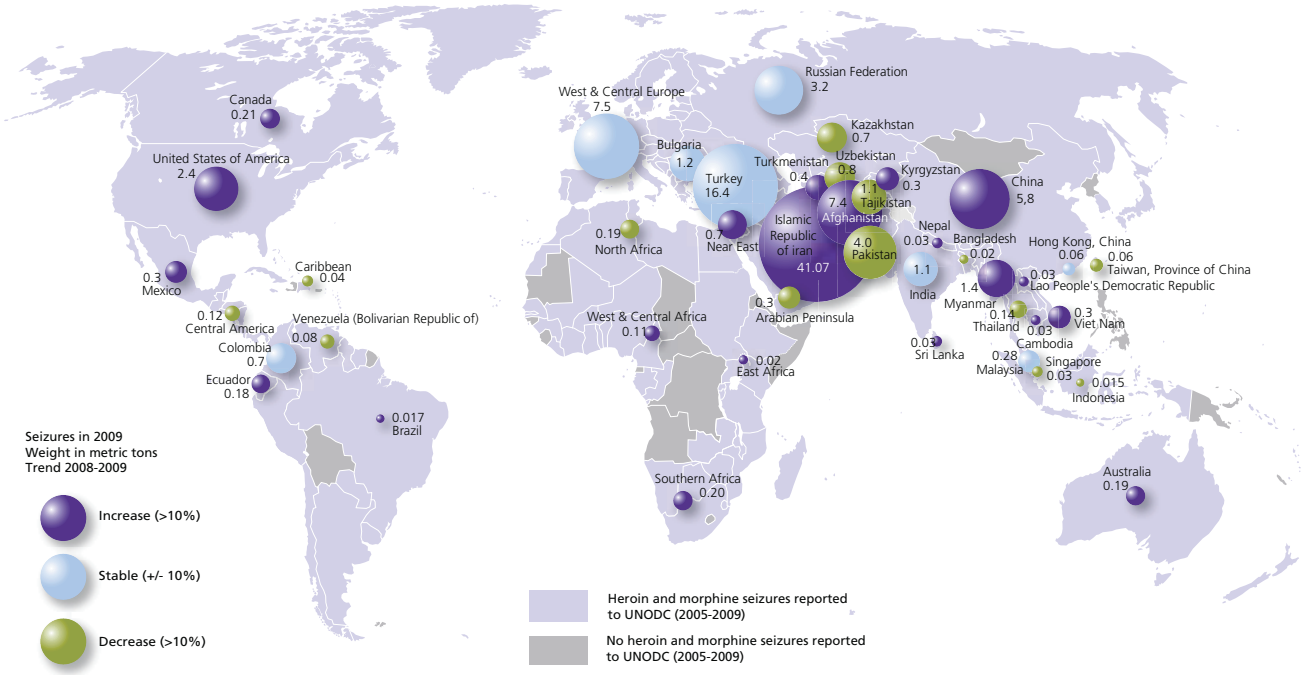
In 2009, global seizures of opium and heroin appeared to stabilize, amounting to 653 mt and 76 mt, respectively. The largest quantities of opiates continued to be seized by Turkey and the Islamic Republic of Iran, countries that serve as transit points for heroin trafficked from Afghanistan on the 'Balkan route' to West and Central Europe.

Although much is known about drug suppliers, consumers, traffickers and routes, interdiction remains difficult. Law enforcement efforts are frustrated by the fact that international traffickers constantly change their methods and routes, high profits may fuel high-level corruption, and international cooperation initiatives take time to become effective.

The trend in global heroin seizures appears to follow that in opium production with a delay of one year. A decline in opium production in 2001 resulted in a drop in heroin seizures in 2002, the stability in opium production over the period 2003-2005 was reflected in a relatively stable three-year span in heroin seizure totals over the period 2004-2006,[45] and a marked increase in opium production over the period 2005-2007 was mirrored in an increase in heroin seizures over the period 2006-2008. The trend in morphine seizures, however, is more erratic.

Illicit drug seizure totals can be susceptible to two main factors: 1) the available supply of the drug, and 2) the effectiveness of law enforcement efforts. Since law enforcement efforts and practices do not necessarily evolve in concert in different countries, at a global level, the law enforcement component plays a smaller role in determining the trend. The increased heroin seizures therefore likely reflect, at least in part, an increased supply of heroin in the world. This is in line with the

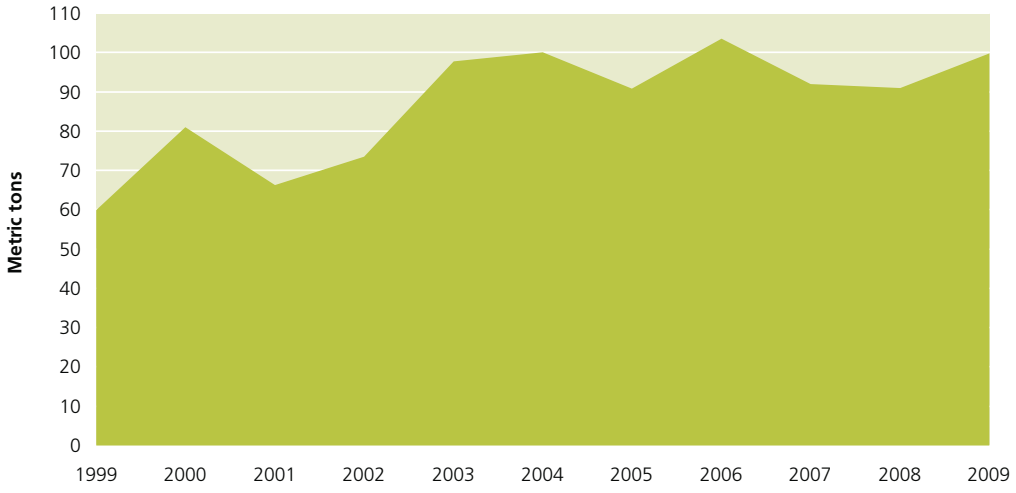
**Map 10: Seizures of heroin and morphine, 2009 (countries and territories reporting seizures* of more than 10 kg)**




* Seizures as reported (no adjustments made for purity)
Source: UNODC Annual Reports Questionnaires data supplemented by other sources
Note: The boundaries and names shown and the designations used on this map do not imply official endorsement or acceptance by the United Nations.

45 Heroin seizure totals fell slightly in 2005 and 2006, but only by 3.5% and 2.7% respectively.

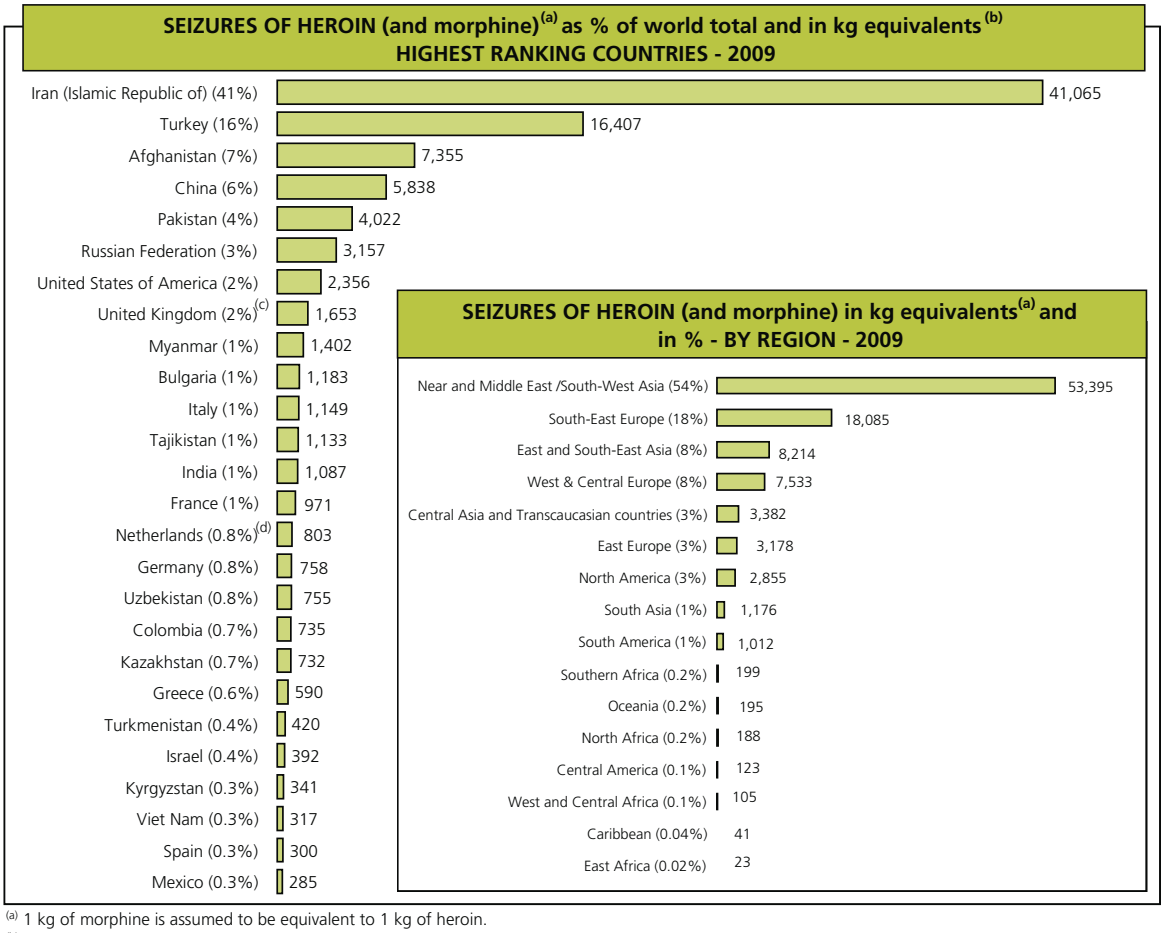
## Fig. 29: Global seizures of heroin[(a)] and morphine[(b)]: 1999-2009




[(a)] Seizures as reported (no adjustment for purity).

[(b)] 1 kg of morphine is assumed to be equivalent to 1 kg of heroin.

| Year | 1999 | 2000 | 2001 | 2002 | 2003 | 2004 | 2005 | 2006 | 2007 | 2008 | 2009 |
|---|---|---|---|---|---|---|---|---|---|---|---|
| Metric Tons | 60 | 81 | 66 | 73 | 98 | 100 | 91 | 104 | 92 | 91 | 100 |



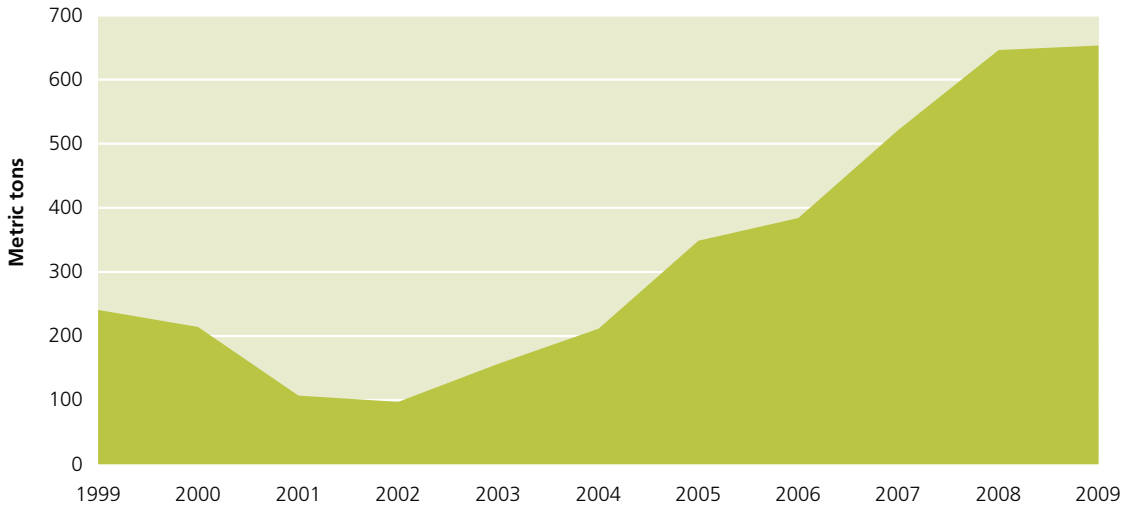

[(a)] 1 kg of morphine is assumed to be equivalent to 1 kg of heroin.

[(b)] Seizures as reported (no adjustment for purity).

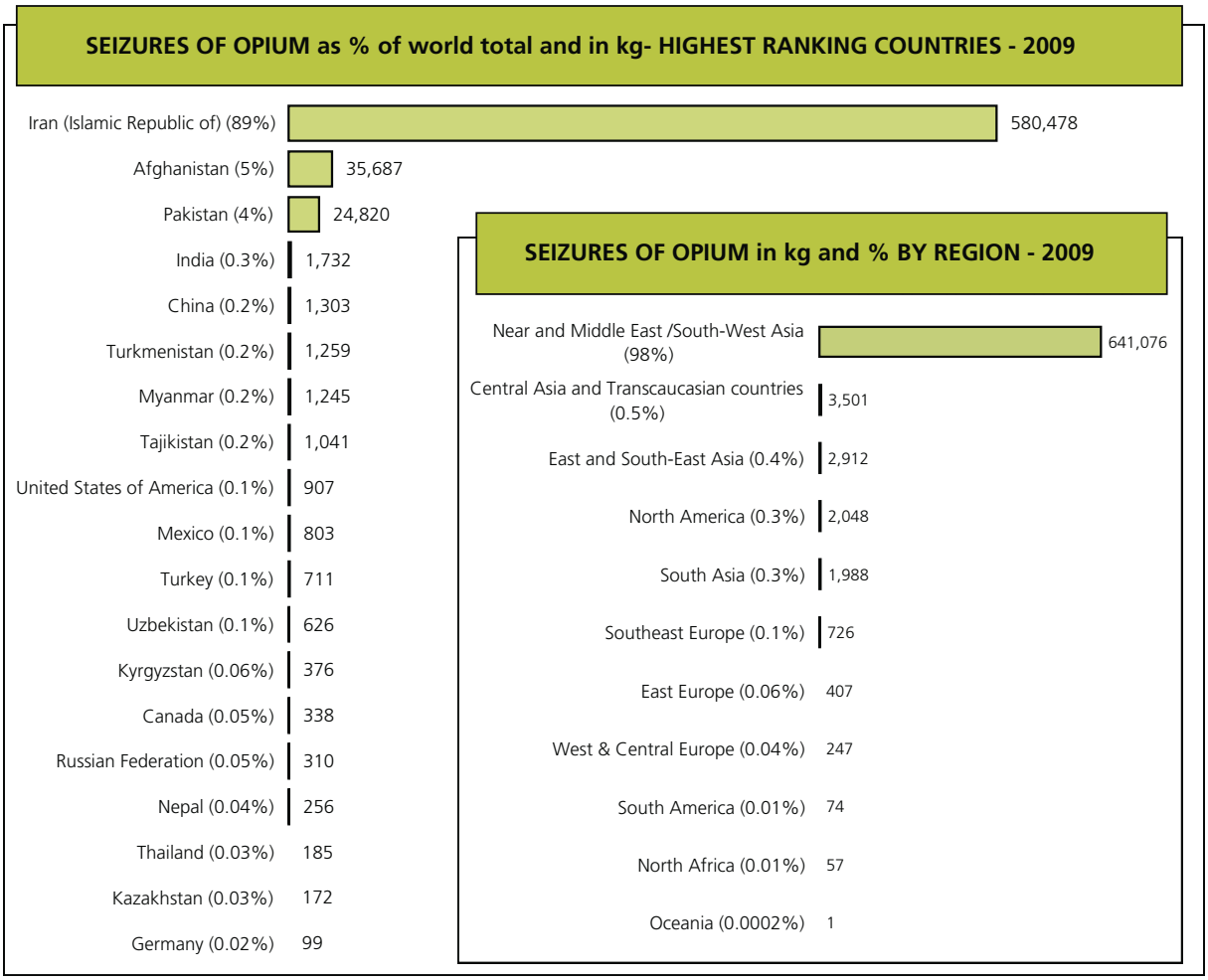
[(c)] Data for the United Kingdom for 2009 are based on incomplete data for some jurisdictions for the financial year 2009/10, and adjusted for the missing jurisdictions using the latest available complete distribution (relative to the financial year 2006/07)

[(d)] Data relative to 2008. Data for 2009 from the Netherlands were not available.

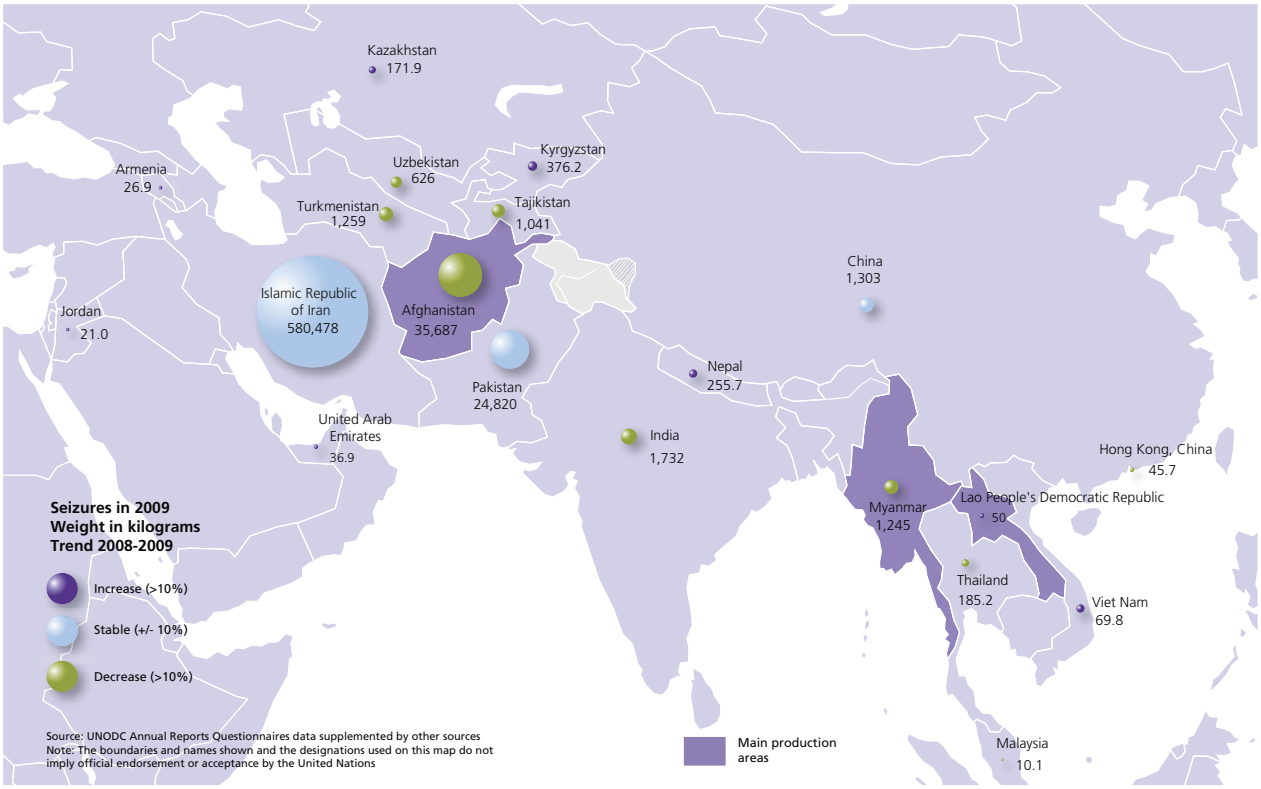
**Fig. 30: Global seizures of opium: 1999-2009**




| Year | 1999 | 2000 | 2001 | 2002 | 2003 | 2004 | 2005 | 2006 | 2007 | 2008 | 2009 |
|---|---|---|---|---|---|---|---|---|---|---|---|
| Metric Tons | 240 | 214 | 107 | 97 | 157 | 212 | 349 | 384 | 521 | 646 | 653 |



## Map 11: Opium seizures in Asia, 2009

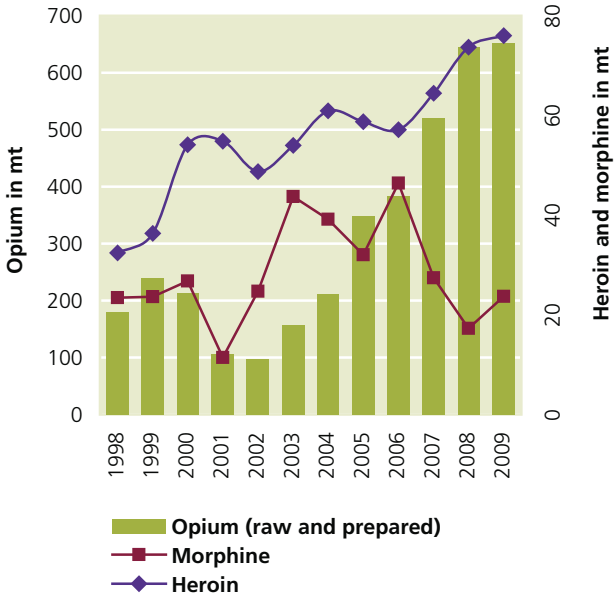



increased levels of opium production. In comparison with 1998,[46] the growth in heroin seizures has kept pace with, and slightly outperformed, the growth in opium production. In 2009, heroin seizures stood at 2.3 times the level in 1998, while opium production in 2008 stood at 1.8 times the 1997 level.[47]

In order to assess the impact of drug seizures on global supply, total seizures of a given drug may be expressed as a percentage of global production; this percentage is often referred to as an 'interception rate.' Such a calculation is subject to a number of caveats, however, the first of which is the time lag between cultivation of an illicit crop and the resulting effect on the availability of the derived drug in the illicit market. Assuming that one kilogram of heroin or morphine is equivalent to 7-10 kg of opium, and comparing total seizures in 2009 with the average opium production in 2008 and 2009,[48] a range of 16-20% for the interception rate for opiates can be derived. Opium seizures in a given year are compared to the average opium production in that year and the previous year. Seizures of opium and morphine are concentrated in Afghanistan and neighbouring countries, but heroin seizures are much more dispersed.

## Fig. 31: Global opiate seizures, 1998-2009

Source: UNODC ARQ.



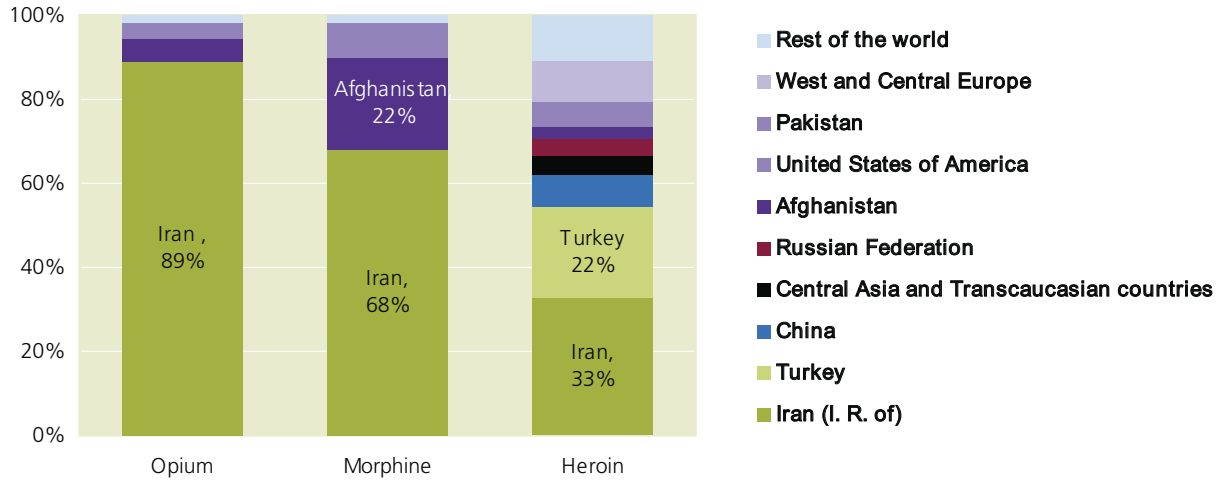

46 The year 2008 is chosen as a baseline because, over the period 1996-1998, seizures of opium and heroin, as well as opium production, were all relatively stable, suggesting that the opiates market was close to equilibrium.

47 Heroin seizures in a given year are compared to opium production in the previous year to allow for the time required for processing opium into morphine and heroin, and for the heroin to reach the markets where it is seized.

48 Opium production in 2008 is considered along with that in 2009 to allow for the time required for processing and for the opiates to reach the markets where they are seized.

**Fig. 32: Distribution of global opiate seizures, 2009**

Source: UNODC ARQ.




### Afghanistan and neighbouring countries

Opium and heroin seizures in Afghanistan remained limited in 2009, amounting to 36 mt of opium and 2.2 mt of heroin. These seizures accounted for 5.5% and 2.9% of global opium and heroin seizures, respectively, in 2009.

Neighbouring Islamic Republic of Iran, however, continued to make large seizures. In 2009, 89% of global opium seizures were made by that country. The global increase in opium seizures since 2002 is mainly due to increasing quantities seized in the Islamic Republic of Iran, which since 1996 have accounted for more than three quarters of annual global opium seizures. In 2006, the Islamic Republic of Iran replaced Turkey as the country reporting the largest heroin seizures worldwide. Since then, the Islamic Republic of Iran and Turkey have seized the largest and second-largest, respectively, annual heroin totals worldwide. Over the period 2002-2008, heroin seizures in both these countries increased markedly, but in 2009, seizures stabilized both in the Islamic Republic of Iran, at 25 mt (compared to 23 mt in 2008) and in Turkey, at 16 mt (compared to 15 mt in 2008).

Heroin seizures in Central Asian and East European countries have been erratic in recent years, but over the long term, a distinct increase has been observed. Over the period 2003-2009, heroin seizures in East Europe were much higher than in previous years.

### West and Central Europe

The trend in bulk heroin seizures in West and Central Europe does not mirror the increased supply of Afghan opium or the increased levels of heroin seizures in the Islamic Republic of Iran and Turkey. Indeed, seizures in West and Central Europe peaked at 11.6 mt in 2000 and appear to have stabilized at a lower level, ranging between 7.5 mt and 7.9 mt annually over the 2005-2009 period.

### The Asia-Pacific region

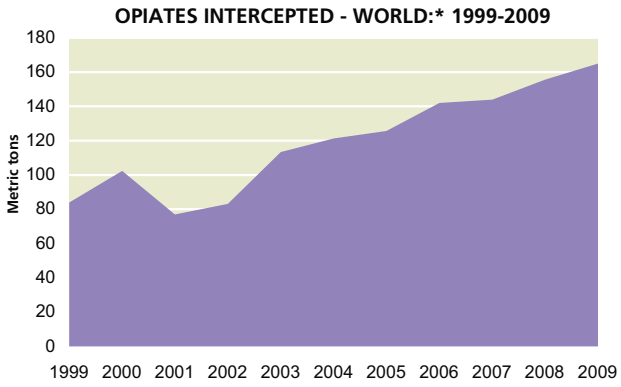
In the past, the supply of heroin in China has been mainly sourced from South-East Asia (notably Myanmar). However, significant quantities of heroin have begun to reach China from Afghanistan.

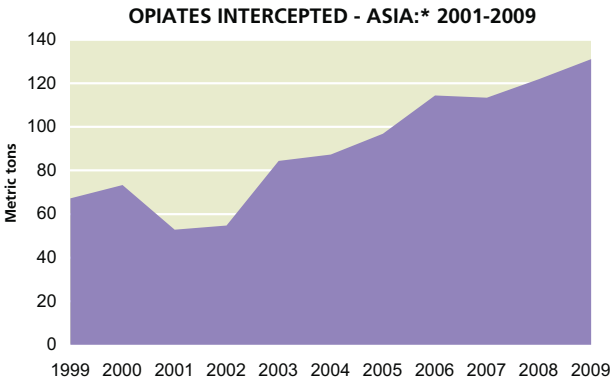
Heroin from northern Myanmar enters China via Yunnan province; according to Chinese authorities, heroin seizures in Yunnan province rose from 2.9 mt in 2008 to 3.3 mt in 2009. Seizures of heroin originating in Afghanistan registered a more pronounced increase, rising from 390 kg (seized in 234 cases) in 2008 to 1.5 mt (seized in 333 cases) in 2009.[49]

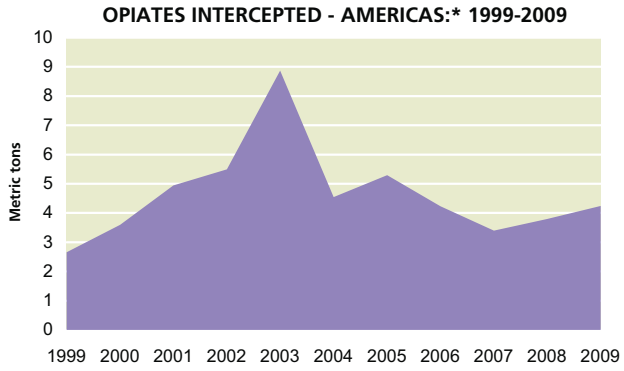
Heroin trafficking from Afghanistan to the Asia-Pacific region is increasing, also supported by drug seizures reported by Pakistan. Among those cases in which the destination of the consignment was identified as a country or region other than Pakistan, the proportion of heroin seizures destined for the Asia-Pacific region increased from around 12% prior to 2006 to 40-44% every year since. The emergence of this new route around 2005-2006 also appears to have caused a drop in heroin seizures in the region, suggesting that regional law enforcement needs time to adapt to the new route. This was also concurrent with a sharp increase in opium production in Afghanistan. This increase may have led to a surplus of opiates, some of which may have found their way to the Asia-Pacific region.

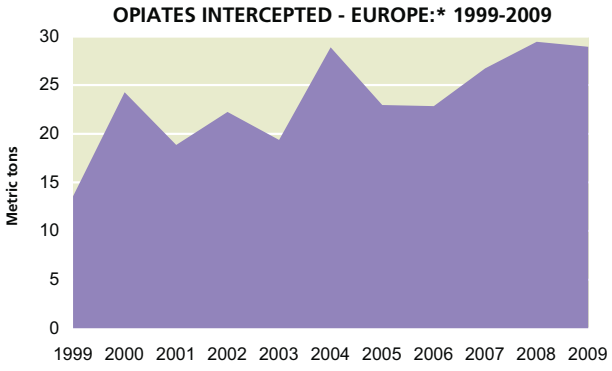
49 National Narcotics Control Commission of China, presentation at the Twentieth Anti-Drug Liaison Officials' Meeting for International Cooperation (ADLOMICO), October 2010, Seoul, Republic of Korea.

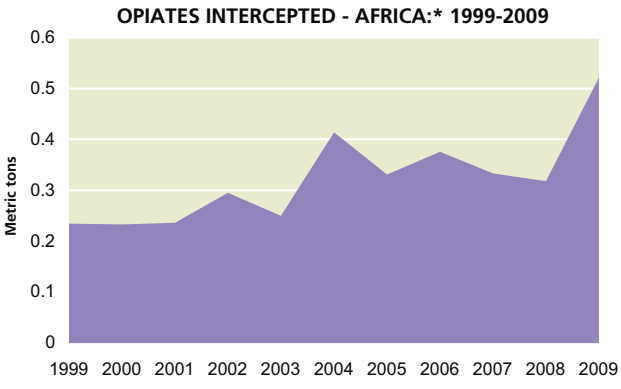
## Fig. 33: Global seizures of opiates: 1999-2009

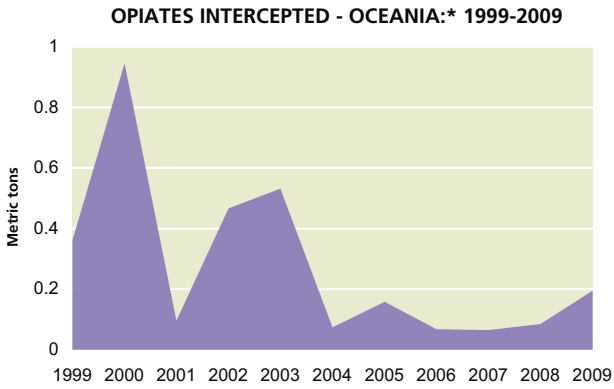



*Aggregate of heroin, morphine and opium. Expressed in heroin equivalents assuming 1kg of heroin to be equivalent to 1 kg of morphine and 10 kg of opium.

**Fig. 34: Heroin seizures in selected regions or countries supplied by Afghan opium, 1998-2009**

Source: UNODC ARQ/DELTA.

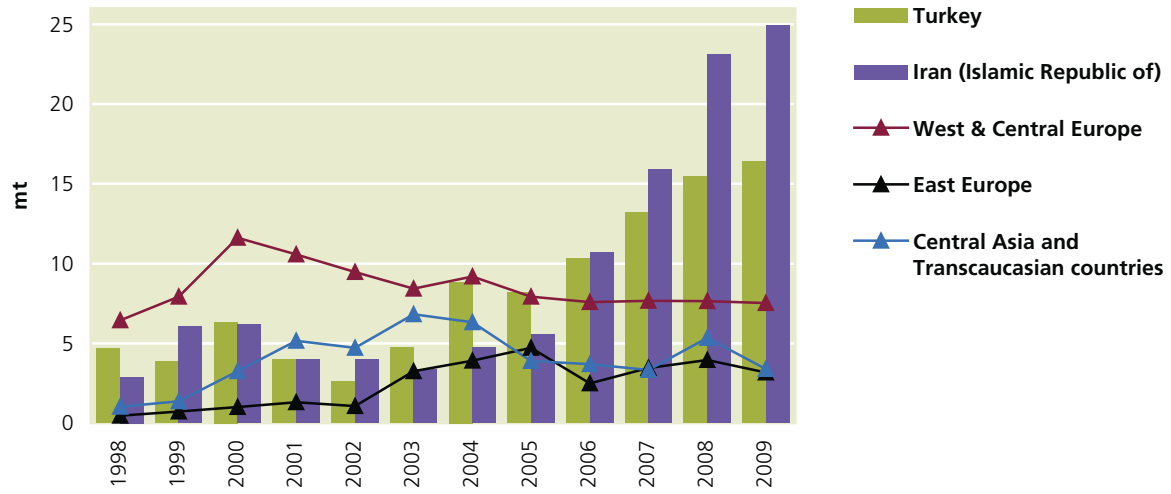
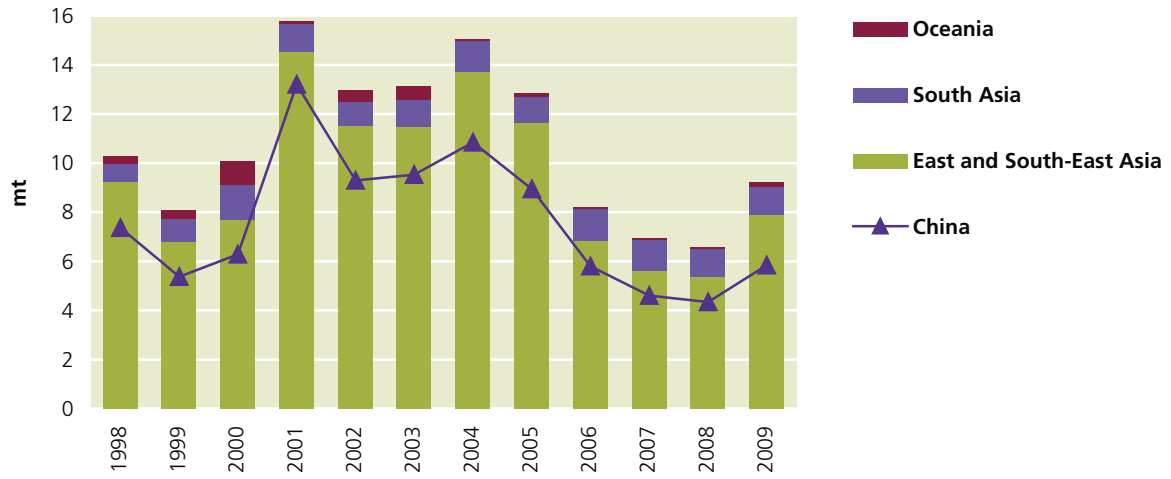



**Fig. 35: Heroin seizures in the Asia-Pacific, 1998-2009**

Source: UNODC ARQ/DELTA.




### The Americas

Heroin seizure totals reported by the United States continued to be the highest in the Americas by far, rising steadily from 1.4 mt in 2007 to 2.4 mt in 2009. The results of the Heroin Signature Program (HSP) of the US Drug Enforcement Agency pointed to an increase in the availability of heroin from Mexico. In 2008, the wholesale purity of heroin of Mexican origin was at its highest (40%) since 2005, while Mexican heroin represented 39% (by weight) of all heroin analysed through the HSP, the highest percentage since 1987. Seizures of heroin by US authorities along the US-Mexico border increased from 404 kg in 2007 to 556 kg in 2008, and the partial total for 2009 amounted to 642 kg.[50] In 2009, large quantities of heroin were also seized in Colombia (735 kg), Mexico (283 kg) and Ecuador (177 kg). Seizures in the Bolivarian Republic of Venezuela have declined significantly since the peak level of 2004 (658 kg), amounting to 81 kg in 2009.

Heroin seizures also increased sharply in Canada, from 16 kg in 2007 to 102 kg in 2008 and 213 kg in 2009. However, the increase in 2009 can be attributed to a single maritime shipment of 108 kg. In contrast with the United States, Canada assessed that 98% of heroin reaching its market in 2009 originated from South Asia. In 2009 Canada also seized 20 mt of a preparation

50 National Drug Intelligence Center, United States Department of Justice, *National Drug Threat Assessment 2010*, February 2010.

**Fig. 36: Heroin seizures in selected countries in the Americas,1999-2009**

Source: UNODC ARQ/DELTA.

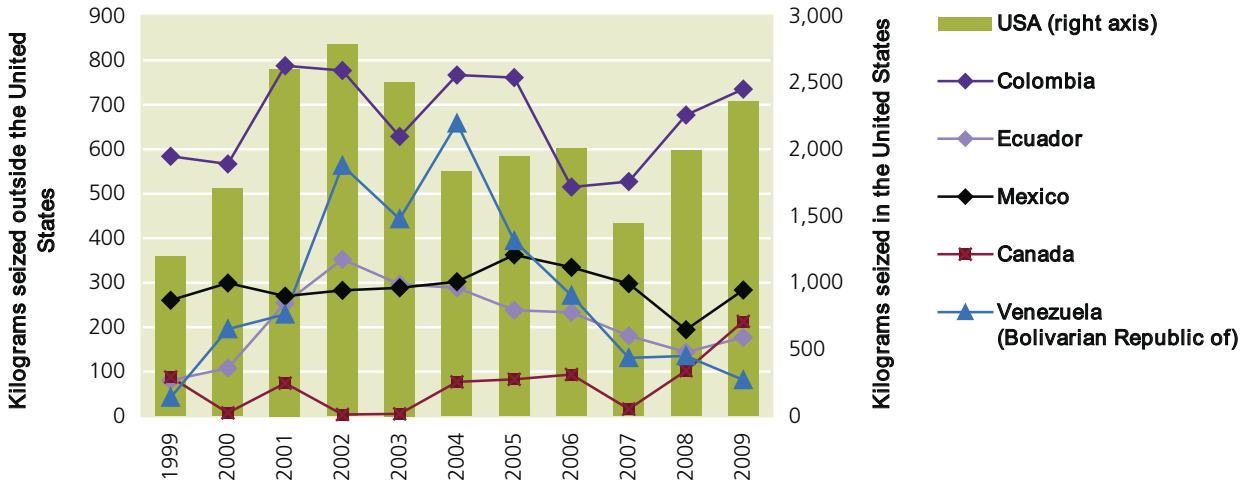
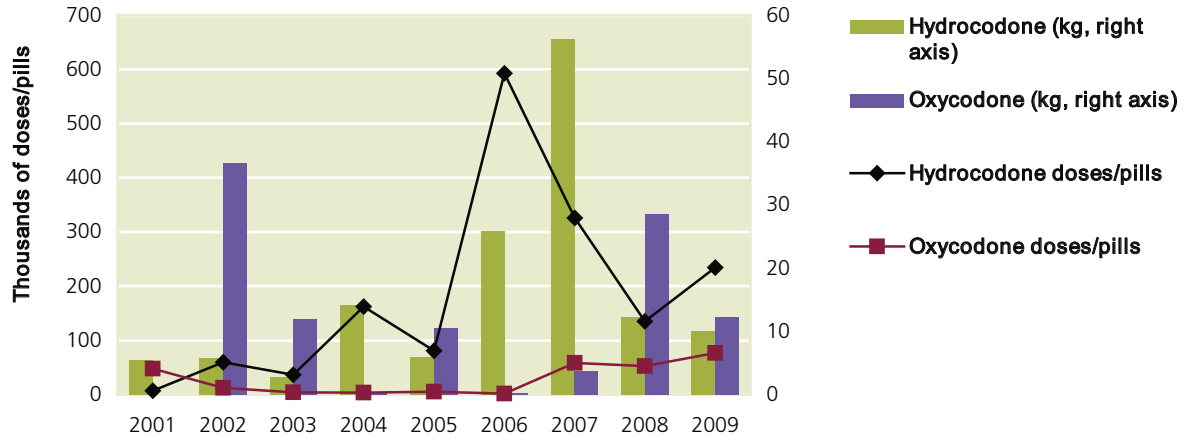



**Fig. 37: United States: seizures of hydrocodone and oxycodone, 2001-2009**

Note: Seizures quantified in number of pills (left axis) are in addition to those quantified by weight (right axis).
Source: UNODC ARQ.




referred to as 'dode,' a fine powder obtained by grinding dried seed pods of opium poppy. It is most frequently consumed mixed with hot water as a tea. Canada assessed that 94% of the 'dode' that reached its market originated in the United States, with the remaining 6% originating in the Netherlands, and that the affordability of 'dode' had the potential to create a market beyond the traditional cultural groups.

The United States is also affected by non-medical use of prescription opioids, and reported significant seizures of oxycodone and hydrocodone.

### Africa

Heroin seizures in Africa rose sharply, from 311 kg in 2008 to 515 kg in 2009. This is the highest level since 1993. South Africa registered the largest seizure total as well as the largest year-on-year increase, with seizures rising from 41 kg in 2008 to 198 kg in 2009.

In recent years, heroin seizures have increased significantly in Egypt. In 2008, Egypt seized 211 kg of heroin, accounting for two thirds of total heroin seizures in Africa, and registering the third consecutive year-on-year increase. In 2009, seizures fell to 159 kg, remaining significantly higher than the levels registered in this country over the period 1995-2006. In the past, Egypt has also reported seizures of opium and opium capsules.

In 2009, significant quantities of heroin were also seized in Nigeria, 104 kg. Although this represents a sharp increase from the level in 2008 (12 kg), seizures were already high in 2007 (121 kg). Reports suggest that Nigeria may serve as a transit point for limited quanti-

**Fig. 38: Heroin seizures in Africa, by subregion, 1999-2009**

Source: ARQ/DELTA.

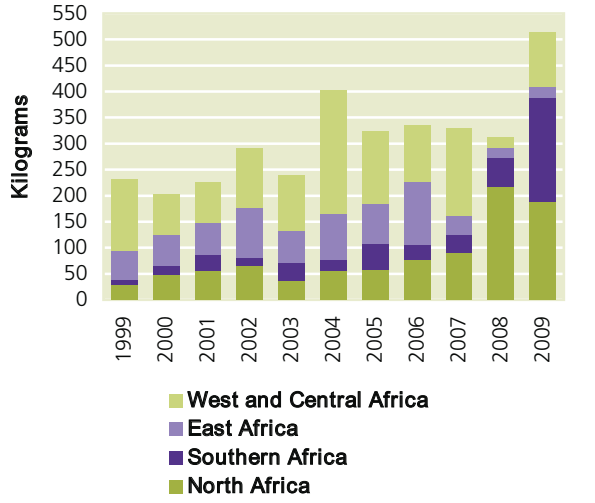
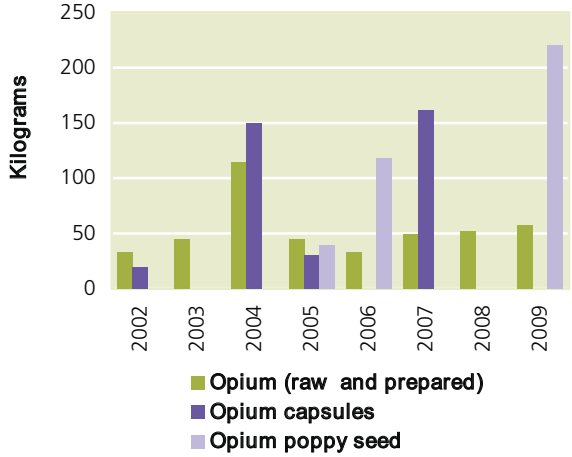



**Fig. 39: Seizures of opium (raw and prepared), opium capsules and opium poppy seeds in Egypt, 2002-2009**

Source: ARQ/DELTA.




ties of heroin destined for consumer markets in other countries. Over the 2004-2008 period, Pakistan reported significant, albeit declining, numbers of seized heroin consignments intended for Nigeria (36 such seizures in 2008 and 16 in 2009). According to the United States Department of Justice, organizations responsible for trafficking heroin originating in South-West Asia into the United States included some that were based in West Africa. Nigeria has been mentioned as a transit country for heroin by Australia and the United States in recent years. Nigeria assessed that one half of the heroin trafficked on its territory in 2009 was intended for the United States, with 40% intended for Europe and 10% for China.

## Trafficking routes and volumes

Global heroin-producing countries supply different markets. Heroin from Myanmar is mainly trafficked to China and Mexican heroin is mainly trafficked to the United States of America. Afghan heroin, however, is trafficked to every region of the world except Latin America. As such, trafficking routes for Afghan heroin are the main focus of this section.

Heroin trafficking routes are complex. Estimating the volumes, that is, the global flow of opiates, requires data on global opiate demand. Global heroin and opium seizures are used to identify opiate trafficking routes and to help estimate the size of the flows in each country. In addition to seizure data, information was drawn from official country reports such as ARQ responses.

Available demand data was used as the key variable to estimate the size of the global heroin and opium flows. The robustness of demand data varies considerably, and the data are subject to frequent revisions and changes. Most countries still lack structured data collection systems capable of producing scientifically sound demand, supply and seizure statistics. Accordingly, the statistics and estimates provided on opiate demand and flows should be viewed as the best current approximations.

Heroin flow figures used in this section are indicative and should be taken with caution. The purpose of producing these statistics is to estimate i) the main flows and changes in the routes over time, and ii) provide threat and risk analysis for production, transit and destination countries. The volumes and routes discussed are not fixed and change according to changes in demand, drug availability, or risk perceptions of drug traffickers. Therefore, it is essential to monitor flows every year to observe changes in the market and routes, which can inform global strategies and policies regarding public health and security ramifications.

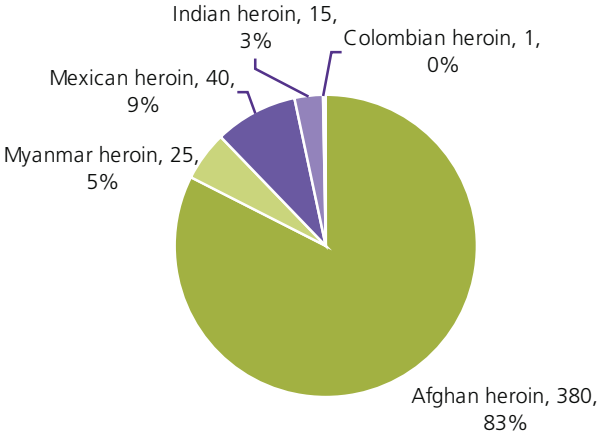
Heroin trafficking from production countries to consumer markets requires a global network of routes and facilitation by domestic and international criminal groups. Although the exact routes are constantly changing, the global movement of heroin from Afghanistan and other producers to international consumers follows well-established paths. Some routes are chosen for geographic reasons, while others are preferred due to a lack of law enforcement.

It is estimated that some 460-480 mt of heroin was available in the global market in 2009. Of this, some 375 mt reached consumers and the rest was seized. Afghanistan continued to be the main supplier for the global heroin market, producing 380 mt (83%).

Despite the complexity of heroin trafficking routes, some global movements can be generalized for Afghan heroin, which flows from Afghanistan through Pakistan,

**Fig. 40: Distribution of actual global heroin production, 2009**

Source: UNODC.




the Islamic Republic of Iran and some Central Asian countries before moving to the main consumer markets in West and Central Europe, East Europe, and East and South-East Asia.

### Heroin flows from Afghanistan…

Afghanistan continues to dominate global heroin supply. In 2009, an estimated 6,900 mt of opium were produced in Afghanistan. Almost 95% of Afghan opium is grown in some of the country's southern provinces, including Hilmand, Kandahar, Farah, Nimroz and Uruzgan. Heroin processing laboratories are also concentrated in these provinces.

From the production areas, heroin is trafficked overland in three main directions: i) to Nimroz, Farah and Hirat provinces along the border with the Islamic Republic of Iran, ii) to eastern and northern Afghanistan, or iii) to Pakistan's Balochistan borders. UNODC estimates that 365 mt of Afghan heroin were trafficked into the international market in 2009. Afghanistan's neighbours received the largest volumes of heroin. Some 160 mt were trafficked to Pakistan, 115 mt to the Islamic Republic of Iran and 90 mt to some Central Asian countries (Tajikistan, Uzbekistan and Turkmenistan).

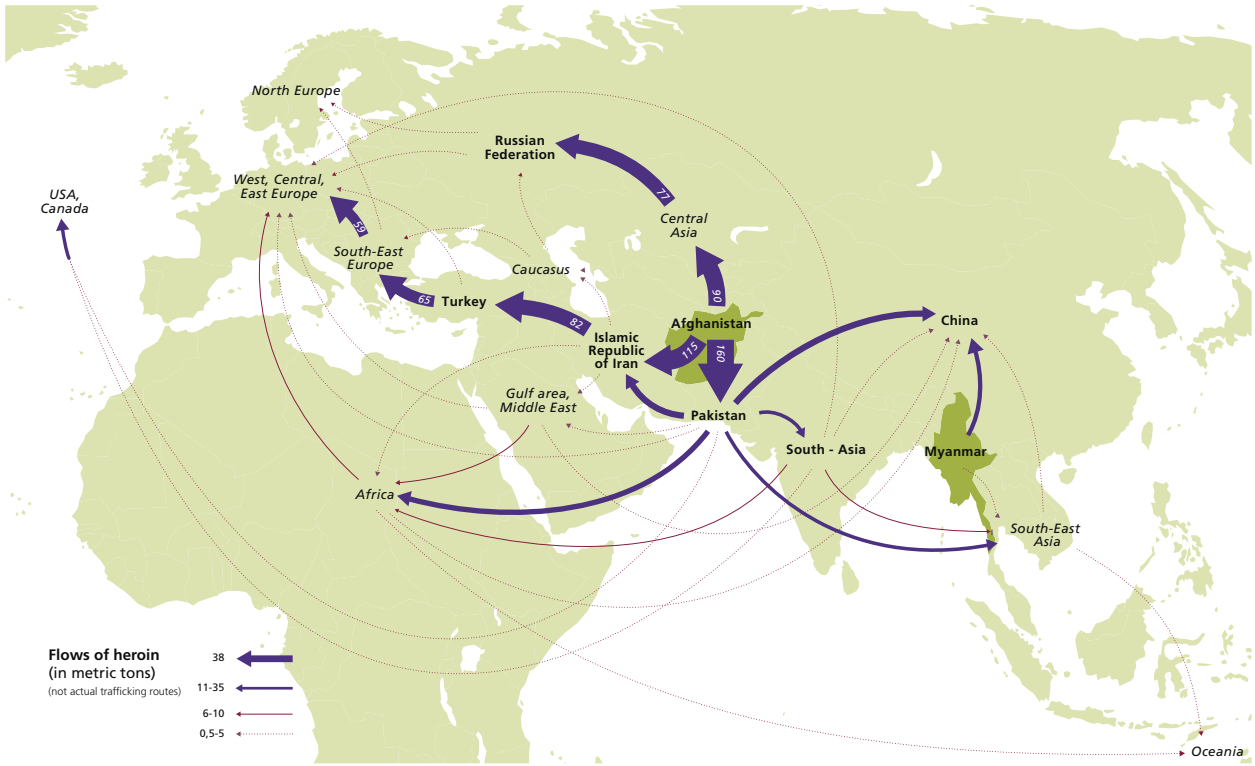
### …to Pakistan

An estimated 160 mt of heroin were trafficked from Afghanistan to Pakistan in 2009. The majority is thought to have entered overland into Pakistan's Balochistan province from Afghanistan's Hilmand and Kandahar provinces, facilitated by the limited law enforcement capacity on both sides and the strong presence of the Taliban and other anti-government elements. The borders of Afghanistan's Nangarhar and Kunar provinces with Pakistan's Federally Administered Tribal Area also figure as prominent heroin crossing areas, although to a lesser extent.

Of the 160 mt of heroin that entered Pakistan, 138 mt

**Map 12: Afghan heroin trafficking routes and volumes, 2009**

Source: UNODC.



were trafficked onward. At least 30 mt were trafficked from Balochistan to the Islamic Republic of Iran. The remaining 108 mt were moved internally to Pakistan's industrial capitals, Karachi and Lahore, as well as to other coastal or border locations for onward trafficking to Europe, South-East Asia, South Asia and Africa by sea and air. The declining opium production in Myanmar has increased heroin trafficking via Pakistan to South-East Asia, especially in 2009.

**…to the Islamic Republic of Iran**

An estimated 145 mt of heroin were trafficked into the Islamic Republic of Iran from Afghanistan and Pakistan in 2009. Although the majority of heroin enters from Afghanistan, increasing security along the Islamic Republic of Iran - Afghanistan border is likely to cause an increase in heroin flows through Pakistan.[51] According to heroin seizures, once heroin enters the Islamic Republic of Iran, it is transported in four main directions: i) through central parts of the country to the border with Turkey, ii) to the seaports and coastline, iii) to the border with Iraq, or iv) to the border with Azerbaijan.

Despite high levels of domestic consumption, the majority of the heroin that enters the Islamic Republic of Iran is trafficked onwards, especially along the 'Balkan Route' towards West and Central Europe. In 2009, an estimated 82 mt were trafficked to Turkey, 6 mt to Africa, 3 mt to countries of the Caucasus and small quantities directly to Europe.

**…to Central Asia**

In 2009, 90 mt of Afghan heroin were trafficked into Central Asia, namely Tajikistan, Uzbekistan, Turkmenistan, Kyrgyzstan and Kazakhstan from Afghanistan. Afghan heroin enters the region mainly via the porous Tajikistan-Afghanistan border, delineated by the Pianj River.[52] Afghan heroin also enters via Uzbekistan, although in smaller quantities. Once in Tajikistan, heroin generally moves through Uzbekistan and Kyrgyzstan before transiting Kazakhstan into the Russian Federation.

Of the 90 mt that entered the region, the majority – 75 mt – was trafficked onwards to the Russian Federation. Given that the only land border between the Russian Federation and Central Asia is Kazakhstan, almost the entire amount of heroin trafficked by land to the Russian Federation passed through that country. Central Asia forms the gateway for heroin destined for the Russian Federation and onwards to East Europe, a route known as the 'Northern Route.'

51 According to Pakistan's ANF, 2010.

52 Drug Control Agency (DCA) of Tajikistan.

## Main destination markets

Once Afghan opiates have entered neighbouring Pakistan, Islamic Republic of Iran and Central Asia, it is trafficked to the main international consumption markets – West and Central Europe, East Europe, East and South-East Asia and South Asia. Limited amounts also reach other smaller consumption markets.

**West and Central Europe**

In 2009, users in West and Central Europe consumed some 70 mt of pure heroin. An additional 7.5 mt were seized by law enforcement institutions. Thus, an estimated 75-80 mt of heroin were trafficked to West and Central Europe. The bulk, some 60 mt, were trafficked from the countries of South-East Europe (via the Balkan route). Moreover, some 7 mt were trafficked from Africa, 4 mt from Pakistan, 3 mt from the Near and Middle East/South-West Asia (mainly the Islamic Republic of Iran, Qatar and Jordan) and 1 mt from South Asia (mainly India, Bangladesh and Nepal). The source and route of the remaining 3 mt are undetermined.

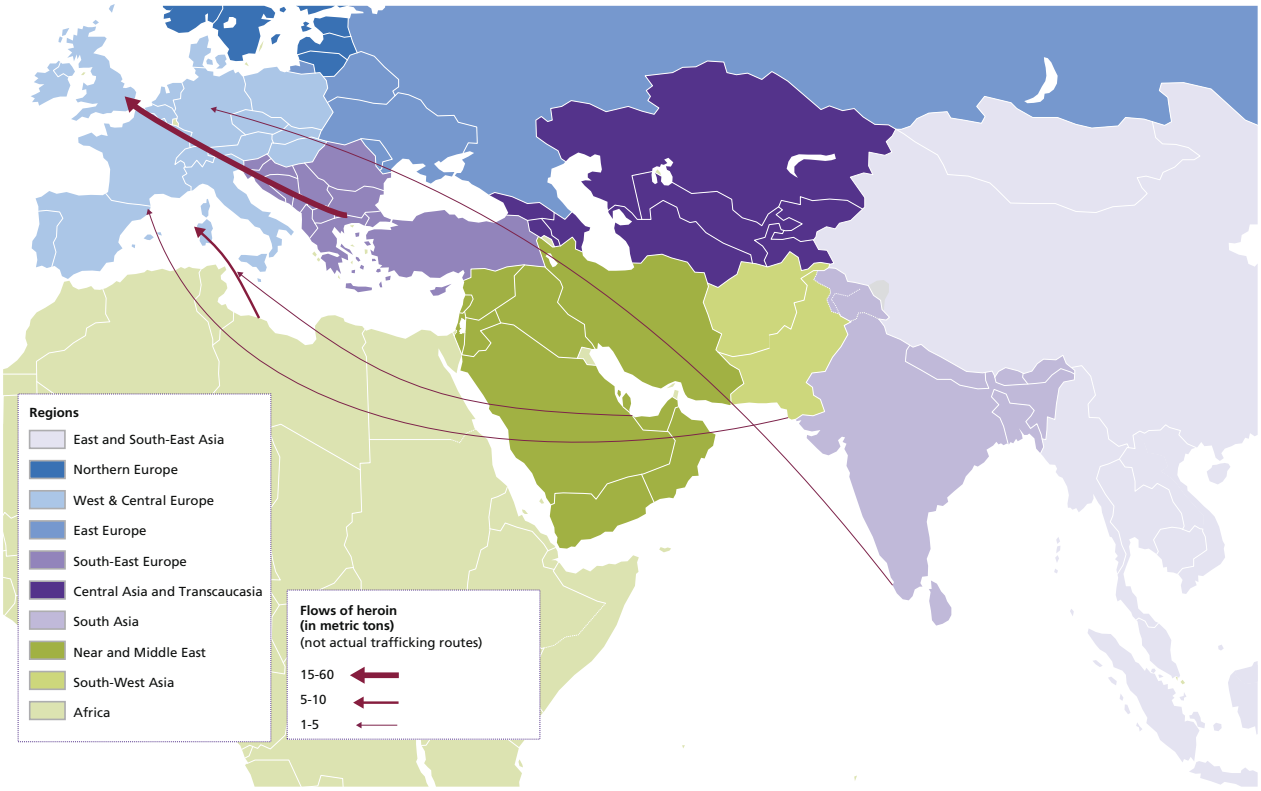
Heroin is trafficked into West and Central Europe by land, sea and air. The Balkan route dominates land and sea shipments, while Africa is now emerging as the leading origin of air shipments. One reason for this is that law enforcement capacity in East Africa is scarce and trafficking heroin by sea from Pakistan poses few challenges to experienced traffickers.

The Balkan route originates in Afghanistan, passes through the Islamic Republic of Iran and Turkey, and reaches the Balkans via Bulgaria, with a smaller flow through Greece. Once the heroin enters Turkey, most is trafficked to Istanbul and then onwards to the borders with Bulgaria and Greece. Traffickers are able to take advantage of the lack of visa requirements between the Balkan countries. In 2009, an estimated 65 mt of heroin reached the Balkan countries, of which some 60 mt were trafficked onwards to West and Central Europe, mainly to the United Kingdom, Italy, Netherlands, Germany, France and Belgium. Limited heroin trafficking also occurred via air directly from Turkey to West and Central European countries.

The majority of the heroin trafficked through the Islamic Republic of Iran and Turkey is believed to be intended for western Europe. Recent seizures at seaports indicate that maritime transportation might be used more than estimated for heroin trafficking worldwide. In the first three months of 2011, there were big heroin seizures reported in East Africa (Kenya and the United Republic of Tanzania). In addition, recent reports indicate that the average seizure per case has decreased in the Islamic Republic of Iran and Turkey, two countries that have strengthened their law enforcement capacity in recent years. This might force heroin traffickers to find alternative routes to Europe.

**Map 13: Heroin flows to West and Central Europe in 2009**

Source: UNODC.




## East Europe

In 2009, users in East Europe consumed an estimated 73 mt of heroin. In the Russian Federation, the opiate prevalence rate for the adult population was 1.64% in 2009.[53] This is equivalent to around 1.7 million opiate users, who consumed some 70 mt of pure heroin.

In total, including the 3.1 mt of heroin seized and 2-3 mt of heroin trafficked onward, an estimated 75-80 mt of heroin were trafficked into the Russian Federation in 2009. The route through Central Asia, the Russian Federation and into East Europe is known as the 'Northern Route.' The majority of heroin trafficked to the Russian Federation came from Central Asia, and to a lesser extent Azerbaijan.[54] East Europe received the majority of its heroin from the Russian Federation, as well as from Turkey and countries of the Caucasus.

**Table 41: Mentions of the Islamic Republic of Iran and Turkey as transit countries for heroin, 2007-2009**

* Excluding Turkey.
Source: UNODC ARQ.

| | Iran (I.R. of) | Turkey |
|---|---|---|
| Caucasus | 1 | 6 |
| Middle East | 4 | 9 |
| East Europe | 1 | 2 |
| Rest of Europe* | 6 | 58 |
| Africa | 3 | 1 |
| Rest of the world | 0 | 2 |

## East and South-East Asia

In 2009, opiate demand in East and South-East Asia was met by both local production and Afghan supply. Myanmar and the Lao People's Democratic Republic are the main producing countries, exporting an estimated 25 mt of heroin. The total estimated heroin demand was 90 mt (including seizures and onward trafficking) in East and South-East Asia in 2009.

An estimated 65 mt of pure Afghan heroin was trafficked to the region to fill the gap in local production – 25 mt to South-East Asia and 40 mt to China. Given that the majority of heroin from Myanmar is trafficked

53 These estimates are preliminary, since there are no comprehensive studies on prevalence of opiate users in the Russian Federation. The estimate of opiate users ranges from 0.3% - 1.64% of the population aged 15-64. The estimate of 1.64% is based on the number of opiate users in treatment for 2007, using a treatment multiplier of 5.3% taken from a study conducted by the National Addiction Centre of the Russian Federation: *Dynamics of Drug Related Disorders in the Russian Federation, 2007.*

54 UNODC ARQ.

**Map 14: Heroin flows to the Russian Federation and East Europe, 2009**

Source: UNODC.


to China, most of the heroin reaching South-East Asia was likely transported from Afghanistan via Pakistan. However, exact drug trafficking routes and sources in 2009 are difficult to determine due to a lack of seizures. Given the low prices of heroin in Pakistan, it may be cheaper for drug trafficking networks to transport Afghan heroin to China and South-East Asia rather than use heroin from Myanmar.

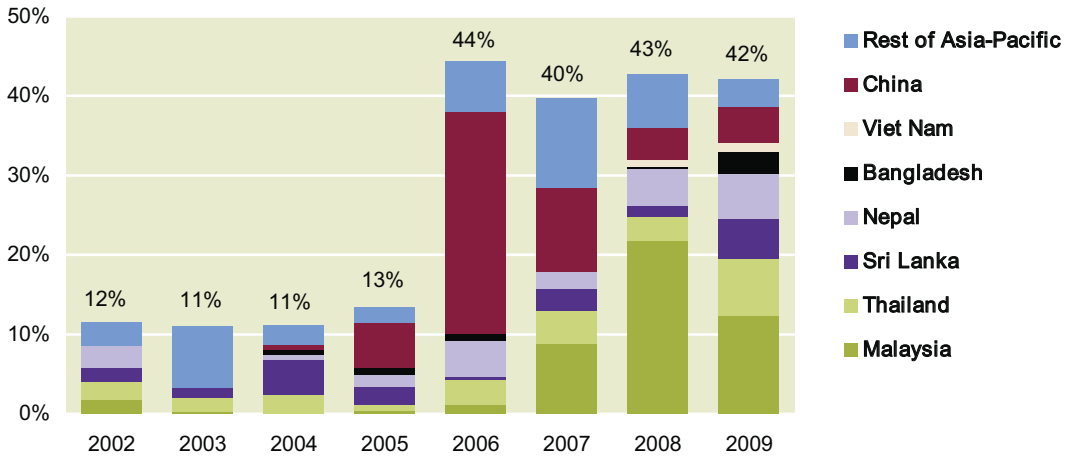
Heroin trafficking from Afghanistan to the Asia-Pacific region is an increasing trend, visible in individual drug seizures reported by Pakistan. Among those cases in which the destination of the consignment was identified as a country or region other than Pakistan, the proportion destined for the Asia-Pacific region underwent a distinct change in the transition from 2005 to 2006. This proportion (by number of seizure cases) was relatively stable over the period 2002-2005 (ranging between 11 and 13%), rose distinctly to 44% in 2006, to remain relatively stable since then, ranging between 40 and 44%. It is likely that a significant proportion of these consignments was intended for China. The proportion of cases in which China was identified as the country of destination rose sharply from less than 1% in 2004 to 28% in 2006, possibly reflecting the route identified by Chinese authorities involving direct shipments to north-western China. Since 2006, these shipments appear to have been gradually replaced by shipments to other countries in the Asia-Pacific region, possibly for further trans-shipment to their final destinations (which may include China as well as other countries in South-East Asia and Oceania).

This proportion also reached record levels in the case of several other countries in this region, such as Malaysia (22% in 2008), Thailand (7% in 2009), Nepal (6% in 2009) and Sri Lanka (5% in 2009). The shipments may reflect the recent trafficking route to south-eastern China. Indeed, although limited quantities of Afghan heroin were trafficked by air from South-West Asia to the north-west of China (notably Urumqi), an increasingly important route went from Afghanistan and neighbouring countries to the south-eastern Chinese province of Guangdong, via transit countries such as Malaysia, Singapore, the Philippines and Viet Nam. Five of the seizure cases in Guangdong province in 2009 together accounted for 1 mt of heroin.[55] The emergence of this new route around 2005-2006 also appears to have caused a drop in heroin seizures in this region, suggesting that law enforcement needed time to adapt.

55 National Narcotics Control Commission of China, presentation at the Fifteenth Asia-Pacific Operational Drug Enforcement Conference, February 2010, Tokyo, Japan, and National Narcotics Control Commission of China, presentation at the Twentieth Anti-Drug Liaison Officials' Meeting for International Cooperation (ADLOMICO), October 2010, Seoul, Republic of Korea.

**Fig. 42: Heroin consignments seized in Pakistan intended for the Asia-Pacific, as a percentage of all seized heroin consignments with known destination (by number of cases), 2002-2009**

Note: Consignments where the destination was identified as Pakistan itself are excluded from the total.
Source: UNODC IDS.




Heroin trafficking from East and South-East Asia is limited. In 2009, 3-4 mt of heroin were trafficked from South-East Asia to Australia and, to a lesser extent, New Zealand. There are no reports of onward heroin trafficking from China in 2009.

### South Asia

South Asia was an important consumption and transit point for Afghan heroin in 2009. Some 25 mt of pure heroin were consumed in the region and 15 mt were trafficked onwards. Of this, some 6 mt went to South-East Asia, 6 mt to Africa, 1-2 mt to North America and 1 mt each to China and Europe. Although the majority of users in India use Indian heroin, drug traffickers prefer to export Afghan heroin due to its higher purity.

Of the 40 mt of heroin that were available in South Asia, an estimated 25 mt were trafficked from Afghanistan to South Asia, and a further 15 mt were manufactured domestically. Indian heroin supplied regional markets including Bangladesh,[56] Nepal[57] and Sri Lanka.

### Africa

In 2009, an estimated 40-45 mt of Afghan heroin were trafficked to Africa, of which some 25 mt were likely trafficked from Pakistan, 5-6 mt from the United Arab Emirates, 5-6 mt from India and 5 mt from the Islamic Republic of Iran. The majority of heroin is still smuggled into South Africa, mainly from South-West Asia and, to a lesser extent, South-East Asia. Major hubs in Africa include Nigeria and South Africa.

The majority of heroin that reached the continent was consumed there, although Africa is now emerging as a heroin trafficking hub. In 2009, an estimated 7 mt of heroin were trafficked from Africa to Europe, almost 1 mt to China and a small amount to Australia.

## Heroin flows to other destinations

Aside from the above-mentioned destination markets, there are other international consumption markets, including the Americas and Oceania.

In 2009, an estimated 40 mt of heroin were available in the Americas, the majority of which was grown and produced regionally. Only a limited amount of Afghan heroin was available in the market, as production in Mexico was higher than regional demand. However, the heroin market in Canada is mainly supplied by Afghan heroin.

In 2009, Mexico produced 426 mt of opium, which may be converted into 40 mt of Mexican (black tar) heroin. However, such a level of heroin production in Mexico would be equivalent to almost double the estimated consumption in its main destination market of North America (22 mt). In the absence of regional opiate stocks, either production figures are over-estimated or consumption is under-estimated.

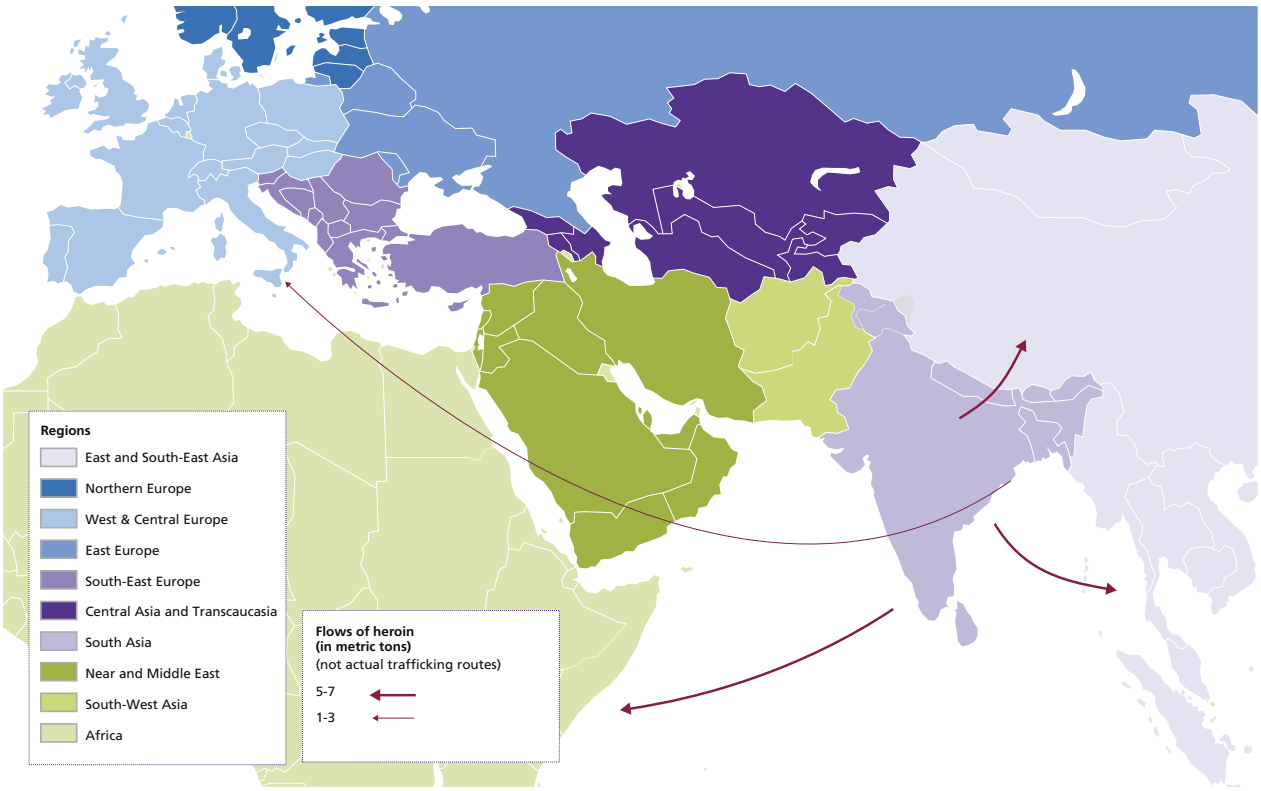
Production in Colombia is similarly opaque. Almost 58% of the heroin seized in the United States of America is reportedly of Colombian origin.[58] However, Colombia's total opium production was 9 mt in 2009, with a maximum yield of 1 mt of heroin. As Colombian law enforcement bodies seized 650 kg of heroin in 2009, 350 kg of heroin were left for trafficking. This would

56 Interviews with Bangladeshi officials, March 2009.

57 Interviews with Nepalese officials, March 2009.

58 USA Drug Enforcement Administration, Heroin Signature Program.

**Map 15: Heroin trafficking from South Asia, 2009**




not even satisfy heroin consumption in South America (2 mt), and nothing would be left for trafficking to the US. The currently available data is insufficient to properly understand heroin supply and demand in the Americas.

In 2009, almost 4 mt of heroin were trafficked to Oceania, mainly to Australia. Of this, 3.2 mt were consumed in Australia and 0.6 mt in New Zealand. Heroin use was almost negligible in other countries of the region. Afghan heroin dominated the markets in Australia and New Zealand, likely trafficked via Pakistan and South-East Asian countries. Indeed, Australia registered a significant diversification in the countries of departure for heroin trafficking into the country (of which there were 11 in 1999-2000 and 29 in 2008-2009),[59] and identified Cambodia, Malaysia, Pakistan, Thailand and Viet Nam as the most common departure countries in 2008-2009. Although heroin trafficking from South and East Africa to Australia was limited in 2009, shipments from Africa are emerging as a new trend, according to the Australian Government.[60]

59 Both reporting periods from July 1 to June 30 of the following year.

60 UNODC ARQ.

## 2.5 Market analysis

The findings in this section were calculated by examining a range of indicators, including demand statistics, opiate seizure databases of the World Customs Organization and UNODC, ARQ responses and individual country reports. Experts from international organizations, Member States and UNODC field offices have been consulted.

Heroin and opium prices depend on a number of factors, including purity, supply and demand, distance from the source and risk of interception. For example, one gram of good quality heroin costs around US$2-3 in Afghanistan, whereas the price is between US$40 – US$400 at consumption markets. Although farmers in Afghanistan supply much of the world's opiates, it is the international criminal networks along trafficking routes that earn billions of dollars every year.

Heroin market values for each main consumption country or region were calculated by using the amount of estimated heroin consumption as well as the average price. Regional/country-level heroin consumption and average prices are detailed elsewhere in this chapter.

Heroin consumption amounts for each country/region were calculated by multiplying the estimated number of opiate users by the average heroin consumption per capita per year. The average heroin consumption figures reported in the 2005 *World Drug Report* have been updated with the help of several Member States, UNODC field offices and other relevant organizations since 2008.[61]

In order to compare the market values between regions and countries, all prices were adjusted for purity. This information was collected through ARQ responses or bilateral meetings with officials. However, there is limited information available about purity levels.

To calculate the amount of opiate flows through a country or a region, analyses of both opiate use and seizure data from 2009 were carried out to track the patterns and estimate the magnitude of opiate flows. The total amount of heroin used was calculated for each country, then combined with official seizure data and balanced against total manufacture. Manufacture, consumption and seizure data were analysed together. For example, the size of estimated heroin flows from Afghanistan or Pakistan to country 'X' should be similar to the amount of heroin used and intercepted in country 'X' and the destination and transit countries receiving heroin via country 'X'. First, heroin or opium demand in the main destination regions or countries was calculated. Then, by drawing on seizure statistics from each country, the amounts of heroin or opium flowing between the countries were estimated.

Regarding the analysis on groups that benefit from the heroin trade, arrestee statistics provided by Member States were analysed, supplemented by extensive consultations with various Government experts and institutions.

As this report aims to provide global insights as well as orders of magnitude, the flows represented on maps should be considered broadly indicative rather than definitive. Flows may deviate to other countries along the routes and there are numerous secondary flows that may not be represented. Moreover, trends respond rapidly to changes in law enforcement and demand. Opiate flow estimations would, therefore, need to be revised if demand statistics were to change. The estimates will be updated periodically as new drug use data is provided by Member States.

### Purity and prices

Both heroin (wholesale) and opium (farm-gate) prices in Afghanistan have increased in the last year, despite a steady decline from 2006 to 2009. At the end of March 2011, the national average price for one kilogram of dry opium in Afghanistan at the farm-gate level was US$274/kg, 180% higher than the US$98/kg reported in March 2010.[62] The dry opium price at the farm-gate level has been increasing since July 2009. The current farm-gate price is the highest price reported since November 2004. Similarly, at the end of March 2011, heroin cost US$3,815/kg, compared to US$2,506/kg in March 2010, an increase of 52%.[63] Afghan heroin has, on average, a purity level of around 70%, much higher than that what reaches global consumption markets.

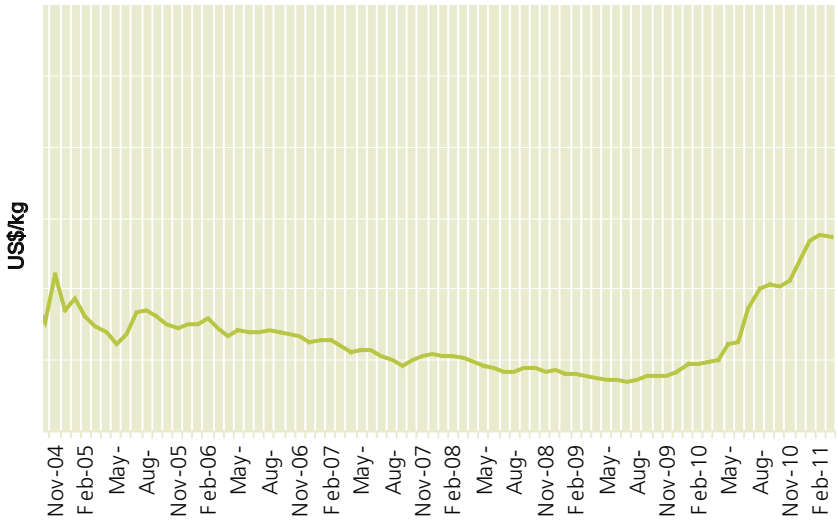
61 UNODC, *Addiction, Crime and Insurgency: The Transnational Threat of Afghan Opium*, 2009.

62 Ministry of Counter Narcotics Islamic Republic of Afghanistan and UNODC, *Afghanistan Opium Price Monitoring Monthly Report*, February 2011.

63 *Ibid.*

**Fig. 43: Average price of dry opium at farm-gate level, September 2004 to March 2011**

Source: Afghanistan Ministry of Counter Narcotics and UNODC Country Office in Afghanistan, *Afghanistan Opium Price Monitoring Monthly Report,* March 2011.




Heroin prices in western Europe do not show a clear response to opiate prices in Afghanistan. A long-term comparison of the trader price of opium in Afghanistan with heroin prices in Europe shows that, despite a marked hike in opium prices between early 2000 and late 2002, which coincided with a marked drop in opium production in 2001, the retail heroin price, measured in euros, did not decrease in western Europe. In view of the large mark-up between prices in Afghanistan and western Europe (the price per pure gram of heroin in Afghanistan is approximately 1% of the retail price in western Europe), one possible explanation for this is that the impact on the final price of price changes at the source is only cumulative, rather than proportional, resulting in a non-discernible effect at the much higher order of magnitude of retail prices. For example, an increase in the wholesale price of heroin in Afghanistan from US$2 to US$3 per gram (a spike of 50%) would bring about, if the impact is indeed cumulative, an increase of US$1 per gram in the final retail price, e.g. from US$70 to US$71 per gram (an increase of 1.4 %). If the impact were proportional, a 50% hike in the

**Fig. 44: Accrual of purity-adjusted heroin prices, 2009 (or latest year available)**

Sources: UNODC Country Office in Afghanistan; UNODC DELTA, UNODC Estimates.

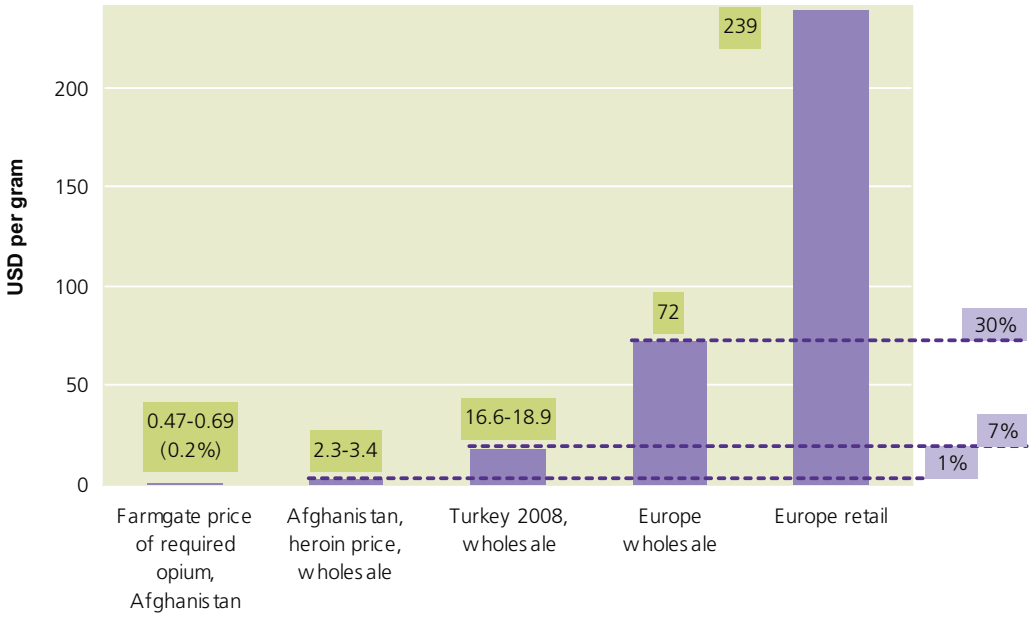
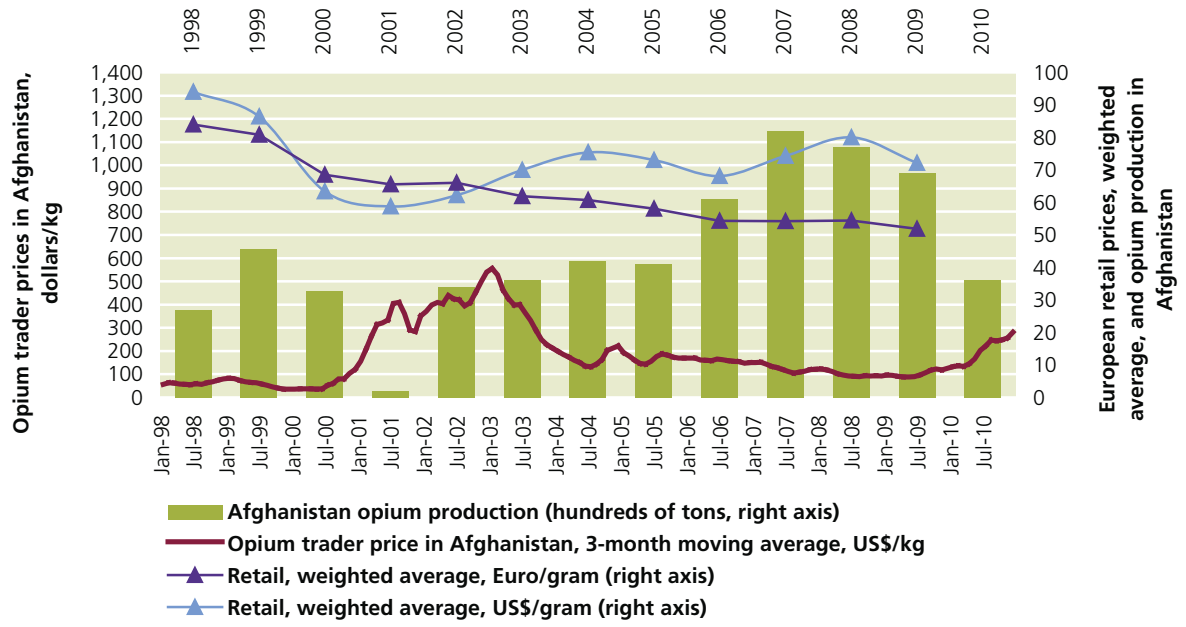


**Fig. 45: Opium price and production in Afghanistan compared to heroin retail process in western Europe, 1998-2010**

Sources: UNODC DELTA; UNODC Country Office in Afghanistan; UNODC estimates.



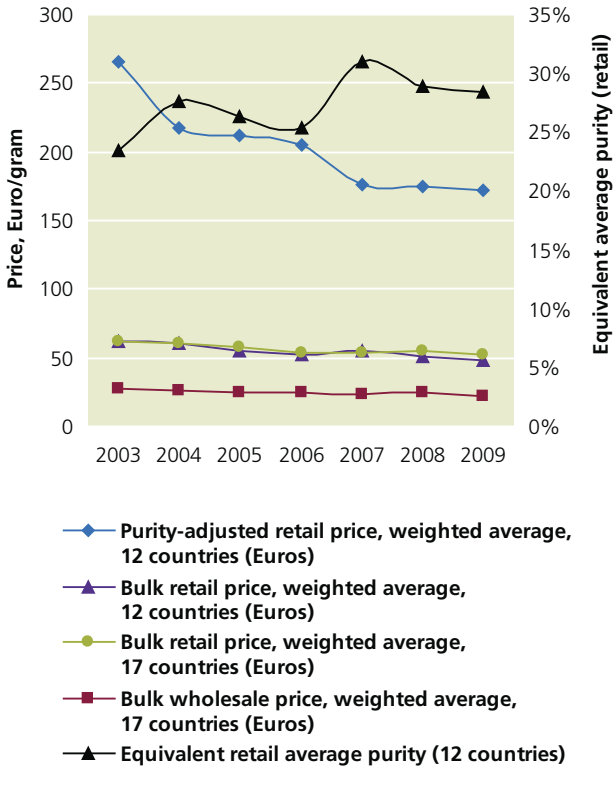

wholesale price of heroin in Afghanistan would lead to a similar hike in the final retail price, from US$70 to US$105.

Although seizures in West and Central Europe do not mirror the increased supply of Afghan opium or the increased levels of heroin seizures in the Islamic Republic of Iran and Turkey, heroin price data for western Europe are compatible with increased supply. UNODC estimates of purity-adjusted heroin retail prices based on 12 countries in western Europe indicate a decrease of 35% between 2003 and 2009 in the price per pure gram of heroin, measured in euros and unadjusted for inflation.[64] The decrease is less evident in bulk retail prices, suggesting that the increase in heroin supply may have translated into increased purity. The equivalent average purity rose from 23% in 2003 to 28% in 2009.

Heroin from Mexico and heroin from South America are rather distinct products in the main consumer market, the United States of America. Heroin from South America is more expensive and of higher purity. In 2009, the US reported typical wholesale purity of 52% for heroin from South America, compared to 40% for heroin from Mexico, and a price range of 44,000-113,333 US$/kg for heroin from South America, compared to 32,880-70,000 US$/kg for heroin from Mexico. Based on all heroin purchases performed by law enforcement in the United States, in the last quarter of 2009, the average price per pure gram of heroin was at the highest level over the period 2006-2009, while the average purity was the lowest over the same period.

**Fig. 46: Heroin prices and purity in West and Central Europe, 2003-2009**

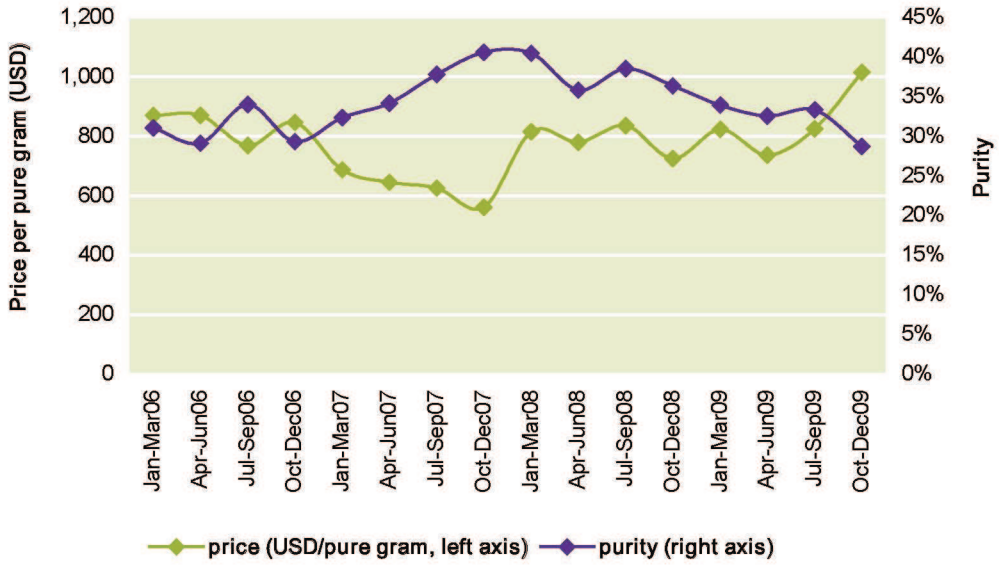
Sources: UNODC DELTA; UNODC estimates.




64 Adjusting for inflation using Eurostat's euro area index would result in a further 11% decrease.

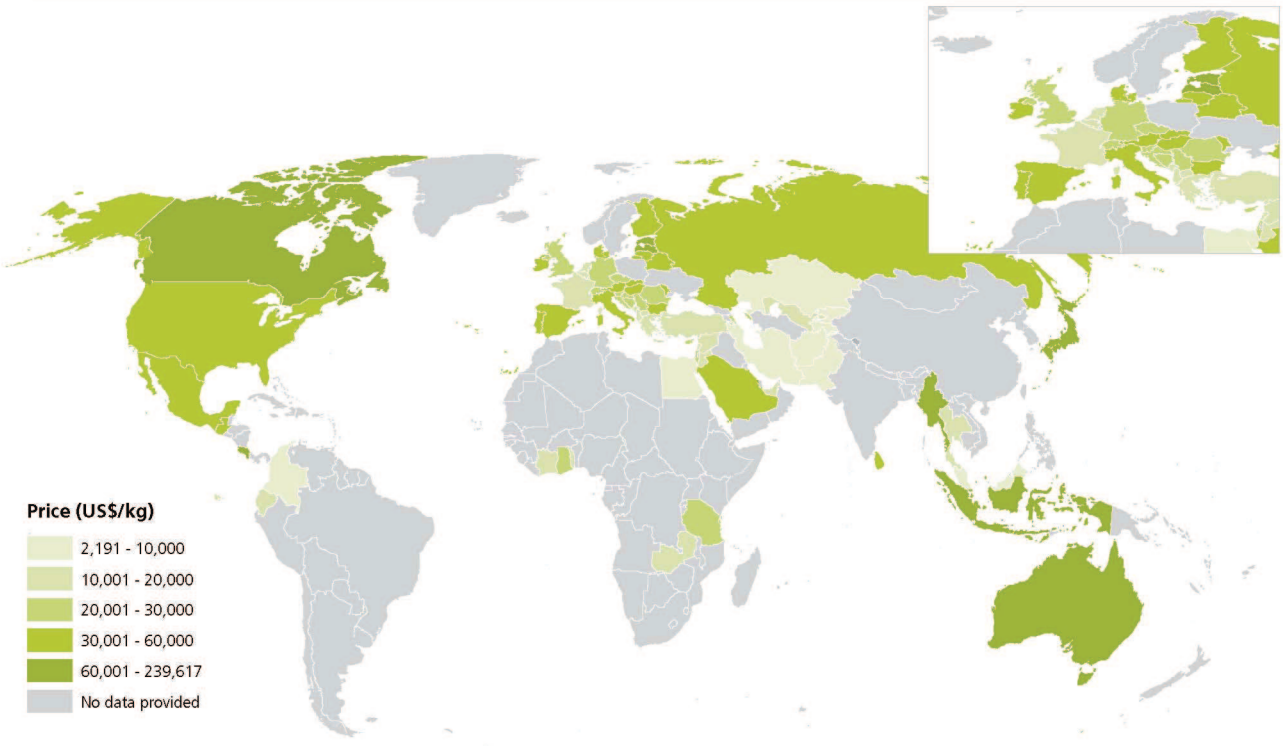
## Fig. 47: USA: mean price and purity of heroin purchases by law enforcement agencies, 2006-2009

Source: UNODC ARQ.




## Map 16: Wholesale heroin prices (US$/kg), 2009 (or 2008 where 2009 were not available)

Sources: UNODC ARQ; EUROPOL; UNODC estimates.




Note: The boundaries and names shown and the designations used on this map do not imply official endorsement or acceptance by the United Nations.
Values represent reported typical prices. In cases where a range is reported without a typical price, the midpoint is considered. In cases where countries distinguish between different kinds of heroin the lower price is considered, usually corresponding to "heroin no. 3" or "brown heroin"

## Table 14: Heroin prices, 2009

Sources: UNODC ARQ; EUROPOL; UNODC estimates.

Retail prices (street price), US$/gram

| EUROPE | 1990 | 1991 | 1992 | 1993 | 1994 | 1995 | 1996 | 1997 | 1998 | 1999 | 2000 | 2001 | 2002 | 2003 | 2004 | 2005 | 2006 | 2007 | 2008 | 2009 |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Austria | 270 | *250* | 203 | 132 | 138 | 103 | 87 | 70 | 94 | 57 | 75 | 44 | 92 | 68 | 75 | 74 | 69 | 99 | *110* | 97 |
| Belgium | *90* | 105 | 105 | 77 | 75 | 75 | 56 | 37 | 41 | 41 | 37 | 27 | 29 | 31 | 32 | *31* | 32 | 33 | 36 | 33 |
| Denmark | 287 | 265 | 151 | 139 | 228 | 191 | 157 | 188 | 147 | 175 | 116 | 111 | 126 | 122 | 94 | 123 | 100 | 92 | *158* | 148 |
| Finland | *800* | 696 | 770 | 724 | 606 | 455 | 414 | 257 | 254 | 250 | 207 | 121 | 188 | *195* | *195* | 182 | 125 | 151 | 235 | *223* |
| France | *145* | 153 | 150 | 135 | 144 | 170 | 156 | 113 | 119 | 111 | *32* | 34 | 47 | 57 | 68 | 69 | 67 | 55 | *66* | 56 |
| Germany | 105 | 75 | 96 | 74 | 91 | 90 | 74 | 51 | 43 | 45 | 39 | 38 | 38 | 46 | 49 | 48 | 46 | 48 | 53 | 51 |
| Greece | 120 | 175 | 63 | 44 | 105 | 88 | 77 | 80 | 55 | 55 | 55 | 53 | 45 | 65 | 51 | 31 | 75 | 75 | *59* | *54* |
| Ireland | *196* | *180* | *180* | *168* | *161* | 179 | 275 | 228 | 213 | 204 | 176 | 170 | 179 | 179 | 248 | 252 | 251 | 274 | 294 | 209 |
| Italy | 167 | 148 | 140 | 29 | 55 | 41 | 115 | 98 | 120 | 95 | 71 | 68 | 59 | 63 | 69 | 68 | 66 | 66 | *78* | *72* |
| Luxembourg | *172* | *150* | *150* | *150* | 172 | 202 | 138 | 141 | 133 | 126 | 69 | 67 | *67* | 45 | 101 | 102 | *102* | 96 | *96* | *96* |
| Netherlands | 49 | *50* | 55 | 49 | *55* | 61 | 48 | 55 | 34 | 30 | 25 | 43 | 35 | 40 | 57 | 38 | 38 | 33 | 53 | *53* |
| Norway | 1,680 | 525 | 510 | 275 | 349 | 300 | 282 | 198 | 186 | 166 | 128 | 157 | 165 | 198 | 148 | 220 | *220* | 240 | *170* | *170* |
| Portugal | 83 | 82 | 72 | 63 | 65 | 79 | 68 | 55 | 74 | 37 | 45 | 45 | 41 | 54 | 52 | 52 | 52 | 52 | 49 | 51 |
| Spain | *175* | *185* | *180* | *126* | 132 | 120 | 112 | 88 | 82 | 75 | 59 | 57 | 61 | 75 | 81 | 80 | 78 | 86 | 92 | 86 |
| Sweden | *225* | *210* | *195* | *180* | *165* | 337 | 346 | 135 | 130 | 126 | 113 | 129 | 133 | 128 | 119 | *149* | *138* | *185* | *234* | *201* |
| Switzerland | 312 | 221 | 248 | 126 | 164 | 190 | 116 | 81 | 96 | 167 | 53 | 45 | 39 | *48* | *48* | *48* | 39 | 42 | 37 | 46 |
| United Kingdom | 157 | 144 | *144* | 134 | 129 | 125 | 108 | 118 | 120 | 108 | 107 | 86 | 91 | 100 | 110 | 93 | 71 | 101 | 83 | 69 |
| Average unweighted in US$ | 296 | 213 | 201 | 154 | 167 | 165 | 155 | 117 | 114 | 110 | 83 | 76 | 84 | 89 | 94 | 98 | 92 | 101 | 112 | 101 |
| **inflation adjusted 2009 US$** | **486** | **335** | **307** | **229** | **241** | **232** | **211** | **157** | **150** | **142** | **103** | **92** | **101** | **104** | **107** | **107** | **98** | **105** | **111** | **101** |
| Weighted average in US$ | 173 | 149 | 146 | 106 | 118 | 119 | 117 | 93 | 94 | 86 | 63 | 59 | 62 | 70 | 75 | 73 | 68 | 74 | 80 | 72 |
| **Inflation adjusted in 2009 US$** | **284** | **234** | **224** | **158** | **171** | **167** | **160** | **124** | **124** | **111** | **79** | **71** | **74** | **82** | **86** | **80** | **73** | **77** | **80** | **72** |
| **Weighted average in Euro** | **136** | **120** | **113** | **91** | **99** | **91** | **93** | **82** | **84** | **81** | **69** | **66** | **66** | **62** | **61** | **58** | **54** | **54** | **54** | **52** |
| **Adjusted for inflation in 2009 Euro** | **212** | **179** | **161** | **125** | **133** | **119** | **119** | **103** | **105** | **99** | **83** | **77** | **76** | **70** | **67** | **63** | **57** | **56** | **55** | **52** |

Sources: UNODC ARQ data, EUROPOL and UNODC estimates (in italics)

| | 1990 | 1991 | 1992 | 1993 | 1994 | 1995 | 1996 | 1997 | 1998 | 1999 | 2000 | 2001 | 2002 | 2003 | 2004 | 2005 | 2006 | 2007 | 2008 | 2009 |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| USA - street price | 141 | 171 | 201 | 192 | 196 | 188 | 160 | 180 | 162 | 158 | 160 | 140 | 137 | 133 | 130 | 130 | 128 | 131 | *173* | *157* |
| **Inflation adjusted in 2009 US$** | **231** | **270** | **307** | **285** | **283** | **264** | **219** | **241** | **214** | **203** | **199** | **170** | **163** | **155** | **147** | **143** | **137** | **136** | ***172*** | ***157*** |
| **Purity adjusted** | 640 | 612 | 542 | 468 | 477 | 436 | 422 | 409 | 369 | 376 | 381 | 369 | 351 | 360 | 381 | 362 | 377 | 364 | *456* | *491* |
| **Purity & inflation adjusted in 2009 US$** | **1051** | **965** | **829** | **695** | **691** | **614** | **577** | **547** | **485** | **484** | **474** | **447** | **419** | **420** | **433** | **397** | **402** | **377** | ***454*** | ***491*** |

## Wholesale, US$/kg

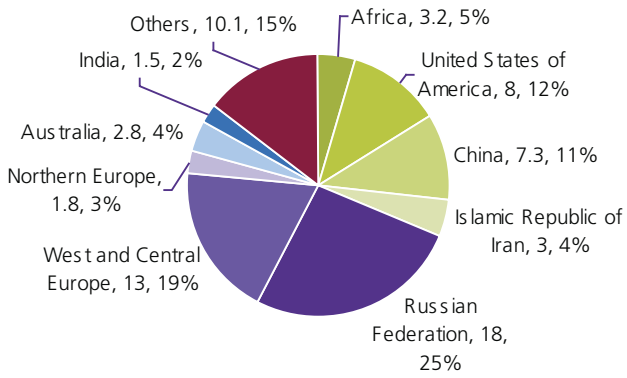
| EUROPE | 1990 | 1991 | 1992 | 1993 | 1994 | 1995 | 1996 | 1997 | 1998 | 1999 | 2000 | 2001 | 2002 | 2003 | 2004 | 2005 | 2006 | 2007 | 2008 | 2009 |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Austria | *55,244* | *46,145* | 63,000 | 36,000 | 37,752 | 30,491 | 30,222 | 28,831 | 34,565 | 31,087 | 25,026 | 19,553 | 23,547 | 33,900 | 37,260 | 36,168 | 37,640 | 54,810 | *58,824* | 41,715 |
| Belgium | *30,000* | 30,000 | 28,500 | 26,600 | 29,586 | 32,580 | 24,307 | 21,761 | 20,847 | 18,557 | 18,360 | 20,292 | 22,229 | 20,960 | 23,040 | 23,336 | 18,820 | 20,554 | 14,706 | 15,991 |
| Denmark | *110,000* | *100,000* | 85,000 | 95,000 | 117,625 | 106,805 | 86,806 | 100,465 | 65,693 | 61,507 | 23,585 | 32,889 | 20,803 | 41,770 | 32,820 | 37,741 | 35,967 | 33,091 | *52,335* | 49,066 |
| Finland | *353,774* | *353,774* | *353,774* | *353,774* | *353,774* | 353,774 | *321,586* | *199,442* | *197,856* | *194,357* | *161,034* | *44,840* | 51,804 | *51,800* | 68,314 | 69,192 | *69,192* | 54,810 | 58,824 | *58,824* |
| France | 180,000 | 72,250 | 80,000 | 63,750 | *75,000* | 66,035 | 46,603 | 32,230 | 25,885 | 25,596 | 22,158 | 26,906 | 23,547 | 28,250 | 31,050 | 31,450 | 35,550 | *34,246* | *36,743* | *17,385* |
| Germany | 45,244 | 36,145 | 41,667 | 35,206 | 36,448 | 35,256 | 27,890 | 25,686 | 25,608 | 24,770 | 20,263 | 17,816 | 20,325 | 21,510 | 25,723 | 25,765 | 22,510 | 25,810 | 26,471 | 26,717 |
| Greece | 90,000 | 70,000 | 35,000 | 28,000 | 29,536 | 34,362 | 39,090 | 28,775 | 21,020 | 20,714 | 17,320 | 16,592 | 17,425 | 18,650 | 17,540 | 14,782 | 19,450 | 19,450 | *22,413* | *21,205* |
| Ireland | *63,940* | *53,940* | *53,500* | *53,210* | *52,500* | 81,479 | 77,643 | 36,531 | 34,396 | 43,478 | 37,600 | 36,441 | 36,441 | *30,510* | *30,510* | 33,967 | 33,967 | 33,967 | 44,120 | 41,725 |
| Italy | 67,500 | 60,000 | 108,000 | 42,581 | 47,690 | 35,786 | 48,152 | 37,795 | 36,459 | 36,894 | 31,163 | 32,979 | 33,669 | 29,830 | 30,109 | 30,496 | 28,830 | 31,676 | *46,300* | *44,044* |
| Luxembourg | *86,000* | *75,000* | *75,000* | 49,500 | *86,000* | 57,079 | 59,852 | 54,786 | 52,630 | 50,368 | *48,000* | 50,369 | *50,369* | *24,700* | 43,473 | 44,030 | *44,030* | 31,451 | *31,451* | *31,451* |
| Netherlands | 23,850 | *25,000* | 26,550 | 23,850 | *23,850* | 24,384 | 20,572 | 13,810 | 14,056 | 16,985 | 14,703 | 15,757 | 29,199 | 17,730 | *17,730* | 18,240 | 16,625 | 16,957 | 19,841 | *19,841* |
| Norway | *220,000* | *200,000* | 212,500 | 151,099 | 101,744 | *85,000* | 72,520 | 62,209 | 64,918 | 49,872 | 44,561 | 35,874 | 37,676 | 48,234 | 52,790 | 53,490 | 53,325 | 58,235 | *47,766* | *47,766* |
| Portugal | 50,000 | 55,000 | 46,667 | 31,500 | 32,428 | 43,171 | 45,902 | 38,841 | 30,483 | 29,339 | 25,398 | 31,310 | 25,839 | 31,000 | 34,075 | 34,512 | 34,512 | 20,554 | *27,206* | *38,239* |
| Spain | 160,000 | *125,000* | *122,500* | *91,000* | 74,418 | 79,880 | 84,395 | 63,880 | 52,755 | 53,820 | 43,596 | 32,000 | 41,202 | 48,420 | 46,350 | 47,055 | 47,371 | 47,671 | 50,697 | 46,621 |
| Sweden | *140,000* | *130,000* | *115,000* | *95,000* | *117,625* | 62,655 | 64,829 | 65,771 | 63,190 | 61,022 | 41,626 | 33,702 | 34,738 | 41,900 | 31,648 | 35,970 | 35,970 | 37,059 | 57,508 | *57,508* |
| Switzerland | 124,000 | 153,800 | 228,875 | 47,460 | 52,823 | 54,850 | 41,665 | 37,234 | 34,294 | 33,422 | 29,568 | 16,082 | 19,149 | *22,340* | 23,580 | 25,420 | 21,470 | 23,180 | 25,584 | *25,190* |
| United Kingdom | 53,940 | 43,940 | *43,500* | 43,210 | *42,500* | 42,004 | 34,846 | 39,491 | 41,667 | 29,126 | 26,718 | 25,926 | 30,620 | 34,340 | 39,041 | 33,249 | 28,320 | 27,163 | 29,569 | 24,628 |
| Average unweighted in US$ | 109,029 | 95,882 | 101,120 | 74,514 | 77,135 | 72,094 | 66,287 | 52,208 | 48,019 | 45,936 | 37,099 | 28,784 | 30,505 | 32,108 | 34,415 | 34,992 | 34,326 | 33,570 | 38,256 | 35,760 |
| **Inflation adjusted, 2009 US$** | **179,604** | **151,569** | **155,177** | **111,025** | **112,061** | **101,850** | **90,961** | **69,786** | **63,201** | **59,154** | **46,220** | **34,869** | **36,378** | **37,437** | **39,086** | **38,439** | **36,538** | **34,734** | **38,120** | **35,760** |
| Weighted average in US$ | 93,234 | 68,009 | 77,411 | 54,785 | 56,285 | 52,423 | 47,894 | 39,440 | 36,513 | 34,257 | 28,494 | 25,809 | 28,211 | 30,386 | 32,381 | 31,925 | 30,823 | 31,513 | 36,020 | 31,443 |
| **Inflation adj. (kg) in 2009 US$** | **153,039** | **107,125** | **118,371** | **81,339** | **81,479** | **73,798** | **65,488** | **52,719** | **48,058** | **44,114** | **35,499** | **31,265** | **33,642** | **35,429** | **36,776** | **35,070** | **32,809** | **32,607** | **35,892** | **31,443** |
| **Inflation adj. (gram) in 2009 US$** | **153** | **107** | **118** | **81** | **81** | **74** | **65** | **53** | **48** | **44** | **35** | **31** | **34** | **35** | **37** | **35** | **33** | **33** | **36** | **31** |
| **Weighted in Euro (g)** | **73** | **55** | **60** | **47** | **47** | **40** | **38** | **35** | **33** | **32** | **31** | **29** | **30** | **27** | **26** | **25** | **25** | **23** | **25** | **23** |
| **Adjusted for inflation in 2009 Euro (g)** | **114** | **82** | **85** | **65** | **64** | **53** | **48** | **44** | **41** | **39** | **37** | **34** | **34** | **30** | **29** | **27** | **26** | **24** | **25** | **23** |

## Market value and beneficiaries

The global opiate market was valued at US$68 billion in 2009, with heroin consumers contributing US$61 billion. The value of the world heroin market tends to increase according to the number of international borders crossed by traffickers. That is, heroin is generally cheaper in Afghanistan, a production country, than in West and Central Europe, where the drugs have been transported by various means across long distances and changed hands a number of times. However, this pattern can be deceptive, as heroin prices and consumption levels vary significantly across countries and regions.

**Fig. 48: Shares of the global opiate market value, 2009 (in billions of US$)**

Source: UNODC.




Heroin prices fluctuate significantly across the globe, and Australia is the starkest example of global price variation. Although Australian users represent just 0.85% of total global heroin consumption, they contribute 4% of the global market value. The street value per gram of heroin is between US$230–370 in Australia whereas one gram of heroin was worth around US$170-200 in the USA and northern Europe, and consumers in West and Central Europe paid US$40-100 per gram. Overall, the Russian Federation and West and Central Europe contributed almost half of the total global market value, accounting for US$31 billion in 2009.

### Beneficiaries

Given the geographic spread of heroin users and the fact that heroin prices increase roughly according to distance from the source, it is not surprising that criminal networks in Europe, the Russian Federation and South-East Asia pocketed most of the profits in 2009. Indeed, beneficiaries in Afghanistan, for example, earned significantly less than international criminal networks. Although international organized crime groups dominate transnational trafficking, local sales in each country are conducted almost entirely by local groups, including domestic illegal armed groups and separatist movements.

There is a strong link between insecurity and the opiate trade in Afghanistan, as opiates constitute the main income source for anti-government elements like the Afghan Taliban. Almost all of the opium produced in Afghanistan was grown in the provinces of southern Afghanistan where anti-government elements are active. Although the Afghan Taliban's role in drug trafficking is not clear, opium poppy farmers, drug traffickers and heroin lab owners paid the group up to 10% of the value of their opiate shipments as 'tax' or protection fees. In 2009, the Taliban's total income from the opiate trade was likely around US$155 million. However, Afghan opium farmers likely earned US$440[65] million and Afghan drug traffickers almost US$2.2 billion.

In total, Pakistan's opiate market was worth US$1.2 billion in 2009 – counting both transnational trafficking and domestic consumption. The exact beneficiaries of the opiate trade through Pakistan are difficult to specify, although it appears that extremist groups in the Federally Administered Tribal Areas (FATA) and criminal groups in Balochistan are key recipients. Opiates enter Pakistan via these areas, which border Afghanistan.

In 2009, the opiate market in the Islamic Republic of Iran was estimated at around US$3 billion. The majority of the profits went to Iranian criminal groups and, to a lesser extent, foreign drug traffickers based in the country.

Although each Central Asian country has domestic criminal groups, it is possible that Tajik and Russian criminal groups organize heroin trafficking all the way from Afghanistan to the Russian Federation. Russian is the common language along this route. In 2009, the heroin trafficking market in Central Asia was worth an estimated US$1.4 billion, most of which went to regional criminal groups.

In 2009, the total value of the heroin trafficked via South-East Europe was around US$2 billion, whereas the domestic heroin markets in the region were worth US$500 million. Thus, the total value of the opiate trade was US$2.5 billion in South-East Europe in 2009. Turkish, Kurdish and Balkan-based organized crime groups benefited from this trade.

West and Central Europe remains one of the most lucrative drug markets, worth an estimated US$13 billion in 2009. The heroin market in the United Kingdom was estimated at US$3 billion in 2009, facilitated by British, Dutch and Turkish organized crime groups, and, to a lesser extent, South Asian groups. The heroin market in Italy was worth US$3 billion, which mainly went to Italian and Albanian organized crime groups. The value of the French heroin market was estimated at US$2 bil-

65 UNODC and Afghanistan Ministry of Counter Narcotics, *Afghanistan Opium Survey, 2009*.

lion, which was pocketed almost entirely by France-based distributors. The heroin market in Germany yielded a profit of approximately US$1.3 billion, with heroin mainly trafficked by Turkish and Balkan groups.

In 2009, Russian criminal networks made an estimated US$18 billion from heroin. Based on drug-related arrests, the Russian drug market is dominated by Russian citizens, followed by Tajiks as the most active foreign nationals. Drug trafficking in East Europe is most likely conducted by local groups; however, the picture regarding criminal activity in this region is not very clear.

In 2009, China's 2.3 million opiate users consumed some 55-60 mt of pure heroin and paid US$7.3 billion to local drug dealers. In other South-East Asian countries, the total heroin market was worth US$2.4 billion. Chinese and other local organized crime groups control the South-East Asian heroin market at both retail and wholesale levels. The heroin trade in Indonesia is predominantly controlled and directed by West Africans, particularly Nigerians.[66]

In 2009, the total value of the South Asian heroin market – estimated at US$1.9 billion – mostly went to Indian local criminal groups. With a value of US$1.4 billion, the biggest market is in India.

In 2009, Africa's drug trafficking market was worth an estimated US$3.2 billion – most of which went to Nigerian organized crime groups. Nigerian groups likely dominate the African drug trade and are active in many countries around the world, including destination countries in Europe. However, drug trafficking in Africa involves both African networks, including Nigerians and Tanzanians, as well as foreign networks, including Chinese and Pakistanis.

The United States of America dominated regional demand for heroin, with a heroin market worth an estimated US$8 billion in 2009. North America-based organized crime groups (such as Mexican drug cartels) are the main beneficiaries.

In 2009, Oceania's heroin market was worth an estimated US$3.5 billion as Australia and New Zealand had the highest heroin prices in the world. In 2009, both South-East Asian and African – mainly Nigerian – drug traffickers were involved in shipping heroin to Australia. Although information is limited, domestic sales were likely conducted by local groups.

Heroin traffickers continue to adapt their techniques and alter trafficking routes to exploit international paths of least resistance. Numerous global vulnerabilities remain and some new areas are emerging.

Removal of trade barriers in many parts of the globe has not only facilitated the movement of illicit goods, but also closer interaction between organized criminal groups from different locations and cultures. In 2009, many international borders became more transparent due to international trade agreements. Drug traffickers are likely to exploit this situation and make connections with other criminal networks to facilitate the smooth movement of heroin.

Given the ongoing removal of trade barriers globally, traditional methods of border control may become increasingly unable to stem the flow of opiates into destination markets. In particular, traffickers' use of maritime transportation and seaports has been identified as a key emerging threat. Traffickers are already capitalizing on increased global trade along sea routes. In 2009, only a tiny fraction of the more than 400 million containers that were shipped worldwide were inspected. In 2009, just 6% of global heroin seizures made by customs departments occurred at seaports. There are indications that drug traffickers are utilizing maritime transportation much more intensively than currently believed. Drug trafficking through international seaports must be further studied and monitoring mechanisms enacted.

In 2009, Africa emerged as a cost-effective heroin trafficking route to Europe, North America and Oceania. Drug seizures and the arrest of traffickers indicated that Africans – particularly West African networks – are increasingly transporting Afghan heroin from Pakistan into East Africa for onward shipment to Europe and elsewhere. The emergence of Africa as a heroin trafficking hub is likely due to corruption, limited law enforcement capacity and increased pressure on 'traditional' drug trafficking routes. The most fragile African states are particularly vulnerable. East Africa's minimal law enforcement at ports of entry has encouraged drug traffickers to transit heroin through that region. Increasing flows of heroin to Africa have also led to increases in drug use across the continent.

Sporadic reports indicate a heroin shortage in Europe, particularly in the United Kingdom, where good-quality heroin was in short supply in the market. Indeed, the mean purity of heroin seizures made by UK police forces and analysed by the UK Forensic Science Service dropped from 46.4% in the third quarter of 2009 to 33.7% in the third quarter of 2010, while the mean purity of seizures made by the UK Border Agency fell from 58.2% to 46.2%. Anecdotal information points to a shortage in some countries, but not in all, suggesting that increased law enforcement efforts and decreased opium production in Afghanistan have played a role.

66 US Department of State, Bureau of International Narcotics and Law Enforcement Affairs, *International Narcotics Control Strategy Report,* 2009.

# 3. The coca/cocaine market

## 3.1 Introduction

Most indicators and research suggest that cocaine is – after heroin – the second most problematic drug worldwide in terms of negative health consequences and probably the most problematic drug in terms of trafficking-related violence.

The overall prevalence and number of cocaine users globally remain at stable levels. There are regional differences in recent trends, however, with significant decreases reported in North America, stable trends in West and Central Europe and increases in Africa and Asia. The estimated consumption of cocaine in terms of the quantities consumed appears to have declined, mainly due to a decrease in the United States and low levels of per capita use in the emerging markets. The most developed cocaine market outside of the Americas continues to be Europe, notably West and Central Europe, while cocaine use in East Europe is still limited. While demand in the United States was more than four times as high as in Europe in 1998, just over a decade later, the volume and value of the West and Central European cocaine market (US$33 billion) is approaching parity with that of the US (US$37 billion). The volume of cocaine consumed in Europe, however, has doubled in the last decade, even though data for the last few years show signs of stabilization at the higher levels.

Harm associated with cocaine use in terms of treatment demand, overdose cases and deaths, complications in health status due to polydrug use among cocaine users and from adulterants in cocaine, remain substantial in the major regions of consumption.

There has been a decline in the area under coca cultivation, as well as in cocaine production. Global seizures of cocaine have been generally stable over the period 2006-2009. Since 2006, seizures have shifted towards the source areas in South America and away from the consumer markets in North America and West and Central Europe. Some secondary distribution countries in South America seem to have acquired increasing importance as cocaine trafficking transit countries. Trafficking through West Africa continues to be significant, in spite of a reduction of seizures since 2007 (from 25% of European cocaine seizures that transited countries of West and Central Africa in 2007 to 13% in 2009). The area remains vulnerable to a resurgence. Some countries in the Asia-Pacific - with large potential consumer markets - have registered increasing cocaine seizures in 2008 and 2009.

The expansion of the cocaine market across the Atlantic and, more recently, in South America and beyond, highlights the need to treat cocaine as a global problem, and to develop strategies on the scale of the threat. Efforts must be increasingly coordinated and integrated into an international approach that adapts to new developments and trends.

## 3.2 Consumption

UNODC estimates the annual prevalence of cocaine use in 2009 at between 0.3% and 0.5% of the world population aged 15-64, corresponding to some 14.3 to 20.5 million people in this age range who used cocaine at least once in the preceding year. The lower and upper

**Table 15: Annual prevalence and estimated number of cocaine users, by region, subregion and globally, 2009**

| Region/subregion | Estimated number of users annually (lower) | - | Estimated number of users annually (upper) | Percent of population age 15-64 (lower) | - | Percent of population age 15-64 (upper) |
|---|---|---|---|---|---|---|
| **Africa** | 940,000 | - | 4,420,000 | 0.2 | - | 0.8 |
| East Africa | - | - | - | - | - | - |
| North Africa | 30,000 | - | 50,000 | 0.03 | - | 0.04 |
| Southern Africa | 270,000 | - | 730,000 | 0.3 | - | 0.9 |
| West and Central Africa | 550,000 | - | 2,300,000 | 0.3 | - | 1.1 |
| **Americas** | 8,280,000 | - | 8,650,000 | 1.4 | - | 1.4 |
| Caribbean | 110,000 | - | 330,000 | 0.4 | - | 1.2 |
| Central America | 120,000 | - | 140,000 | 0.5 | - | 0.6 |
| North America | 5,690,000 | - | 5,690,000 | 1.9 | - | 1.9 |
| South America | 2,360,000 | - | 2,480,000 | 0.9 | - | 1.0 |
| **Asia** | 400,000 | - | 2,300,000 | 0.02 | - | 0.2 |
| Central Asia | - | - | - | - | - | - |
| East/South-East Asia | 400,000 | - | 1,070,000 | 0.03 | - | 0.2 |
| Near and Middle East | 40,000 | - | 650,000 | 0.01 | - | 0.3 |
| South Asia | - | - | - | - | - | - |
| **Europe** | 4,300,000 | - | 4,750,000 | 0.8 | - | 0.9 |
| East/South-East Europe | 310,000 | - | 660,000 | 0.1 | - | 0.3 |
| West/Central Europe | 3,990,000 | - | 4,090,000 | 1.2 | - | 1.3 |
| **Oceania** | 330,000 | - | 400,000 | 1.4 | - | 1.7 |
| **Global** | **14,250,000** | **-** | **20,520,000** | **0.3** | **-** | **0.5** |

**Table 16: Expert perceptions of trends in cocaine use, by region, 2009**

Source: UNODC ARQ.

| Region | Member States providing perception data | Member States perception response rate | Use problem increased* | Percent use problem increased | Use problem stable | Percent use problem stable | Use problem decreased* | Percent use problem decreased |
|---|---|---|---|---|---|---|---|---|
| Africa | 8 | 15% | 4 | 50% | 2 | 25% | 2 | 25% |
| Americas | 15 | 43% | 5 | 33% | 7 | 47% | 3 | 20% |
| Asia | 13 | 29% | 7 | 54% | 3 | 23% | 3 | 23% |
| Europe | 27 | 60% | 14 | 52% | 13 | 48% | 0 | 0% |
| Oceania | 1 | 7% | 0 | | 1 | | 0 | |
| **Global** | **64** | **33%** | **30** | **47%** | **26** | **41%** | **8** | **13%** |

* Identifies increases/ decreases ranging from either some to strong, unweighted by population.

ranges of cocaine users in 2009[1] have widened, suggesting some increase in the estimated number of users, but also the increasing uncertainty in these estimates. The main difference from previous years is the widening of the ranges, arising from a lack of recent or reliable information in Africa - particularly West and Central Africa[2] - and East and South-East Asia, where starting from low levels, the use of cocaine may have increased. There is no information on the extent of cocaine use in South or Central Asia. In 2009, a substantial decrease in the estimates of cocaine users was recorded for North America, while cocaine use in Europe appeared to have stabilized.

In geographical terms, however, cocaine use appears to have spread. In 2009, nearly half of the Member States

1 In 2008, the estimated annual prevalence number of cocaine users ranged between 0.3% and 0.4% of the population aged 15-64, or between 15.1 and 19.4 million people.

2 This is partly due to the fact that in previous years, estimates for the Democratic Republic of the Congo were included in the Southern Africa subregion and for consistency were moved to the West and Central Africa subregion

**Fig. 49: Expert perception of trends in cocaine use, 2000-2009**

Source: UNODC ARQ.

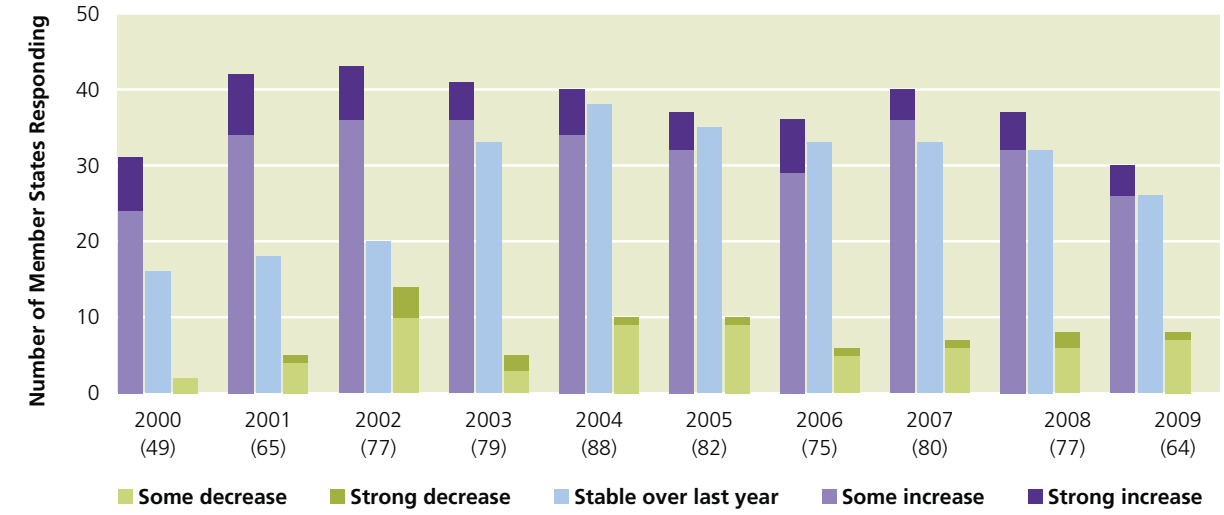



**Fig. 50: Annual prevalence of cocaine use in North America, 2006-2009**

Sources: UNODC World Drug Report 2010 and previous years; update based on ARQ data.

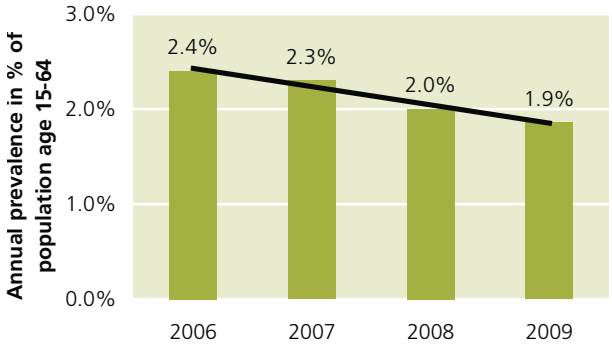
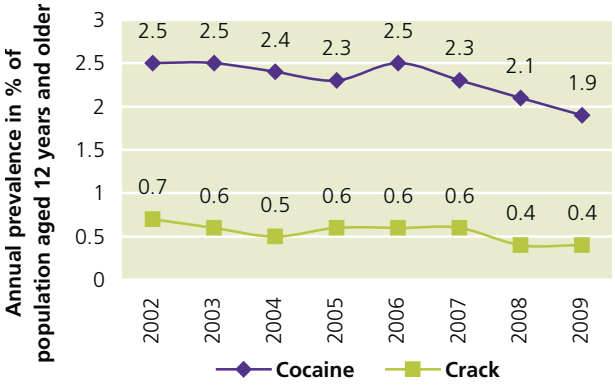



**Fig. 51: United States: Trends in annual prevalence of cocaine use in the population aged 12 years and older, 2002-2009**

Source: Substance Abuse and Mental Health Services Administration, Results from the 2009 National Survey on Drug Use and Health: Volume I, Summary of National Findings.




reporting expert opinion through the ARQ considered that cocaine use had increased in their countries. This was particularly noticeable in Africa and Asia, where increasing seizures of cocaine, though still at low levels, have also been reported in countries that had never reported any in the past. The long-term trends in expert perceptions officially reported to UNODC also point to a continuing perceived increase in the use of cocaine in Africa and Asia. Experts from half of the countries in Europe, especially West and Central Europe, considered cocaine use to be stable, while the other half of the countries perceived an increase. The main stabilization or decrease in cocaine use trends is perceived to be taking place in the Americas.

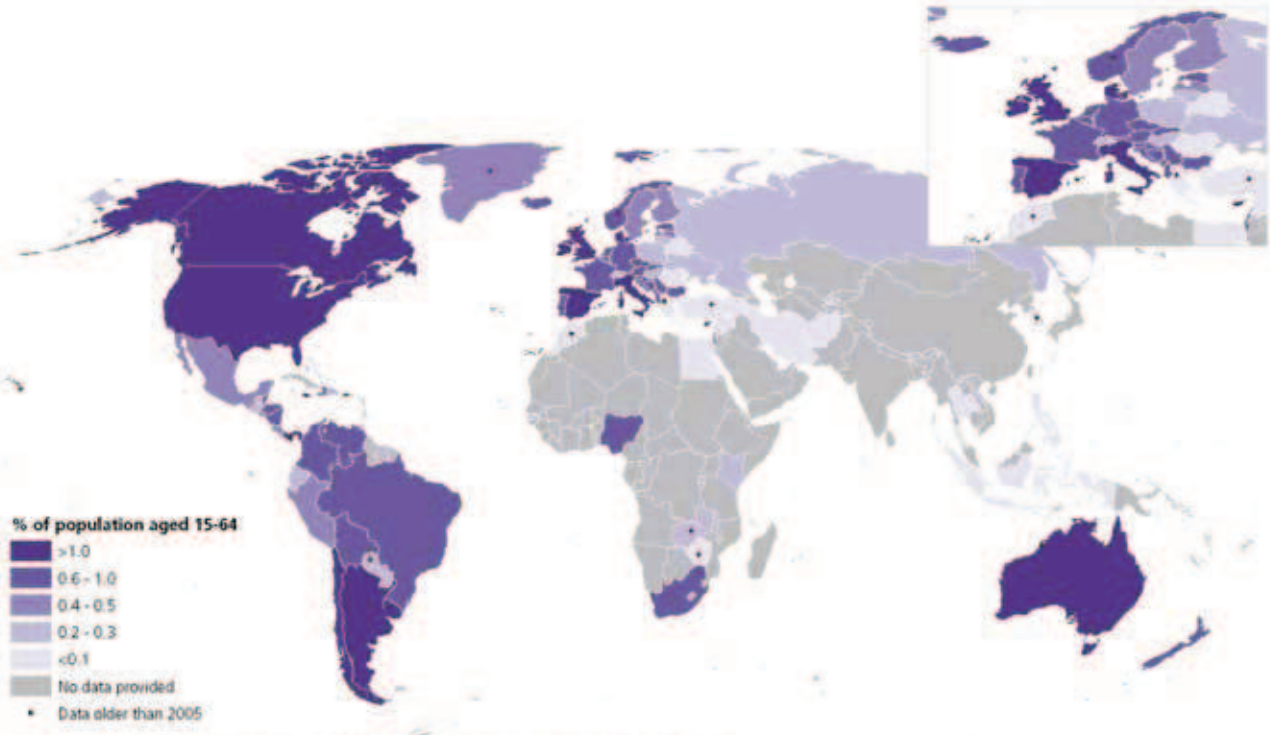
### Cocaine use is decreasing in North America – one of the major regions of cocaine consumption

North America is still the subregion with the largest number of cocaine users worldwide (5.7 million in 2009), accounting for more than a third of all cocaine users worldwide. Household surveys in the countries of North America reveal a prevalence rate of annual cocaine use affecting 1.9% of the population aged 15-64 in 2009, down from 2.4% in 2006.

The United States of America has the highest prevalence of cocaine use in the region (2.4% of the population, or 5 million people aged 15-64), but there are indications of cocaine use declining over the past few years.

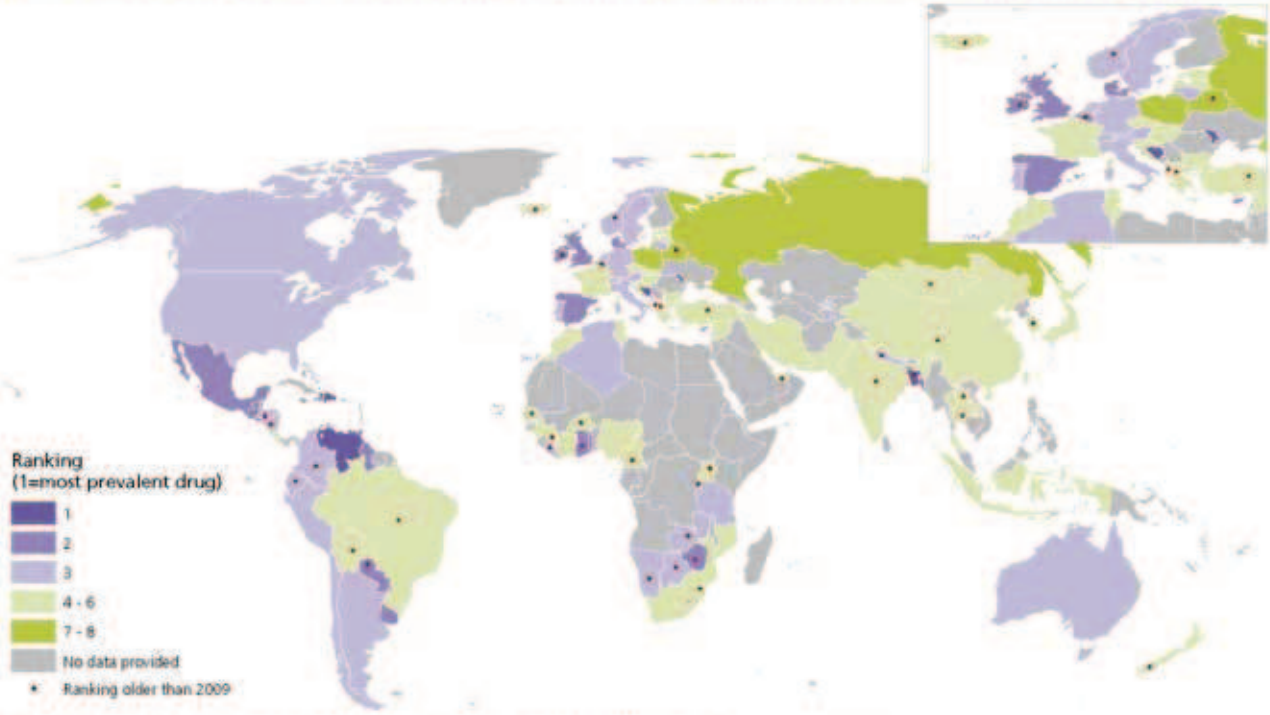
Since 2006, among the population aged 12 years and older, there has been a continuing decline in the annual prevalence of cocaine use (from 2.5% in 2006 to 1.9% in 2009), though crack use shows a less rapidly declining trend. The reduction coincided with a supply squeeze in the US cocaine market as less cocaine arrived via Mexico. Purity-adjusted cocaine prices rose by more than 80% between 2006 and 2009.

## Map 17: Annual prevalence of cocaine use, 2009 (or latest year available back to 2005)



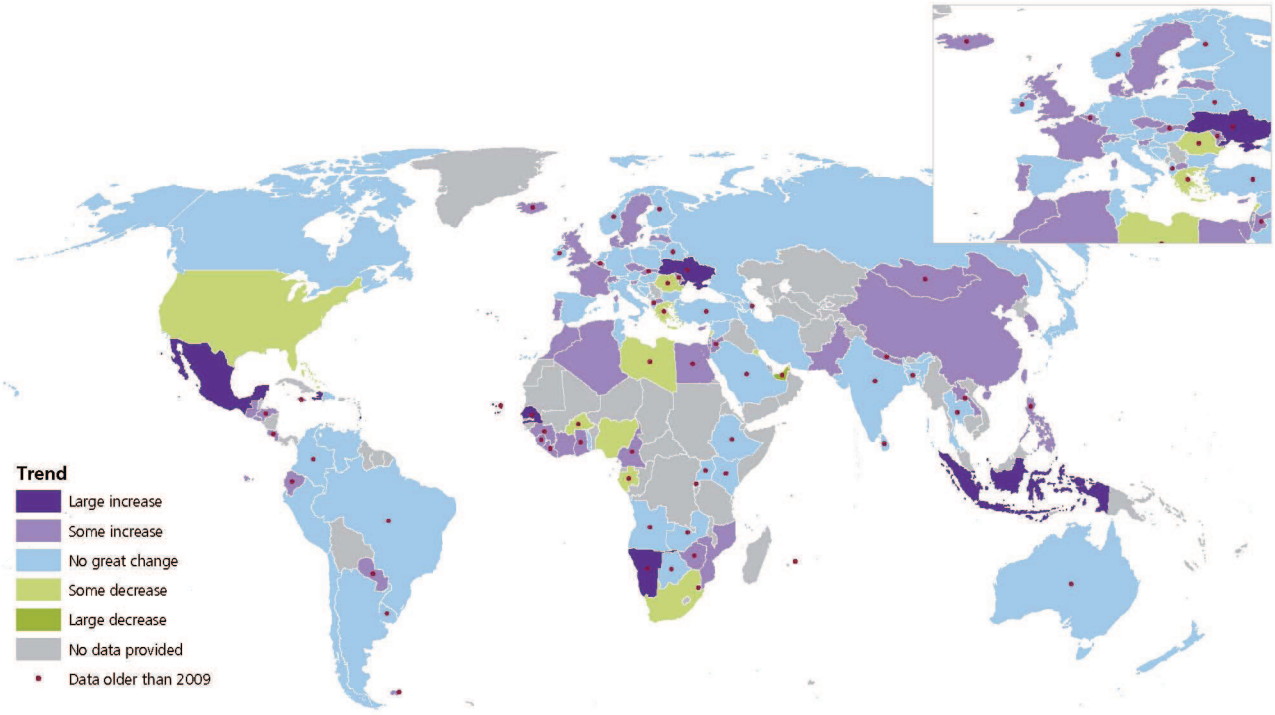

Note: The boundaries and names shown and the designations used on this map do not imply official endorsement or acceptance by the United Nations.
Dotted line represents approximately the Line of Control in Jammu and Kashmir agreed upon by India and Pakistan. The final status of Jammu and Kashmir has not yet been agreed upon by the parties.

## Map 18: Ranking of cocaine in order of prevalence, 2009 (or latest year available back to 2005)




Note: The boundaries and names shown and the designations used on this map do not imply official endorsement or acceptance by the United Nations.
Dotted line represents approximately the Line of Control in Jammu and Kashmir agreed upon by India and Pakistan. The final status of Jammu and Kashmir has not yet been agreed upon by the parties.

**Map 19: Expert perception of trend changes in the use of cocaine, 2009 (or latest year available back to 2005)**




Note: The boundaries and names shown and the designations used on this map do not imply official endorsement or acceptance by the United Nations.
Dotted line represents approximately the Line of Control in Jammu and Kashmir agreed upon by India and Pakistan. The final status of Jammu and Kashmir has not yet beenagreed upon by the parties.

In addition to significant drops in both annual and past-month cocaine use prevalence, the initiation of new cocaine use also fell. Some 617,000 people aged 12 or older used cocaine for the first time in the past 12 months in the United States in 2009, down from 722,000 a year earlier.

Among high school students in grades 8 to 12 in the United States, there has also been a substantial and steady decline in the annual prevalence of cocaine and crack use, especially since 2006. For both cocaine and crack use, the annual prevalence in 2010 among 12th grade students was 2.9% and 1.4%, respectively, which declined from 5.7% and 2.1% respectively in 2006.[3]

Cocaine remains a problem drug in the United States, however. Among the 7.1 million people aged 12 or older who were classified with 'dependence on or abuse of illicit drugs' in 2009, 1.1 million were classified with 'dependence on or abuse of cocaine.'[4] This is nearly one fifth of the annual cocaine users in 2009 – a higher proportion than for all other illicit substances except heroin.

In the United States, there were 4.6 million drug-related emergency department visits in the 2009. Among these total visits, the highest rate related to the use of illicit drugs was for cocaine use (137.7 visits per 100,000 inhabitants),[5] followed by cannabis (122.6 per 100,000) and heroin (69.4 per 100,000). Compared to other illicit drugs, the rate of cocaine-related emergency department visits was much higher among the patients who were 21 years or older (80.9%),[6] indicating continuing problematic use among the older population.

Positive cocaine use hair tests among the general workforce also fell, from 5.3% in 2007 to 2.3% over the first two quarters of 2010. These tests reflect cocaine use over the past three months. Urine tests among the US workforce - reflecting cocaine use over the past two to three days – showed the same, strongly decreasing trend.

In Canada, the annual prevalence of cocaine use in 2009 was 1.4% among the population aged 15-64, corresponding to some 327,000 people who had used cocaine

3 Johnston, L. D., O'Malley, P. M., Bachman, J. G., and Schulenberg, J. E., *Monitoring the Future, national results on adolescent drug use: Overview of key findings, 2010*, 2011, Institute for Social Research, The University of Michigan, Ann Arbor, USA.

4 Substance Abuse and Mental Health Services Administration, *Results from the 2009 National Survey on Drug Use and Health: Volume I*, Summary of National Findings, 2010, Rockville, Maryland, USA.

5 Overall, taking into account emergency department visits related to misuse or abuse of drugs, the highest rate was for prescription opioids and pain killers with 405.4 visits per 100,000 inhabitants while the rate for ED visits related to cocaine use were second highest.

6 Substance Abuse and Mental Health Services Administration, Centre for Behavioural Health Statistics and Quality, *The DAWN Report: Highlights of the 2009 Drug Abuse Warning Network (DAWN) Findings on Drug-Related Emergency Department Visits*, 2010, Rockville, Maryland, USA.

**Fig. 52: Annual prevalence of cocaine use among secondary school students in the United States, 2000-2010**

Source: United States Monitoring the Future: national results on adolescent drug use.

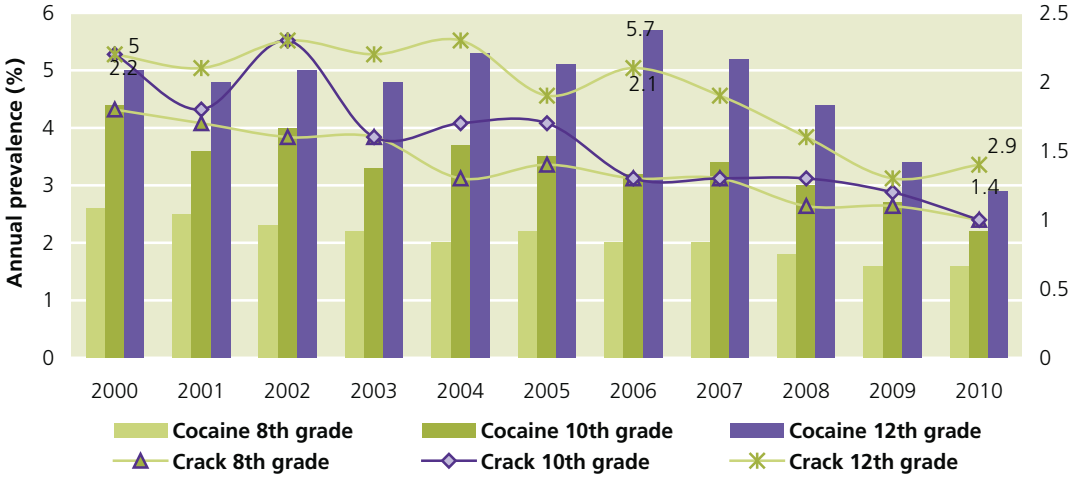



**Fig. 53: United States: Emergency department visits related to illicit drugs, by age, 2009**

Source: SAMHSA Drug Abuse Warning Network (DAWN).

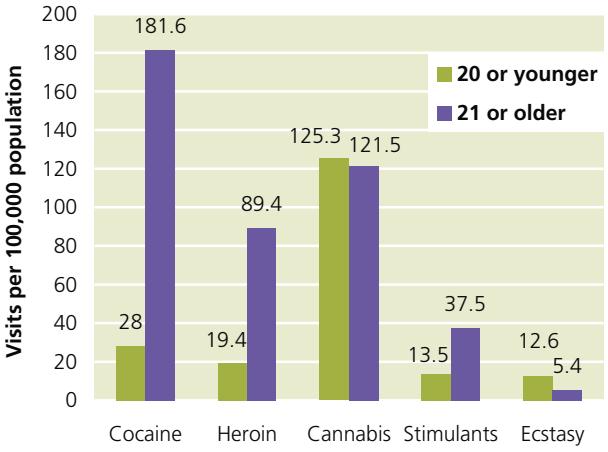
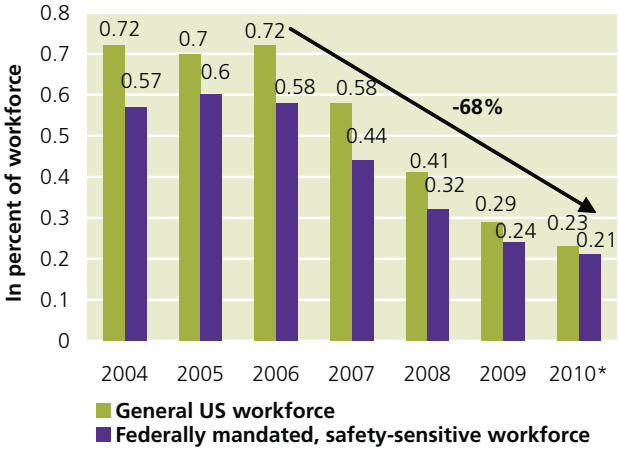



**Fig. 54: Positive urine tests for cocaine use among the US workforce,* 2004-2010**

*Positive tests for cocaine use among the general US workforce (4.2 million tests in 2009) and among the federally mandated, safety-sensitive workforce (1.3 million tests in 2009). Data for 2010 refer to the first two quarters.

Source: Quest Diagnostics, Drug Testing Index.




at least once in the past year. As in the United States, cocaine use has also been decreasing considerably in Canada since 2004, when it was reported as 2.3%. In 2008, it was 1.9% among the 15-64 age group. The past-year prevalence of cocaine use in 2009 was nearly the double (3.0%) among young people (15-24 years old); a rate that has also declined since 2008, when it was reported at 5.9%.[7]

In Mexico, compared to Canada and the United States, the annual prevalence of cocaine use is much lower, at 0.4%. Experts in Mexico perceived an increase in cocaine use from the previous year, whereas the treatment demand for cocaine as the primary substance of concern has declined to 7.9% of the total demand in 2009 from 20.6% in 2008.[8]

### Cocaine use is now generally perceived to be stable in South and Central America

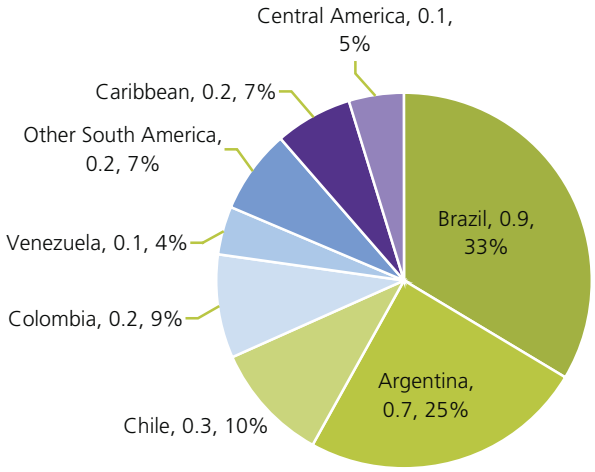
The estimated number of annual cocaine users in South and Central America and the Caribbean ranges between 2.6 and 2.9 million people aged 15-64. Cocaine use in South and Central America remains at levels higher than

7 Health Canada, *Canadian Alcohol and Drug Use Monitoring Survey*, 2009.

8 This decline in treatment demand may stem from a change in treatment reporting.

**Fig. 55: Cocaine use in South and Central American and Caribbean countries, in million persons and % of total (N = 2.7 million in 2009)**

Source: UNODC ARQ.



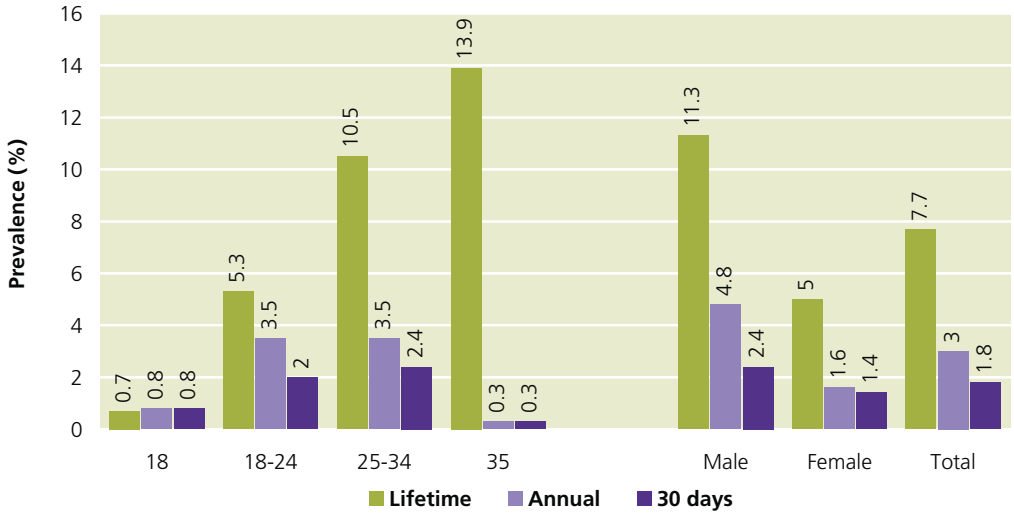

the global average. The estimated annual prevalence among the adult population ranges between 0.9% and 1% in South America and 0.5% to 0.6% in Central America. The prevalence of cocaine use in South America, though much lower than North America, is comparable to that in Europe. The upward trend of cocaine use reported in previous years did not continue in 2009. Except for Ecuador and Guatemala, which reported increases, experts from most of the other South and Central American countries perceived stable trends. Nearly 50% of all treatment demand reported from South and Central America (including the Caribbean) is reportedly for cocaine use, while cocaine is also ranked as the number one substance causing drug-induced or related deaths in the subregion.

There is no update on the extent of cocaine use in South and Central America. Argentina (2.6%), Chile (2.4%) and Uruguay (1.4%) remain countries with high prevalence of cocaine use among the general population in these subregions. The three Southern Cone countries, Brazil, Argentina and Chile, together account for more than two thirds of all cocaine users of South America, Central America and the Caribbean. The Caribbean countries account for 7% of the total and Central America for 5%.

Although Brazil has a lower prevalence rate of 0.7% of the population aged 15-64, because of its large population, the country has the highest number of cocaine users (900,000) in South America. According to a national survey conducted in 2009 among university students in Brazil, the annual prevalence of cocaine use was 3% of students aged 18 to 35. Cocaine use was much lower among female students than male. Among the students aged 18-24 and 25-34, comparable levels of recent and current cocaine use were reported, which was much higher than compared to cocaine use reported among the students 18 or 35 years old.[9]

**Fig. 56: Brazil: Cocaine use among university students, 2009**

Source: Nacional Sobre O Uso De Álcool, Tabaco E Outras Drogas Entre Universitarios Das 27 Capitais Brasileiras, Secretaria Nacional Politicas sobre Drogas.




9 Andrade, A.G., Duarte, P. and Oliveira, L.G., *I Levantamento Nacional Sobre O Uso De Álcool, Tabaco E Outras Drogas Entre Os Universitarios Das 27 Capitais Brasileiras*, Secretaria Nacional Politicas sobre Drogas, Brasilia, 2010.

## Polydrug use among cocaine users

Polydrug use – the use of multiple drugs at the same time, in combination or consecutively – is commonly observed among drug-using populations. In Europe and the United States of America, cocaine use is commonly reported among polydrug users.

In Europe, the prevalence of polydrug use has been reported as being higher among cocaine users than cannabis users, while cocaine users also reported higher rates of concurrent stimulant use. A study conducted in 14 European countries in 2006 revealed that around 62% of cocaine users were polydrug users. Alcohol, cannabis and heroin were the three main substances reportedly used by cocaine users.

**Polydrug use among cocaine and cannabis users***

* The table compares polydrug use among long-term cocaine users and cannabis users entering treatment.

Source: EMCDDA, Annual report 2009: the state of the drugs problem in Europe.

| Cocaine users | % of total |
|---|---|
| Alcohol | 42 |
| Cannabis | 28 |
| Heroin | 16 |
| Overall polydrug use among cocaine users | 62 |
| **Cannabis users** | **% of total** |
| Alcohol | 65 |
| Cocaine | 13 |
| Heroin | 12 |
| Overall polydrug use among cannabis users | 85 |

Among the clients entering treatment in Europe, the most frequently reported secondary drug - by nearly one third - was cocaine (including crack). Among cocaine users in treatment, two main groups were identified: the socially integrated individuals using powder cocaine, often during the weekend, at parties or other social occasions. These users typically snort cocaine, sometimes in conjunction with alcohol or cannabis. The second group is a more marginalized group of clients, often injecting and using cocaine or crack-cocaine in combination with opioids. The marginalized group of cocaine users also presented precarious health and social conditions and included former opioid users re-entering treatment for cocaine use.

In a study conducted in the United States, after alcohol, cocaine was the second most used substance in combinations. It was included in combinations with alcohol, cannabis, alcohol and cannabis, and alcohol and opioids.

**Speedballing** – the concurrent or simultaneous use of cocaine and heroin – has also been commonly reported in countries with high prevalence of cocaine use including the United States, Canada, the United Kingdom, Italy and Spain. In 14 European countries, more than a quarter of clients seeking treatment in 2006 reported concurrent use of cocaine and heroin. In a Canadian study, equal proportions of drug users were using cocaine and heroin sequentially, within the same hour or simultaneously – as in combination. A Mexican study among drug users in prison settings reported that nearly all of them (92%) were injecting drugs and less than half were speedballing.

Some reasons for speedballing suggested in the literature are: 1) when cocaine and heroin are used together, no new or novel subjective effect is experienced. Instead it simultaneously induces effects that are typical to both drugs; 2) using cocaine and heroin in low doses simultaneously could mutually reinforce their effects; 3) cocaine enhances some effects of opioids (as a group) and reduces some adverse effects of heroin or other opioids while maintaining the 'rush' induced by heroin use; 4) for some opioid users, including those on substitution or maintenance therapy, the use of opioids would be considered normal or 'medicinal' to prevent withdrawals and maintain normalcy while crack would be used to get a high.

As for subsequent use of heroin or cocaine, it is suggested that heroin use could occur after cocaine to induce a depressant effect to deal with the over-excitement caused by cocaine, while cocaine could be used to reduce unpleasant side-effects of heroin, such as adverse symptoms of withdrawal.

### Risks and consequences

The main consequences of polydrug use, as in the case of cocaine use, are higher risks of overdose and chronic health damage. Using alcohol with cocaine can increase the levels of cocaine in the blood, enabling a longer psychoactive effect, but also increasing the risk of cardiovascular problems caused by increased heart rate and blood pressure. Cocaine can also decrease the perception of alcohol intoxication effects. Suicidal ideation and violent behaviour have been linked with the concurrent use of alcohol and cocaine. When alcohol and cocaine are combined, the liver produces a third substance called cocaethylene which intensifies the euphoric effects of cocaine. It has been associated with higher risk of heart attacks in users under 40 or even sudden death.

Similarly, when cocaine is mixed with opioids, the negative cardiovascular effects of cocaine are expanded, which can induce respiratory depression and hide the sedative effects related to opioids, thus leading to higher overdose risks. In Europe, deaths caused by the use of cocaine with other drugs represented 21% of drug-induced deaths, with opioids involved in 8% of these cases (2009).

The concurrent use of cocaine and heroin has also been related with a higher probability of dropping out from treatment, relapse and co-morbidity with psychopathol-

ogy than only opioid use. Users of opioids and cocaine experience more depression, anxiety and related symptoms than users of cocaine only. There is also a higher frequency of injecting among heroin and cocaine users that may result in more sharing of contaminated injecting equipment. Additionally, the reported use of citric acid to prepare the injection, and flushing,* increase the risk of HIV and other blood-borne infections such as hepatitis B and C as well as more soft tissue and vein damage at the injecting site.

Polydrug use – particularly with cocaine - and its associated risks therefore has important public health and policy implications in terms of prevention, treatment and care for heroin and cocaine users.

### References


Bandettini Di Poggio, A. et al., 'Comparison between Heroin and Heroin–Cocaine Polyabusers: A Psychopathological Study,' *Annals of the New York Academy of Science*, 2006; 1074: pp. 438–445.

Bucardo, J. et al., 'Historical trends in the production and consumption of illicit drugs in Mexico: Implications for the prevention of blood borne infections,' *Drug and Alcohol Dependence*, 2005; 79(3): pp. 281–293.

EMCDDA, *Polydrug use: patterns and responses*, Selected Issue, Lisbon, 2009.

EMCDDA, *Annual report 2009: the state of the drugs problem in Europe*, Lisbon, 2009.

Grov, C., Kelly, B.C. and Parsons, J.T., 'Polydrug use among club-going young adults recruited through time-space sampling,' *Substance Use and Misuse*, 2009; 44(6): pp. 848–864.

Kaye, S., and Darke, S. 'Injecting and non-injecting cocaine use in Sydney, Australia: physical and psychological morbidity,' *Drug and Alcohol Review*, 2004; 23: pp/ 391–398.

Kedia, S., Sell, M.A. and Relyea, G., 'Mono- versus polydrug abuse patterns among publicly funded clients,' *Substance Abuse Treatment, Prevention, and Policy*, 2007; 2:33.

Leri, F., Bruneau, J., and Stewart, J., 'Understanding polydrug use: review of heroin and cocaine co-use,' *Addiction*, 2003; 98: pp. 7–22.

Leri, F. et al., 'Heroin and cocaine co-use in a group of injection drug users in Montréal,' *Journal of Psychiatry and Neuroscience*, 2004; 29 (1): 40–7.

Leri, F. et al., 'Patterns of opioid and cocaine co-use: A descriptive study in a Canadian sample of untreated opioid-dependent individuals,' *Experimental and Clinical Psychopharmacology*, 2005; 13(4): pp. 303–310.

NIDA, *Info Facts: Cocaine*, US Department of Health and Human Services, 2010.

Prinzleve, M. et al., 'Cocaine Use in Europe – A Multi-Centre Study: Patterns of Use in Different Groups,' *European Addiction Research*, 2004;10: pp. 147–155

Rhodes, T. et al., 'Crack–heroin speedball injection and its implications for vein care: qualitative study,' *Addiction*, 2007; 102: pp. 1782–1790.


* Flushing is a term used to describe an injecting behaviour in which the plunger is pulled back and the fluid (mostly blood and in cases blood only) is re-injected. This is also referred to as booting and kicking in some literature

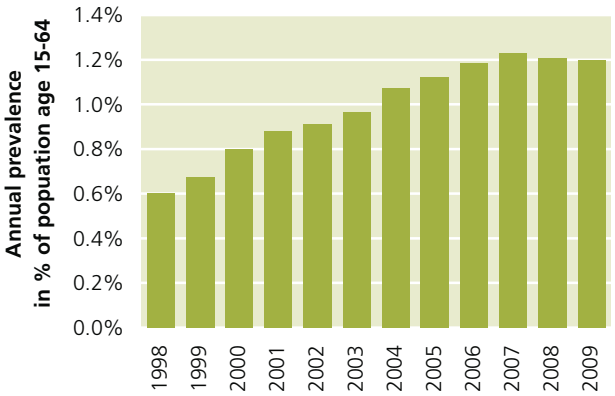
### Most countries in Europe now report a stable trend in cocaine use

The annual prevalence of cocaine use in Europe is estimated at between 0.8% and 0.9% of the population aged 15-64, corresponding to some 4.3 to 4.8 million people who used cocaine at least once in the past year. These estimates are slightly lower than those for the previous year. Cocaine use is reportedly much higher in West and Central Europe (1.2%-1.3%) than in East and South-East-Europe (0.1%-0.3%). In 2009, many countries in Europe - mainly West and Central Europe - that provided expert opinion on trends reported a perceived stabilization in cocaine use for the year 2009.

Estimates of the prevalence rate for the 27 EU[10] and 4 EFTA[11] countries suggest that the number of cocaine users doubled over the 1998-2006 period. Between 2006 and 2009 consumption appears to have stabilized. Despite the increase over the last decade in Europe and the decline in North America, overall cocaine use levels in the EU/EFTA region (annual prevalence of 1.2%) are still only half as high as in the USA (2.4% of the population aged 15-64 in 2009).

**Fig. 57: Annual prevalence of cocaine use among EU and EFTA countries, 1998-2009**

Sources: Annual Reports Questionnaire data; Government reports; UNODC, *World Drug Report 2009*; EMCDDA, Statistical Bulletin 2009.




### High prevalence rates of cocaine use limited to a number of countries in western Europe

Two thirds of European cocaine users live in just three countries: the United Kingdom, Spain and Italy. With Germany and France, these countries represent 80% of European cocaine consumption. In terms of annual

10 EU countries: Austria, Belgium, Bulgaria, Cyprus, Czech Republic, Denmark, Estonia, Finland, France, Germany, Greece, Hungary, Ireland, Italy, Latvia, Lithuania, Luxembourg, Malta, Netherlands, Poland, Portugal, Romania, Slovakia, Slovenia, Spain, Sweden and United Kingdom.

11 EFTA countries: Iceland, Liechtenstein, Norway and Switzerland.

**Fig. 58: Europe: Trends in cocaine use in countries that reported new data**

Source: UNODC ARQ; EMCDDA.

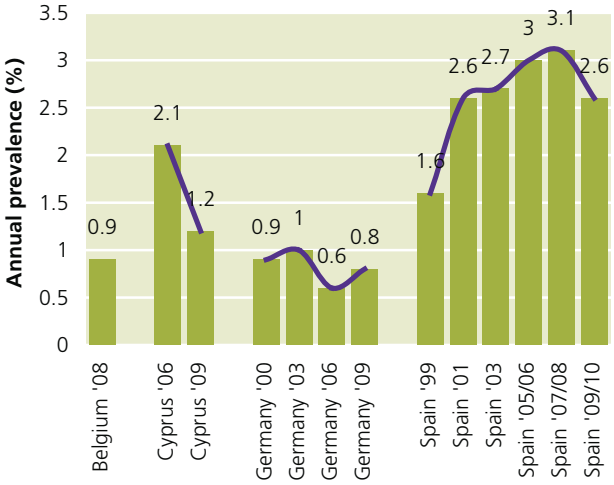



**Fig. 59: England and Wales (UK): Trends in annual prevalence of cocaine use, 1996-2009/10**

Source: UNODC ARQ; EMCDDA.

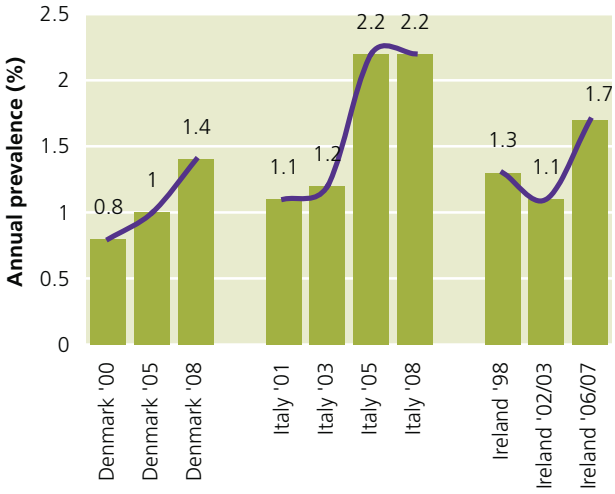

prevalence rates, Denmark, Ireland, Italy, Spain and the United Kingdom remain countries with rates higher than the West and Central European average. Cocaine use is considered to be particularly high among young people, especially males aged between 15 and 34. In the five high prevalence countries, annual prevalence among those aged 15-34 ranged from 4% to 8.4%. In these countries, cocaine is also reportedly used by opioid users who are undergoing substitution treatment.[12]

In 2009, Belgium, Cyprus, Germany, Spain and the United Kingdom (England and Wales) reported new prevalence data on cocaine use. Among these countries,

12 EMCDDA, *Annual Report 2010: The state of the drugs problem in Europe*, Lisbon, 2010

**Fig. 60: Europe: Trends in cocaine use in some high prevalence countries**

Source: UNODC ARQ; EMCDDA.




Cyprus and Spain reported a substantial decrease in cocaine use. The overall trend in England and Wales over the last few years has been fluctuating, following major increases since the late 1990s.

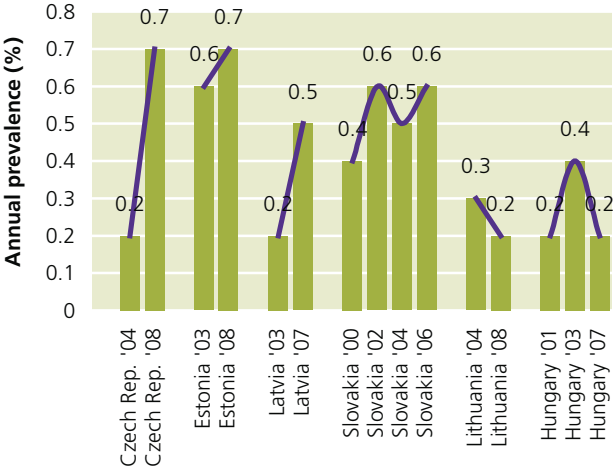
Among the other countries with high cocaine prevalence rates, Italy showed a stabilizing trend, but preliminary data from a survey undertaken in 2009 may indicate a decline. In contrast, older data for Denmark (2008) and Ireland (2007) showed rising trends in cocaine use over the previous survey period.

The situation in Central Europe is mixed, where countries such as the Czech Republic, Estonia, Latvia and Slovakia showed increases in cocaine use while others, such as Hungary and Lithuania, reported decreases in the latest surveys.

In West and Central Europe, cocaine was reported as the

**Fig. 61: Trends in cocaine use in selected Central European countries**

Source: UNODC ARQ and EMCDDA.



## Cocaine adulterants

A general phenomenon in recent years has been the decline of cocaine purity in the main consumer markets of North America and Europe. This went in parallel with an increasing role played by adulterants, which are changing the pharmacological properties of the white powder that is being sold as 'cocaine.'

While diluents or cutting agents (such as lactose) are simply used to increase the weight of the drugs, adulterants are typically psychoactive substances used to compensate for some of the pharmacological effects of the drug lost by lower levels of purity. The mixing of the drug with adulterants can lead to additional health problems for the users.

In the case of cocaine, different substances have been used as adulterants, including the following:

| Common cocaine adulterants | |
|---|---|
| Levamisole | Likely stimulatory synergy between cocaine and levamisole |
| Lidocaine | Local anaesthetics, similar anaesthetic effects to cocaine |
| Procaine | Local anaesthetic |
| Benzocaine | Local anaesthetic |
| Caffeine | Stimulant |
| Boric acid | Looks like cocaine and acts as an anaesthetic |
| Hydroxyzine | Antihistamine |
| Phenacetin | Painkiller related to paracetamol |

One of the adulterants that has been increasingly reported in cocaine samples in the United States and Europe since 2004 is levamisole. This is an anti-parasitic agent used in veterinary medicine in South America. In the United States, this was also used for the treatment of colon cancer and rheumatoid arthritis, but due to its adverse side effects, was removed from the market.

When levamisole is used for longer period and in high doses, it may cause serious adverse effects, one of which is agranulocytosis. This is a condition that results in a lowering of the white blood cell count, thereby impeding the body's mechanism to fight infection.

In Europe and the United States, up to 70% of the analysed cocaine samples were reported to contain levamisole. This led the European Early Warning System to issue a warning and initiate additional data collection. In 2009, SAMHSA also issued a public health warning on the risks of cocaine adulterated with levamisole.

**References**

SAMHSA, *Nationwide public health alert issued concerning life threatening risk posed by cocaine laced with veterinary anti parasitic drug*, 21 September 2009.

EMCDDA, *Annual report 2009: the state of the drugs problem in Europe*, Lisbon 2009.

primary drug of abuse in 11% of treatment cases, on average, compared to just 1% of treatment demand in East and South-East Europe. Within West and Central Europe, treatment demand for cocaine use also varied considerably. The highest treatment demand for cocaine-related problems was in Spain (46% as a proportion of all drug-related treatment) and the Netherlands (30%). In Germany, Italy, Switzerland and the United Kingdom, treatment demand for cocaine as a proportion of all treatment was around 15%.

**Limited information on the extent of cocaine use is reported from Africa, however, experts from the countries that have reported information perceive increases**

Information on the extent of cocaine use is only available from a limited number of countries in Africa. The annual prevalence of cocaine use is estimated between 0.2% and 0.8% of the population aged 15-64, corresponding to between 940,000 and 4.4 million people estimated to have used cocaine in the past year. The actual number of cocaine users in Africa is probably close to the lower end of the estimates. The wide range in the estimates points to an increase in the uncertainty of the data available from Africa.

Among the eight countries that provided expert opinion on trends of cocaine use in Africa, four reported increases. In North Africa, where cocaine use is considered to be low (0.03% - 0.04%), Algeria and Morocco reported perceived increases. The other two countries that reported an increase in cocaine use in 2009 were Côte d'Ivoire and Mozambique. Nigeria and South Africa reported decreases in cocaine use as perceived by the experts.

In Kenya, a household survey conducted in the coastal provinces of the country in 2009 showed a lifetime prevalence of cocaine use of 1.6% and current[13] prevalence of 1.2% among the population aged 12-51. The small difference between current and lifetime use indicates that cocaine use in these coastal provinces might be

13 Current use of drugs was defined as use in the four weeks prior to the interview.

**Fig. 62: Range of the estimated number of cocaine users in Africa, 2009**

Source: UNODC.

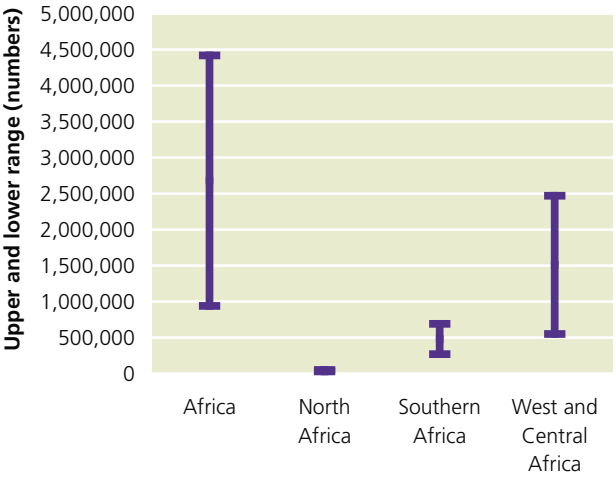



**Fig. 63: Range of the annual prevalence of cocaine use in Africa, 2009**

Source: UNODC.

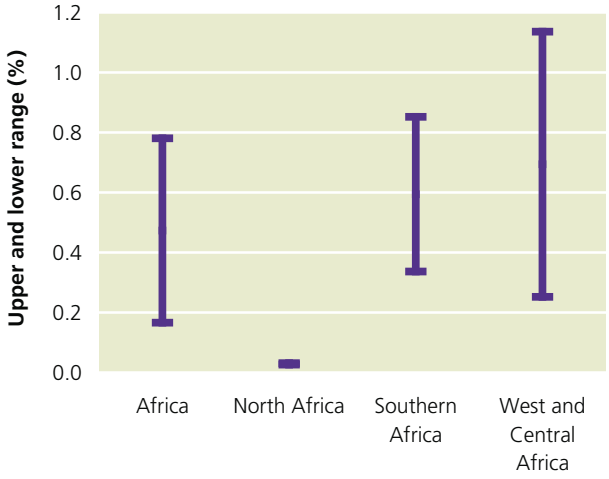



**Fig. 64: Kenya (coastal provinces): Lifetime and current use of cocaine, by age, 2009**

Source: NACADA, Report of Survey on Drug and Substance Abuse in Coast Province Kenya.

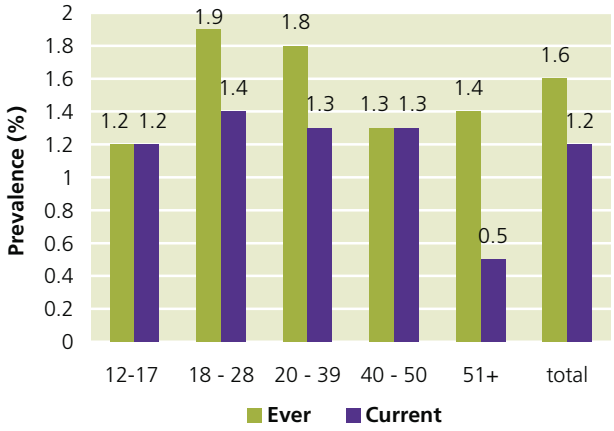



**Table 17: Africa: Cocaine as primary drug of abuse as a proportion of all treatment admissions, recent years**

| | Year | Cocaine |
|---|---|---|
| Namibia | 2006 | 24% |
| Burkina Faso | 2008 | 21% |
| Mozambique | 2004 | 11% |
| Kenya | 2005 | 10% |
| Eritrea | 2006 | 8% |
| South Africa | 2009 | 8% |
| Togo | 2009 | 8% |
| Senegal | 2005 | 2% |
| Ghana | 2008 | 1% |
| Swaziland | 2004 | 1% |
| Nigeria | 2004 | 1% |

a new phenomenon. The extent of current cocaine use was comparable among all age groups in the 12-50 years age range, but, as in other countries, much higher among male (2.7%) than female (0.4%) survey respondents.[14]

Treatment demand for cocaine-related problems in Africa, from the countries that have provided data, is reported at around 5% of all treatment admissions. The highest treatment demand for cocaine-related problems, as a proportion of all treatment, was reported from Namibia and Burkina Faso. In South Africa, as reported by the South African Community Epidemiology Network on Drug Use, treatment demand for cocaine use appears to have declined over the past few years, following increases in the previous years. Cocaine was reported by 5%-15% of clients in treatment as either a primary or secondary drug of abuse in the different reporting regions in the first half of 2010.[15]

### Several countries in Asia - especially in East and South-East Asia - perceive cocaine use to be increasing

Information on the extent of cocaine use in Asia is scant and limited mainly to some countries in East and South-

14 National Campaign Against Drug Abuse Authority (NACADA), *Report of Survey on Drug and Substance Abuse in Coast Province Kenya – Main Report,* March 2010.

15 Plüddemann A. et al, *Monitoring Alcohol & Drug Abuse Trends in South Africa (July 1996 – June 2010), Phase 28,* SACENDU research brief, Vol. 13 (2), 2010, South African Community Epidemiology Network on Drug Use.

**Table 18: Expert perception of trends in cocaine use in Asia, 2008 and 2009**

Source: UNODC ARQ.

| | 2008 | 2009 |
|---|---|---|
| Armenia | | ↔ |
| Bahrain | ↑ | ↑ |
| China | ↑ | ↑ |
| Israel | ↔ | ↑ |
| Indonesia | ↓ | ↑ |
| Japan | ↑ | |
| Republic of Korea | | ↑ |
| Hong Kong, China | ↓ | ↓ |
| Macao, China | | ↑ |
| Mongolia | ↑ | |
| Pakistan | ↑ | ↑ |
| Philippines | ↑ | |
| Kuwait | | ↓ |
| Lebanon | ↔ | ↓ |
| Syrian Arab Republic | ↑ | ↔ |
| United Arab Emirates | ↓ | |

Legend: ↑ Increase; ↓ Decrease; → Stable

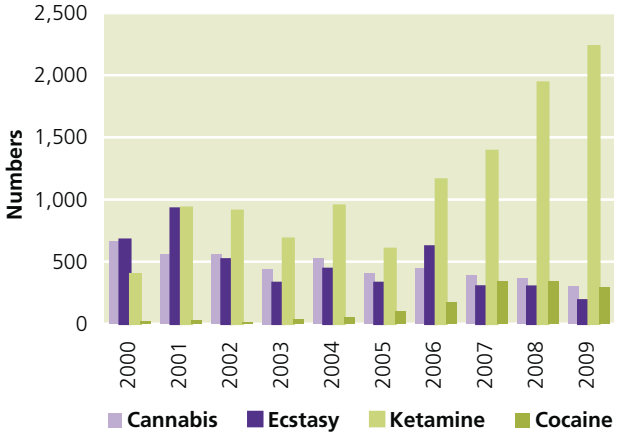
East Asia. Nevertheless, with this information gap, the annual prevalence of cocaine use in Asia is estimated between 0.02% and 0.2% of the population aged 15-64, or between 400,000 and 2.3 million people who may have used cocaine in the past year. The actual number of cocaine users in Asia is probably closer to the lower end of the range.

In Asia, most of the countries that provided expert perception on cocaine use, perceived that use had been increasing over the past year. In 2009, 7 out of 13 countries or territories reported a perceived increase in cocaine use. Many of the countries that had previously not identified any cocaine use now perceive an increase. Most of the countries that have perceived an increasing trend (starting from low levels of use) are located in East and South-East Asia; notably, China is among them. Some countries in other subregions have also perceived an increase.

Hong Kong, China, is one territory - although with a very small number of cocaine users - that has been reporting continuous decreases in cocaine use over the past years. This is also reflected in the decreasing number of cocaine users registered by the authorities between 2007 and 2009, reversing the upward trend noted between 2004 and 2007. In a limited study among cocaine users and key informants conducted in 2008, the pattern of cocaine use in Hong Kong, China, showed that nearly two thirds of respondents were using crack-cocaine. Respondents strongly associated their cocaine use with night life and entertainment – clubs, discos and karaoke.[16]

**Fig. 65: Hong Kong, China: Trends for cocaine and other registered drug users, 2000-2009**

Source: Central Registry Drug Abuse, Narcotics Division, Security Bureau, Hong Kong, China.




### Cocaine use in New Zealand and Australia appears to be stable following a period of strong increases

Cocaine use in the Oceania region appears generally stable following strong increases over the 2004-2007 period in Australia and over the 2003-2006 period in New Zealand. Information on cocaine use from Oceania essentially comprise survey data from Australia and New Zealand. The annual prevalence in Oceania is estimated to range between 1.4% and 1.7% of the population aged 15–64. The estimates are still lower than the levels reported from North America, but higher than those found for West and Central Europe.

In Australia, the annual prevalence of cocaine use in 2007 was estimated at 1.9% of the population aged 15-64, which is comparable to the level reported from North America. As reported in the Australian Illicit Drug Data Report (2008-2009), "recent increases in cocaine arrests and reported use, as well as considerable seizures of the drug in recent years, indicate a potential expansion of the Australian cocaine market."[17]

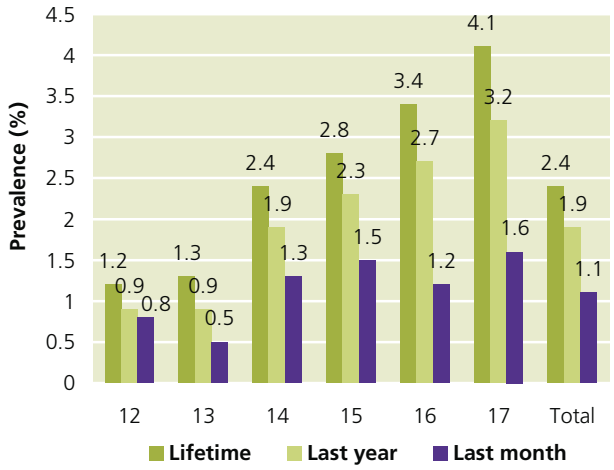
There are indications that this rise did not continue, however. Cocaine use among students has shown a decline in recent years. In 2008, among the 12-17 year old students, the lifetime prevalence of cocaine use was reported at 2.4%, while the past month prevalence was 1.1%. Among the students who participated in the

16 Yueying, L., Wing, D. and Fai, J., *Study of Cocaine Abuse in Hong Kong*, Report to the Narcotics Division, Department of Applied Social Studies, City University of Hong Kong, November 2008.

17 Australian Crime Commission, *Illicit Drug Data Report 2008-2009* June 2010.

**Fig. 66: Australia: Cocaine use among secondary school students, 2008**

Source: Australian secondary school students' use of tobacco, alcohol, and over the counter and illicit substances in 2008.




survey, cocaine use across all time periods, that is, lifetime, last year and past month use, increased by age and was highest among the 17-year-old students.[18]

Lifetime prevalence of cocaine use among 12-15-year -old students in Australia decreased significantly between 2002 and 2008 as well as between 2002 and 2005. The past month prevalence among this group was lower in 2008, but this was not statistically significant. The lifetime and past month prevalence among 16-17-year-old students has been at similar levels and has not significantly decreased over the three survey periods.[19]

In 2008, among the detainees tested for drug use in Australia, cocaine was found in 1% of urinalysis results. Male detainees were more likely to test positive, while the highest rates of positive urinalysis was among detainees aged 21 and 35 years. The prevalence of cocaine use among the detainees tested for drug use has remained consistently low over the previous years[20] which is in contrast to the high prevalence of cocaine use among the general population. Similarly, among the injecting drug users, relatively small proportions (2%-3%) have reported cocaine as the last drug injected,[21] while cocaine accounted for less than 1% of the total treatment demand in 2007-2008.[22] This also indicates that cocaine use in Australia remains more common among the socially integrated groups of mostly recreational users.

**Table 19: Trends in cocaine use among secondary school students in Australia, 2002, 2005 and 2008**

* Significantly different from 2008 at p <.01.

Source: Australian secondary school students' use of tobacco, alcohol, and over the counter and illicit substances in 2008.

| | 12-15 years | | |
|---|---|---|---|
| | 2002 | 2005 | 2008 |
| Lifetime | 3* | 2.6* | 1.9 |
| Past month | 1.4 | 1.4 | 1 |
| | **16-17 years** | | |
| | 2002 | 2005 | 2008 |
| Lifetime | 3.6 | 3.5 | 3.7 |
| Past month | 1.1 | 1.1 | 1.4 |
| | **12-17 years** | | |
| | 2002 | 2005 | 2008 |
| Lifetime | 3.1* | 2.9 | 2.4 |
| Past month | 1.3 | 1.3 | 1.1 |

The latest information on cocaine use from New Zealand dates back to 2008, when it was estimated that 0.6% (range 0.3% - 0.8%) of the population aged 16-64 had used cocaine in the year prior to the survey. The highest annual prevalence of cocaine use (1.8%) was found among youth aged 25-34.[23] As reported by New Zealand, experts perceive cocaine use to have been stable over the past couple of years.

For the remaining parts of Oceania, there is no recent or reliable information on the extent or pattern of cocaine use.

18 White V. and Smith G., *Australian secondary school students' use of tobacco, alcohol, and over the counter and illicit substances in 2008*, Drugs Strategy Branch, Australian Department of Health and Ageing.

19 Ibid.

20 Gaffney A., Jones W., Seeney J. amd Payne J., *Drug Use monitoring in Australia:2008 annual report on drug use among police detainees,* Monitoring Reports 09, Australian Institute of Criminology.

21 National Centre in HIV Epidemiology and Clinical Research, *Australian NSP Survey National Data Report 2005-2009*, National Centre in HIV Epidemiology and Clinical Research, The University of New South Wales, Sydney, 2010.

22 UNODC ARQ.

23 Drug use in New Zealand, *Key Results 2007/08 New Zealand Alcohol and Drug Use Survey*, Ministry of Health, 2010.

## 3.3 Production

### Cultivation

The global coca cultivation estimate for 2010 is based on the 2009 figures for the Plurinational State of Bolivia and the 2010 figures for Colombia and Peru. The 2010 coca cultivation figure for Bolivia was not yet available at the time of printing of this report.

In 2010, the global area under coca cultivation decreased by 6%, mainly due to a significant reduction in Colombia which was not entirely offset by a small increase in Peru. The reduction of the global area under coca cultivation since 2007 has been driven by significant decreases in Colombia, which have been only partially offset by increases in the Plurinational State of Bolivia and Peru over the same period.

A major difference between coca and other narcotic plants such as opium poppy and cannabis is that the coca bush is a perennial plant which can be harvested several times per year. This longevity of the coca plant should, in principle, make it easier to measure the area under coca cultivation. In reality, the area under coca cultivation is dynamic, changes all the time and it is difficult to determine the exact amount of land under coca cultivation at any specific point in time or within a given year. There are several reasons why coca cultivation is dynamic: new plantation, abandonment of fields, reactivation of previously abandoned fields, manual eradication and aerial spraying. There are different methods to measure the area under coca cultivation which can be affected by some or all of these factors. From a government's perspective, it may be desirable to monitor illicit cultivation in a given year by measuring all coca fields, irrespective of whether they were being used for the whole year or only part of it (gross cultivation area). For estimating potential coca leaf and cocaine production, however, it is necessary to measure the *productive* area. This can only be done by determining the period in the year that the coca fields were productive before being, for example, eradicated or abandoned (net productive area). The area under cultivation at a specific cut-off date may be chosen for other reasons, for example, to monitor the effect of law enforcement activities implemented in a specific period (net area under cultivation at date x).

The national monitoring systems supported by UNODC currently in place in the Plurinational State of Bolivia, Colombia and Peru have developed different ways of tackling the challenge of measuring the dynamics of coca cultivation, depending on specific country factors, the availability of auxiliary information on eradication, as well as practical and financial considerations. While this approach helps to adjust the monitoring systems to the specificities of each country, it also limits the comparability of the area under cultivation across countries.

**Table 20: Global illicit cultivation of coca bush, 1999-2010**

Source: Bolivia: 2002 and before: CICAD and US Department of State, INCSR. Since 2003: National monitoring system supported by UNODC. Colombia: National Illicit Crop Monitoring System supported by UNODC. Peru: 1999: CICAD and US Department of State, INCSR; since 2000: National Illicit Crop Monitoring System supported by UNODC.

| | 1999 | 2000 | 2001 | 2002 | 2003 | 2004 | 2005 | 2006 | 2007 | 2008 | 2009 | 2010 |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Bolivia | 21,800 | 14,600 | 19,900 | 21,600 | 23,600 | 27,700 | 25,400 | 27,500 | 28,900 | 30,500 | 30,900 | (30,900)* |
| Colombia[a] | 160,100 | 163,300 | 144,800 | 102,000 | 86,000 | 80,000 | 86,000 | 78,000 | 99,000 | 81,000 | 68,000 | 57,000 |
| Colombia[b] | | | | | | | | | | | 73,000 | 62,000 |
| Peru | 38,700 | 43,400 | 46,200 | 46,700 | 44,200 | 50,300 | 48,200 | 51,400 | 53,700 | 56,100 | 59,900 | 61,200 |
| **Total** | **220,600** | **221,300** | **210,900** | **170,300** | **153,800** | **158,000** | **159,600** | **156,900** | **181,600** | **167,600** | **158,800*** | **149,100*** |

* The figure for Bolivia was not available at the time of printing of this report. Total area under coca cultivation in 2010 is based on the 2009 figure for Bolivia and will be revised once the 2010 figure becomes available. For Colombia, the series without adjustment for small fields was used to keep comparability.

[a] Area without adjustment for small fields.

[b] Area with adjustment for small fields.

**Table 21: Reported cumulative eradication of coca bush (ha), 1996-2010**

Sources: Governments of Colombia, Peru, the Plurinational State of Bolivia, Ecuador and the Bolivarian Republic of Venezuela.

| | | 1996 | 1997 | 1998 | 1999 | 2000 | 2001 | 2002 | 2003 | 2004 | 2005 | 2006 | 2007 | 2008 | 2009 | 2010 |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Bolivia* | manual | 7,512 | 7,000 | 11,620 | 15,353 | 7,653 | 9,395 | 11,839 | 10,089 | 8,437 | 6,073 | 5,070 | 6,269 | 5,484 | 6,341 | 8,200 |
| Colombia | manual | 4,057 | 2,262 | 3,126 | 1,046 | 3,495 | 1,745 | 2,762 | 4,219 | 6,234 | 31,980 | 43,051 | 66,805 | 95,634 | 60,544 | 43,792 |
| | spraying | 18,519 | 41,861 | 66,029 | 43,112 | 58,073 | 94,153 | 130,364 | 132,817 | 136,552 | 138,775 | 172,026 | 153,134 | 133,496 | 104,771 | 101,939 |
| Peru** | manual | 1,259 | 3,462 | 7,834 | 14,733 | 6,208 | 6,436 | 7,134 | 11,312 | 10,399 | 12,237 | 12,688 | 12,072 | 10,143 | 10,025 | 12,253 |
| Ecuador | manual | | | | | | | | | 4 | 18 | 9 | 12 | 12 | 6 | |
| Venezuela | manual | 18 | 0 | 0 | 0 | 38 | 47 | 0 | 0 | 118 | 40 | 0 | 0 | 0 | 0 | |

* Bolivia: Since 2006, voluntary and forced eradication.
** Peru: includes voluntary and forced eradication.

Since 1999, when the first coca cultivation survey started as a joint activity between UNODC and the Government of Colombia, the attention of experts has shifted from being primarily concerned with the area under coca cultivation to getting a better understanding of how much cocaine is being produced. This is partly due to more appreciation of the fact that eradication, whether carried out manually or by aerial spraying, does not necessarily translate into a corresponding reduction of the coca area. The impact of eradication carried out between date A and date B may or may not be seen by comparing the area under coca at these two points in time but it will certainly be noticeable in the coca yield as farmers lose harvests or have to replant their fields. Eradication has evolved from a tool to reduce the area under coca to one component of a complex counter-narcotics intervention system, geared towards reducing the productivity of the cocaine production chain from coca leaf to cocaine HCl at different levels.

Such a reduction in yield and production is captured by the *productive area* approach, where each hectare under coca cultivation is considered for the number of months the field is actually productive. For estimating cocaine production, the productive area approach seems to be the most appropriate but it is also the most demanding in terms of data requirements. Currently, the monitoring systems used in the three coca cultivating countries contain elements of both approaches, net area and productive area. In the Plurinational State of Bolivia and Peru, the area estimated from satellite imagery represents the average coca cultivation situation in the second half of the year, and it is used directly to estimate production. In Colombia, where a cut-off date at the end of the year is used for the area estimation, additional information is used to model the total productive area that contributes to the production of coca leaf and cocaine.

Efforts are being made in all three countries to improve the cocaine production estimates and the concepts of the net area and the productive area - detailed below - are an important part of that process.

## Colombia

In 2010, the area under coca cultivation in Colombia decreased significantly, by 15%. Cultivation of coca bush decreased in all major growing regions of the country. The Pacific region remained the region with the largest coca cultivation, representing 42% (25,680 ha) of the national total, followed by the Central (25% or 15,310 ha) and Meta-Guaviare regions (14% or 8,710 ha).[1]

**Table 22: Approaches to measure coca cultivation (ha), 2010**

| | Net cultivation on 31 Dec 2010 | Productive coca area 2010 |
|---|---|---|
| Bolivia | n.a. | 30,900* |
| Colombia[(a)] | 57,000 [(a)] / 62,000 [(b)] | 62,000-77,000 [(b)] |
| Peru | n.a. | 61,200 |
| **Total** | **n.a.** | **154,100-169,100** |

* The 2010 figure for Bolivia was not available at the time of printing of this report. Total area under coca cultivation in 2010 is based on the 2009 figure for Bolivia and will be revised once the 2010 figure becomes available.

(a) Area without adjustment for small fields.

(b) Area with adjustment for small fields.

Since the first coca cultivation survey implemented by the national monitoring system supported by UNODC, the average size of coca fields has decreased from around 2 ha in 1999 to about 0.7 ha - 0.9 ha since 2006. An increasing proportion of coca was cultivated on small fields. This raised concerns because the type of satellite imagery used to detect coca fields in Colombia works best for field sizes over 0.25 ha and is not suitable for identifying very small fields.

Thus, a study using very high resolution imagery was conducted to determine the proportion of coca grown on fields below the 0.25 ha threshold. Based on this

1 All figures in this paragraph refer to the area adjusted for small fields.

**Table 23: Colombia, adjustment of coca area for small fields, 2009-2010 (ha)**

Source: National monitoring system supported by UNODC.

| | 2009 | 2010 | Change from 2009 |
|---|---|---|---|
| Without adjustment for small fields | 68,000 | 57,000 | -16% |
| With adjustment for small fields | 73,000 | 62,000 | -15% |

study, an adjustment factor for small fields was introduced. This adjustment allows for the inclusion of coca cultivated fields that are smaller than the detectable threshold, and thereby improves the accuracy of the coca area estimate in Colombia.

In 2010, the area under coca cultivation was estimated at 57,000 ha without the adjustment for small fields. This was corrected to 62,000 ha after including the small field factor. To facilitate a comparison with 2009, the 2009 figure was also corrected, from 68,000 ha without to 73,000 ha with the adjustment for small fields.

**Peru**

In Peru, in 2010, the area under coca cultivation amounted to 61,200 ha, a 2% increase (+1,300 ha) on 2009, indicating an overall stable situation. However, the coca-growing regions showed diverging cultivation trends. Upper Huallaga, the largest growing region in recent years, experienced a strong decline of almost 4,500 ha due to intense eradication. In Apurímac-Ene, the second largest growing region until 2009, a significant increase in the area under coca of more than 2,200 ha was registered, and with 19,700 ha, it became the largest growing region in 2010.

Other growing regions such as Palcazú-Pichis-Pachitea (+59%) as well as Marañon, Putumayo and some smaller growing areas in the Amazon basin grew dramatically (+90%) and contributed to the overall increase.

Some smaller growing regions such as Aguatiya and Inambari-Tambopata, which have experienced a significant increase in the area under coca in recent years, remained relatively stable in 2010.

## Production

Due to the ongoing review of conversion factors, no point estimate of the level of cocaine production can be provided for 2009 and 2010. Because of uncertainties about the level of total potential cocaine production and about the comparability of the estimates between countries, the 2009 and 2010 figures were estimated as ranges (842-1,111 mt and 786-1,054 mt, respectively).[2]

High levels of cocaine seizures worldwide support the hypothesis that global cocaine production could be at a much higher level than previously estimated, mainly because traffickers have found ways to improve the efficiency of clandestine laboratories in extracting cocaine alkaloids from coca leaves. The lack of precise measurements of laboratory efficiency in the different countries increases the level of uncertainty, but does not affect the trend, which shows a clear decline in global cocaine production since 2007. A recent study (PRELAC) conducted jointly by UNODC and Governments of the coca cultivation countries confirmed that laboratory efficiency had improved and indicated that traffickers in the Plurinational State of Bolivia and Peru may have already reached efficiency levels comparable to Colombia.[3] Thus, in other parts of this Report, the upper end of the global cocaine production range has been used. This, despite the uncertainty associated with the estimate, is considered to be a better approximation of reality.

**Peru**

Cocaine production in Peru has been going up since 2005 due to an increase in the area under coca cultivation. It is necessary, however, to add a caveat. Coca leaf yields in Colombia have been regularly studied and updated since 2005, and part of the decline in Colombian cocaine production is due to declining yields. In Peru, on the other hand, information on coca leaf yields dates back to 2004, and for some of the smaller cultivating regions, which experienced significant increases in the area under coca, no information on region-specific coca leaf yields is available. There are additional challenges involved in estimating the yield of new or reactivated coca fields as opposed to mature, well-maintained ones, as well as the effects of continued eradication pressure. As noted above, there are indications that the level of cocaine production in Peru could be higher than previously estimated due to improvements in laboratory efficiency, but more research is needed to improve the cocaine estimate for the country.

**Colombia**

Cocaine production in Colombia decreased to 350 mt in 2010. The drop since 2005 is the result of a decrease in the area under coca cultivation and a reduction of

2 More information on the review of conversion ratios is available in the Methodology chapter of this Report and in the *World Drug Report 2010* (p. 249 ff.).

3 PRELAC ('Prevention of the Diversion of Drugs Precursors in the Latin American and Caribbean Region') is a project financed by the European Commission and implemented by UNODC and Governments in Latin America and the Caribbean. Within this framework, several studies analysed coca leaf to cocaine conversion methods . For more information see http://www.prelac.org.

coca leaf yields. There are also indications of structural changes in the way the processing of coca leaves is organized. Unlike in the Plurinational State of Bolivia and Peru, where farmers sun-dry the coca leaves to increase their shelf life and facilitate transport, in Colombia, farmers typically process the fresh leaves into coca paste or cocaine base immediately after harvest. In 2005, only 24% of the coca leaf produced in that year was sold as fresh leaf, whereas in 2009, this proportion had almost doubled and reached 45%. Expressed in absolute terms, in 2005, farmers sold about 133,000 mt of fresh coca leaf to intermediaries, whereas in 2009, the same figures amounted to almost 155,000 mt, an increase by 16%. This increase is even more remarkable when considering that it happened despite an overall decline in coca leaf production in Colombia over this period.

Studies show that farmers can increase their profit when processing coca leaf into coca paste and/or cocaine base rather than selling it. What could lead farmers to stop processing coca leaves themselves and sell them instead?

A study on cocaine precursors conducted in 2009/2010 (PRELAC) in South America and additional studies by UNODC and the Government revealed that in Colom-

**Table 24: Global production of coca leaf and cocaine HCl (mt), 2005-2010**

Source: Governments of Colombia, Peru and the Plurinational State of Bolivia.

| | 2005 | 2006 | 2007 | 2008 | 2009 | 2010 |
|---|---|---|---|---|---|---|
| **POTENTIAL PRODUCTION OF SUN-DRIED COCA LEAF IN METRIC TONS** | | | | | | |
| **Bolivia** | 28,200 | 33,200 | 36,400 | 39,400 | 40,200 | n.a. |
| **Range** | | | *34,200-38,300* | *37,300-41,800* | *37,900-42,500* | n.a. |
| **Peru** | 97,000 | 105,100 | 107,800 | 113,300 | 119,000 | 120,500 |
| **Range** | *85,400-108,600* | *91,000-119,200* | *93,200-122,000* | *97,600-127,800* | *102,400-134,200* | *103,000-136,300* |

Source: Bolivia: Potential sun-dry coca leaf production available for cocaine production, National Illicit Crop Monitoring System supported by UNODC. Leaf yield source: UNODC (Yungas de Paz), Chapare (DEA scientific studies). The estimated amount of coca leaf produced on 12,000 ha in the Yungas of La Paz where coca cultivation is authorized under national law, was deducted. Range: Upper and lower bound of the 95% confidence interval of coca leaf yield estimate.
Peru: Potential sun-dried coca leaf production available for cocaine production, estimated by the National Illicit Crop Monitoring System supported by UNODC. 9,000 mt of sun-dry coca leaf were deducted, which, according to Government sources, is the amount used for traditional purposes. Range: Upper and lower bound of the 95% confidence interval of coca leaf yield estimate.

| | | | | | | |
|---|---|---|---|---|---|---|
| **POTENTIAL PRODUCTION OF FRESH COCA LEAF IN METRIC TONS** | | | | | | |
| **Colombia** | *555,400* | *528,300* | *525,300* | *389,600* | *343,600* | 305,300 |
| **Range** | | | | | | *305,300-349,600* |
| **POTENTIAL PRODUCTION OF COCA LEAF IN OVEN-DRIED EQUIVALENT IN METRIC TONS** | | | | | | |
| **Colombia** | *164,280* | *154,130* | *154,000* | *116,900* | *103,100* | 91,600 |
| **Range** | | | | | | *91,600-104,880* |

Source: National monitoring system supported by UNODC. National Illicit Crop Monitoring System supported by UNODC.
Due to the introduction of an adjustment factor for small fields, 2010 estimates are not directly comparable with previous years.

The ranges express the uncertainty associated with the estimates. In the case of Bolivia and Peru, the ranges are based on confidence intervals and the best estimate is the mid-point between the upper and lower bound of the range. In the case of Colombia, the range represents the two approaches taken to calculate the productive area, with the lower bound being closer to the estimation used in previous years. The methodology to calculate uncertainty ranges for production estimates is still under development and figures may be revised when more information becomes available.

| | | | | | | |
|---|---|---|---|---|---|---|
| **POTENTIAL MANUFACTURE OF 100% PURE COCAINE IN METRIC TONS** | | | | | | |
| **Bolivia** | 80 | 94 | *104* | *113* | n.a. | n.a. |
| **Colombia** | 680 | 660 | 630 | 450 | 410 | 350 |
| **Range** | | | | | | *350-400* |
| **Peru** | *260* | *280* | *290* | *302* | n.a. | n.a. |
| **Total** | ***1,020*** | ***1,034*** | ***1,024*** | ***865*** | * | * |

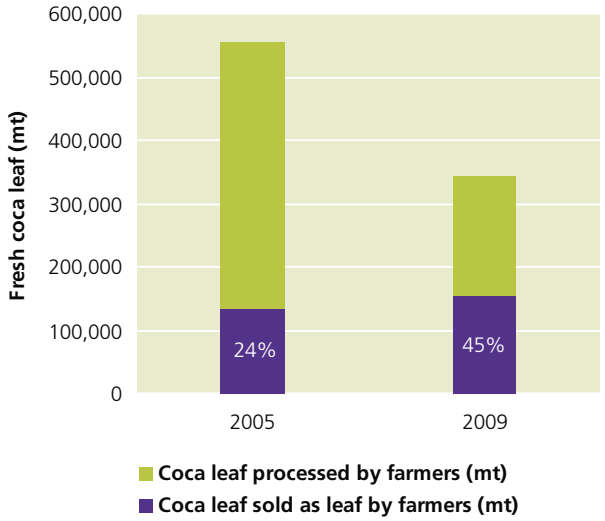
* Due to the ongoing review of conversion factors, no point estimate of the level of cocaine production could be provided for 2009 and 2010. Because of the uncertainty about the level of total potential cocaine production and about the comparability of the estimates between countries, the 2009 and 2010 figures were estimated as ranges (842-1,111 mt and 786-1,054 mt, respectively).

Source: Bolivia: UNODC calculations based on UNODC (Yungas of La Paz) and DEA scientific studies (Chapare) coca leaf yield surveys. Colombia: National Illicit Crop Monitoring System supported by UNODC and DEA scientific studies. Due to the introduction of an adjustment factor for small fields, 2010 estimates are not directly comparable with previous years. Peru: UNODC calculations based on coca leaf to cocaine conversion ratio from DEA scientific studies.
Detailed information on the ongoing revision of conversion ratios and cocaine laboratory efficiency is available in the World Drug Report 2010 (p. 249).

Figures in italics are being reviewed. Information on estimation methodologies and definitions can be found in the Methodology chapter of this Report.

**Fig. 67: Colombia: Fresh coca leaf production (mt), 2005 and 2009**

Source: UNODC/Government of Colombia, Coca cultivation surveys 2005 and 2009.




bia, quality differences in the coca paste and cocaine base provided by coca farmers reportedly became a problem for clandestine cocaine laboratories in recent years. A strategy employed by traffickers to obtain cocaine base of better or more homogeneous quality could be to try to execute more control over the cocaine alkaloid extraction process. Skilled 'cooks' with better know-how, equipment and precursor chemicals may be in a better position than farmers to produce cocaine base with the sought-after properties. It is not yet known how the purchasing of coca leaf from farmers is organized and who the actors are. Neither is sufficient information available on the chemical properties of coca paste or cocaine base produced in Colombia to verify this hypothesis.

What could have caused the apparent quality differences in the cocaine base produced by farmers?

Since 2005, probably due to increased counter-narcotics pressure, the per-hectare yields of coca fields went down in many growing regions of Colombia and there is a tendency towards smaller fields. This may make the assembly of amounts of coca leaves large enough for cocaine processing more difficult at the farm level. As coca leaf is not sun-dried in Colombia, storing the leaves until a sufficient amount is accumulated is not an option, as fresh coca leaves deteriorate rapidly in quality. An additional reason might be that, in 2009, it was more risky for farmers to engage in coca-processing in areas where the Government has increased its presence compared to 2005. Selling coca leaf rather than keeping processing chemicals and equipment on the farm may be part of a risk-aversion strategy employed by farmers.

On the other hand, field reports indicate the strong link between armed groups and coca cultivation and cocaine production. Thus, farmers may also have changed their sales strategy because of pressure from these groups.

Another measure taken by traffickers was the introduction of a previously unknown process called re-oxidation of cocaine base. This process is apparently an additional step used to homogenize and improve the quality of cocaine base of different quality received from different sources and geographic areas by using potassium permanganate. According to the information available, re-oxidation is linked to clandestine laboratories producing cocaine HCl, called 'cristalizaderos' in Colombia, which presumably have a wide geographic area from where they source cocaine base. The introduction of this process into the clandestine cocaine production chain suggests that differences in the quality of cocaine base provided by farmers, and maybe partly also the low quality provided, indeed became a problem for traffickers producing cocaine HCl in recent years in Colombia.

### Plurinational State of Bolivia

It can be assumed that, following the trend in cultivation, cocaine production in Bolivia increased between 2005 and 2009. 2010 figures were not available at the time of printing of this Report. There are indications that since about 2007, clandestine laboratories in Bolivia have benefited from a transfer of know-how from Colombia. Laboratories using the 'Colombian' method are much more efficient in extracting cocaine from coca leaves. More research is needed to better understand the current efficiency of clandestine laboratories in Bolivia.

## Clandestine processing installations

In 2009, as in previous years, the extraction of cocaine alkaloids and manufacture of cocaine HCl remained geographically concentrated in South America. The illicit extraction of cocaine alkaloids from coca leaves takes place exclusively in the three countries cultivating coca bush, namely, the Plurinational State of Bolivia, Colombia and Peru. In 2009, the destruction of 8,691 installations involved in the production of coca paste or base was reported. This figure does not include the destruction of maceration pits, a typical feature of coca paste production in the Plurinational State of Bolivia and Peru.

## Coca leaf: fresh – sun-dried – oven-dried

In this report, coca leaf production is presented in different ways: as fresh coca leaf, as sun-dried coca leaf and as coca leaf in oven-dried equivalents.

There are two main reasons. First, coca leaf is processed or traded in Colombia as fresh coca leaf, immediately after the harvest, whereas in Peru and the Plurinational State of Bolivia, farmers dry the fresh coca leaf before selling, by spreading the leaves on the ground and exposing them to air. The result is coca leaf with a much reduced moisture, which makes transport easier and allows storage of the leaves. Sun-dried leaves are also referred to as air-dried leaf.

The second reason is that the moisture content of both fresh and sun-dried coca leaf varies considerably, depending on the biological properties of the leaf as well as environmental factors such as the humidity of the air. A fresh coca leaf harvested in the early morning, for example, will have a different moisture content than leaves from the same bush plucked at noon. Coca leaves sun-dried after a heavy rainfall at a low altitude will have a different moisture content than leaves sun-dried in the dry season at a high altitude.

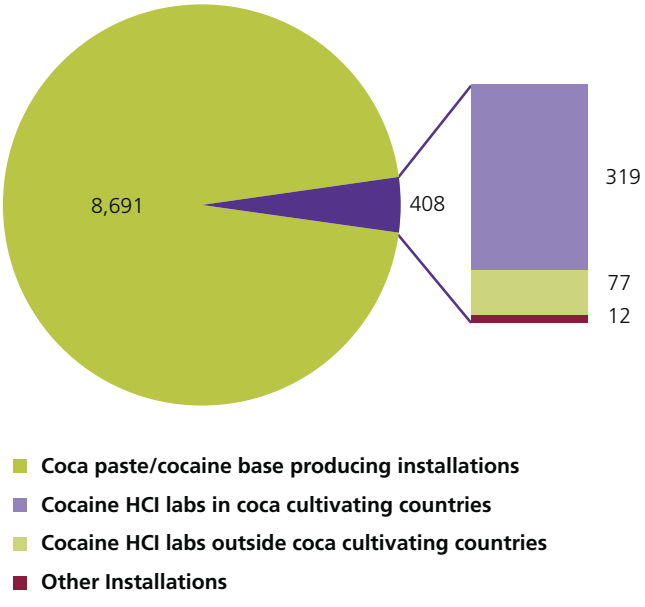
While differences may not matter much to farmers selling coca leaves, it matters from a scientific point of view, when comparing coca leaf production in different countries and estimating how much cocaine can potentially be extracted from the leaves. In other words, scientists are interested in how much dry plant matter is in the leaves, and which proportion of that dry matter consists of cocaine alkaloids. The water content of the leaves is not of interest in that context and has to be taken out of the calculation.

Like other live plant material, fresh coca leaves consist mainly of water (~70%). A kilogram of fresh coca leaves would typically lose over half of its weight through sun-drying. Even sun-dried leaves contain residual moisture. When drying in a laboratory oven to remove all moisture from the leaves, sun-dried coca leaves would still lose another third of their weight. In other words, a kilogram of fresh coca leaves weighs only about 300 grams after leaving the drying chamber, which is the weight of dry plant matter. Only a tiny proportion (around 0.5%) of that plant matter is actually cocaine.

Thus, when comparing coca leaf production, the weight in oven-dried coca leaf equivalent is the most appropriate. However, currently, not enough information on the moisture content of coca leaf in different regions of coca cultivating countries is available. Therefore, a direct comparison between fresh coca leaf in Colombia and sun-dried coca leaf in the Plurinational State of Bolivia and Peru by converting all figures into oven-dry equivalents is therefore not possible.

**Fig. 68: Seizures of clandestine installations processing coca/cocaine, 2009**

Source: UNODC ARQ.




In addition to coca paste or cocaine base processing installations, countries reported the destruction of 396 cocaine HCl production laboratories in 2009, 319 or 81% of which were located in coca cultivating countries. This confirms reports from previous years that most of the cocaine base produced in coca cultivating countries is converted into cocaine HCl in the same countries.

There are indications of some cross-border trafficking of cocaine base for further processing in other countries in the region: Argentina (36 laboratories), Ecuador (10) and the Bolivarian Republic of Venezuela (26) all reported destruction of cocaine producing facilities. Often reports did not to specify if the installations detected were involved in producing cocaine base or HCl. It is assumed that most installations reported as being cocaine-producing were producing cocaine HCl, not cocaine base. Only a few installations involved in cocaine base or HCl manufacture were reported outside Latin America, for example, in Mexico (4) and Spain (1).

Spain also reported the detection of clandestine installations involved in secondary extraction of cocaine.

Cocaine is sometimes dissolved in other substances to prevent detection. Traffickers use secondary extraction laboratories to revert that process and recover the cocaine. Most of the clandestine installations detected in Spain in 2008 and 2009 were involved in secondary extraction (24 in 2008 and 11 in 2009). Greece also reported detection of clandestine installations involved in cocaine processing. These installations were involved in repackaging and adulterating cocaine. One installation handled only cocaine and four more were also handling heroin (reported under 'heroin').

More information on the detection of clandestine secondary extraction installations and repackaging and adulteration sites from other countries would be useful to understand potential changes in trafficking strategies. It would also indicate the development of trafficking hubs.

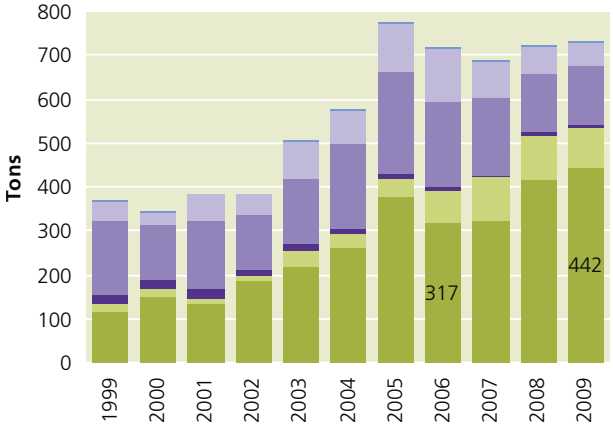
## 3.4 Trafficking

Global seizures of cocaine, including cocaine salts, cocaine base and crack-cocaine, increased strongly between 2000 and 2005 and were then generally stable over the 2006-2009 period, ranging between a minimum of 690 mt in 2007 and a maximum of 732 mt in 2009. Since 2006, seizures have shifted towards the source area of South America away from the consumer markets of North America and West and Central Europe, reflecting better international cooperation and exchange of information. South America accounted for a total of 317 mt in 2006 (44% of the global total for that year) and 442 mt in 2009 (60% of the global total). Over the same period, seizures declined by almost one third in North America (from 194 mt in 2006 to 132 mt in 2009) and by more than one half in West and Central Europe (from 121 mt in 2006 to 55 mt in 2009).

Slightly more than 60% of cocaine seizures in 2009 took place in South America. North America accounted for 18% and Europe for 8% of the total. Seizures outside the Americas and Europe accounted for just 0.3% of the total.

**Fig. 69: Global cocaine seizures (mt), 1999-2009**

Source: UNODC DELTA.



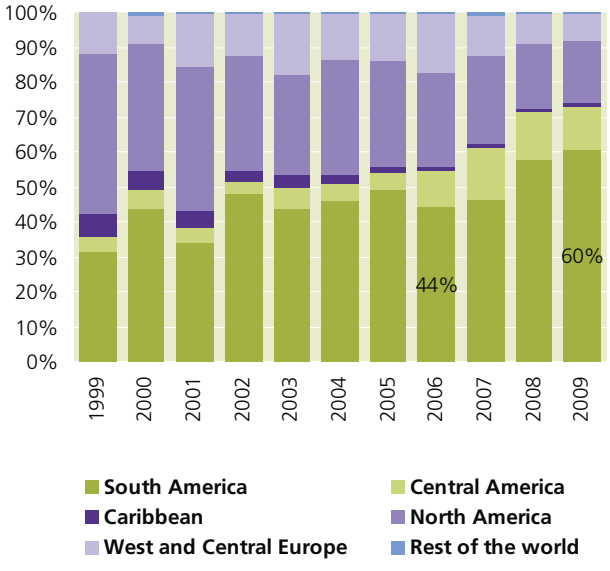

The three main markets for cocaine – in volume terms - are North America, notably the United States of America, followed by Europe, notably the EU and EFTA countries, and South America.

The US authorities have estimated for the last couple of years that some 90% of the cocaine consumed in North America comes from Colombia,[1] supplemented by some cocaine from Peru and limited amounts from the Plurinational State of Bolivia. For the year 2009, results of the US Cocaine Signature Program, based on an analysis of approximately 3,000 cocaine HCl samples, revealed that 95.5% originated in Colombia[2] (down from 99% in 2002[3]) and 1.7% in Peru; for the rest (2.8%), the origin could not be determined. The trafficking of cocaine into the United States is nowadays largely controlled by various Mexican drug cartels, while until the mid-1990s, large Colombian cartels dominated these operations.

The origin of cocaine consumed in Europe seems to be more evenly distributed. In terms of cocaine seizure

**Fig. 70: Distribution of global cocaine seizures, 1999-2009**

Source: UNODC DELTA.



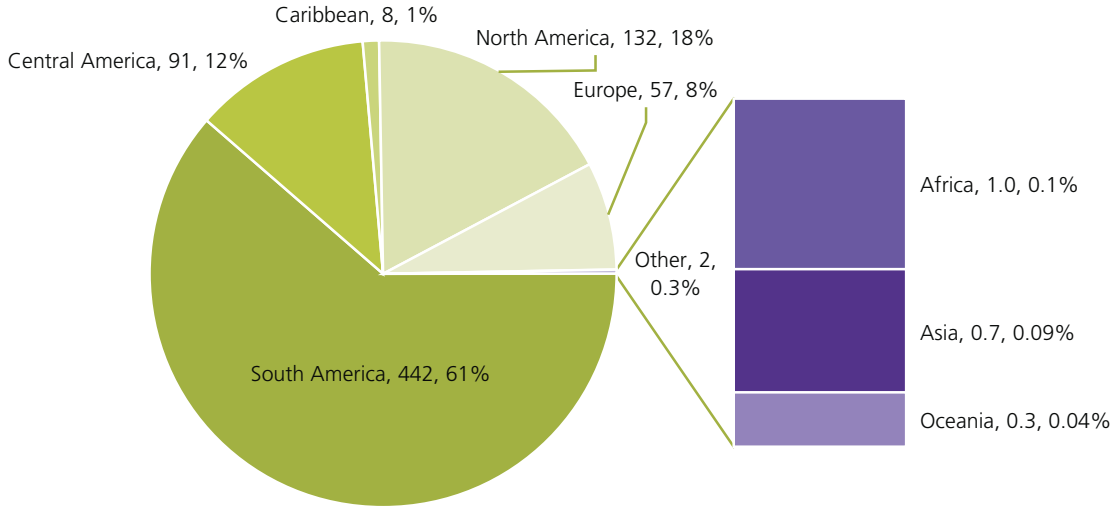

1 US Department of State, *2011 International Narcotics Control Strategy Report*, Washington D.C., 2011.

2 US Department of Justice, Drug Enforcement Administration, Special Testing and Research Laboratory, *Cocaine Signature Program Report,* January 2010, quoted in Inter-American Drug Abuse Control Commission (CICAD), DEA Special Testing and Research Laboratory and DEA Intelligence Division Briefing, OEA/Ser.L/XIV.2.47, CICAD/doc.1802/10, 3 May 2010.

3 US Department of Justice, Drug Enforcement Administration, Selected Intelligence Brief, 'Cocaine Signature Program Report,' January 2003, *Microgram Bulletin*, Vol. XXXVI, February 2003.

**Fig. 71: Distribution of global cocaine seizures by region, 2009**

Source: UNODC ARQ.




cases, cocaine from Colombia accounted for 8% of the cocaine seized in Europe over the 2008-2010 period, Peru for 7% and the Plurinational State of Bolivia for 5% (based on information from 13 European countries).[4] The rest (80%) can only be traced back to various transit countries in the Americas (notably Argentina, the Dominican Republic, Brazil, Costa Rica, Panama, Ecuador and Paraguay), Africa (notably Senegal, Mali, Guinea and Nigeria) and Europe (notably Spain, the Netherlands and Portugal).

The importance of Colombia is more pronounced in terms of the origin of the quantities of cocaine seized in Europe. Cocaine from Colombia accounted for 25% of all cocaine seizures in volume terms in Europe over the 2008-2010 period, Peru for 6% and the Plurinational State of Bolivia for 2%. If cocaine that could be traced back to the Bolivarian Republic of Venezuela, Ecuador and Panama were added to the cocaine from Colombia, the 'Colombia-linked' cocaine seizures in Europe would rise to 69% of the total (2008-2010 period).[5]

Cocaine produced in Colombia is mainly destined for consumption in overseas markets. Cocaine produced in Peru and the Plurinational State of Bolivia, in contrast, is used more within South America, notably in countries of the Southern Cone. Even though cocaine produced in Peru seems to be playing a growing role in Europe, the criminal groups organizing the trafficking from South America to Europe are still primarily Colombian (notably for trafficking operations targeting Spain, the main entry point of cocaine into Europe) and – to a lesser extent - from other Latin American countries and from various African and European countries. The influence of the Mexican drug cartels, which dominate cocaine sales to the United States, seems to be limited when it comes to trafficking to Europe or trafficking to countries in South America.

The global seizure total of 732 mt in 2009 refers to cocaine seizures as reported, that is, unadjusted for purity. Although precise purity adjustments at the level of individual countries are not feasible with the current available data, a range can be calculated for global purity-adjusted seizures of cocaine.[6] By expressing this quantity as a percentage of the global supply of cocaine, one obtains the interception rate. In order to account for the time lag incurred between cultivation and trafficking, one may consider the average production in the preceding two years (2007 and 2008) as a proxy for global supply. This calculation yields a range of 46%-60% for the interception rate. However, this range should be interpreted with caution, as it depends on the current estimates of cocaine production, which are currently being reviewed.

### Americas

In 2008 and 2009, the Americas accounted for more than 90% of global seizures of cocaine, with seizures amounting to 656 mt in 2008 and 673 mt in 2009. The largest seizures continued to be made by Colombia and the United States. Large quantities of cocaine continue to be trafficked from South America to the United States, with Mexico being the key transit country. Over

4 Austria, Belgium, Bulgaria, France, Germany, Ireland, Poland, Portugal, Romania, Spain, Switzerland, Turkey and the United Kingdom.

5 UNODC, Individual Drug Seizures database.

6 Considering data for 2009 only, global estimates indicate a range of 431-562 mt. The upper end of the range is obtained by considering purities at wholesale level only, which accounts plausibly for the vast majority of seizures by weight, while the lower end is obtained using both retail and wholesale purities and assuming that the retail level accounts for no more than one half of seizures by weight.

**Fig. 72: Cocaine seizures in the Americas, 1999-2009**

Source: UNODC DELTA.

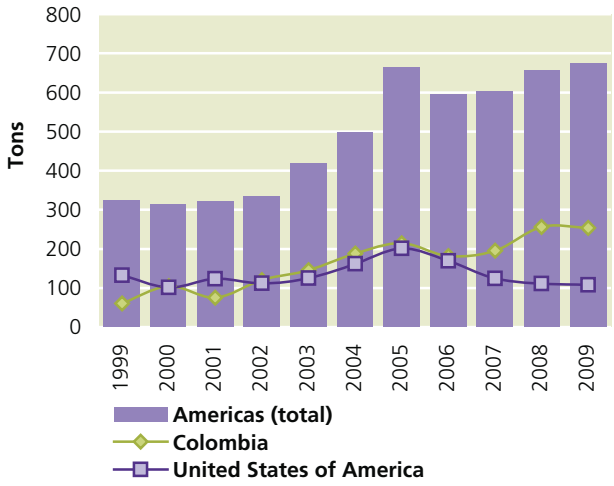
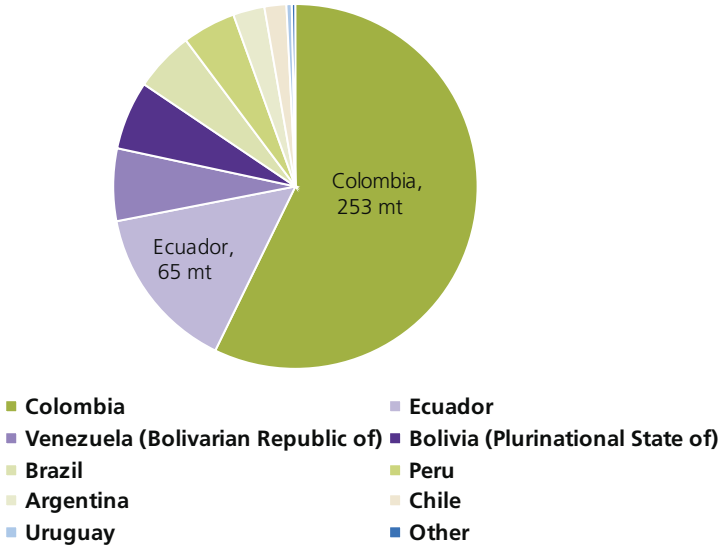



**Fig. 73: Cocaine seizures in South America, by country, 2009**

Source: UNODC DELTA.




the 2002-2006 period, Colombia and the United States seized similar quantities of cocaine; however, the seizure totals started to diverge in 2007, with Colombia seizing more than twice that seized in the US in 2008 and 2009. This can be attributed to intensified efforts by the Colombian authorities to fight cocaine trafficking and to improved international cooperation, notably with law enforcement authorities of key countries such as the United States, the United Kingdom and Spain

Every year from 2002 to 2009, Colombia registered the highest national cocaine seizure total worldwide. In 2009, seizures amounted to 253 mt,[7] essentially sustaining the record level of 2008 (256 mt). According to Colombian authorities,[8] in 2009, 48% of cocaine seizures in Colombia were made in territorial waters. Colombia also continued to seize large quantities of substances that may be used in the extraction and processing of naturally occurring alkaloids.[9]

It appears that Ecuador, which shares borders with both Colombia and Peru, may have acquired increased importance as a hub for cocaine trafficking. In 2009, seizures in Ecuador reached a record level of 65 mt,[10] the second highest level in South America. According to Ecuadorian authorities,[11] seizures of drugs and precursor chemicals by the Ecuadorian law enforcement agencies suggest that drug traffickers are increasingly seeking to use Ecuador for the stockpiling, storage and trans-shipment of vast quantities of cocaine. Cocaine is trafficked into Ecuador across the Colombia-Ecuador border, into the provinces of Esmeraldas, Carchi and Sucumbios, as well as across the Peru-Ecuador border, into the provinces of El Oro, Loja and Zamora Chinchipe,[12] and is then trafficked on to the consumer markets in North America and Europe. The country's more prominent role was also visible in reports of cocaine consignments seized in Europe involving Ecuador in the trafficking route, which rose from 6 seizure cases in 2005 (amounting to a total of 25 kg of cocaine) to 67 in 2009 (amounting to a total of 2.5 mt).

In the Bolivarian Republic of Venezuela, seizures peaked at 59 mt in 2005, and have fallen to approximately one half that level since then, amounting to 28 mt in 2009. According to preliminary data, this trend continued into 2010, with seizures falling to 20 mt.[13] The decrease was also reflected in reports of significant individual drug seizures made in Europe; considering reports from nine countries[14] which provided data on the provenance of

7 Data from the *Observatorio de Drogas de Colombia,* August 2010. Excludes seizures of 'basuco' (1.9 mt). The replies to the ARQ from Colombia for 2009 were not available at the time of preparation of the present report.

8 Presentation by Colombia to the Twentieth Meeting of Heads of National Drug Law Enforcement Agencies, Latin America and the Caribbean, Lima, Peru, 4-7 October 2010.

9 Country report by Colombia to the Twentieth Meeting of Heads of National Drug Law Enforcement Agencies, Latin America and the Caribbean, Lima, Peru, 4-7 October 2010.

10 Country report by Ecuador to the Twentieth Meeting of Heads of National Drug Law Enforcement Agencies, Latin America and the Caribbean, Lima, Peru, 4-7 October 2010. The replies to the ARQ from Ecuador for 2009 were not available at the time of preparation of the present report.

11 Country report by Ecuador to the Twentieth Meeting of Heads of National Drug Law Enforcement Agencies, Latin America and the Caribbean, Lima, Peru, 4-7 October 2010.

12 Presentation by Ecuador to the Twentieth Meeting of Heads of National Drug Law Enforcement Agencies, Latin America and the Caribbean, Lima, Peru, 4-7 October 2010.

13 Presentation by the Bolivarian Republic of Venezuela to the Twentieth Meeting of Heads of National Drug Law Enforcement Agencies, Latin America and the Caribbean, Lima, Peru, 4-7 October 2010.

14 Austria, Belgium, France, Germany, Ireland, Portugal, Romania,

**Fig. 74: Cocaine seizures in Europe transiting selected countries in the Americas, by number of cases, 2005-2009**

Source: UNODC IDS.

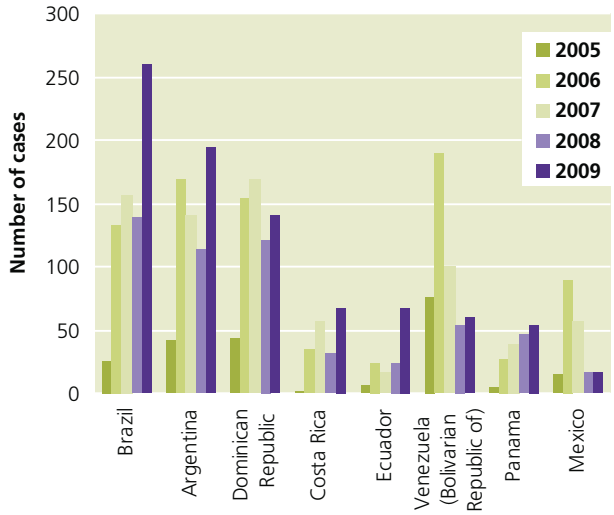
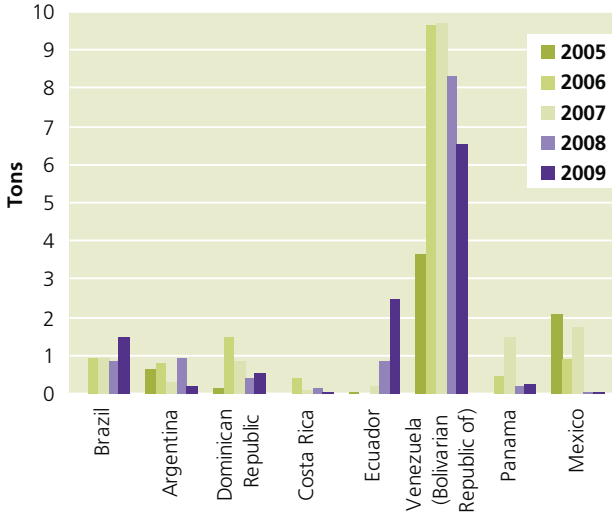



**Fig. 75: Cocaine seizures in Europe transiting selected countries in the America, by quantity seized, 2005-2009**

Source: UNODC IDS.




individual cocaine seizures in both 2006 and 2009, the number of seizures involving the Bolivarian Republic of Venezuela in the trafficking route fell from 151 (amounting to a total of 9.4 mt) in 2006 to 59 in 2009 (amounting to a total of 6.6 mt). Expressed as a proportion of the total cocaine seizures made in Europe (where information on provenance was included), these cases fell from 12% to 4% in terms of the number of seizures, but increased from 36% to 41% in terms of quantity.

In 2008, seizures of cocaine reached relatively high levels in both the Plurinational State of Bolivia and Peru, compared to previous years. Since then, seizures in Bolivia essentially sustained the high level, amounting to 27 mt in 2009 and 29 mt[15] in 2010, while seizures in Peru receded to 21 mt (from 28 mt in 2008) and rose back to 31 mt[16] in 2010. The Plurinational State of Bolivia assessed that, in 2009, more than 95% of cocaine trafficking on its territory occurred by land; moreover, according to Bolivian authorities,[17] cross-border trafficking occurred from Bolivia into Argentina, Brazil and Chile and also from Peru into Bolivia. In contrast, according to Peruvian authorities,[18] international trafficking organizations operating in Peru preferred maritime routes, with the ports of Callao, Chimbote and Paita being the main points of departure. A variety of other trafficking methods are also used in Peru, including land routes, rivers, couriers, postal services and flights from clandestine airfields.

In recent years, seizures of cocaine have also increased significantly in Brazil, going from 8 mt in 2004 to 24 mt in 2009, of which 1.6 mt were seized in five aircraft interceptions.[19] In 2009, Brazil was the most prominent transit country in the Americas - in terms of number of seizures - for cocaine consignments seized in Europe. The number of seizure cases which involved Brazil as a transit country rose from 25 in 2005 (amounting to 339 kg of cocaine) to 260 in 2009 (amounting to 1.5 mt).

According to the World Customs Organization, in 2009 the most important secondary distribution countries (apart from the Plurinational State of Bolivia, Colombia and Peru) were the Bolivarian Republic of Venezuela, Ecuador, Brazil and Argentina (ranked in order of the total weight of seized consignments departing from a given country).[20] With regard to cocaine reaching Europe, the World Customs Organization also noted the high quantity of cocaine arriving from Ecuador and the growing significance of Brazil and Suriname. With regard to cocaine reaching Africa, WCO noted that Brazil was the only South American country mentioned as a departure country for customs seizures made in Africa in 2009.

In Argentina, cocaine seizures rose steadily from 1.6 mt

Spain and Switzerland.

15 Preliminary data from the Government of the Plurinational State of Bolivia.

16 Preliminary data from the Government of Peru.

17 Presentation by the Plurinational State of Bolivia to the Twentieth Meeting of Heads of National Drug Law Enforcement Agencies, Latin America and the Caribbean, Lima, Peru, 4-7 October 2010.

18 Country report by Peru to the Twentieth Meeting of Heads of National Drug Law Enforcement Agencies, Latin America and the Caribbean, Lima, Peru, 4-7 October 2010.

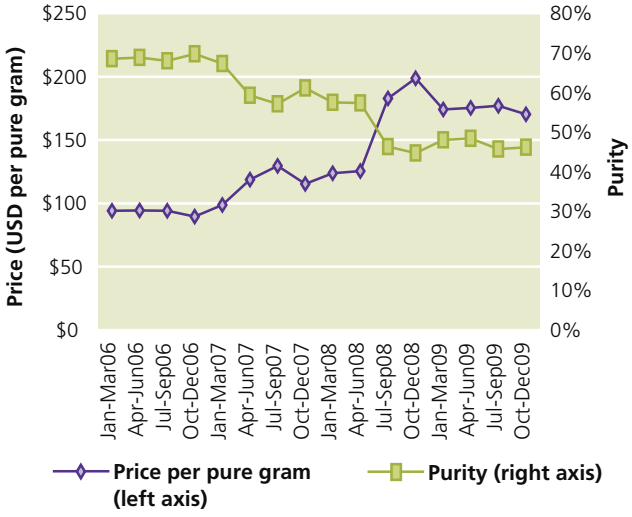
19 Presentation by Brazil to the Twentieth Meeting of Heads of National Drug Law Enforcement Agencies, Latin America and the Caribbean, Lima, Peru, 4-7 October 2010.

20 Based on seizures recorded in the Customs Enforcement Network database.

**Fig. 76: Mean price and purity of all* cocaine purchases by law enforcement in the United States, 2006-2009**

* The values represented here represent averages of all cocaine purchases, irrespective of the size of the transaction, and thus may correspond neither to wholesale nor to retail price levels. Although not collected as a representative sample of the US market, these data reflect the best information available on changes in cocaine price and purity in the US market.

Source: UNODC ARQ.



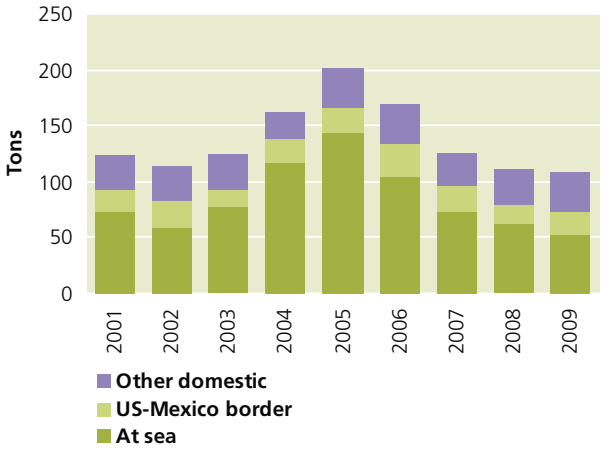

in 2002 to 12.1 mt in 2008, and in 2009 sustained the increased level, at 12.6 mt. Trafficking of cocaine from Argentina to Chile was reported by both countries in 2009; Argentina also assessed that, in 2009, some of the cocaine trafficked on its territory was intended for Europe, apart from Argentina itself. Seizures in Chile rose markedly in 2007, and have since then declined slightly, amounting to 8.4 mt in 2009. Argentina was also prominent - in terms of number of seizures - as a transit country for cocaine consignments seized in Europe, with 194 such cases reported in 2009. However, these seizures tended to be small in comparison with seizure cases transiting other countries, amounting to a total of 217 kg of cocaine.

Other prominent transit countries included countries in Central America and the Caribbean such as the Dominican Republic, Costa Rica and Panama. In 2009, seizures in Panama were the third largest in Latin America and the Caribbean (53 mt). The Dominican Republic assessed that, in 2009, 18% of cocaine trafficked on its territory was intended for Spain, with the majority intended for the United States. Although the seizures involving the Dominican Republic in Europe were not large in comparison with other transit countries, some large seizures were made in the Dominican Republic itself: five of the seizures in 2009 accounted for almost two thirds of the total seized in the country that year (4.7 mt). According to Costa Rican authorities,[21] in

21 Country report by Costa Rica to the Twentieth Meeting of Heads of National Drug Law Enforcement Agencies, Latin America and the Caribbean, Lima, Peru, 4-7 October 2010.

**Fig. 77: Cocaine seizures in the United States by location and quantity (mt), 2001-2009**

Source: UNODC ARQ.




recent years, there has been a significant increase in the quantities of cocaine seized on the sea route, involving Costa Rican nationals mostly working in the fishing industry and operating under the direction of Colombian nationals, using fishing boats with Costa Rican flags to transport illicit drugs. Seizures in Costa Rica reached 21 mt in 2009.

Mexico continued to be a key transit country for cocaine trafficked into the United States. Cocaine seizures in Mexico fell sharply in 2008 (19 mt, down from 48 mt in 2007), in line with the trend in the United States, and increased slightly in 2009, amounting to 22 mt. The vast bulk - almost three quarters - was seized on the maritime route.

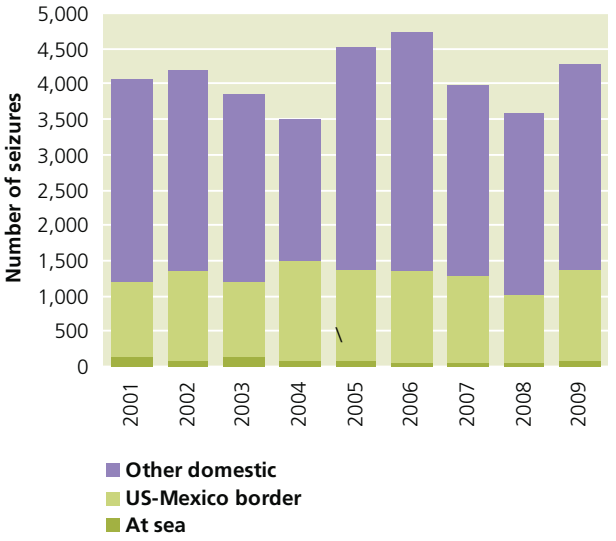
The decreased level of seizures was reflected in cocaine seizures by US authorities along the border with Mexico, which followed a generally decreasing trend between the last quarter of 2005 and the second quarter of 2008.[22] In 2009, seizures along the US-Mexico border rose slightly, from 17.8 mt in 2008 to 20.5 mt, but remained below the peak level of 28 mt registered in 2006. It appears that several factors have contributed to a shift in the trafficking routes from Mexico to the United States, including high levels of inter-cartel violence in Mexico and efforts by Mexican authorities to confront the drug cartels.

Seizures by the United States peaked at 201 mt in 2005, and have since fallen considerably. In 2009, seizures appeared to stabilize at slightly more than half the 2005 level – 109 mt. Together with other indicators, this suggests that the availability of cocaine in the United States has stabilized at a reduced level.

22 US Department of Justice, National Drug Intelligence Center, *National Drug Threat Assessment 2009*, December 2008.

**Fig. 78: Cocaine seizures in the United States by location and number of seizures, 2001-2009**

Source: UNODC ARQ.




The mean purity-adjusted price of cocaine, calculated from all cocaine purchases by law enforcement agencies in the United States,[23] more than doubled between the last quarter of 2006 to the last quarter of 2008 (from US$90 to US$199 per pure gram), and have remained relatively high since then (amounting to US$170 per pure gram in the last quarter of 2009). This was largely due to a decline in purity, which fell from an average of 70% in the last quarter of 2006 to 45% in the last quarter of 2008 and 46% in the last quarter of 2009.

Seizures by the United States include large quantities of cocaine seized at sea. They accounted for approximately one half of the total for the United States in 2009. In terms of seizure cases, the majority continued to be smaller domestic cases.

A comparison of purity-adjusted cocaine prices at key points along the cocaine trafficking route in the Americas confirms that the mark-up in price occurs largely towards the end of the supply chain. The price at the wholesale level is about one quarter of the price at the retail level, while the price in producing countries only amounts to 1% of the final (retail) price.

At the global level, the total reported quantity of crack-cocaine seizures is negligible in comparison with seizures of cocaine base and cocaine salts. This may partly be due to the fact that some countries do not report seizures of crack-cocaine, but also because individual seizures of crack-cocaine, possibly made at street levels, tend to be much smaller.

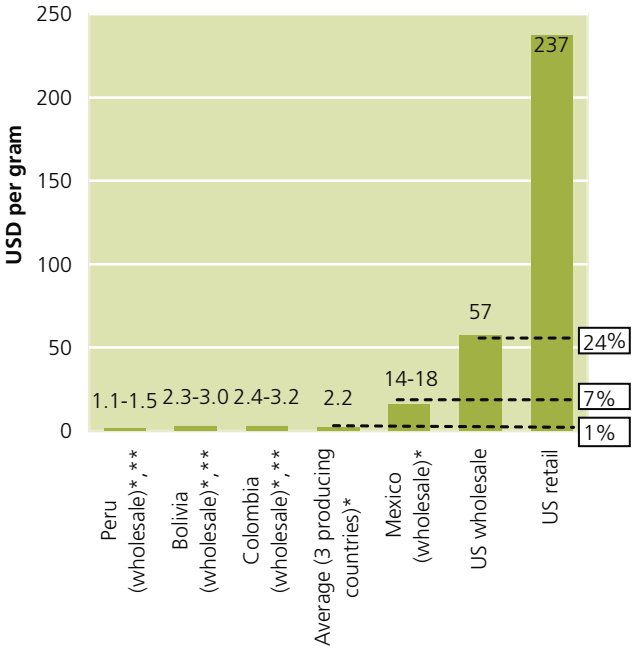
23 This includes all purchases, irrespective of the size of the transaction, and thus may correspond neither to retail nor wholesale price levels.

**Fig. 79: Accrual of purity-adjusted cocaine prices in the Americas, 2009**

* For these countries, the calculation assumes a wholesale purity of 70%-90%; the vertical bars represent the midpoint of the resulting range.

** The value for Peru represens the price in producing regions, while the values for Bolivia and Colombia represent the price in major cities

Source: Data from UNODC field offices; UNODC ARQ.




Several countries in the Americas, notably in Central America and the Caribbean, as well as Brazil, the United States and the Bolivarian Republic of Venezuela, report seizures of crack-cocaine as well as cocaine base or cocaine salts. In 2009, seizures of crack-cocaine amounted to 194 kg in Panama, 163 kg in the United States and 80 kg in the Bolivarian Republic of Venezuela; in 2008, the largest quantity was seized in Brazil (374 kg).[24] In 2009, the largest number of such seizures worldwide were reported by the Dominican Republic (4,173 seizure cases), Canada (1,822) and the Bolivarian Republic of Venezuela (1,643).

## Europe

Europe is the world's second largest consumer market for cocaine and continues to account for the majority of cocaine seizures made outside the Americas. Seizures peaked at 121 mt in 2006, then declined for three years in a row, falling to less than half this level – 57 mt – in 2009. The decreasing trend was observed in the West European countries that account for the biggest seizures in Europe, though several other countries have registered increases.

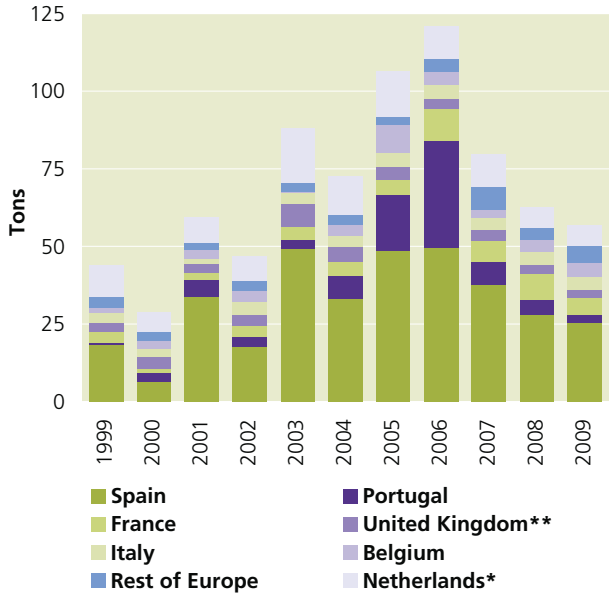
24 A breakdown of cocaine seizures in Brazil for 2009 was not available.

**Fig. 80: Cocaine seizures in Europe (mt), 1999-2009**

* Data for 2009 for the Netherlands were unavailable; the value used is that corresponding to the year 2008, and is only included to estimate the regional total.

** Data for the United Kingdom for 2007, 2008 and 2009 are based on incomplete data for some jurisdictions for the financial years 2007/08, 2008/09 and 2009/10 respectively, and adjusted for the missing jurisdictions using the distribution in 2006/07.

Source: UNODC DELTA.




The Iberian peninsula is an important point of entry for cocaine reaching continental Europe. Spain consistently reports the highest cocaine seizures in Europe, though seizures fell from 50 mt in 2006 to 25 mt in 2009. In neighbouring Portugal, the decrease has been more pronounced, from 34 mt in 2006 (the second largest in Europe for that year) to 2.7 mt in 2009 (the seventh largest). Significant declines have also been registered in the Netherlands, where seizures fell from the peak level of 14.6 mt in 2005 to 6.8 mt in 2008.[25]

In relative terms, seizure trends across Europe in recent years appear to fall broadly along a continuum ranging from strong declines close to the trafficking hubs that serve as the major points of entry or distribution in Europe to strong increases in countries, notably further east, that historically have not been associated with trafficking of cocaine in large amounts. When comparing average seizures over 2005-2006 with 2008-2009, marked declines (in both relative and absolute terms) were registered in Portugal, Spain, Belgium and the Netherlands;[26] more moderate declines were registered in the United Kingdom and France, while seizures were essentially stable in Italy and Germany. On the other hand, increases of more than 30% were observed in several countries further east, including the Russian Federation, Turkey, Poland, Greece, Ukraine and Romania. In Ireland, seizures peaked in 2007, and have also declined significantly since then. This pattern suggests that, while the established trafficking routes for cocaine entering Europe continue to be important, cocaine may be entering Europe along new routes.

Romania reported cocaine seizures of 1.3 mt in 2009; this appears to include a single seizure of 1.2 mt at the port of Constanta, from two containers that arrived from the port city of Paranagua, Brazil in January 2009. The ensuing investigation also led to the seizure of 3.8 mt of cocaine in Paranagua in February 2009, also destined for Romania.[27]

Purity-adjusted cocaine retail prices in West and Central Europe rose markedly in 2006, the year when seizures peaked; this was mainly due to a drop in purity. One possible explanation could be that heightened law enforcement efforts impacted on the availability of cocaine in the European cocaine market, and traffickers responded to this by selling the drug at reduced purities rather than raising the bulk price. Since 2006, the purity has remained relatively low, with adjusted prices. The purity-adjusted price – expressed in euros - declined between 2006 and 2008, and appeared to stabilize in 2009.

When adjusted for inflation, the purity-adjusted retail price in 2009, expressed in euros, was equal to (within 1%) that in 2005, prior to the increase in 2006. While these data need to be interpreted with caution, it is plausible that alternative cocaine trafficking methods and routes adopted by traffickers to counter more effective law enforcement efforts have corrected a short-term drop of cocaine availability in the European market. Moreover, the decline of cocaine prices expressed in euros over the 2006-2008 period went hand in hand with strongly falling value of the US dollar during that period, thus rendering imports, including cocaine imports, cheaper for the consumers.

### Africa

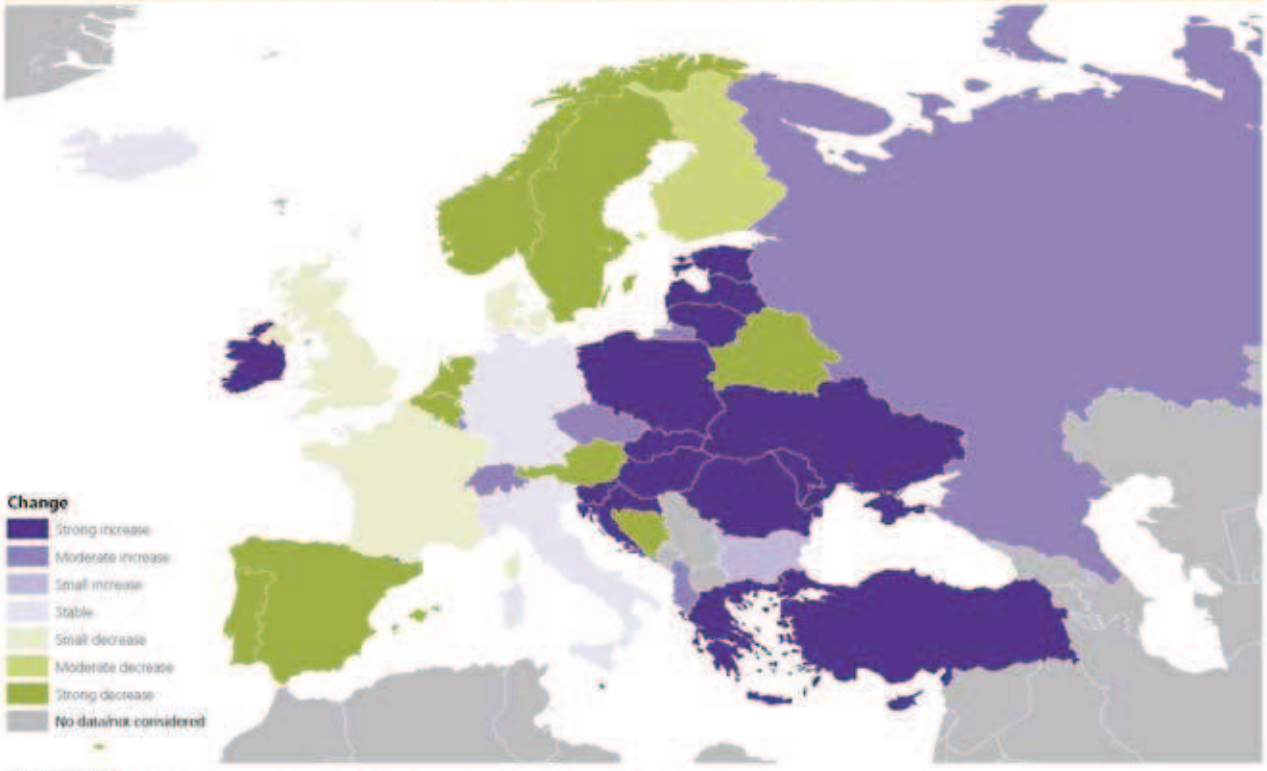
Cocaine seizures remained limited in Africa, amounting to less than 1 mt in 2009, down from 2.6 mt in 2008 and 5.5 mt in 2007. Although this quantity is very small in comparison with the quantities likely to be trafficked in and via Africa, seizure data from other regions also point to a decreasing trend for Africa, notably West Africa, for cocaine trafficking from South America to Europe. Nevertheless, cocaine trafficking in West Africa persisted, and Africa, especially West Africa, remained vulnerable to a resurgence. Benin, Burkina Faso, Ethiopia, the Gambia, Ghana, Guinea, Guinea-Bissau, Kenya, Mali, Niger, Nigeria, Senegal, South Africa and Togo

25 Seizure data for the Netherlands for 2009 were not available.

26 Considering data for 2008 only for the Netherlands.

27 Embassy of the United States to Romania, *DEA and Romanian Police work together in stopping second cocaine shipment from Brazil to Romania*, press release, 9 February 2009.

**Map 20: Cocaine seizure trends in Europe, average of 2008-2009 compared to average of 2005-2006**




Source: UNODC - DELTA
Note: The boundaries and names shown and the designations used on this map do not imply official endorsement or acceptance by the United Nations.

were all mentioned as transit countries[28] for cocaine trafficking in 2008 or 2009.

In 2008, the largest annual seizures of cocaine in Africa were registered by Ghana (841 kg), Sierra Leone (703 kg[29]), Togo (393 kg, falling to 34 kg in 2009), Nigeria (365 kg, rising to 392 kg in 2009) and South Africa (156 kg, rising to 234 kg in 2009). On January 29, 2009, 230 kg of cocaine were seized by South African authorities on a vessel at Durban harbour.[30] In 2009, significant quantities – by African standards - were also seized in Angola, Senegal, Egypt and Morocco. In 2009, Senegal accounted for more than half (30) of cocaine seizure cases in Africa recorded in the WCO Customs Enforcement Network database. These customs seizures amounted to a total of 65 kg. The situation was different a year later. In 2010, 2.1 mt of cocaine were seized as part of an operation in the Gambia.[31]

One factor contributing to the declining cocaine seizures in Africa may be the diversification of trafficking routes and methods, possibly in response to law enforcement efforts but also as a way of exploring new markets. Togo reported the emergence of new cocaine trafficking routes to Europe in 2009. Nigerian authorities estimated that half of the cocaine trafficked via its territory in 2009 might have been intended for the United States. This is possibly a reaction to the apparent shortage of cocaine on the US cocaine market, which is providing traffickers with incentives to look for alternative routes. Some reports also suggested a link between East and West Africa in cocaine trafficking. Swaziland reported an increase in cocaine trafficking in 2009.

Cocaine is also trafficked directly from South America to South Africa, a country with a sizeable consumer market for this drug. South Africa assessed that, in 2008 and again in 2009, 40% of cocaine trafficked on its territory was intended for Europe, and the remainder for its domestic market. South Africa was also mentioned as a transit country for cocaine reaching several other African countries in 2009. According to Angolan authorities,[32] cocaine usually reached Angola by air from Brazil via South Africa, Namibia and the Democratic Republic of the Congo.

28 This includes references to African countries as countries of 'origin,' which likely refers to the origin of the trafficked drug as far back as it could be traced by the reporting country, rather than the country of manufacture.

29 This quantity was seized from a plane in July 2008, in a single case. (Country report by Sierra Leone to the Nineteenth Meeting of Heads of National Drug Law Enforcement Agencies, Africa.)

30 Country report by South Africa to the Fifteenth Asia-Pacific Operational Drug Enforcement Conference, Japan, 2-5 February 2010. The 2009 ARQ from South Africa was not available at the time of preparation of the present report.

31 EUROPOL, quoted in *European Cocaine Situation*, presentation at the Conference on combating the threat of illicit drugs and strengthening control of precursor chemicals, Vienna, 8-9 July 2010.

32 Country report by Angola to the Nineteenth Meeting of Heads of National Drug Law Enforcement Agencies, Africa.

**Fig. 81: Cocaine prices and purity in West and Central Europe, 2003-2009**

Source: UNODC ARQ.

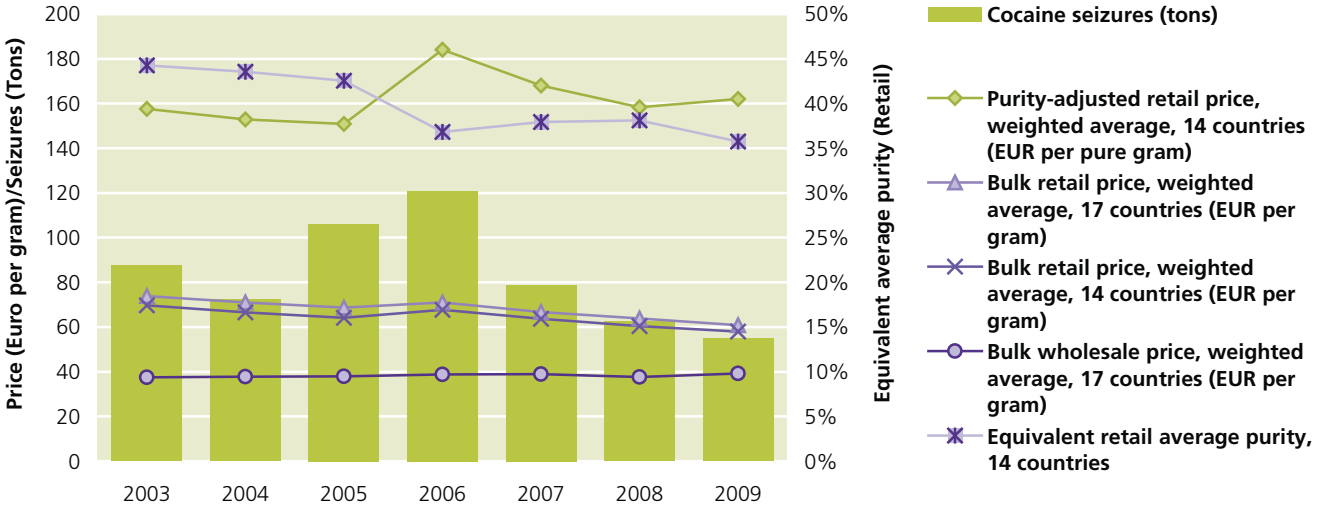
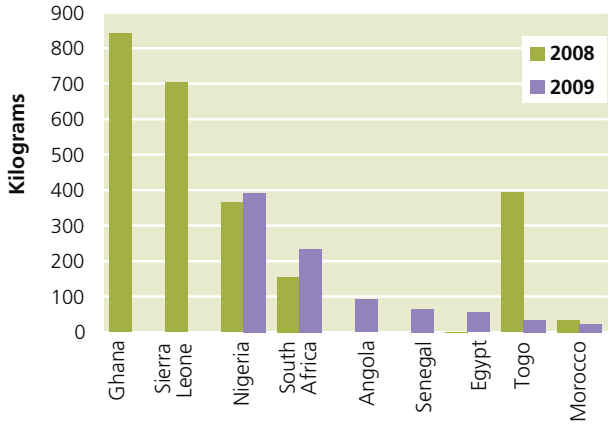



**Fig. 82: Cocaine seizures in selected countries in Africa (kg), 2008-2009**

Source: UNODC DELTA.




## The Asia-Pacific

The Asia-Pacific region continued to account for less than 1% of global cocaine seizures. However, there were signs that cocaine trafficking might be making inroads into new consumer markets. Seizures in the Asia-Pacific reached a record 1.6 mt in 2008, and stood at 766 kg in 2009.

In Australia, seizures rose from 626 kg in 2007 to 930 kg in 2008. In 2009, seizures in this country fell to 288 kg, but in 2010, two large seizure cases alone brought the partial total to more than 700 kg.[33] With reference to the period 1 July 2008 to 30 June 2009, Australia reported that nearly 70% of cocaine detections (by number) occurred in the postal stream, and that Mexico, Colombia, Panama, Argentina, Canada, the United States, Brazil, the United Arab Emirates, Singapore, South Africa, the Plurinational State of Bolivia, Kenya and the Netherlands were all embarkation countries for the import of cocaine consignments larger than 1 kg. Moreover, Australia pointed to a possible shift away from imports of small quantities of cocaine.

In 2008 seizures rose to 664 kg [34] in China, including the 69 kg that were seized in Hong Kong, China and the 64 kg[35] in Taiwan Province of China. In 2009, China reported seizures of 163 kg, including 112 kg in Hong Kong, China. According to Chinese authorities, cocaine was mainly smuggled from South America across the Pacific ocean to cities on China's south-east coast.[36]

In 2009, the Philippines registered a record level of cocaine seizures of 259 kg; in contrast, seizures in this country amounted to less than 3 kg annually over the period 2003-2008. The increase was partly due to a large quantity of cocaine that was jettisoned in December 2009 close to the Eastern Samar province from a vessel on its way from South America to China. Two other significant cases resulted in the seizure of a total of 15.5 kg of cocaine in the Port of Davao. The Philippines assessed that 30% of the total reached the Philippines via Germany, and an additional 30% via Malaysia, and that the cocaine was intended for China (40% was intended for Hong Kong, China).

33 Australian Federal Police, *Drug syndicate smashed, 464 kg of cocaine seized*, media release, 14 October 2010.

34 UNODC, data collated by DAINAP,

35 Food and Drug Administration of Taiwan Province of China

36 National Narcotics Control Commission of China, presentation at the Twentieth Anti-Drug Liaison Officials' Meeting for International Cooperation (ADLOMICO), October 2010

## Table 25: Cocaine prices in Europe and the United States (not purity adjusted), 1990-2009

**Retail price (street price), US$/gram**

| EUROPE | 1990 | 1991 | 1992 | 1993 | 1994 | 1995 | 1996 | 1997 | 1998 | 1999 | 2000 | 2001 | 2002 | 2003 | 2004 | 2005 | 2006 | 2007 | 2008 | 2009 |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Austria | 198 | *180* | 167 | 120 | 126 | 156 | 138 | 118 | 113 | 93 | 94 | 78 | 71 | 90 | 103 | 101 | 78 | 99 | 110 | 97 |
| Belgium | *80* | 90 | 68 | 95 | 82 | 93 | 90 | 57 | 55 | 60 | 55 | 51 | 50 | 51 | *51* | *51* | 60 | 67 | 72 | 71 |
| Denmark | 144 | 135 | 111 | 90 | *150* | 176 | 169 | 108 | 119 | 165 | 106 | 120 | 91 | 122 | 82 | 82 | 81 | 74 | 99 | 93 |
| Finland | *159* | *150* | *126* | *105* | *165* | *191* | *184* | *123* | 179 | *157* | *138* | 121 | 111 | 151 | 146 | 125 | 100 | 110 | 154 | 139 |
| France | 99 | 119 | 140 | 153 | 151 | 174 | 125 | 87 | 84 | 82 | 50 | 87 | 75 | 90 | 99 | 94 | 97 | 96 | 103 | 83 |
| Germany | 120 | 103 | 111 | 95 | 109 | 103 | 90 | 77 | 72 | 68 | 57 | 58 | 57 | 68 | *73* | 79 | 74 | 86 | 91 | 87 |
| Greece | *150* | *120* | 105 | 54 | 116 | 111 | 144 | 91 | 54 | 82 | 69 | 72 | 75 | 96 | 93 | 79 | 110 | 110 | 110 | 104 |
| Ireland | *141* | *137* | *120* | *110* | *100* | 119 | 32 | 34 | 32 | 30 | *28* | *28* | *94* | 79 | 87 | 88 | 88 | 96 | 103 | 97 |
| Italy | 108 | 120 | 164 | 90 | 104 | 113 | 129 | 109 | 129 | *135* | *100* | 89 | 90 | 101 | 113 | 114 | 104 | 112 | 111 | 99 |
| Luxembourg | *150* | *150* | *150* | *150* | 172 | 194 | 127 | 115 | 110 | 119 | *119* | 119 | *107* | 96 | 114 | 105 | 106 | 89 | *89* | *89* |
| Netherlands | 66 | *70* | 74 | 66 | *60* | 79 | 52 | 64 | 38 | 33 | *33* | *33* | *33* | 50 | *59* | *59* | *60* | 59 | 63 | *63* |
| Norway | 176 | 170 | 255 | 156 | 145 | *150* | 153 | 177 | 133 | 128 | 114 | 157 | 165 | 170 | 155 | *155* | *151* | 164 | 154 | *154* |
| Portugal | 63 | 57 | 60 | 57 | 59 | 66 | 64 | 57 | 51 | 43 | 56 | 48 | 36 | 47 | 49 | 55 | 56 | 55 | 66 | 66 |
| Spain | 110 | 100 | 100 | 63 | 78 | 91 | 72 | 68 | 68 | 63 | 52 | 52 | 56 | 70 | 76 | 76 | 76 | 83 | 89 | 83 |
| Sweden | *160* | *152* | *183* | *123* | *148* | 118 | 118 | 98 | 88 | 97 | 77 | 79 | 87 | 99 | 93 | 92 | *101* | 96 | 138 | 104 |
| Switzerland | 178 | 144 | 188 | 136 | 146 | 148 | 127 | 117 | 110 | *109* | 77 | 69 | 74 | 89 | *86* | *86* | *74* | 75 | 65 | 82 |
| United Kingdom | 131 | 127 | 69 | 123 | 113 | 111 | 102 | 124 | 128 | 104 | 94 | 94 | 84 | 90 | 91 | 79 | *87* | 91 | 74 | 62 |
| Unweighted average, US$ | 131 | 125 | 129 | 105 | 119 | 129 | 113 | 95 | 92 | 92 | 78 | *80* | 80 | 92 | 92 | 89 | 88 | 92 | 99 | 93 |
| **Inflation adjusted, 2009 US$** | **215** | **197** | **197** | **156** | **172** | **181** | **154** | **128** | **121** | **119** | **97** | **96** | **95** | **107** | **105** | **98** | **94** | **95** | **99** | **93** |
| Weighted average, US$ | 117 | 115 | 118 | 104 | 112 | 118 | 105 | 92 | 92 | 88 | 70 | 74 | 72 | 84 | 88 | 86 | 86 | 91 | 94 | 85 |
| **Inflation adjusted, 2009 US$** | **192** | **180** | **180** | **154** | **162** | **166** | **144** | **123** | **121** | **113** | **88** | **90** | **85** | **97** | **100** | **95** | **91** | **95** | **94** | **85** |
| Weighted average in Euro | 92 | 92 | 91 | 88 | 94 | 91 | 83 | 81 | 82 | 82 | 76 | 83 | 76 | 74 | 71 | 69 | 71 | 67 | 64 | 61 |
| **Inflation adjusted, 2009 Euro** | **144** | **138** | **130** | **122** | **126** | **119** | **106** | **102** | **102** | **101** | **92** | **98** | **87** | **83** | **78** | **74** | **75** | **69** | **64** | **61** |

Sources: UNODC ARQ data and EUROPOL; UNODC estimates in italics

| USA | 1990 | 1991 | 1992 | 1993 | 1994 | 1995 | 1996 | 1997 | 1998 | 1999 | 2000 | 2001 | 2002 | 2003 | 2004 | 2005 | 2006 | 2007 | 2008 | 2009 |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Street price in US$ | 97 | 93 | 81 | 84 | 79 | 91 | 91 | 81 | 81 | 81 | 96 | 96 | 83 | 90 | 84 | 85 | 94 | 104 | 119 | 120 |
| **Inflation adjusted, 2009 US$** | **159** | **147** | **123** | **125** | **115** | **128** | **124** | **108** | **106** | **104** | **119** | **116** | **99** | **105** | **96** | **93** | **100** | **107** | **118** | **120** |
| Purity adjusted | **167** | **148** | **120** | **122** | **119** | **149** | **124** | **125** | **117** | **125** | **155** | **166** | **119** | **131** | **122** | **124** | **127** | **157** | **215** | **237** |
| **Purity and inflation adjusted, 2009$** | **274** | **233** | **184** | **181** | **172** | **209** | **170** | **167** | **154** | **161** | **193** | **201** | **142** | **153** | **139** | **137** | **135** | **163** | **214** | **237** |

Sources: for 1990-2006, ONDCP, National Drug Control Strategy Data Supplement 2010; for 2007-2009, UNODC estimates based on ARQ (STRIDE data) and prices for 2006.

**Wholesale price, US$/kg**

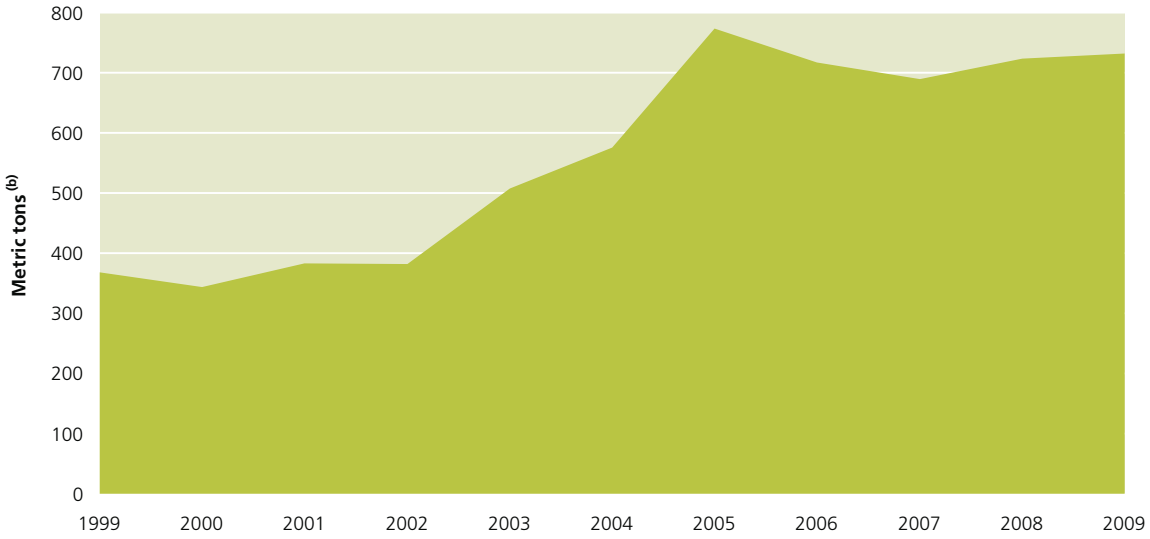
| EUROPE | 1990 | 1991 | 1992 | 1993 | 1994 | 1995 | 1996 | 1997 | 1998 | 1999 | 2000 | 2001 | 2002 | 2003 | 2004 | 2005 | 2006 | 2007 | 2008 | 2009 |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Austria | *66,000* | *66,000* | 54,000 | 40,000 | 41,946 | 52,084 | 45,875 | 56,723 | 54,440 | 38,859 | 47,094 | 43,995 | 42,385 | 59,300 | 55,894 | 59,757 | 50,185 | 61,661 | 66,176 | 48,668 |
| Belgium | *25,000* | 24,000 | 38,250 | 28,000 | 26,920 | 30,560 | 21,927 | 17,025 | 19,167 | 23,859 | 22,376 | 26,771 | 28,111 | 29,610 | 32,480 | *32,480* | *32,480* | 47,958 | 53,757 | 46,675 |
| Denmark | *80,000* | 85,000 | 85,000 | 82,500 | 58,516 | 60,034 | 46,141 | 38,640 | 44,517 | 78,900 | 43,462 | 47,839 | 37,823 | 53,160 | 45,896 | 50,321 | 40,520 | 40,445 | 43,447 | 40,730 |
| Finland | *79,500* | 75,000 | *62,750* | *52,500* | *82,500* | *95,450* | *91,750* | *61,550* | *89,350* | *78,460* | *68,321* | *59,492* | *51,804* | 62,150 | 68,315 | *68,315* | *56,611* | 61,660 | 66,176 | *62,573* |
| France | 117,000 | 38,250 | 45,000 | 38,250 | 40,000 | 39,877 | 48,077 | 43,554 | 42,159 | 27,714 | *27,000* | 34,978 | 37,676 | 45,200 | 49,683 | 50,321 | 50,190 | 61,661 | 44,118 | 41,715 |
| Germany | 69,000 | 53,100 | 60,300 | 54,142 | 57,692 | 54,676 | 53,925 | 45,294 | 41,210 | 39,639 | 33,752 | 33,235 | 34,476 | 40,110 | 44,243 | 46,525 | 45,320 | 48,826 | 54,114 | 57,171 |
| Greece | *75,000* | *90,000* | 95,000 | 36,000 | 46,413 | 53,098 | 72,015 | 43,795 | 49,180 | 49,320 | 41,237 | 40,359 | 42,385 | 53,680 | 57,446 | 62,902 | 62,735 | 62,735 | 69,853 | 63,964 |
| Ireland | 45,000 | *45,000* | *40,000* | *50,000* | *45,000* | *42,000* | 31,646 | 33,733 | 31,530 | 29,891 | *29,891* | *29,891* | *29,891* | 30,510 | *38,557* | *38,506* | *39,636* | 41107 | 44,118 | 36,161 |
| Italy | 54,000 | 48,000 | 94,000 | 41,935 | 51,097 | 51,455 | 55,633 | 50,629 | 49,091 | 47,250 | *46,000* | 40,529 | 41,412 | 47,440 | 51,759 | 52,188 | 52,920 | 56,029 | 63,514 | 57,153 |
| Luxembourg | *93,919* | 95,939 | 113,521 | 50,847 | 157,593 | 141,343 | 47,625 | 43,103 | 41,072 | 47,718 | *47,718* | *47,718* | *47,718* | *47,718* | 31,052 | 31,450 | *31,450* | 31,451 | *31,451* | *31,451* |
| Netherlands | 26,500 | *28,000* | 29,500 | 26,500 | 24,680 | 33,232 | 23,894 | 29,698 | 22,355 | 27,500 | *27,500* | *27,500* | *27,500* | 27,400 | 33,775 | *33,775* | *35,000* | 42,409 | 46,691 | *46,691* |
| Norway | 120,000 | *120,000* | 127,500 | *110,000* | 39,971 | *50,000* | 41,670 | 60,028 | 81,699 | 57,545 | 51,417 | 51,569 | 54,159 | 56,500 | 65,209 | *65,209* | *56,400* | 61,661 | 51,471 | *51,471* |
| Portugal | 39,500 | 39,285 | 33,000 | 27,000 | 27,950 | 34,483 | 42,591 | 37,908 | 33,447 | 30,000 | *28,000* | 29,080 | *31,046* | 32,410 | 36,399 | *36,399* | *31,365* | 34,256 | 44,118 | *41,716* |
| Spain | 65,000 | 60,000 | 55,000 | 35,000 | 36,434 | 41,322 | 38,760 | 36,806 | 38,924 | 38,898 | 30,882 | 38,898 | 31,511 | 38,830 | 42,167 | 41,321 | 41,210 | 46,274 | 48,709 | 45,941 |
| Sweden | *80,000* | *85,000* | *91,375* | *61,450* | *73,825* | 55,556 | 59,255 | 45,573 | 50,484 | 48,508 | 38,394 | 34,693 | 35,763 | 43,130 | 39,560 | 40,068 | *39,270* | 51,883 | 72,844 | 45,459 |
| Switzerland | 63,900 | 94,250 | 116,250 | 50,847 | 72,012 | 75,949 | 51,587 | 40,780 | 41,152 | *41,000* | 35,482 | 23,392 | 19,274 | 37,230 | 44,008 | *44,008* | *41,090* | 44,351 | 49,307 | *50,379* |
| United Kingdom | 47,850 | 46,475 | 20,625 | 43,210 | *45,000* | 46,774 | 40,625 | 47,500 | 47,500 | 33,981 | 38,168 | 36,008 | 35,848 | 40,880 | 50,036 | *50,036* | *50,943* | 60,362 | 64,682 | 76,963 |
| Average unweighted | 67,481 | 64,312 | 68,298 | 48,717 | 54,562 | 56,347 | 47,823 | 43,079 | 45,722 | 43,473 | 38,629 | 37,997 | 36,987 | 43,839 | 46,263 | 47,270 | 44,549 | 50,278 | 53,797 | 49,699 |
| **Inflation adjusted, 2009 US$** | **110,766** | **101,301** | **104,437** | **72,329** | **78,985** | **79,320** | **65,391** | **57,582** | **60,179** | **55,982** | **48,126** | **46,029** | **44,108** | **51,114** | **52,542** | **51,926** | **47,407** | **52,023** | **53,605** | **49,699** |
| Weighted average, US$ | 67,639 | 51,835 | 57,493 | 44,032 | 47,117 | 48,204 | 47,823 | 44,011 | 43,456 | 38,510 | 35,592 | 36,089 | 35,941 | 42,308 | 46,898 | 47,739 | 46,963 | 53,390 | 55,261 | 54,577 |
| Weighted average, US$ per gram | 68 | 52 | 57 | 44 | 47 | 48 | 48 | 44 | 43 | 39 | 36 | 36 | 36 | 42 | 47 | 48 | 47 | 53 | 55 | 55 |
| **Inflation adjusted, 2009 US$** | **111,026** | **81,648** | **87,915** | **65,373** | **68,208** | **67,858** | **65,391** | **58,829** | **57,195** | **49,591** | **44,343** | **43,718** | **42,861** | **49,330** | **53,262** | **52,442** | **49,977** | **55,242** | **55,065** | **54,577** |
| **Inflation adjusted, 2009 US$/gram** | **111** | **82** | **88** | **65** | **68** | **68** | **65** | **59** | **57** | **50** | **44** | **44** | **43** | **49** | **53** | **52** | **50** | **55** | **55** | **55** |
| **Weighted average,Euro/gram** | **53** | **42** | **44** | **38** | **40** | **37** | **38** | **39** | **39** | **36** | **38** | **40** | **38** | **37** | **38** | **38** | **39** | **39** | **38** | **39** |
| **Inflation adjusted, 2009 Euro/gram** | **83.1** | **62.2** | **63.4** | **52.0** | **53.3** | **48.4** | **48.4** | **48.6** | **48.3** | **44.3** | **46.3** | **47.4** | **43.9** | **42.2** | **41.7** | **41.0** | **41.1** | **40.4** | **37.7** | **39.2** |

Sources: UNODC ARQ, EUROPOL; UNODC estimates in *italics*

| | 1990 | 1991 | 1992 | 1993 | 1994 | 1995 | 1996 | 1997 | 1998 | 1999 | 2000 | 2001 | 2002 | 2003 | 2004 | 2005 | 2006 | 2007 | 2008 | 2009 |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| US wholesale price | 34 | 32 | 31 | 29 | 27 | 28 | 27 | 28 | 25 | 25 | 26 | 24 | 24 | 24 | 24 | 24 | 23 | 23 | 26 | 27 |
| Purity-adjusted | 52 | 42 | 41 | 39 | 36 | 41 | 37 | 41 | 35 | 40 | 46 | 44 | 41 | 38 | 37 | 34 | 31 | 37 | 53 | 57 |
| **Inflation and purity adjusted, 2009 dollars** | **85** | **66** | **62** | **59** | **51** | **57** | **50** | **54** | **46** | **52** | **57** | **53** | **49** | **44** | **42** | **38** | **33** | **39** | **53** | **57** |

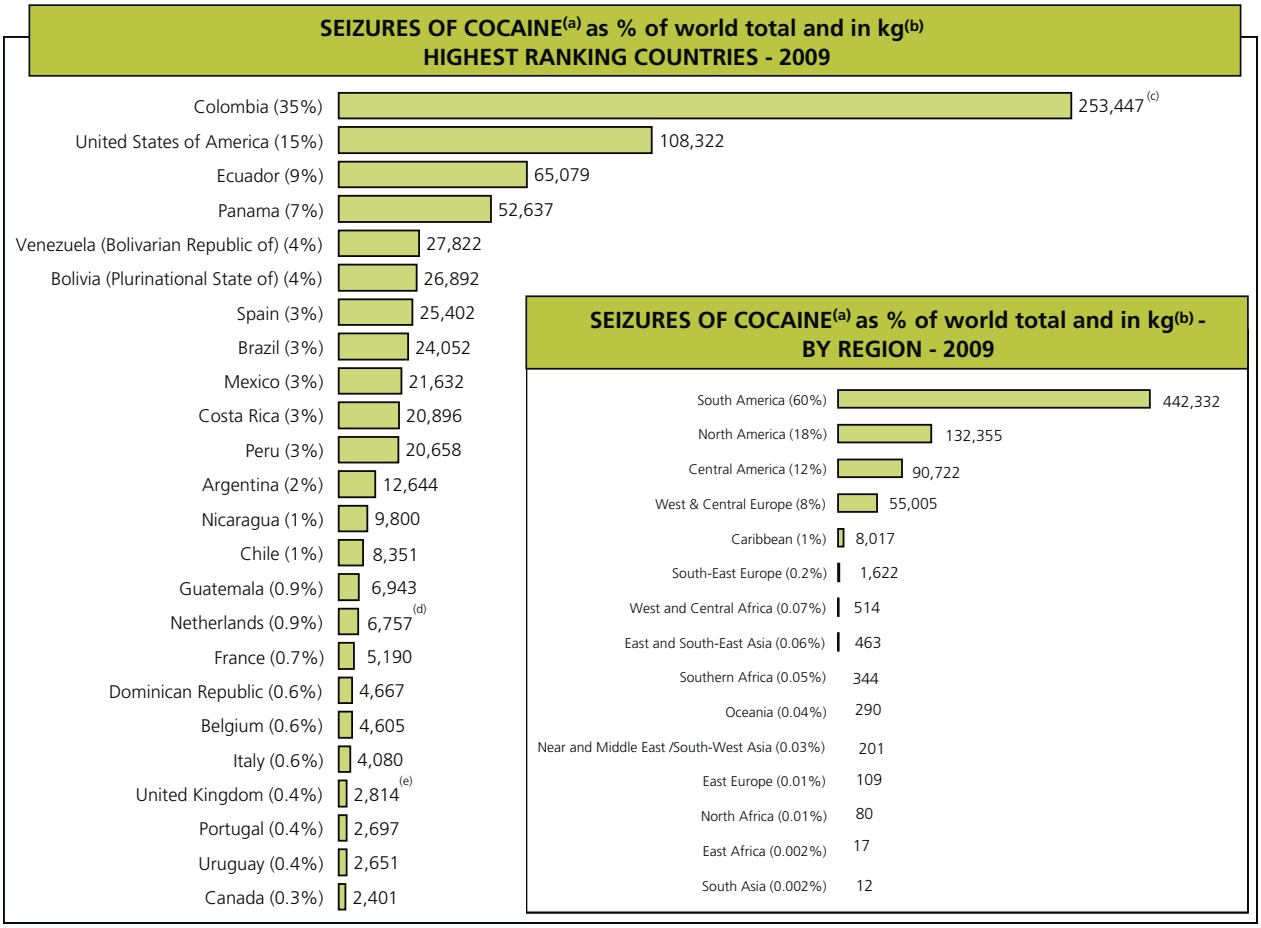
Source: ONDCP, transactions in excess of 50 grams, based on Expected Purity Hypothesis

## Fig. 83: Global seizures of cocaine[a], 1999-2009




[a] Includes cocaine HCl, cocaine base and crack-cocaine

[b] Seizures as reported (no adjustment for purity).




[a] Includes cocaine HCl, cocaine base and crack-cocaine.

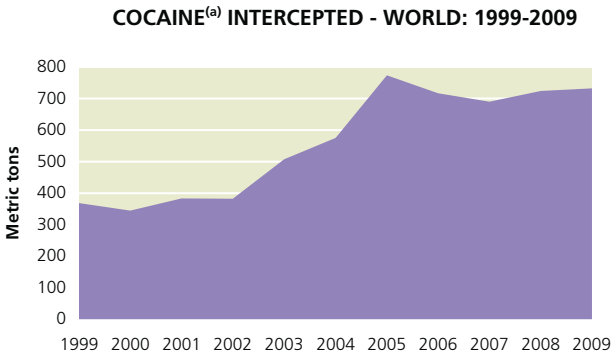
[b] Seizures as reported (no adjustment for purity).

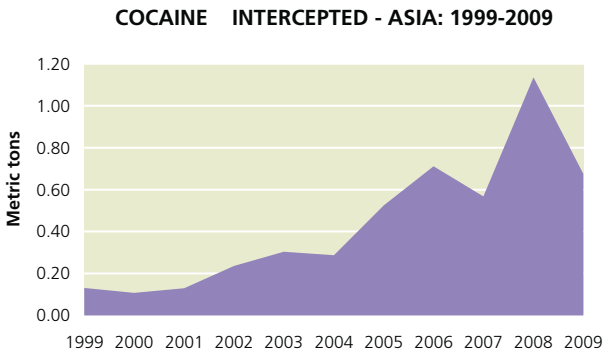
[c] Excluding 1.9 tons of "basuco".

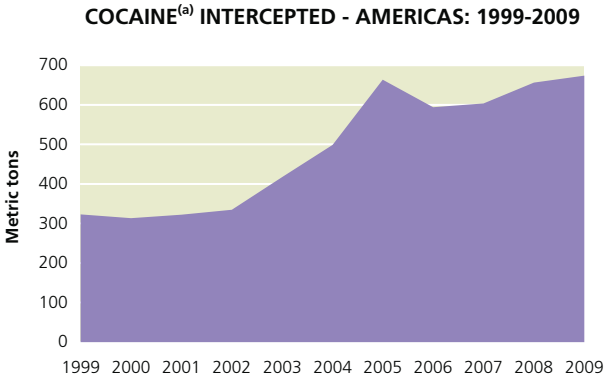
[d] Data relative to 2008. Data for 2009 from the Netherlands were not available.

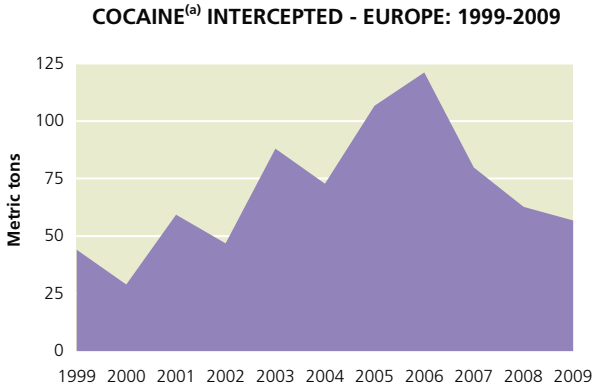
[e] Data for the United Kingdom for 2009 are based on incomplete data for some jurisdictions for the financial year 2009/10, and adjusted for the missing jurisdictions using the latest available complete distribution (relative to the financial year 2006/07).

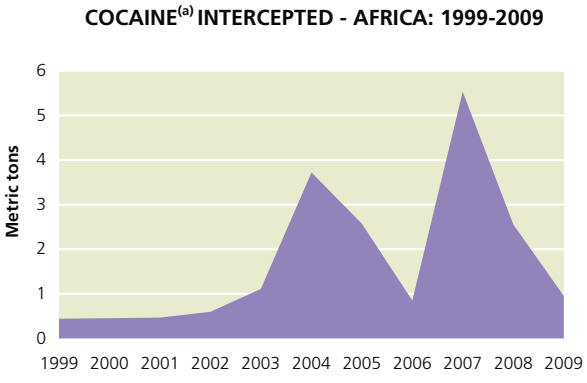
## Fig. 84: Global seizures of cocaine, 1999-2009

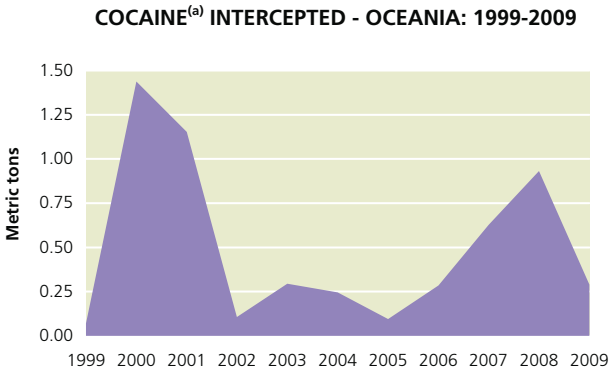


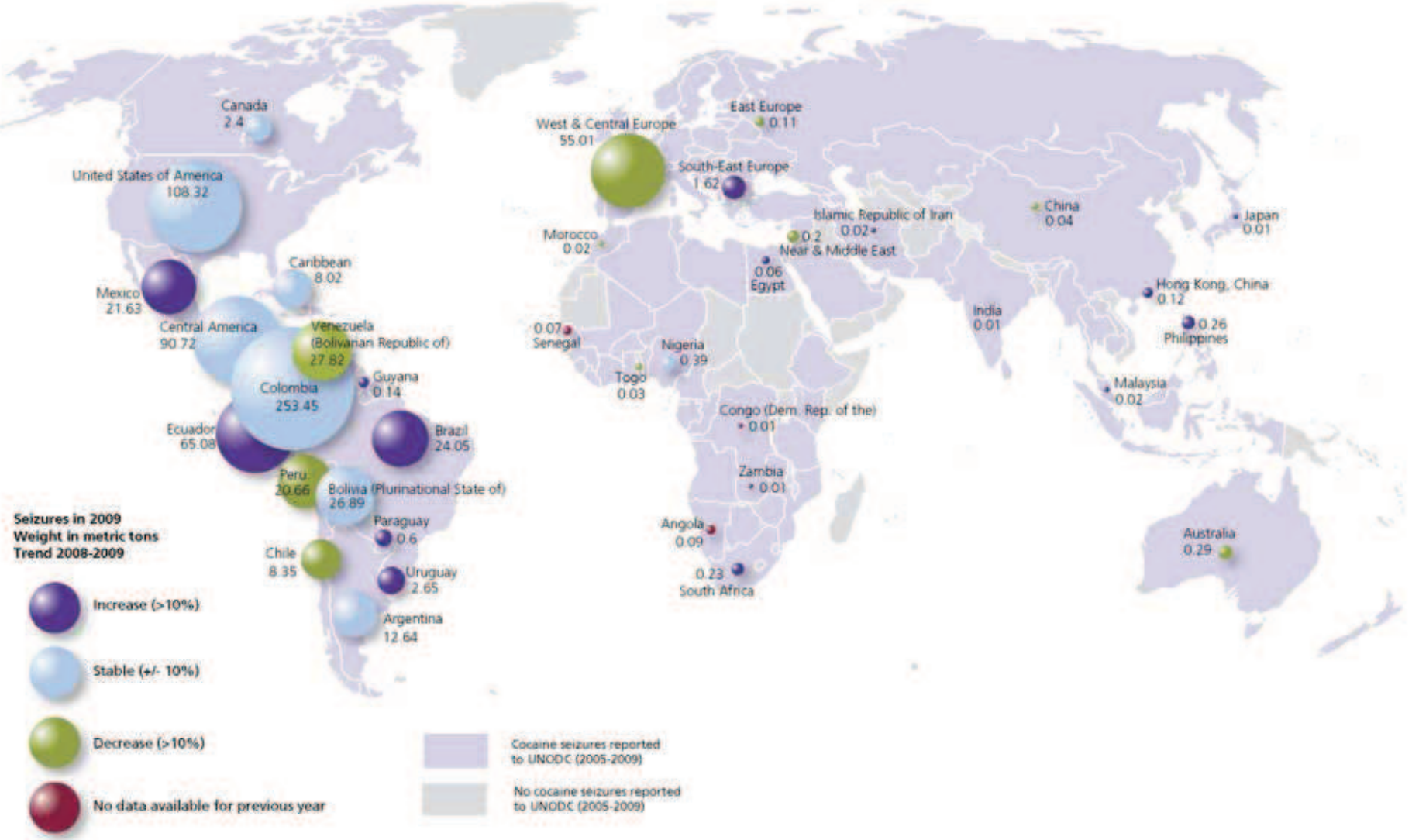




[a] Includes cocaine HCl, cocaine base and crack-cocaine

## Map 21: Seizures of cocaine, 2009 (countries and territories reporting seizures of more than 10 kg)




* Seizures as reported (no adjustments made for purity). Includes cocaine base, cocaine hydrochloride and crack-cocaine.
Source: UNODC Annual Reports Questionnaires data supplemented by other sources
Note: The boundaries and names shown and the designations used on this map do not imply official endorsement or acceptance by the United Nations.

## 3.5 Market analysis

Transnational cocaine trafficking has been affecting the Americas for the last 40 years. The size of the United States' market – the single largest cocaine market for decades – has been shrinking in recent years, mainly due to a reduction of the cocaine flows from Mexico to the United States. The massive decline of the US cocaine market has been partly offset by a rise of cocaine use in new destination markets (mainly in areas with above average purchasing power) and countries caught in the transit flow. Cocaine trafficking and use have started to affect countries in the Oceania region (already showing high annual cocaine use prevalence rates by international standards), countries in western and southern Africa affected by the transit flow, and in some parts of Asia (some countries in the Near and Middle East as well as some emerging pockets in a few countries in the Far East).

The most developed cocaine market outside of the Americas continues to be Europe, notably West and Central Europe. Cocaine use in East Europe, in contrast, is still limited. The volume of cocaine consumed in Europe has doubled over the last decade, even though data for the last few years show signs of stabilization at the higher levels.

While European law enforcement agencies have increased their efforts, traffickers continue to innovate, seeking novel ways of getting their product to the consumer. Around 2004, South American traffickers began to experiment with some new trafficking routes via West Africa. In a few years, they managed to undermine security and sow high-level corruption in a number of West African states. Recognizing the threat, the international community undertook a variety of interventions to address this flow. The novelty aspect was lost, the political instability proved self-defeating, and some very large seizures were made. By 2008, there was a remarkable decline in the number of both large maritime seizures and the number of cocaine couriers detected flying from West Africa to Europe. Criminal intelligence work indicates that the flow may have declined, but it did not stop. This raises the possibility that traffickers had simply modified their techniques, finding new methods for bringing cocaine to Europe, including through West Africa, without detection. Statistical data support this scenario: European cocaine seizures decreased from 121 mt in 2006 to 57 mt in 2009. But demand has not dropped by half during this period. Some (but not all) of the decline may be explained by improved upstream interception efforts as a result of improved sharing of intelligence with counterparts in South America.[37]

**Cocaine consumption estimates**

One of the most challenging tasks is to transform estimates on the number of cocaine users into quantities of cocaine consumed. Information on per capita use is still limited (a few studies conducted in North America, South America, Europe and Australia) and any calculated results must be treated with caution (and results are subject to change, whenever more reliable information becomes available). The best reading of existing data and estimates suggests that some 440 mt of pure cocaine were consumed in 2009. This would be in line with a production estimate of some 1,111 mt of cocaine, wholesale purity-adjusted seizures of 615 mt and global losses of some 55 mt (5% of production).

Of the 440 mt available for consumption, around 63% were consumed in the Americas, 29% in Europe, 5% in Africa, 3% in Asia and less than 1% in Oceania. The largest subregional markets were found in North America (close to 180 mt or 41% of the total), West and Central Europe (123 mt or 28%) and South America (85 mt or 19%). These three subregions account for 63% of global cocaine consumption. The single largest cocaine market – despite strong declines in recent years - continues to be the United States of America, with an estimated consumption of 157 mt of cocaine, equivalent to 36% of global consumption, which is still higher than the cocaine consumption of West and Central Europe.

Cocaine consumption in volume terms appears to have declined by more than 40% over the 1999-2009 period in the United States to some 157 mt (range: 133-211 mt), with most of the decline (more than a third) having taken place between 2006 and 2009. As compared to estimates for 1989, cocaine consumption in the United States seems to be now some 70% lower (range: -63% to -77%), in parts reflecting the increase in treatment and successes in prevention, while the latest decline over the 2006-2009 period was attributed more to reduced supply.

37 UNODC, *The Transnational Cocaine Market*, April 2011.

## Fig. 85: Estimates of the amounts of cocaine consumed, by region, subregion and globally, 2009

Source: UNODC estimates based on ARQ data and the 2005 World Drug Report, as well as updates based on selected scientific studies.

| Region/subregion | Best estimates | | | | |
|---|---|---|---|---|---|
| | Users | | Per capita use | Consumption | |
| | in million | in % of total | grams per year | in metric tons | in % of total |
| **Americas** | 8.4 | 54% | 32.6 | 275 | 63% |
| *of which* | | | | | |
| South America | 2.4 | 15% | 35.0 | 85 | 19% |
| Central America | 0.1 | 1% | 35.0 | 5 | 1% |
| Caribbean | 0.1 | 1% | 35.0 | 6 | 1% |
| North America | 5.7 | 36% | 31.5 | 179 | 41% |
| **Europe** | 4.5 | 29% | 28.4 | 129 | 29% |
| *of which* | | | | | |
| West and Central Europe | 4.1 | 26% | 30.3 | 123 | 28% |
| East and South-East Europe | 0.5 | 3% | 12.3 | 6 | 1% |
| **Africa** | 1.7* | 11% | 12.0 | 21 | 5% |
| *of which* | | | | | |
| West and Central Africa | 1.1 | 7% | 12.0 | 13 | 3% |
| Southern Africa | 0.3 | 2% | 12.0 | 4 | 1% |
| North Africa | < 0.1 | <1% | 12.0 | < 1 | < 1% |
| East Africa | 0.2 | 1% | 12.0 | 3 | < 1% |
| **Asia** | 0.7* | 4% | 20.0 | 14 | 3% |
| **Oceania** | 0.3 | 2% | 7.3 | 2 | < 1% |
| **Total** | **15.6*** | **100%** | **28.1** | **440** | **100%** |

* Given the uncertainty of data from Asia and Africa, for the purpose of consumption estimates, a lower level of cocaine use is assumed for these regions.

## Fig. 86: Estimates of cocaine consumption in the United States (mt), 1988-2009

Source: UNODC, *World Drug Report 2010* and UNODC update for 2009.

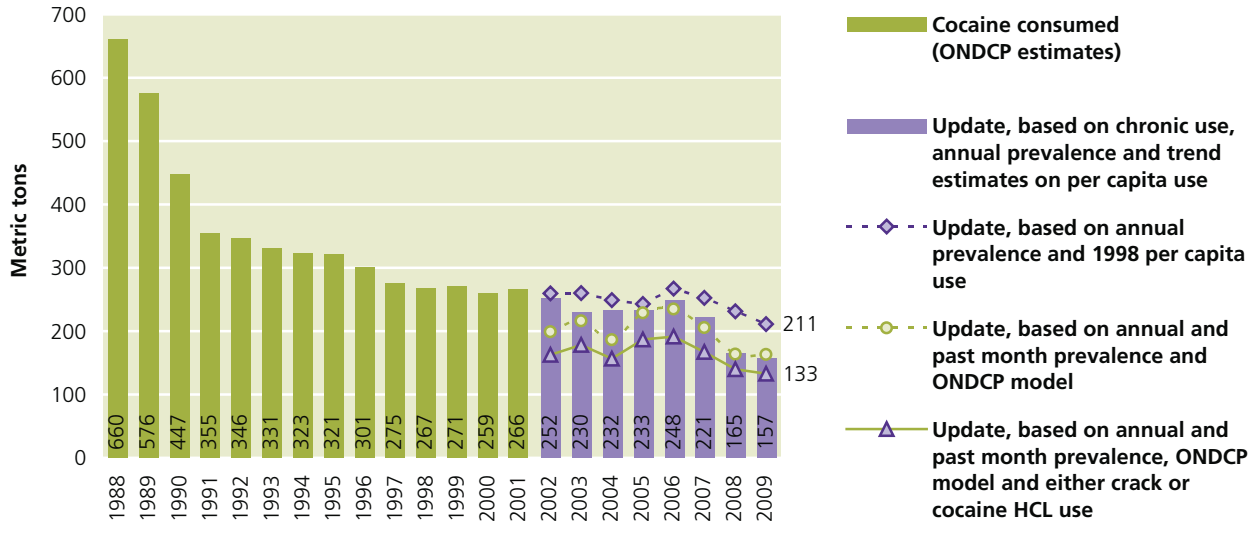
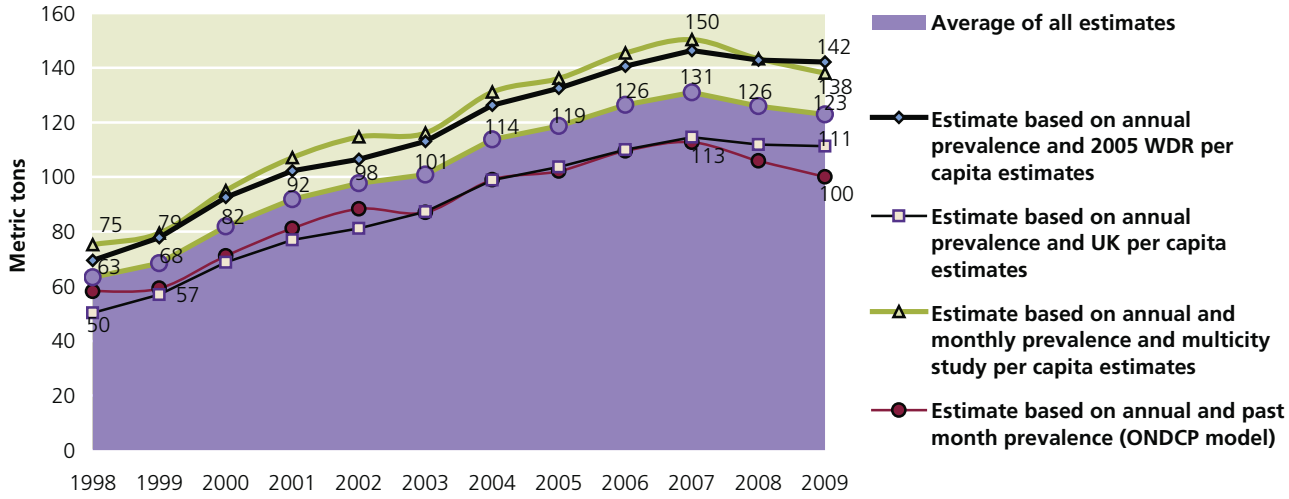


**Fig. 87: Estimates of cocaine consumption in the EU and EFTA countries (mt), 1998-2009**

Source: UNODC ARQ; Government reports; UNODC, *World Drug Report 2010*; EMCDDA, *Statistical Bulletin 2009*.




The opposite trend has been observed in Europe. Cocaine consumption in the EU and EFTA countries is estimated to have almost doubled, from 68 mt in 1999 (range: 57-79 mt) to 123 mt in 2009 (range: 100-142 mt). Between 2006 and 2009, cocaine consumption stabilized, and between 2007 and 2009, it may have slightly declined.

### Evolution of trafficking flows

These shifts in demand have also had an impact on the nature of transnational cocaine trafficking. In the late 1990s, the bulk of the world's cocaine was shipped to the United States, increasingly controlled by Mexican groups. The Caribbean, which was the preferred transit zone when the Colombian cartels dominated the market, saw decreased trafficking as a growing share was moved via the Pacific through Mexico into the United States. Colombian traffickers, who had largely been driven from the more lucrative portions of the supply chain to North America by the Mexican cartels, increasingly focused on the growing European market.

Traditionally, there have been several parallel streams of cocaine flowing into Europe. Commercial air couriers, sometimes directed by West African groups in the new millennium, have flown to Europe from various intermediate countries in the Caribbean. Colombian groups also made use of commercial air carriers, often in cooperation with groups from the Dominican Republic, with whom they have a long-standing relationship. Larger maritime consignments were often stored on board 'mother ships' and transported to shore by smaller vessels. The primary maritime points of entry were Spain (due to proximity and cultural links) and the Netherlands (due to the large port). These vessels typically transited the Caribbean.

Some time around 2004, the Colombian groups began experimenting with routing their cocaine shipments through West Africa. From 2005 to 2008, a series of very large cocaine seizures took place in or near West Africa. Many of these involved 'mother ships' intercepted by European navies. There were also incidents where modified small aircraft were used. High-level officials were involved in some countries. There was also a sharp increase in the number of cocaine couriers found on flights from West Africa to Europe.

Around 2008, local political events (leading to the toppling of some of the regimes in West Africa that cooperated closely with the narco-traffickers)[38] coupled with international attention to the issue, led to in a dramatic reduction in the number and volume of seizures, including both maritime shipments and commercial air couriers. In parallel, the proportion of individual cocaine seizures in Europe that transited countries of West and Central Africa declined from around 25% in 2007 (range: 21%-30%) to some 13% in 2009 (range: 11%-17%).

In 2008, only four large (over 100 kg) seizures were made, and in 2009, only one. According to IDEAS, an air courier database, in the second quarter of 2007, 59% of cocaine couriers detected were from West Africa, while in the third quarter of 2009, there were none. Since then, some increases - up to 5% of couriers detected - were again reported in the fourth quarter of 2009 and, on average, 11% in 2010.

Despite this apparent reduction or even disruption, informal reports indicated that the trafficking continued. The use of jet aircraft, which can fly deeper inland in Africa, might have become an alternative method of moving cocaine through West Africa to Europe.

38 UNODC, *The Transnational Cocaine Market*, April 2011.

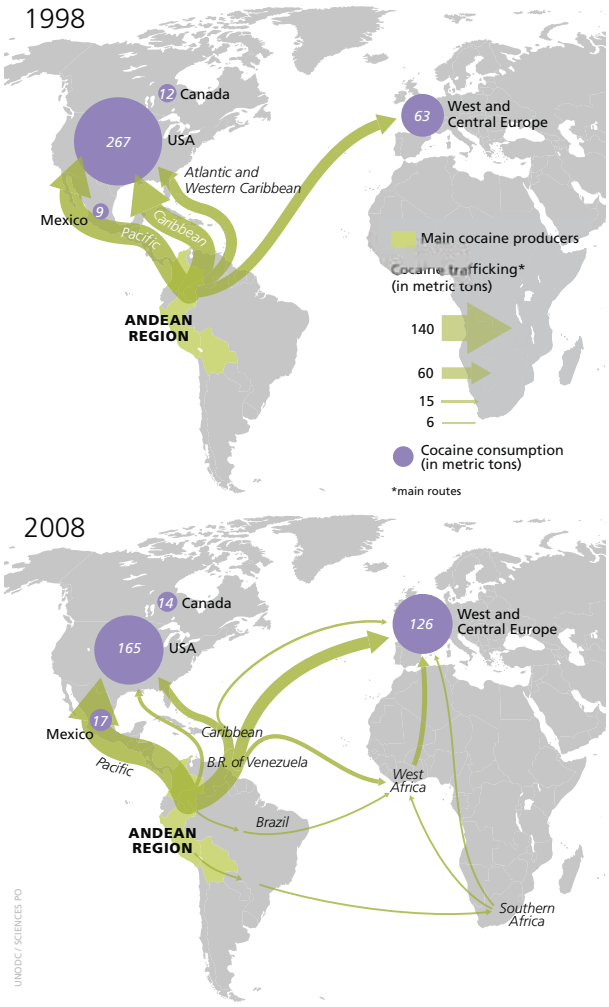
**Table 26: Proportion of cocaine trafficked via West and Central Africa to Europe (based on individual drug seizures in Europe where the 'origin' of the shipment was known)**

Source: UNODC IDS.

| | 2004 | 2005 | 2006 | 2007 | 2008 | 2009 |
|---|---|---|---|---|---|---|
| Cocaine seizure cases | 2.9% | 14.7% | 16.4% | 29.5% | 23.8% | 16.0% |
| Amounts of cocaine seized | 1.1% | 2.7% | 13.4% | 21.3% | 3.6% | 10.7% |
| Mid-point ('best estimate') | 2.0% | 8.7% | 14.9% | 25.4% | 13.7% | 13.4% |

**Map 22: Global cocaine flows, 1998 and 2008**

Source: UNODC World Drug Report 2009 and UNODC calculations informed by US ONDCP, Cocaine Consumption Estimates Methodology, September 2008 (internal paper).




## Current trafficking flows to main consumer markets

It is estimated that almost 380 mt or 45% of the total cocaine exports from the Andean region leave for North America, a region with a population of some 460 million people. The bulk of cocaine shipments are still by sea across the Pacific to Mexico and on to the United States. In addition, Central American countries have gained prominence in recent years as trans-shipment locations. The Caribbean, in contrast, has lost significance as a trans-shipment hub over the last decade. More recent data suggest that the downward trend did not continue in 2009 and some early indications for 2010 suggest that the importance of the Caribbean may have started to rise again. Seizures made in South American countries outside the Andean region, in Central America and the Caribbean in relation to shipments towards North America are estimated at slightly less than 100 mt (purity-adjusted). A further 100 mt of purity-adjusted cocaine seizures are made in North America. Thus, out of 380 mt exported to North America, only some 180 are available for consumption, of which the bulk (88%) is consumed in the United States.

The second largest flow is to Europe. The global shift in demand has also affected trafficking routes to Europe, with much greater volumes crossing the Atlantic by air and sea. Some 220 mt or 26% of total cocaine exports left the Andean countries for West and Central Europe in 2009. Of this, close to 60 mt (purity-adjusted) were seized in other South American countries or in the Caribbean. Thus, close to 160 mt left South America for West and Central Europe in 2009.

The seizures in West and Central Europe (including seizures on the open sea off the shores of Europe) amounted to some 35 mt (purity-adjusted), leaving 123 mt for consumption in this region (range: 100–138 mt). This is in line with an overall prevalence rate of 0.8% of the population aged 15-64 and per capita use levels of around 30 grams of pure cocaine per user per year, for a total population of around 480 million people in West and Central Europe (EU and EFTA countries). The overall amount consumed in Europe is estimated at 129 mt, suggesting that West and Central Europe (123 mt) accounts for 95% of the total European cocaine market.

An analysis of individual drug seizures reported in Europe suggests that more than 86% of the drugs were trafficked directly to West and Central Europe, while around 13% were trafficked via West Africa. Trafficking via West and Central Africa would have amounted to some 21 mt.[39] In addition, cocaine is trafficked for local demand to West and Central Africa – a subregion with a combined population of more than 400 million people, which may consume some 13 mt. Trafficking flows to

39 158 mt * 13.4% = 21 mt; range: 158*10.7% to 158*16% = 17-26 mt.

## Table 27: Flows of cocaine, purity-adjusted*, to major consumer markets (mt), 2009

Source: UNODC estimates based on Annual Reports Questionnaire data and other government or scientific sources.

| | |
|---|---|
| Production** | 1,111 |
| Less seizures in Andean countries | -254 |
| Less domestic consumption in Andean region | -13 |
| Potential amounts available for export out of the Andean countries | 844 |
| Less losses in production and/or losses in global trafficking which cannot be attributed to specific regions | -56 |
| Actual exports out of Andean countries | 788 |

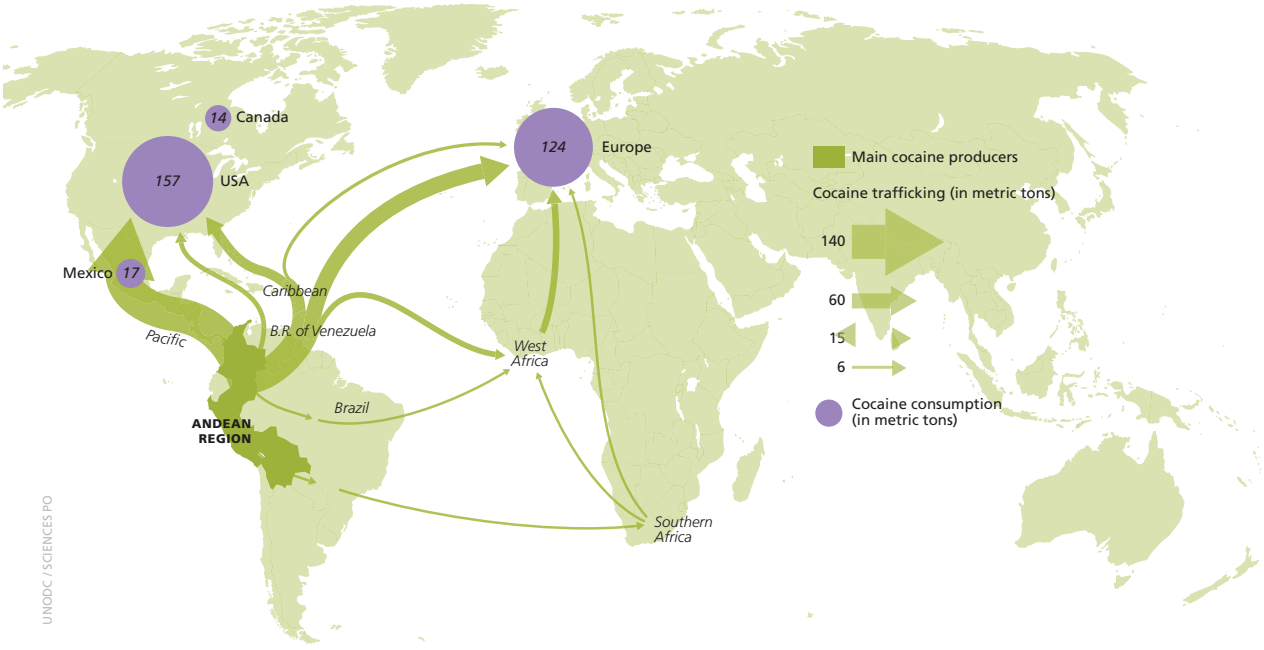
| | West and Central Europe | North America | Non-Andean South America / Caribbean, Central America, Africa, Asia, Oceania |
|---|---|---|---|
| Amounts of cocaine leaving the Andean countries | 217 | 378 | 193 |
| Less amounts seized in non–Andean South America, Caribbean and Central America linked to trafficking flows | -59 | -98 | -64 |
| Less domestic consumption in non-Andean South America / Caribbean / Central America | | | -83 |
| Amounts leaving South America, Caribbean and Central America | 158 (incl. 21 mt via West Africa) | 280 | 46 |
| Less amounts seized in consumer countries outside South America / Central America / Caribbean | -35 | -101 | -3 |
| Amounts of cocaine consumed in countries outside South America / Central America / Caribbean | 123 | 179 (incl. 157 in the USA) | 43 (incl. 21 Africa, 14 Asia, 6 East and South-East Europe; 2 Oceania) |

*Purity levels tend to decline along the trafficking chain. All numbers in this table have been adjusted to pure cocaine equivalents. Seizure data were adjusted based on reported wholesale purity data.

** The global cocaine production in 2009 was estimated to amount to between 842 mt and 1,111 mt. Actual cocaine consumption for 2009 was estimated at 440 mt. Seizures, not adjusted for purity, amounted to 732 mt in 2009.Considering purity-adjusted seizures of cocaine (unweighted average of all purities at retail and wholesale level reported by Member States in 2009), some 481 mt would be available for consumption and losses if the lower cocaine production estimate were used. If the higher cocaine production estimate were used, deducting seizures adjusted for wholesale purity (based on 2009 purity data or the latest year available), some 496 mt would be left for consumption and losses. The upper and the lower production estimates could be thus sufficient to cover consumption (440 mt). For the calculation shown above, the higher production estimates and seizures adjusted at wholesale purities were used. This reflects the observation that wholesale seizures account for the bulk of seizures in volume terms and would support the higher production estimates. However, one cannot exclude the possibility that seizures may be over-estimated due to possible double-counting once several law enforcement agencies within or across countries have been involved in cocaine interceptions.

## Map 23: Main global cocaine flows, 2009

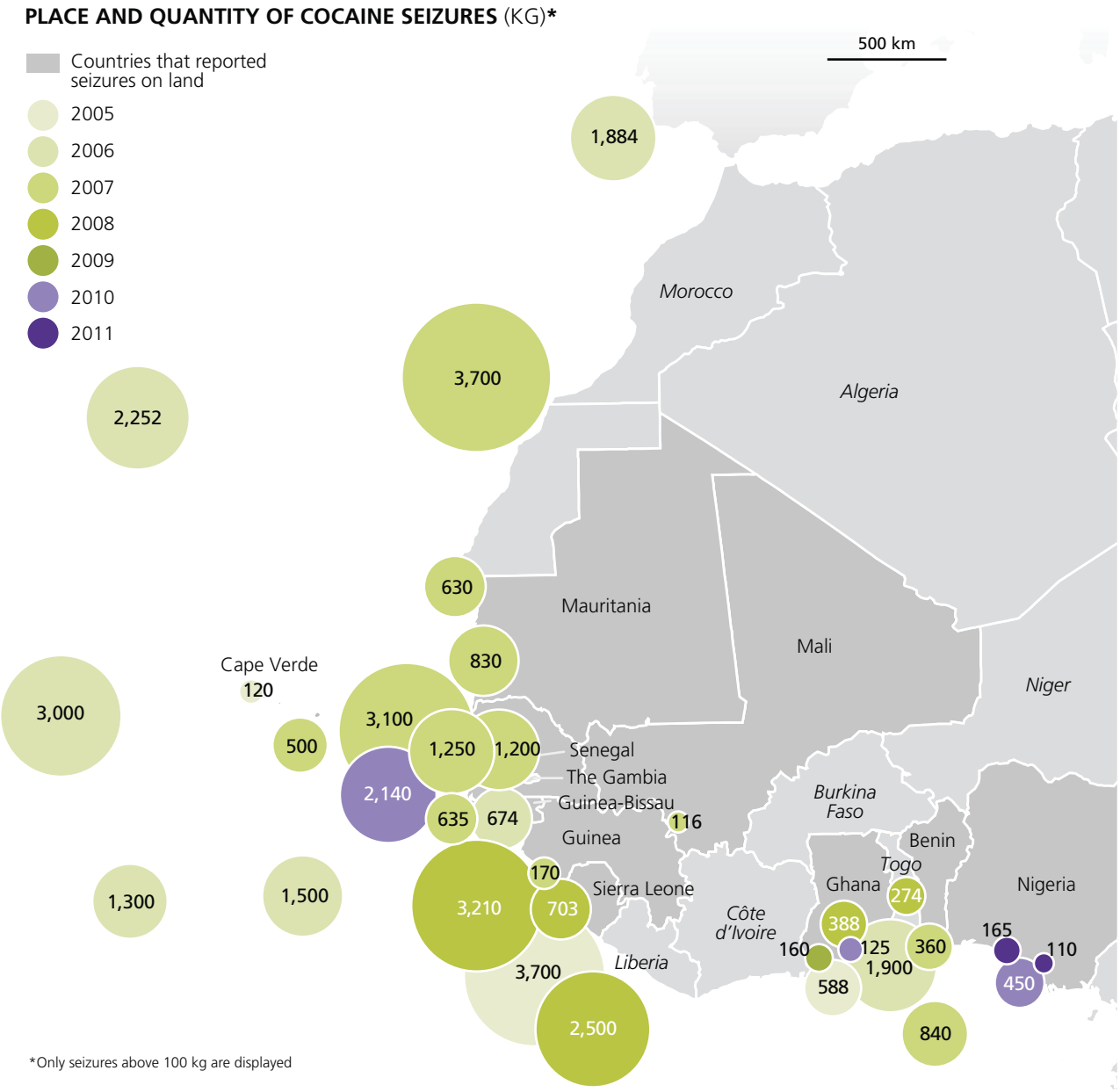
Source: UNODC, World Drug Report 2010, updates for 2009.



**Map 24: Significant cocaine seizures affecting West Africa, 2005-2011***

* January 2011

Source: UNODC IDS; Government sources.




West Africa could have thus amounted to some 35 mt in 2009 (range: 21-55 mt), equivalent to 4% (range: 2%-6%) of total cocaine exports out of the three Andean countries - of which almost two thirds was for subsequent onward transit traffic to West and Central Europe.

### Current value and money flows

The value of the global cocaine market is most certainly lower than it was in the mid-1990s, when prices were much higher and the US market was strong. In 1995, the global market was worth some US$165 billion, which had been reduced to just over half of this by 2009 (US$85 billion; range: US$75-US$100 bn).

North America and West and Central Europe accounted for 86% of the global cocaine market in economic terms in 2009. North America accounted for 47% and West and Central Europe 39% of the total.

While the North American market shrank over the last two decades – due to lower volumes and lower prices - the European market expanded. Nonetheless, the US market remains the largest market globally, but the market of the countries of West and Central Europe (US$33 billion at retail level in 2009) is – in economic terms – now nearly as large as the US market (US$37 billion in 2009).

**Fig. 88: Value of the global cocaine retail market (in billion constant 2009 US$), 1995, 2008 and 2009**

Sources: UNDCP, Economic and Social Consequences of Drug Abuse and Illicit Trafficking, 1997 (re-valued based on US consumer price index); UNODC estimates on the size of the global cocaine market for 2009, based on ARQ data and other Government sources.

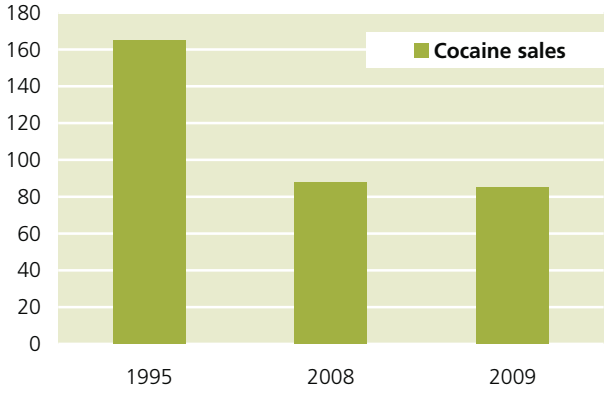
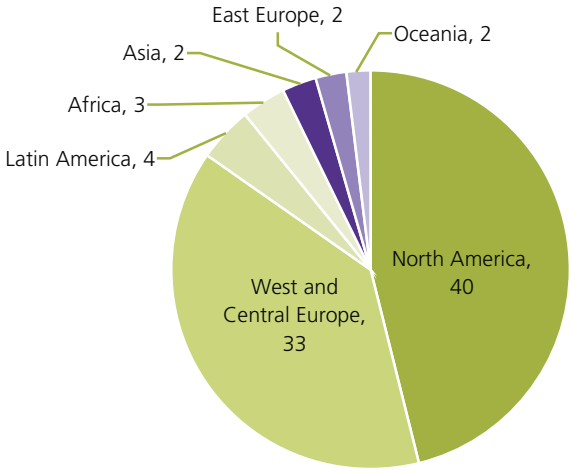



**Fig. 89: Regional breakdown of the value of the global cocaine market in 2009 in billions of US$ (N = US$85 bn)**

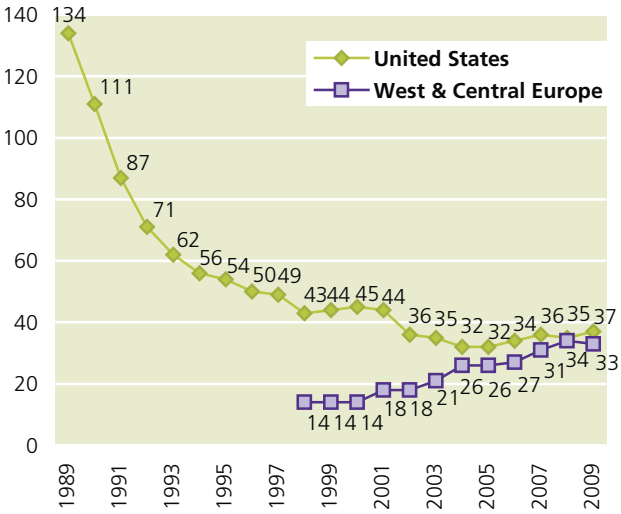
Source: UNODC estimates on the size of the global cocaine market for 2009, based on ARQ data and other Government sources.




Out of the US$85 billion in income from global cocaine retail sales in 2009, traffickers are estimated to have reaped some US$84 billion (almost 99%). The rest went to farmers in the Andean region. The largest gross profits were reaped from cocaine sales in North America (some US$34 billion), followed by countries of West and Central Europe (some US$23 billion). Expressed as a proportion of GDP, the cocaine profits were rather small (0.2% of GDP in North America and 0.1% in West and Central Europe). Profits from international trafficking to North America and Europe amount to some US$15 bn. This suggests that more than 85% of global cocaine profits were related to demand for cocaine

**Fig. 90: Value of the US and West and Central European cocaine markets, 1989-2009 (constant 2008 US$ billions)**

Source: UNODC, World Drug Report 2010 and updates for 2009.




in North America and West and Central Europe. Cocaine-related profits generated in South America, Central America and the Caribbean from trafficking cocaine to North America and West and Central Europe amounted to some US$18 billion in 2009, equivalent to 0.6% of the total GDP of South America, Central America and the Caribbean.

Of the cocaine trafficked to meet demand in West and Central Europe, UNODC estimates – based on an analysis of reported individual drug seizures in terms of volumes and number of seizure cases - that some 13% (range: 11%-16%) transited West Africa in 2009. Reports indicated that up to one third of the shipments is paid in kind to service providers in West Africa, who then traffic most of this cocaine to Europe on their own behalf. In addition, profits are made in supplying the West African cocaine market. The potential wholesale profits affecting West Africa in 2009 amount to US$0.8 billion, equivalent to 0.2% of GDP in West and Central Africa. These figures do not include profits made by West African citizens engaged in European cocaine retail sales (often European residents, illegal immigrants or asylum seekers). European retail profits amount to some US$20 billion. Arrest statistics of West African citizens in relation to cocaine trafficking (for example, more than 23% in Portugal in 2008 and more than 16% in France in 2006) suggest that West African groups play an important role in cocaine street sales in several (mainly continental) European countries. Assuming that the West African groups reap, on average, between 5% and 10% of the European cocaine retail profits, this would amount to another US$1-2 billion in potential cocaine-related income.

**Table 28: Estimates of gross profits made by cocaine traffickers (billion US$), by region, 2009**

Sources: UNODC estimates based on ARQ data and other Government or scientific sources.

| | In billion US$ | In % of GDP |
|---|---|---|
| South America, Central America, Caribbean | | |
| local market | 3 | 0.1% |
| export to North America* | 6 | 0.2% |
| export to Europe** | 9 | 0.3% |
| Subtotal South America, Central America, Caribbean | 18 | 0.6% |
| North America (USA, Mexico, Canada) | 34 | 0.2% |
| West and Central Europe (EU-25 and EFTA) | 23 | 0.1% |
| West and Central Africa (local demand and export to Europe) | 0.8 | 0.2% |
| Other | 8 | 0.04% |
| **Total trafficking profits** | **84*** ** | **0.1%** |

* Trafficking from producing areas in the Andean region to Mexico.

** All trafficking to transit countries (US$4.9 bn) and from transit countries to Europe (US$6.1 bn) of which 70% (US$4.3bn) is assumed to be generated by trafficking groups from South America and the Caribbean; gross profits for trafficking to Europe are higher as prices in Spain (the main entry point into Europe) are much higher than prices in Mexico (the main entry point into North America).

*** The difference between the total size of the global cocaine market (US$85 bn) and gross trafficking profits (US$84 bn) is income of farmers; farmers are estimated to earn less than US$1 bn.

**Table 29: Tentative estimates of the profits reaped by West African groups out of cocaine trafficking, 2009**

Source: UNODC estimates based on ARQ and IDS data.

| | Gross profits | Proportion of (assumed) West- African involvement | West African cocaine related trafficking income |
|---|---|---|---|
| Profits made by importing cocaine from South America to West Africa for domestic use | US$ 0.2 bn | 10% | US$ 0.02 bn |
| Profits made by selling cocaine to West African customers | US$ 0.4 bn | 100% | US$ 0.4 bn |
| Profits made in shipping cocaine to countries in West and Central Europe and selling it to mid-level drug dealers | US$ 9.2 bn | 13.4%*33% | US$ 0.4 bn |
| Subtotal | | | ≈ US$ 0.8 bn |
| Retail profits made in West and Central Europe | US$ 20 bn | 5% - 10% | US$ 1 bn – US$ 2 bn |
| **Total** | | | **US$ 1.8 – US$ 2.8 bn** |

# 4. The ATS market

## 4.1 Introduction

The term amphetamine-type stimulants (ATS) refers to a group of synthetic substances comprised of amphetamines-group substances (primarily amphetamine, methamphetamine and methcathinone) and ecstasy-group substances (MDMA and its analogues).

ATS are available in diverse forms and purities. Methamphetamine or amphetamine can be in powder, tablet, paste or crystalline form while 'ecstasy' is usually available in tablet or powder form.

## 4.2 Consumption

For the past two decades, the use of amphetamine type stimulants (ATS) has been one of the most significant drug problems worldwide. This section describes the trends in the use of amphetamines-group and ecstasy-group substances in the different regions.

### Amphetamines-group substances

In 2009, UNODC estimates that, with an annual prevalence ranging between 0.3% and 1.3%, between 13.7 and 56.4 million people aged 15-64 globally had used amphetamines-group substances at least once in the past year. While these numbers reflect a slight increase over estimates for previous years, they do not essentially indicate a significant difference in the prevalence of amphetamines-group substances.

The type of amphetamines-group substances used in different regions varies considerably. In East and South-East Asia, methamphetamine is the primary substance consumed within this group, while in the Near and Middle East, the use of tablets sold as Captagon is reportedly more common. In Europe, amphetamine is the main substance used within this group with the exception of Czech Republic and Slovakia, where methamphetamine has traditionally been the predominant amphetamines-group substance used.

In North America as well as Australia and New Zealand, the use of prescription stimulants[1] is as common as methamphetamine. In South America and the Caribbean, prescription stimulants are more commonly used. In Africa, especially in West, Central and East Africa and some parts of Southern Africa, the use of amphetamines-groups substances may comprise use of prescription stimulants. In South Africa, methamphetamine and methcathinone are the most commonly used ATS.

In 2009, out of the 69 Member States that reported expert perception on amphetamines-group use trends through the Annual Reports Questionnaire, an equal number of countries perceived increasing and stable trends in the use of ATS over the past year. In Asia, however - particularly in South and South-East Asia - the majority of countries reported a perceived increase in the use of ATS in their countries.

Trends over the past 12 years in the perceived increase in use of ATS as reported by Member States indicate that since 2001, the rate of increase has been much higher and more substantial in the developing (non-OECD) countries than in the developed (OECD) countries. In developing countries and especially emerging econo-

1 Prescription stimulants may include substances such as amfepramone, fenetylline, methylphenidate, phenmetrazine, et cetera.

**Table 30: Annual prevalence and estimated number of amphetamines-group substances users, by region, subregion and globally, 2009**

| Region/subregion (amphetamines-group) | Estimated number of users annually (lower) | - | Estimated number of users annually (upper) | Percent of population age 15-64 (lower) | - | Percent of population age 15-64 (upper) |
|---|---|---|---|---|---|---|
| **Africa** | 1,180,000 | - | 8,150,000 | 0.2 | - | 1.4 |
| East Africa | | | | | | |
| North Africa | | | | | | |
| Southern Africa | 280,000 | - | 780,000 | 0.4 | - | 1.0 |
| West and Central Africa | | | | | | |
| **Americas** | 5,170,000 | - | 6,210,000 | 0.8 | - | 1.0 |
| Caribbean | 30,000 | - | 530,000 | 0.1 | - | 1.9 |
| Central America | 320,000 | - | 320,000 | 1.3 | - | 1.3 |
| North America | 3,460,000 | - | 3,460,000 | 1.1 | - | 1.1 |
| South America | 1,340,000 | - | 1,890,000 | 0.5 | - | 0.7 |
| **Asia** | 4,330,000 | - | 38,230,000 | 0.2 | - | 1.4 |
| Central Asia | | | | | | |
| East/South-East Asia | 3,480,000 | - | 20,870,000 | 0.2 | - | 1.4 |
| Near and Middle East | 460,000 | - | 4,330,000 | 0.2 | - | 1.7 |
| South Asia | | | | | | |
| **Europe** | 2,540,000 | - | 3,180,000 | 0.5 | - | 0.6 |
| East/South-East Europe | 510,000 | - | 1,050,000 | 0.2 | - | 0.5 |
| West/Central Europe | 2,030,000 | - | 2,120,000 | 0.7 | - | 0.7 |
| **Oceania** | 470,000 | - | 640,000 | 2.0 | - | 2.8 |
| **Global** | **13,690,000** | **-** | **56,410,000** | **0.3** | **-** | **1.3** |

**Fig. 91: Range of estimated number of amphetamines-group substance users by region**

Source: UNODC.

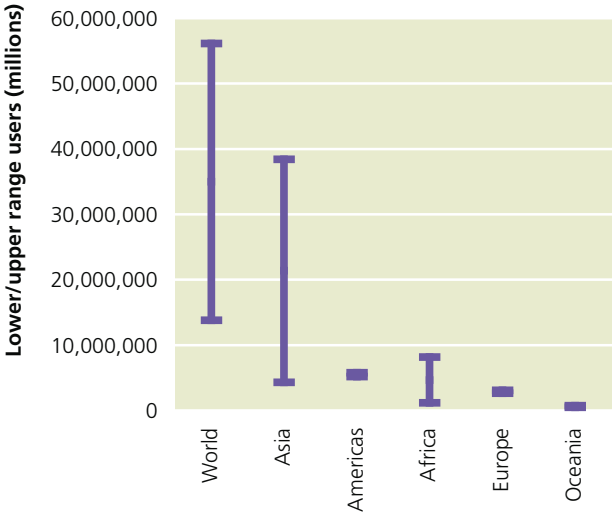
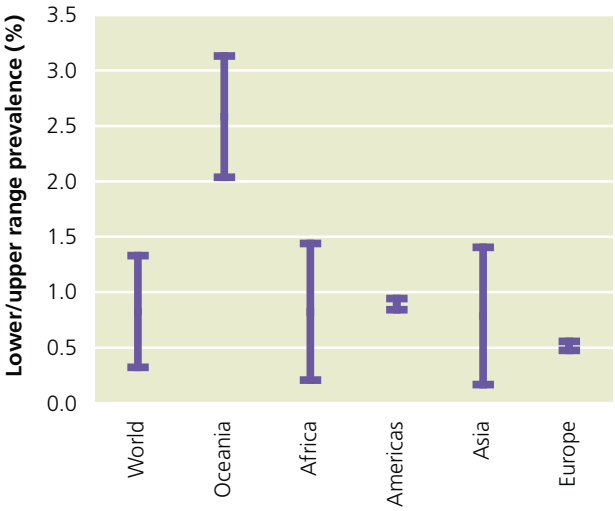


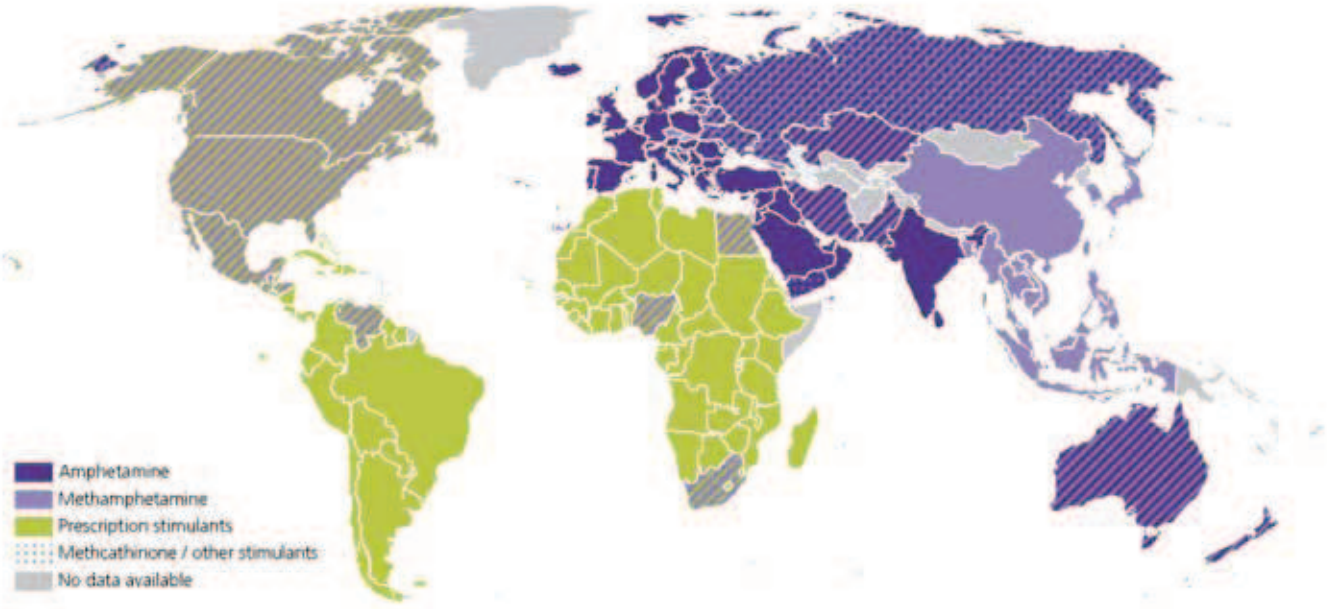

**Fig. 92: Range annual prevalence of amphetamines-group substance users by region**

Source: UNODC.




mies, there is an expanding middle class with more disposable income. The association in developed countries of synthetic drugs, especially stimulants, with modernization and affluent lifestyles, combined with increasing demands for higher performance and the availability and reported common use of stimulants in recreational and entertainment settings, may be contributing to an increase in the use of stimulants in developing countries where young people within the growing middle class may want to emulate these lifestyles.

## Map 25: Use of different types of amphetamines-group substances




Source: ARQs, Government Sources and UNODC field offices.
Note: The colours do not represent the level of use, only the category of stimulants used.
The boundaries and names shown and the designations used on this map do not imply official endorsement or acceptance by the United Nations.

## Table 31: Expert perceptions of trends in amphetamines-group substance use, 2009

Source: UNODC ARQ

| Region | Member States providing perception data | Member States perception response rate | Use problem increased* | Percent use problem increased* | Use problem stable | Percent use problem stable | Use problem decreased* | Percent use problem decreased* |
|---|---|---|---|---|---|---|---|---|
| Africa | 5 | 9% | 2 | 40% | 2 | 40% | 1 | 20% |
| Americas | 11 | 31% | 4 | 36% | 6 | 55% | 1 | 9% |
| Asia | 24 | 53% | 14 | 58% | 5 | 21% | 5 | 21% |
| Europe | 28 | 62% | 10 | 36% | 16 | 57% | 2 | 7% |
| Oceania | 1 | 7% | 0 | | 1 | | 0 | |
| **Global** | **69** | **36%** | **30** | **43%** | **30** | **43%** | **9** | **13%** |

* Identifies increases/decreases ranging from either some to strong, unweighted by population.

### North America: Increased use of amphetamines-group substances reported in United States and Mexico; decrease reported in Canada

With an estimated 3.5 million people who had used amphetamines-group substances at least once in the previous year, this region has probably the third highest prevalence of amphetamines-group substance use (1.1% of the population aged 15-64) globally.

In the United States of America, the annual prevalence of amphetamines-group substances was reported as 1.5% of the population aged 15-64 in 2009. The non-medical use of prescription stimulants is higher in the United States compared to the use of methamphetamine, whose annual prevalence reached 0.6% of the population aged 15-64. Between 2002 and 2006, there was a steady increase in the use of amphetamines and methamphetamine among the population 12 years or older, followed by a decrease between 2007 and 2008. In 2009, the annual prevalence showed an increase, but at levels below the ones observed between 2002 and 2006.

The number of people aged 12 years or older who had initiated drug use with methamphetamine was 154,000

**Fig. 93: Expert perceptions of the trends in amphetamines-group substance consumption, 2000-2009**

Source: UNODC ARQ.

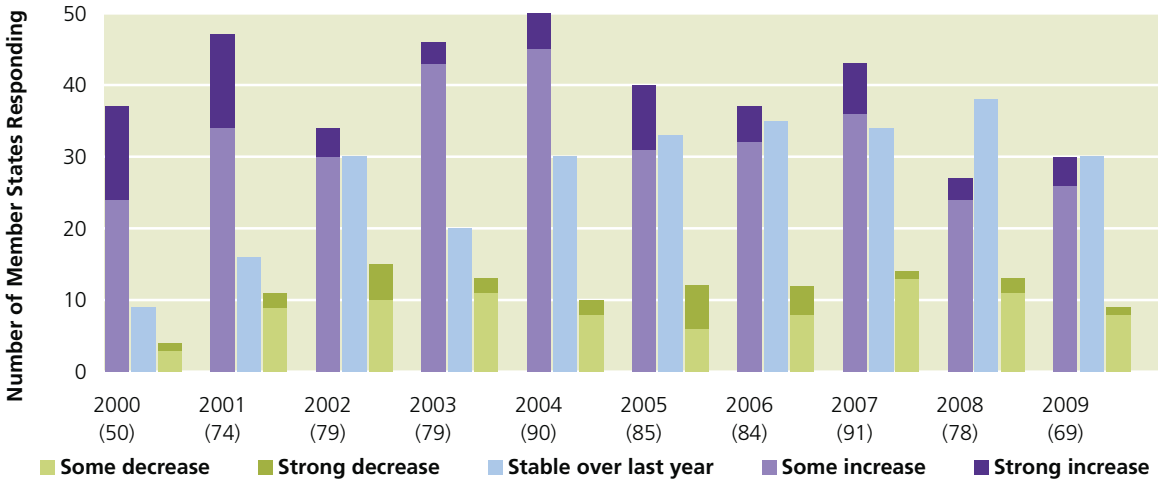



**Fig. 94: Amphetamines-group substance use trends as perceived by experts of developed (OECD) and developing countries, 1998-2009 (baseline: 1998 =100)**

Source: UNODC ARQ.

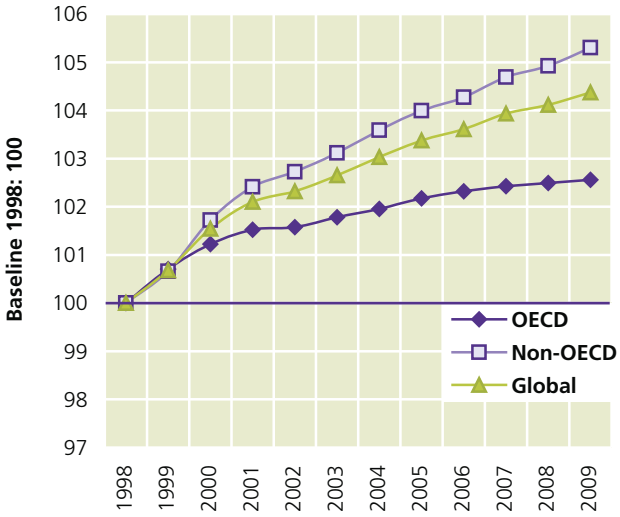
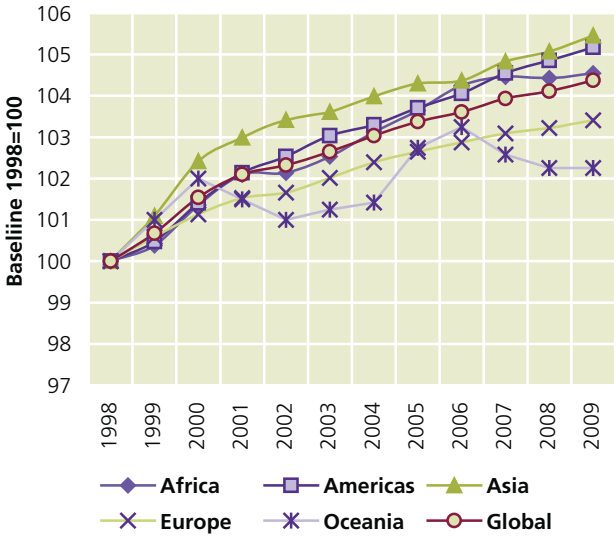



**Fig. 95: Experts' perceptions on global and regional trends in the use of amphetamines-group substances, 1998-2009**

Source: UNODC ARQ.




in 2009 in the United States. While this estimate was significantly higher than the estimate in 2008 (95,000), it is still substantially lower than the estimate for 2002 (299,000),[2] and far lower than the reported initiates for most other illicit drugs (except for PCP). In line with the annual prevalence, the number and proportion of people who had reported non-medical use of stimulants in the past 30 days (prior to the survey) increased significantly from 904,000 (0.4%) in 2008 to 1.3 million (0.5%) in 2009. This increase in the prevalence of stimulants use is attributed in part to an increase in the number of methamphetamine users.[3]

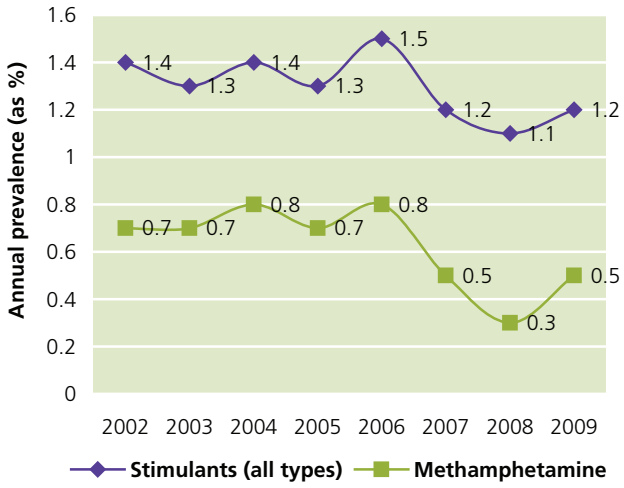
The recent increase in stimulant and notably in methamphetamine use among the general US population was not reflected in prevalence data for high school students for 2009. Among secondary school students in the United States, there has been a declining trend in the annual prevalence of amphetamine and methamphetamine use between 2002 and 2008, and stable trends in

2 Substance Abuse and Mental Health Services Administration, *Results from the 2009 National Survey on Drug Use and Health: Volume I.* Summary of National Findings, Rockville, Maryland, USA, 2010.

3 Ibid.

**Fig. 96: United States: Annual prevalence of stimulants and methamphetamine use in the population aged 12 and older, 2002-2009**

Source: Substance Abuse and Mental Health Services Administration, Results from the 2009 National Survey on Drug Use and Health: Volume I, Summary of National Findings, 2010.




2009.[4] In 2010, annual prevalence of amphetamines use rose among 10th and 12th graders while it continued to decline among 8th graders. Use of methamphetamine, in contrast, increased among 8th graders, remained stable among 10th graders but declined among 12th graders in 2010. Despite some increases in amphetamines use and a stable level of methamphetamine use among US high school students in 2010, the overall level in 2010 remained substantially lower than over the 2002-2006 period.

In contrast to an overall rising trend of ATS use in the United States, the annual prevalence of ATS use among the general population in Canada (0.7%) was significantly lower in 2009 than in 2008 (1.5%). The annual prevalence of both amphetamine and methamphetamine was substantially lower in 2009 than a year earlier (0.5% and 0.1% compared to 1.3% and 0.2% respectively).

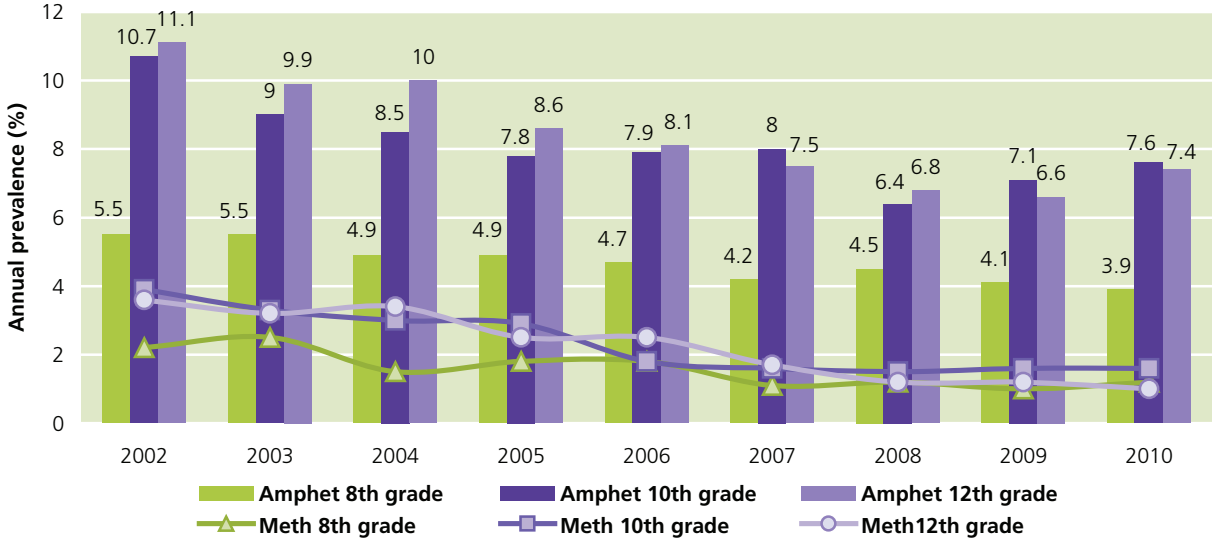
In Mexico, while there has been no update in the annual prevalence of amphetamines-group substance use since the last household survey in 2008, the expert perception in 2009 indicates stable trends for amphetamines use but a great increase in the use of methamphetamine over the past year. In 2009, among school students aged 12-19 in Mexico, the reported lifetime prevalence of amphetamine and methamphetamine use was 1.9% and 0.7% respectively.[5] In previous years, however, the lifetime prevalence among youth aged 12-17 was reported as 0.07% for amphetamine and 0.35% for methamphetamine.[6]

### Amphetamines-group substance use in South America appears to remain stable

There is no updated information on the prevalence of amphetamines-group substance use in South America. Existing information shows that the annual prevalence

**Fig. 97: Annual prevalence of amphetamines use among secondary school students in the United States, 2002-2009**

Source: United States Monitoring the Future: national results on adolescent drug use.




4 Johnston, L. D., O'Malley, P. M., Bachman, J. G., and Schulenberg, J. E., *Monitoring the Future national results on adolescent drug use: Overview of key findings, 2010*, Ann Arbor, Institute for Social Research, The University of Michigan, USA, 2011.

5 UNODC ARQ.

6 The information on annual prevalence in the ARQ for Mexico in 2008 was based on the national survey conducted among the general population aged 12-65 with the breakdown of the estimates among the ages 12-17 years

**Fig. 98: Annual prevalence of amphetamines-group substances use in South America among the population aged 15-64, latest year available**

Source: UNODC ARQ.

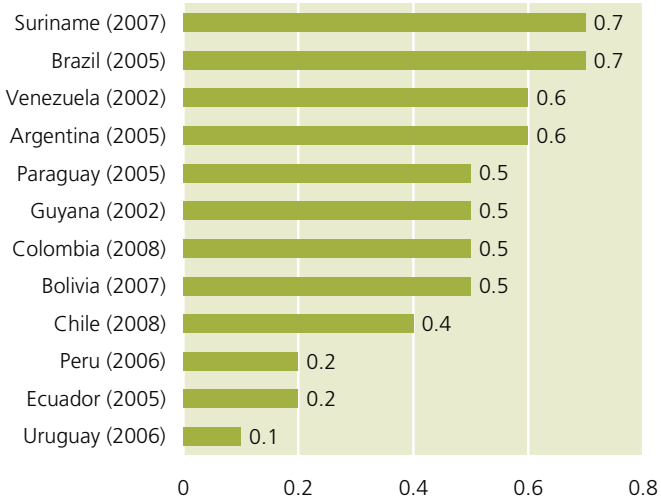
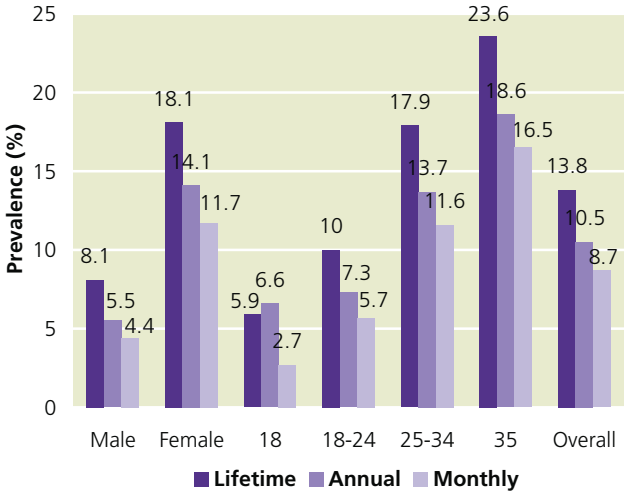



**Fig. 99: Brazil: Prevalence of amphetamine use among university students, 2009**

Source: I Levantamento Nacional Sobre O Uso De Álcool, Tabaco E Outras Drogas Entre Universitarios Das 27 Capitais Brasileiras, Secretaria Nacional Politicas sobre Drogas, Brasilia, 2010.




of amphetamines-group substance use in South America remains close to the world average, with estimates ranging between 0.5% and 0.7% of the population aged 15-64 or between 1.34 and 1.89 million people in that age group who had used these substances in the previous year. Compared to 2008, most of the countries reporting from the region perceive trends of amphetamine and methamphetamine use as being stable in 2009. Brazil, the Bolivarian Republic of Venezuela and Argentina remain countries with a high prevalence and absolute number of users of amphetamine and methamphetamine in South America.

In a national survey conducted among university students in Brazil in 2009, the annual prevalence of amphetamines use among the students was reported as 10.5%. The annual prevalence was higher among female students (14.1%) than male students (5.5%), and was also higher among the older students, that is, those who were 35 years or older (18.6%), followed by students aged between 25-34 years (13.7%).[7] The use of amphetamine-like substances is reportedly more common among women due to their anorexic effects and a prevalent culture to use medications for weight loss purposes.[8]

Although there are no recent updates on the prevalence of amphetamine and methamphetamine in Central America, as a region, it has a high prevalence of amphetamines-group substance use (1.3% of the adult population), with El Salvador (3.3%), Belize (1.4%) and Panama (1.2%) as the three countries with high annual prevalence among the general population. A large proportion of the ATS use in these countries is related to the use of prescription stimulants.

### While most countries in Europe show stabilizing trends in the use of amphetamines-group substances, high levels of injecting amphetamines use are reported by a few

In 2009, more than half of European countries reported stable trends of ATS use in their countries. The countries that reported data show a mixed trend from previous years. The annual prevalence of amphetamines-group substance use in Europe is estimated between 0.5% and 0.6%, which corresponds to an estimated 2.6 to 3.3 million people who had used these substances in the past year. Like in other regions, the majority of amphetamine users fall within the 15-34 years age group, with a much higher estimated annual prevalence of 1.2%.

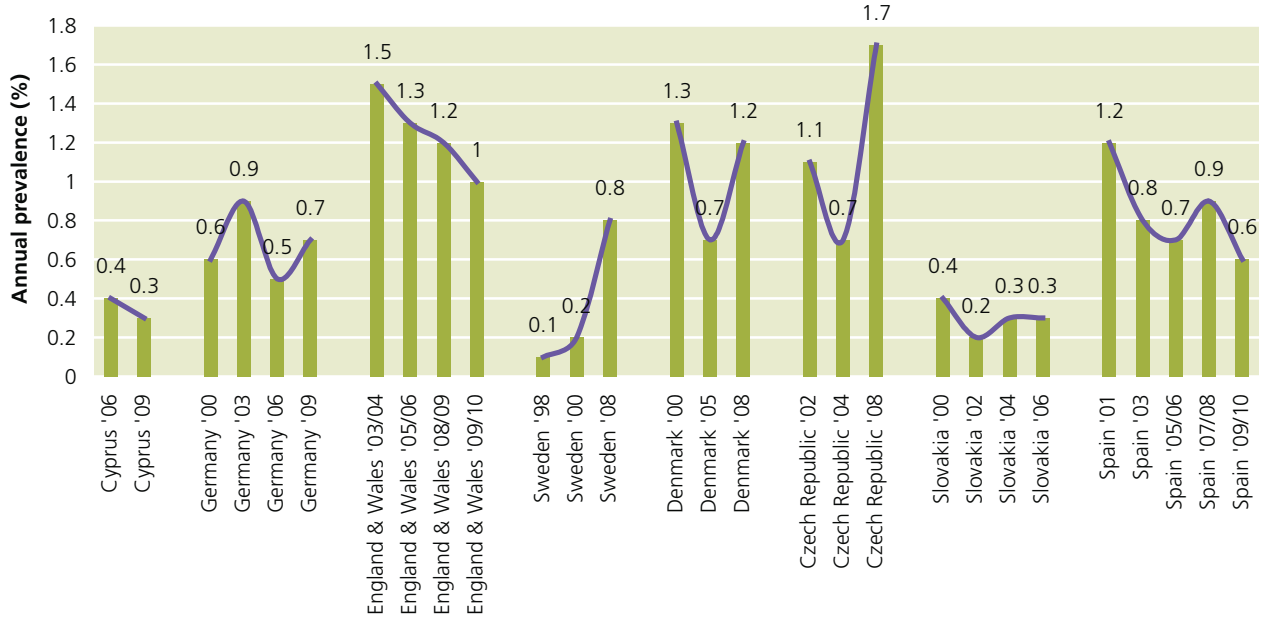
The amphetamines-group substance prevalence is, overall, higher in West and Central Europe than in East and South-East Europe. In most parts of Europe, amphetamine is the more commonly used substance within this group, while the use of methamphetamine remains limited and has historically been highest in the Czech Republic and Slovakia. In 2009 and 2010, countries that reported new data on ATS prevalence include Cyprus, Germany, Spain, Sweden and the United Kingdom (England and Wales). Except for Germany and Sweden, many of these countries are showing stabilizing or decreasing trends in the use of amphetamines-group

7 Andrade, A.G., Duarte, P. and Oliveira, L. G., *I Levantamento Nacional Sobre O Uso De Álcool, Tabaco E Outras Drogas Entre Universitarios Das 27 Capitais Brasileiras*, Secretaria Nacional Politicas sobre Drogas, Brasilia, 2010.

8 Napp S.A., et al., 'Use of anorectic amphetamine-like drugs by Brazilian women,' *Eating Behaviors*, Volume 3, Issue 2, Summer 2002, pages 153-1165

**Fig. 100: Trends in amphetamines-group substances in selected European countries, various years**

Sources: EMCDDA; UNODC.




substances. While in Germany, there was an increase in the annual prevalence in 2009 (0.7%) over the previous estimates in 2006 (0.5%), the estimate remains at lower levels than shown for 2003 (0.9%).

Within West and Central Europe, the Czech Republic, Denmark, the United Kingdom, Norway and Estonia remain the countries with the highest annual prevalence rates, while in South-East Europe, Bosnia and Herzegovina and Bulgaria have high annual prevalence of amphetamines use.

In most West and Central European countries, problem amphetamines use represents a small fraction of overall problem drug use, except for the Czech Republic and some of the Nordic countries. Those who report amphetamine as their primary substance account for less than 5% of drug users in treatment, on average, in Europe. High levels of injecting use are reported from the Czech Republic, Estonia, Latvia, Lithuania, Sweden and Finland, ranging from 57% to 82% among amphetamines users.[9]

### Mixed trends on use of amphetamines-group substances in Africa

The annual prevalence of amphetamines-group substances in Africa is estimated between 0.2% and 1.4% (between 1.2 and 8 million people), reflecting the fact that for most parts of Africa, there is either limited or no recent or reliable data available on the prevalence or trends of amphetamines-group substance use, resulting in a wide range and uncertainty of the estimates. The only valid estimates that can be derived in the region are for Southern Africa where the annual prevalence is estimated between 0.4% and 1% of the population aged 15-64.

Among the limited number of countries that have reported expert opinion on trends in the use of amphetamines-group substances in Africa, nearly half of the countries report that the trend has increased while a similar proportion report stable trends over the past year. In most parts of Africa, prescription amphetamines comprise the primary substances used within this group.

South Africa is one country in the region from which there is more consistent and recent information available on drug use trends. Such data – based on treatment demand - showed a strong increase in the importance of amphetamines until the second half of 2006, followed by a stabilization or small downward trend since. The importance of amphetamines increased again temporarily in the first half of 2009, before falling back in the second half of the year to the levels reported in 2008.

The past 3 months prevalence of amphetamines-group substances in South Africa was reported at 0.7% in 2008 for the population aged 15 and above. Based on this information, the annual prevalence of amphetamines-group substance use was estimated by UNODC at between 0.7% to 1.4% of the adult population (aged 15-64) in South Africa.

In contrast to the patterns in other parts of Africa, methamphetamine and methcathinone are the main substances used within the amphetamines-group substances.

9 European Monitoring Centre for Drugs and Drug Addiction (EMCDDA), *Annual Report 2010: The State of the drugs problem in Europe*, Lisbon, 2010

**Fig. 101: Trends in treatment demand for methamphetamine as the primary substance in Western Cape (Cape Town), South Africa, 2005-2009 (biannual data)**

Source: Alcohol and Drug Abuse Trends: July – December, 2009 (Phase 27), South African Community Epidemiology Network on Drug Use (SACENDU) Update June 2010.

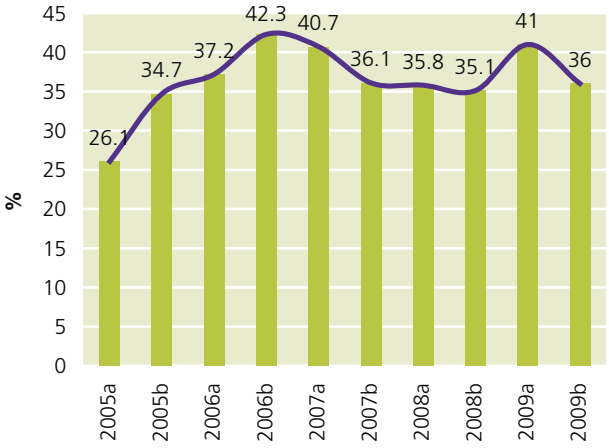
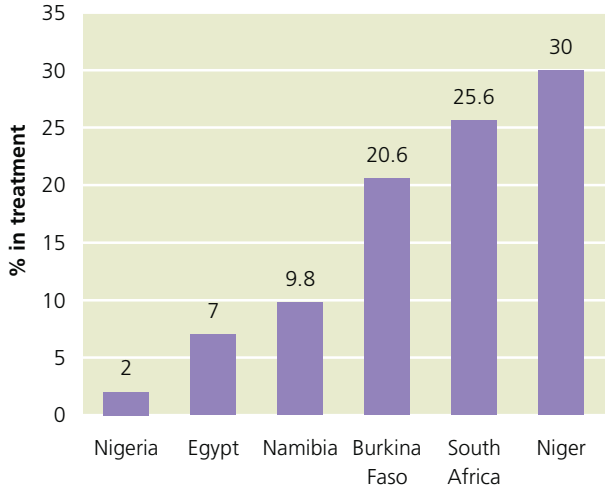



**Fig. 102: Percentage of ATS-group substances among primary substance of abuse in treatment in Africa, 2009 or latest year available**

Source: UNODC ARQ.




In South Africa, methamphetamine or 'tik' as it is locally known, remained the primary substance of use for which people were seeking treatment, mainly in Cape Town. In other parts of the country, the proportion has remained very low.[10] For the other countries in Africa, for which information on treatment demand is available, amphetamines-group substances as the primary substance of abuse among persons treated in the region averaged around 5% of all treatment demand. This ranges from 30% of all treatment admissions reported in Niger to around 2% in Nigeria.

**Increasing trends of amphetamines-group substances use in Asia with injecting methamphetamine and its associated negative health consequences reported as an increasing problem in East and South-East Asia**

The annual prevalence of amphetamines-group substance use in Asia ranges between 0.2%-1.4% or from 4 to 38 million people aged 15-64 who are estimated to have used these substances in the past year. The wide range and uncertainty in the estimates derive from missing information on the extent and pattern of use from large countries in Asia, particularly China and India. Due to a lack of recent or reliable estimates from many countries in the region, estimates cannot be calculated for the subregions of Central and South Asia.

Nevertheless, among the Asian countries reporting through the ARQ, experts in more than half of the countries, mainly in East and South-East Asia, perceived an increase in the use of amphetamines-group substances, compared to less than a quarter of countries in which experts perceived the problem to have stabilized or decreased over the past year. Outside East and South-East Asia,[11] Armenia, Georgia, Jordan, Pakistan and Qatar are five countries that have reported a perceived increase in the use of amphetamine-type stimulants over the past years.

In East and South-East Asia, the annual prevalence of amphetamines-group substances ranges between 0.2%-1.4% of the adult population aged 15-64.[12] Methamphetamine, both in pill and crystalline forms, is the main substance used within this group. The Philippines (2.1%), Thailand (1.4%) and the Lao People's Democratic Republic (1.4%) are the countries in the subregion with prevalence of methamphetamine use higher than the global average.

On average, the countries in South-East Asia in 2009 reported a 250% increase in the number of methamphetamine-related arrests since 2004. The highest increase reported was from Lao People's Democratic Republic, whereas Japan has reported a decline in methamphetamine-related attests.[13]

10 Pluddemann A., Parry C., et al. *Alcohol and Drug Abuse Trends: July – December, 2009 (Phase 27),* South African Community Epidemiology Network on Drug Use (SACENDU) Update June 2010.

11 The countries and areas reporting increases in ATS use in 2009 include China (and Macao, China), Indonesia, Lao People's Democratic Republic, Malaysia, Myanmar and Viet Nam. On the other hand, Hong Kong China, Kazakhstan, the Republic of Korea and Lebanon have reported decreasing use of ATS.

12 In East and South-East Asia, most of the information on amphetamines-group substances is available through the UNODC SMART programme that assists the countries in the region to monitor drug trends with a particular focus on use of amphetamine-type stimulants.

13 UNODC *Patterns and Trends of Amphetamine-Type Stimulants and*

**Fig. 103: Trends in methamphetamine-related arrests in selected countries in East and South-East Asia, 2004-2009**

Source: UNODC, Patterns and Trends of Amphetamine-Type Stimulants and Other Drugs, Asia and Pacific, Global SMART Programme, 2010.

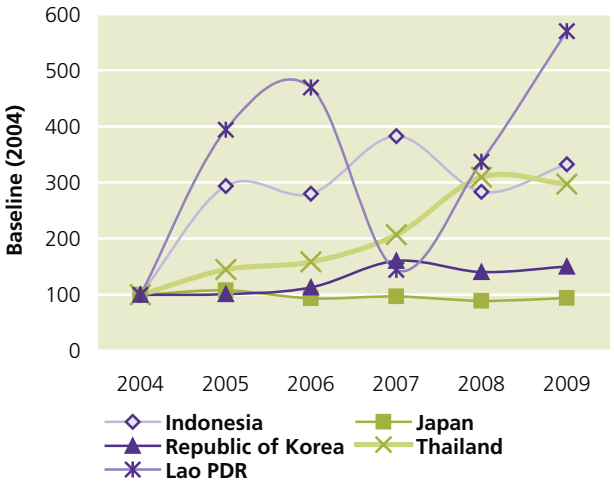
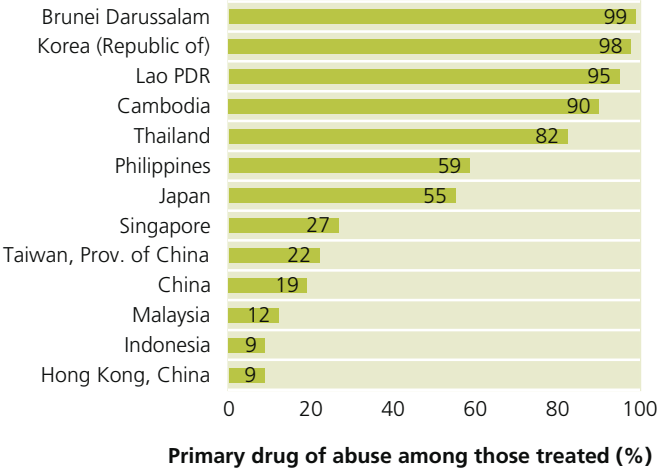



**Fig. 104: Percentage of methamphetamine as the primary substance of abuse among those treated (%), 2009 or latest year available**

Source: UNODC ARQ.

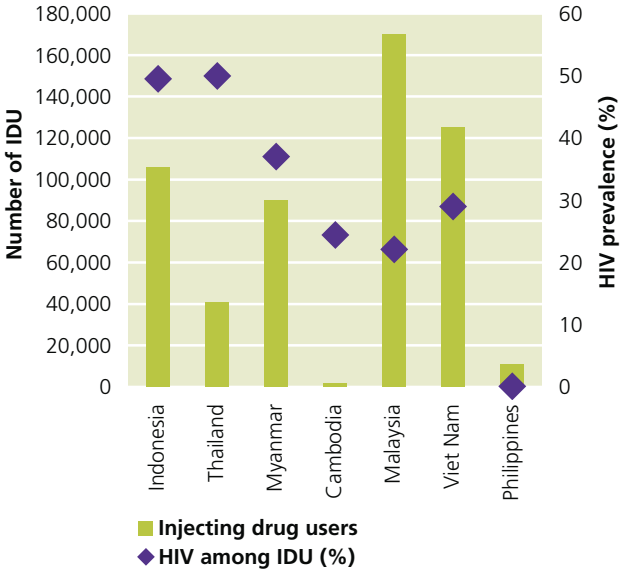



The treatment demand for methamphetamine in East and South-East Asia has also increased considerably over the last decade. It rose from on average a quarter of all treatment demand in 1998 to nearly half of all treatment admissions in 2009. The treatment demand for methamphetamine in 2009, or the latest year for which data is available, varied considerably across the countries and areas, ranging from nearly the entire treatment demand for methamphetamine use in Brunei Darussalam, the Republic of Korea and the Lao People's Democratic Republic to only 9% in Indonesia and Hong Kong, China.

Heroin and methamphetamine are the two common substances being injected in East and South-East Asia, with increasing trends reported of injecting methamphetamine in the subregion. In Thailand, injecting is the second most common method for using crystalline methamphetamine and the third most common method for abuse of methamphetamine pills.[14] In 2009, Indonesia reported an increasing trend in injecting heroin and crystalline methamphetamine, while Malaysia reported injecting of crystalline methamphetamine for the first time in 2009.[15] As a consequence, many countries in East and South-East Asia also have concentrated HIV epidemics that are in large part driven by sharing of contaminated needles and syringes among the injecting drug users.

**Fig. 105: East and South-East Asia: Number of injecting drug users and HIV prevalence among IDU in selected countries, 2009 or latest year available**

Source: United Nations Regional Task Force on Injecting Drug use and HIV and AIDS for Asia and the Pacific.




Infection with the hepatitis C virus (HCV), another major health consequence of injecting, is also reportedly high in the countries of East and South-East Asia. Among the countries and areas that reported prevalence of HCV among injecting drug users, this ranged between 50% in Macao, China to over 80% in Indonesia, Myanmar and Hong Kong, China.[16]

*Other Drugs, Asia and Pacific*, Global SMART Programme, 2010.

14 Pills are crushed, dissolved and injected.

15 UNODC, *Patterns and Trends of Amphetamine-Type Stimulants and Other Drugs, Asia and Pacific*, Global SMART Programme, 2010

16 UNODC ARQ.

**Fig. 106: Annual prevalence of amphetamines-group substances in selected areas in Oceania, 2007/2008***

* In the case of New Zealand the estimates are for 2008, while for the rest of the countries they are from 2007.

Source: UNODC.

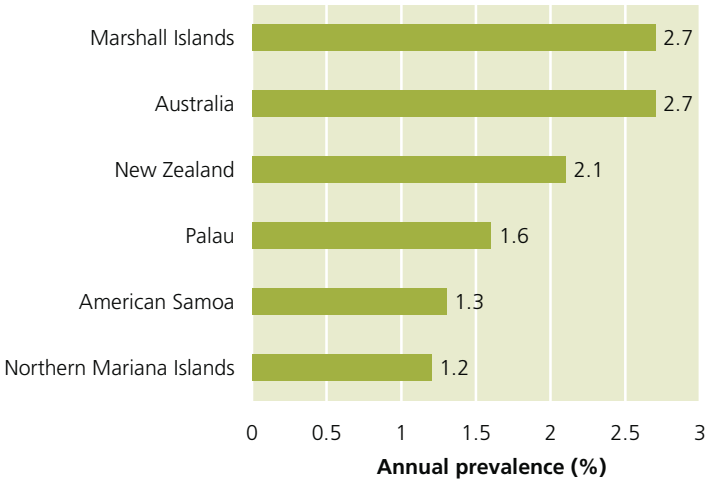


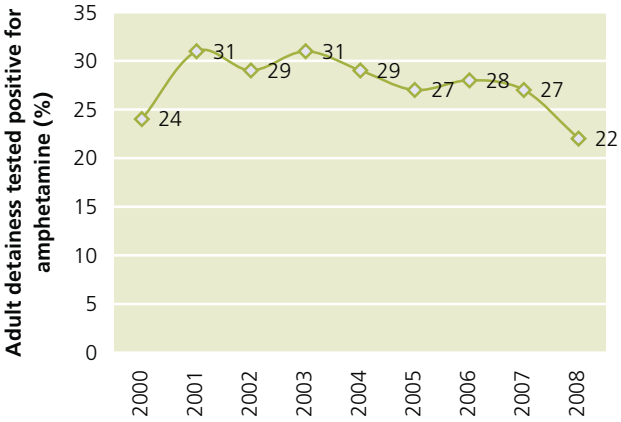

**Fig. 107: Australia: Prevalence of amphetamine use among students, 2002, 2005 and 2008**

Source: Australian secondary school students' use of tobacco, alcohol, and over-the-counter and illicit substance in 2008, Drug Strategy Branch, Australian Government Department of Health and Ageing, September 2009.


**Fig. 108: Australia: Proportion of detainees testing positive for use of amphetamines, 2000-2008**

* Trend data from the 4 original DUMA sites of Bankstown, Parramatta, East Perth and Southport

Source: Drug Use Monitoring in Australia: 2008 Annual Report on drug use among police detainees, Australian Institute of Criminology, 2010.




### Prevalence of amphetamines-group substances remains highest in Oceania but with declining trends in Australia and New Zealand

Oceania as a region reportedly has the highest prevalence rate of amphetamines-group substances, ranging between 2% to 2.8% of the population aged 15-64. Marshall Islands, Australia and New Zealand, with annual prevalence rates of 2.7%, 2.7% and 2.1% respectively, remain the countries with the highest prevalence rates. The Pacific island states and territories in the region with available data report high prevalence rates of amphetamines-group substances.

The annual prevalence of meth/amphetamine use among the population aged 14 and above in Australia declined from 3.4% in 2001 to 2.3% in 2007. Although there is no updated information on annual prevalence of amphetamines use among the general population since 2007, available information points to a continuing decline in the trends of amphetamines use reported through different indicators.

Among Australian students aged 12-17 there has been a significant decline in both the lifetime and past month prevalence of amphetamines use from 2002 to 2005 and further to 2008.[17] The lifetime prevalence among the students had declined to 3.7% in 2008 from the 6.6% reported in 2002.[18]

The monitoring among detainees who were tested for drug use in Australia in 2008 revealed that 22% of detainees tested positive for methamphetamine use, down from 27% in 2007. This proportion was lower than at any point in time since 2000.[19]

Among the injecting drug users who were interviewed as part of the Illicit Drug Reporting System (IDRS), the

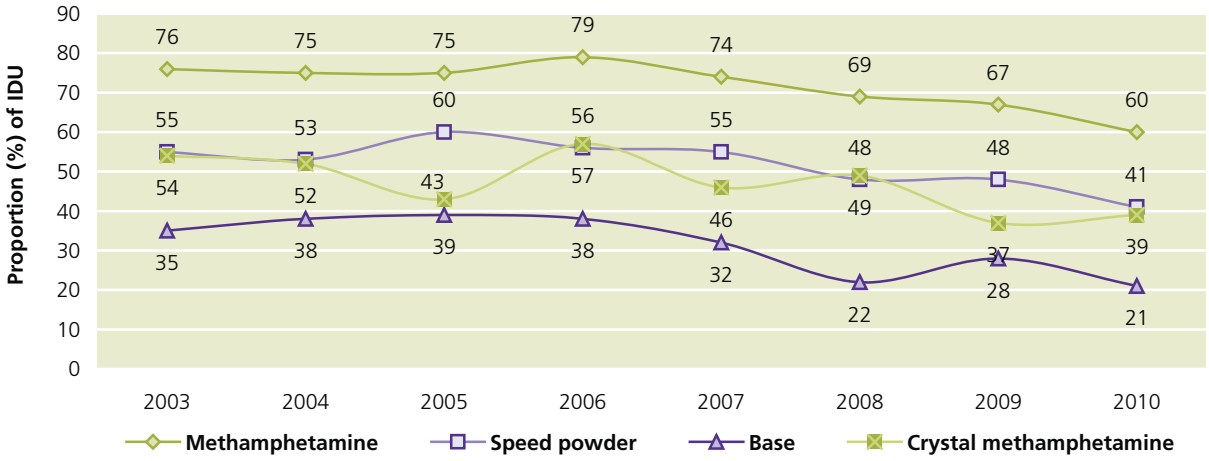
17 White V., Smith G., *Australian secondary school students' use of tobacco, alcohol, and over-the-counter and illicit substance in 2008*, Drug Strategy Branch, Australian Government Department of Health and Ageing, September 2009.

18 Like in other countries, the lifetime and past month prevalence of amphetamines use among students aged 16-17 is higher (6.2% and 2.4% respectively) than those aged 12-15 years (2.7% and 1.2% respectively).

19 Gaffney A., et al *Drug Use Monitoring in Australia: 2008 Annual Report on drug use among police detainees*, Australian Institute of Criminology, 2010

**Fig. 109: Australia: proportion of injecting drug users who reported use of methamphetamine in the preceding six months, 2003-2010**

Source: Illicit drug reporting system (IDRS), Australian Drug Trends 2010: Key Findings – Drug Trend Conference Handouts, Australian Government Department of Health and Ageing.



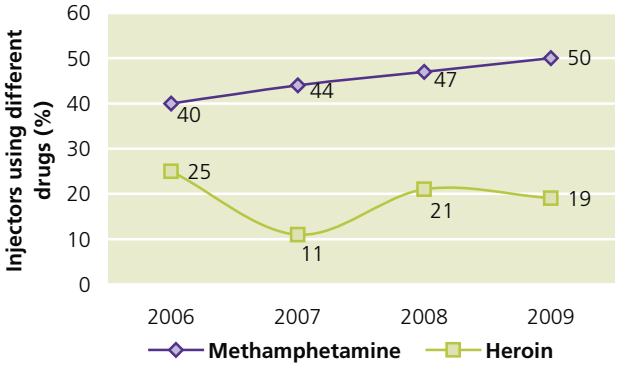

proportion of injecting drug users who had used any form of methamphetamine in the preceding six months declined each year between 2006 and 2010, and in 2010 reached its lowest level since 2003. The proportion of injectors who had used methamphetamine in the preceding six months dropped from 79% in 2006 to 74% in 2007 and continued to decline to 67% in 2009 and 60% in 2010.[20]

The prevalence of Hepatitis C among injecting drug users has remained stable at 61-62% over the period 2005-2008 in Australia, and is lower among those who reported using methamphetamine compared to those who reported heroin as the last drug injected. The HIV prevalence has also remained low at 1.5% among injecting drug users, but the prevalence is higher among drug users reporting methamphetamine as the last drug injected compared to those who reported last injecting heroin.[21]

The prevalence of amphetamines-group substances in New Zealand is among the highest in the world, where 2.1% of the population aged 16-64 had used amphetamine in the past year (2007/2008). Methamphetamine is also injected. About 0.5% of the population had used prescription stimulants for recreational purposes in the past year.[22] As part of the drug use monitoring among arrestees in New Zealand (NZ-ADAM), amphetamines were reported as the second most common drug (10%)

**Fig. 110: New Zealand: trends in injecting heroin and methamphetamine among frequent injectors, 2006-2009**

Source: Recent Trends in Illegal Drug Use in New Zealand, 2006-20009: Findings from the 2006, 2007,2008 and 2009 Illicit Drug Monitoring System (IDMS), Massey University, July 2010.




after cannabis, followed by methamphetamine (9%) among those tested for drug use in 2008.[23]

In contrast to Australia, methamphetamine use figures seem to be still rising in New Zealand. Among frequent injecting drug users the proportion of those who injected methamphetamine increased from 40% in 2006 to 50% in 2009. Frequent methamphetamine users, that is, those who had used the drug in the past 6 months, interviewed as part of Illicit Drug Monitoring System in New Zealand in 2009, were more likely to have injected methamphetamine in 2009 than in 2008 (35% vs. 23%).[24]

20 Illicit drug reporting system (IDRS), *Australian Drug Trends 2010: Key Findings – Drug Trend Conference Handouts,* Australian Government Department of Health and Ageing.

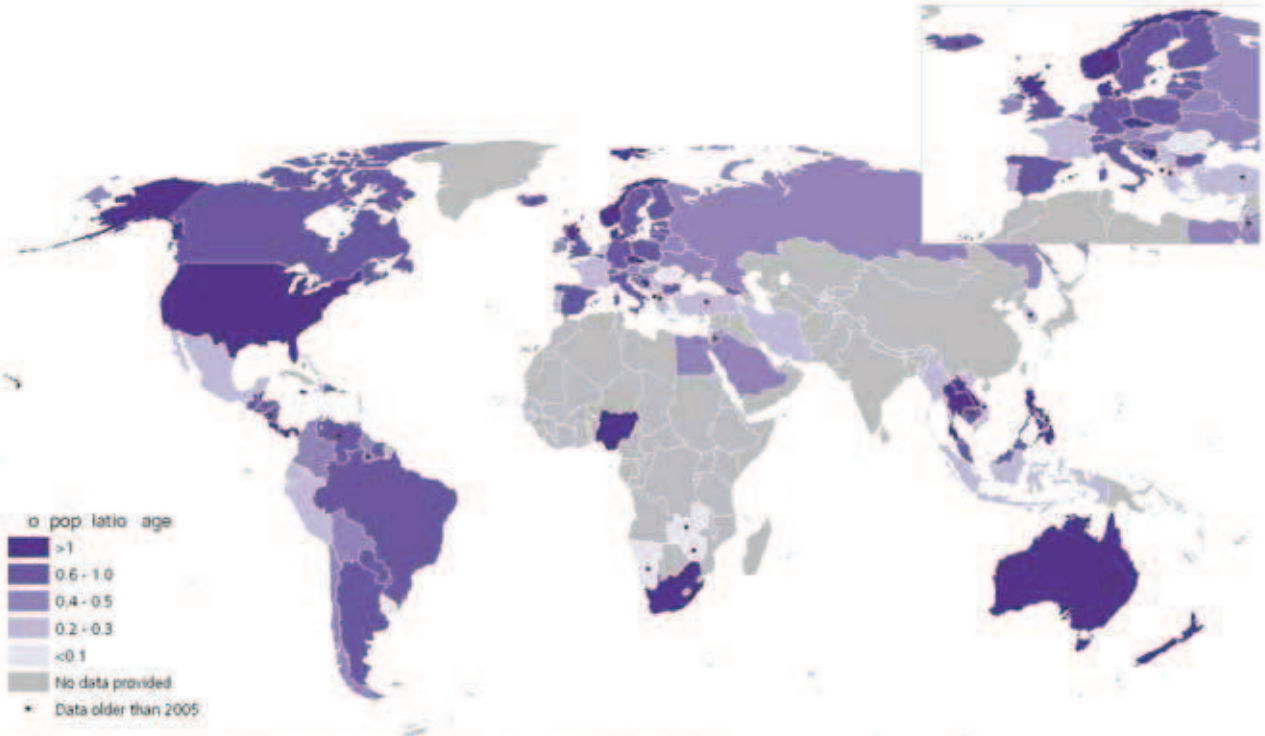
21 National Centre in HIV Epidemiology and Clinical Research., *Australian NSP Survey National Data Report 2005-2009*, The University of New South Wales, Sydney, 2010.

22 Ministry of Health, *Drug Use in New Zealand: Key Results of the 2007/08 New Zealand Alcohol and Drug Use Survey,* 2010.

23 Hales J and Manser J., *Annual report 2008- New Zealand Police NZ-ADAM,* Health Outcomes International Pvt. Ltd., October 2008.

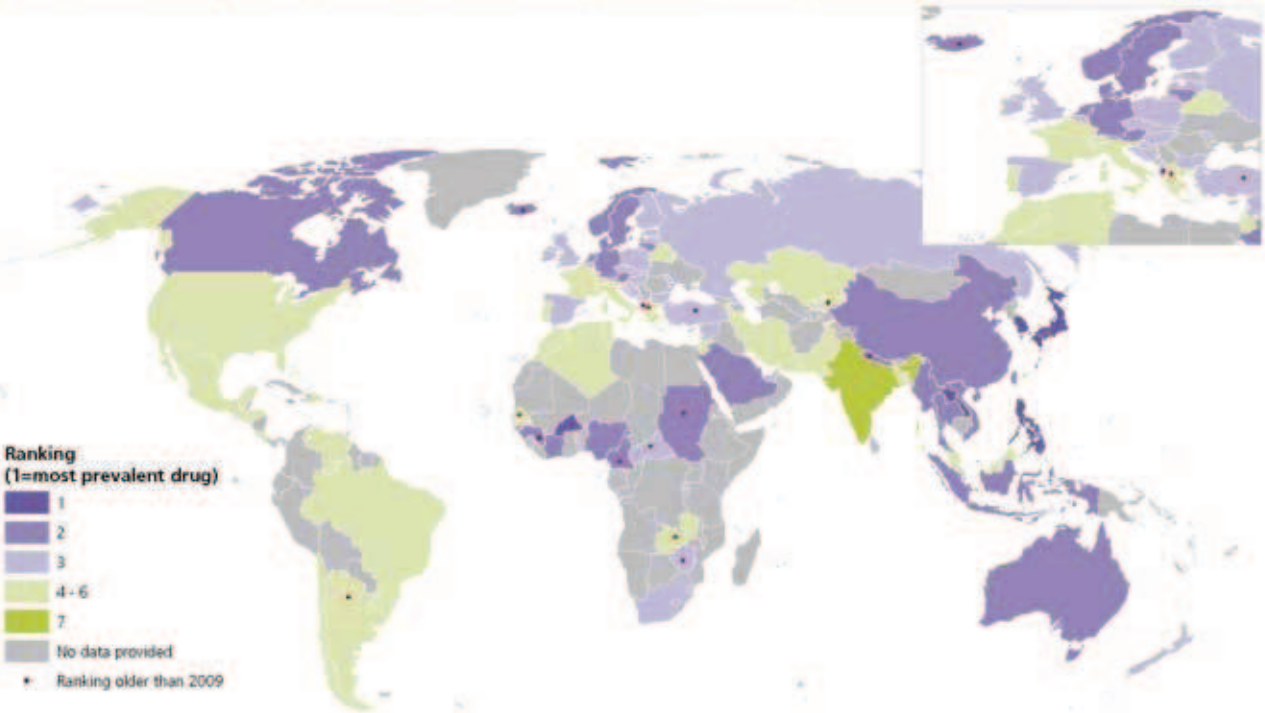
24 Wilkins C., et al, *Recent Trends in Illegal Drug Use in New Zealand, 2006-20009: Findings from the 2006, 2007,2008 and 2009,* Illicit Drug Monitoring System *(IDMS),* Massey University, July 2010.

## Map 26: Use of amphetamines, 2009 (or latest year available)



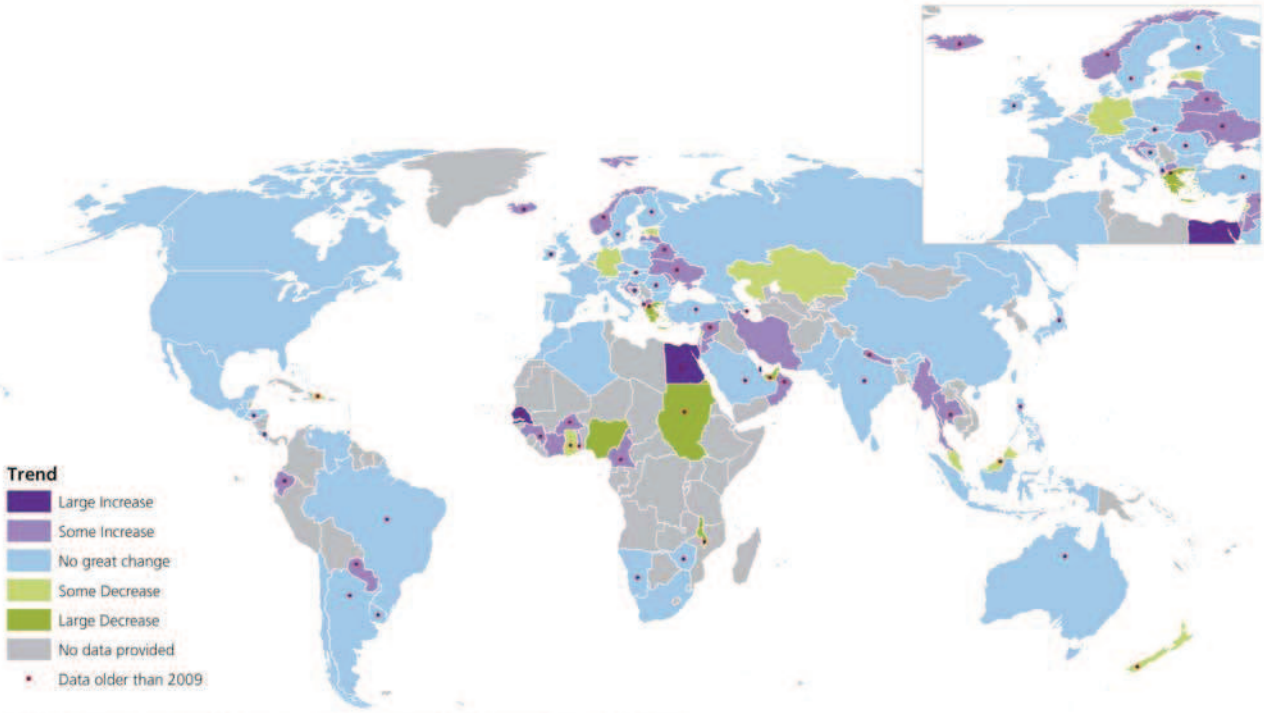

Note: The boundaries and names shown and the designations used on this map do not imply official endorsement or acceptance by the United Nations.
Dotted line represents approximately the Line of Control in Jammu and Kashmir agreed upon by India and Pakistan. The final status of Jammu and Kashmir has not yet been agreed upon by the parties.

## Map 27: Ranking of amphetamines in order of prevalence, 2009 (or latest year available back to 2005)



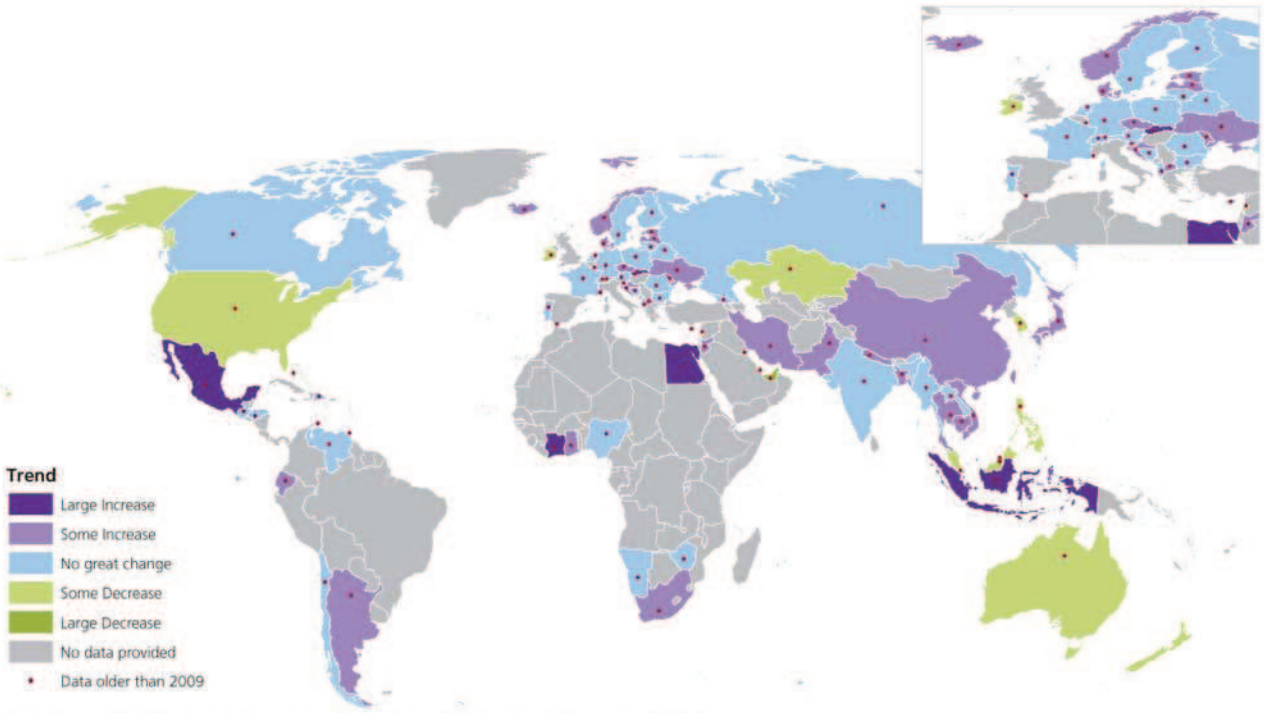

Note: The boundaries and names shown and the designations used on this map do not imply official endorsement or acceptance by the United Nations.
Dotted line represents approximately the Line of Control in Jammu and Kashmir agreed upon by India and Pakistan. The final status of Jammu and Kashmir has not yet been agreed upon by the parties.

## Map 28: Expert perception of trend changes in the use of amphetamines, 2009 (or latest year available back to 2005)



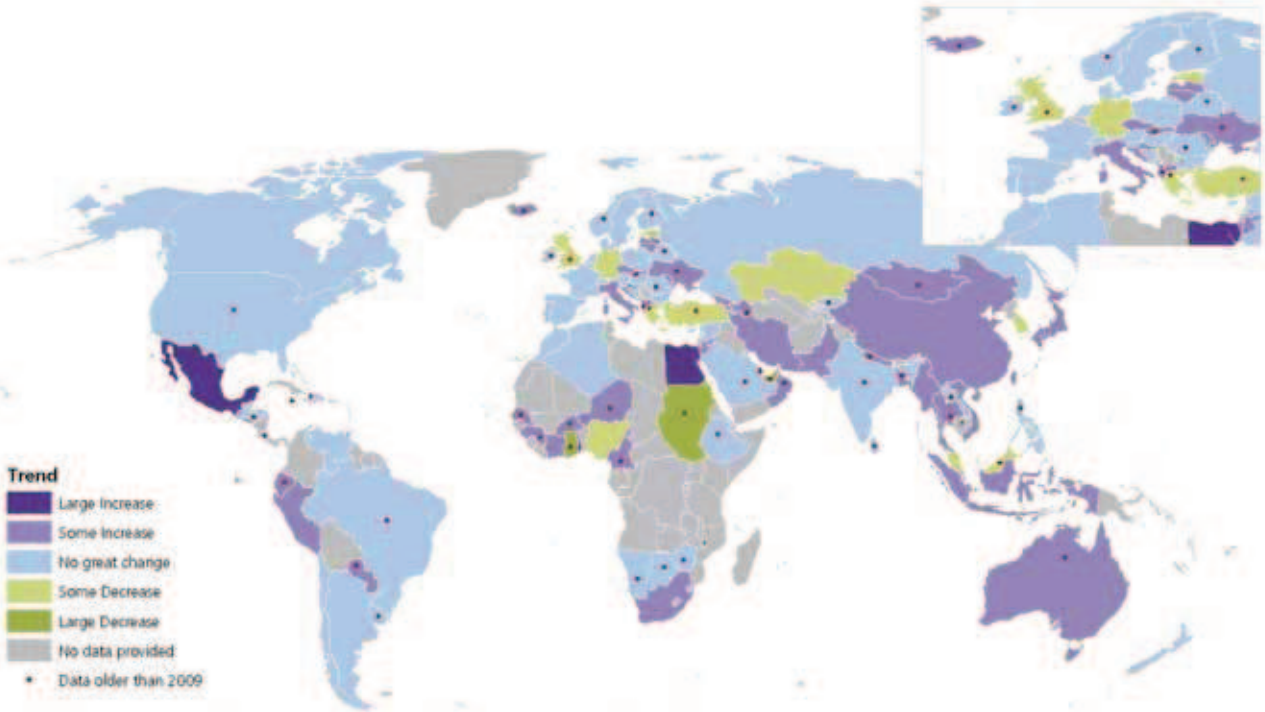

Note: The boundaries and names shown and the designations used on this map do not imply official endorsement or acceptance by the United Nations.
Dotted line represents approximately the Line of Control in Jammu and Kashmir agreed upon by India and Pakistan. The final status of Jammu and Kashmir has not yet been agreed upon by the parties.

## Map 29: Expert perception of trend changes in the use of methamphetamine, 2009 (or latest year available back to 2005)




Note: The boundaries and names shown and the designations used on this map do not imply official endorsement or acceptance by the United Nations.
Dotted line represents approximately the Line of Control in Jammu and Kashmir agreed upon by India and Pakistan. The final status of Jammu and Kashmir has not yet been agreed upon by the parties.

**Map 30: Expert perception of trends in the use of undefined amphetamines, 2009 (or latest year available)**




Note: The boundaries and names shown and the designations used on this map do not imply official endorsement or acceptance by the United Nations.
Dotted line represents approximately the Line of Control in Jammu and Kashmir agreed upon by India and Pakistan. The final status of Jammu and Kashmir has not yet been agreed upon by the parties.

## Ecstasy-group substances

Ecstasy-group substances include primarily MDMA and its analogues,[25] whose use is often associated with recreational settings such as night clubs and raves frequented by young people. Prevalence of 'ecstasy' use is thus particularly high among younger age cohorts and it often correlates with the number of raves and similar type of dance events taking place. Young people using 'ecstasy' may not necessarily be experimenters or regular users of other illicit substances, but being in the general environment of illicit drug use exposes them to increasing levels of opportunity and a greater chance to experiment with other illicit substances as well. While in developed countries, all sectors of society are affected by 'ecstasy' use, such use is still a phenomenon of the middle and upper classes in developing countries.

In 2009, UNODC estimates the global annual prevalence of 'ecstasy' use as between 0.2%-0.6% of the population aged 15-64, corresponding to between 11 and 28 million people who had used 'ecstasy' at least once in the previous year. As very little information was available, the estimated annual prevalence for 'ecstasy' use appears to have remained at around the same level as in the previous year (2008).

At the global level, most (47%) of the countries responding through the ARQ in 2010 perceived 'ecstasy' use to be stable in their countries. In the Americas (83%) and Europe (54%), the majority of the countries reported stable trends for 2009. Similarly, in Africa, the region with the fewest respondents on this question (reflecting low response rates as well as a low spread of 'ecstasy' use), the majority of countries (67%) also reported stable trends. The only region where most (47%) of the countries reported decreasing trends in 'ecstasy' use was Asia. There are indications that the stabilization or decline of 'ecstasy' use has been linked to reductions in the manufacture of 'ecstasy' which, in turn, appears to have been a consequence of some progress made in the control of precursor chemicals. Wherever the supply situation improved however, or where the perceptions of the harmfulness of 'ecstasy' declined, demand increased immediately, clearly showing that far more still needs to be done with regard to effective prevention.

### North America: signs of increased 'ecstasy' use in the United States, decline noted in Canada

The annual prevalence of 'ecstasy' use in North America is estimated at 1.1% or around 3.2 million people aged 15-64 who had used ecstasy-group substances in the previous year. Within the region, the United States of

25 Reports have shown that unbeknown to many ecstasy users what is sold to them as ecstasy (MDMA) is often a combination of many psychoactive substances, such as methamphetamine and ketamine. *Amphetamines and Ecstasy: 2008 Global ATS Assessment* (United Nations publications, Sales No. E.08.XI.12)

**Table 32: Annual prevalence and estimated number of 'ecstasy' users, by region, subregion and globally, 2009**

| Region/subregion | Estimated number of users annually (lower) | - | Estimated number of users annually (upper) | Percent of population age 15-64 (lower) | - | Percent of population age 15-64 (upper) |
|---|---|---|---|---|---|---|
| **Africa** | 390,000 | - | 1,900,000 | 0.1 | - | 0.3 |
| East Africa | | | | | | |
| North Africa | | | | | | |
| Southern Africa | 190,000 | - | 300,000 | 0.2 | - | 0.4 |
| West and Central Africa | | | | | | |
| **Americas** | 3,770,000 | - | 4,020,000 | 0.6 | - | 0.7 |
| Caribbean | 20,000 | - | 240,000 | 0.1 | - | 0.9 |
| Central America | 20,000 | - | 30,000 | 0.1 | - | 0.1 |
| North America | 3,210,000 | - | 3,210,000 | 1.1 | - | 1.1 |
| South America | 520,000 | - | 530,000 | 0.2 | - | 0.2 |
| **Asia** | 2,390,000 | - | 17,330,000 | 0.1 | - | 0.6 |
| Central Asia | | | | | | |
| East/South-East Asia | 1,480,000 | - | 6,920,000 | 0.1 | - | 0.5 |
| Near and Middle East | | | | | | |
| South Asia | | | | | | |
| **Europe** | 3,680,000 | - | 3,920,000 | 0.7 | - | 0.7 |
| East/South-East Europe | 1,190,000 | - | 1,370,000 | 0.5 | - | 0.6 |
| West/Central Europe | 2,490,000 | - | 2,560,000 | 0.8 | - | 0.8 |
| **Oceania** | 850,000 | - | 920,000 | 3.6 | - | 4.0 |
| **Global** | **11,080,000** | **-** | **28,090,000** | **0.2** | **-** | **0.6** |

**Table 33: Expert perceptions of trends in 'ecstasy' use, 2009**

| Region | Member States providing perception data | Member States perception response rate | Use problem increased* | Percent use problem increased* | Use problem stable | Percent use problem stable | Use problem decreased* | Percent use problem decreased* |
|---|---|---|---|---|---|---|---|---|
| Africa | 3 | 6% | 1 | 33% | 2 | 67% | 0 | 0% |
| Americas | 6 | 17% | 1 | 17% | 5 | 83% | 0 | 0% |
| Asia | 17 | 38% | 6 | 35% | 3 | 18% | 8 | 47% |
| Europe | 24 | 53% | 8 | 33% | 13 | 54% | 3 | 13% |
| Oceania | 1 | 7% | 0 | | 1 | | 0 | |
| Global | 51 | 27% | 16 | 31% | 24 | 47% | 11 | 22% |

*Identifies increases/decreases ranging from either some to strong, unweighted by population.

America has the highest prevalence rate of 1.4% of 'ecstasy' use among the general population.

Around 1.1 million people initiated their drug use with 'ecstasy' in the United States in 2009, signalling a significant increase over the previous year (894,000 people in 2008). Most (66.3%) of the 'ecstasy' users who had initiated in 2009 were aged 18 years or older, with an average age of 20.2 among those using 'ecstasy' for the first time in 2009.[26]

Since the decline in prevalence of 'ecstasy' use in 2002, the trends remained stable between 2003 and 2008, but began to register an increase in 2009.

A similar trend was observed among secondary school students, where the annual prevalence of 'ecstasy' use among students in the 8th, 10th and 12th grades, after having remained stable between 2003 and 2008, registered a clear increase over the 2008-2010 period, notably among the younger age groups, the 8th and 10th

26 Substance Abuse and Mental Health Services Administration. (2010). *Results from the 2009 National Survey on Drug Use and Health: Volume I. Summary of National Findings*, Rockville, Maryland, USA.

**Fig. 111: United States: Trends in prevalence of 'ecstasy' use among the population aged 12 years or older, 2002-2009**

Source: Substance Abuse and Mental Health Services Administration, Results from the 2009 National Survey on Drug Use and Health: Volume I. Summary of National Findings.

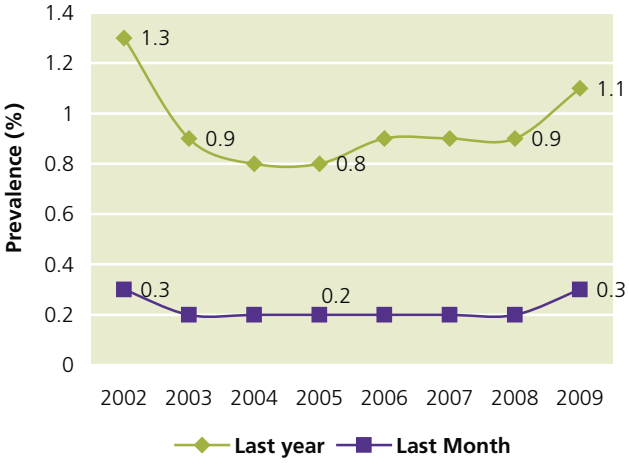
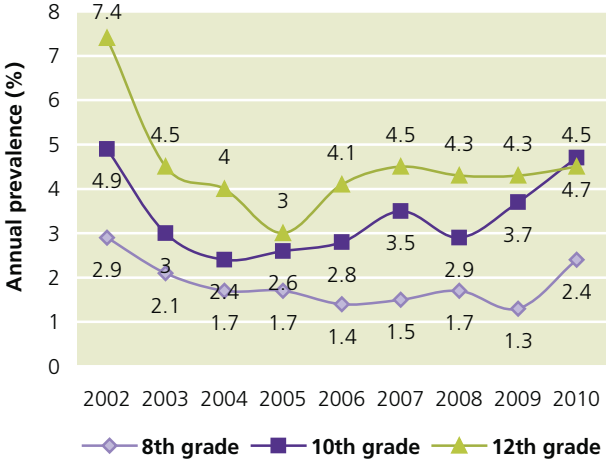



**Fig. 112: United States: Trends in annual prevalence of 'ecstasy' use among secondary school students, 2002-2010**

Source: Monitoring the Future: national results on adolescent drug use: Overview of key findings, Institute for Social Research, The University of Michigan, USA.




graders.[27] US data among high school students did not indicate any increase in the availability of 'ecstasy.' The increase of 'ecstasy' use went, however, hand in hand with reduced risk perceptions of the harmfulness of using the substance.

By contrast, in Canada, 'ecstasy' use declined in 2009 compared to the previous year. The annual prevalence of 'ecstasy' use among the population aged 15-64 was reported at 1.1% in 2009, down from 1.7% in 2008.[28] The annual prevalence among young people, aged 15-19, was 3% in 2009.[29]

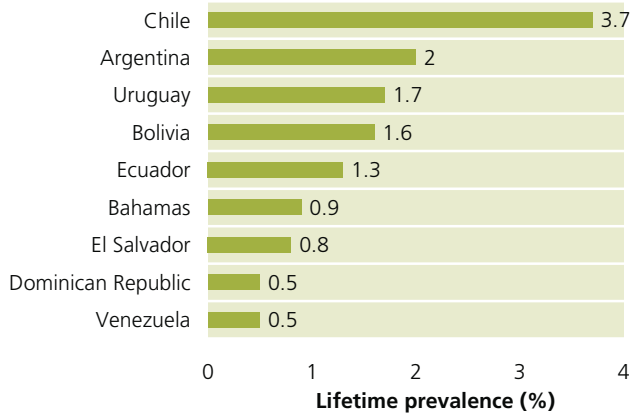
For Mexico there are no recent quantitative estimates on 'ecstasy' use. Expert perceptions indicate an increasing 'ecstasy' use trend in the country.

**In Central and South America, 'ecstasy' use remains low in the general population but higher among youth.**

There is no update on 'ecstasy' use in Central and South America. Available information suggests, however, that the annual prevalence among the general population remains much lower in these subregions than the world average, ranging between 0.1% in Chile and 0.5% in Argentina. El Salvador, Peru and Trinidad and Tobago reported a perceived increase in 'ecstasy' use over the past year. As in other countries, information on 'ecstasy'

**Fig. 113: South and Central America: lifetime prevalence of 'ecstasy' use among youth, 2008 or 2009**

Source: UNODC ARQ.




use among school children in South and Central America shows much higher prevalence rates than for the general population. The latest information (2008 or 2009) on lifetime prevalence of 'ecstasy' shows the prevalence rates ranging from 0.5% in the Bolivarian Republic of Venezuela to 3.7% in Chile.

In Brazil, the annual prevalence of 'ecstasy' use according to a national survey conducted among university students in 2009 was 3.1%, clearly exceeding UNODC's general population estimates of around 0.2%. Like in the rest of the world, 'ecstasy' use was found to be more common among male than female students. The annual and past 30 days prevalence was higher among students aged 18-24 than for any other age group.[30]

27 Johnston, L. D., et al., *Monitoring the Future national results on adolescent drug use: Overview of key findings, 2010*, Institute for Social Research, The University of Michigan, Ann Arbor, Michigan, USA.

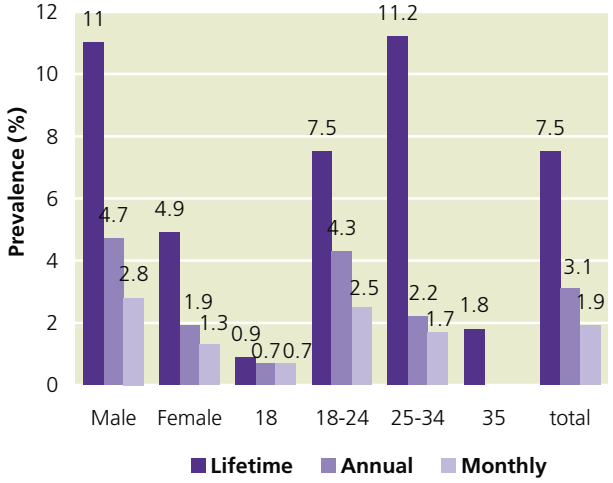
28 UNODC ARQ.

29 For prevalence among youth, Canada reported only the annual prevalence among young people in 2008 as 6.2% among young people aged 12-17, while in 2009, the annual prevalence was reported at 4.5% and last year prevalence at 3% among those aged 15-19.

30 Andrade, A.G., Duarte, P. and Oliveira, L.G., *I Levantamento Nacio-*

**Fig. 114: Brazil: prevalence of 'ecstasy' use among university students, 2009**

Source: I Levantamento Nacional Sobre O Uso De Álcool, Tabaco E Outras Drogas Entre Universitarios Das 27 Capitais Brasileiras, Secretaria Nacional Politicas sobre Drogas.




### 'Ecstasy' use is reported to be stabilizing in Europe, but use patterns are becoming more polarized among club-goers and the general population

The annual prevalence of 'ecstasy' use in Europe is estimated at 0.7% of the adult population. Between 3.7 and 4 million people aged 15-64 years used 'ecstasy' in the past year in Europe. The 'ecstasy' use prevalence rate is still higher in West and Central Europe (0.8%) than in East and South-East Europe (0.6%).

Most of the countries in Europe are now reporting stabilizing trends of 'ecstasy' use. Updated or new estimates for 'ecstasy' use were available from some countries in Europe, including Belgium, Cyprus, Germany, Spain Sweden and the United Kingdom (England and Wales, and Scotland). Many of these countries have reported a decline in the annual prevalence in their current surveys compared to previous years. This is in line with reports of manufacturing difficulties in a number of European countries in recent years, and thus the use of various other substances than MDMA in 'ecstasy' tablets. The Czech Republic, Latvia, Slovakia and the United Kingdom remain countries with high 'ecstasy' use prevalence rates in the general population.

Like in other parts of the world, most of the 'ecstasy' users are young people aged 15-34. The EMCDDA in its annual report for 2010 mentions that practically all of the estimated 2.5 million 'ecstasy' users who had used 'ecstasy' in the past year were between 15 and 34 years old.

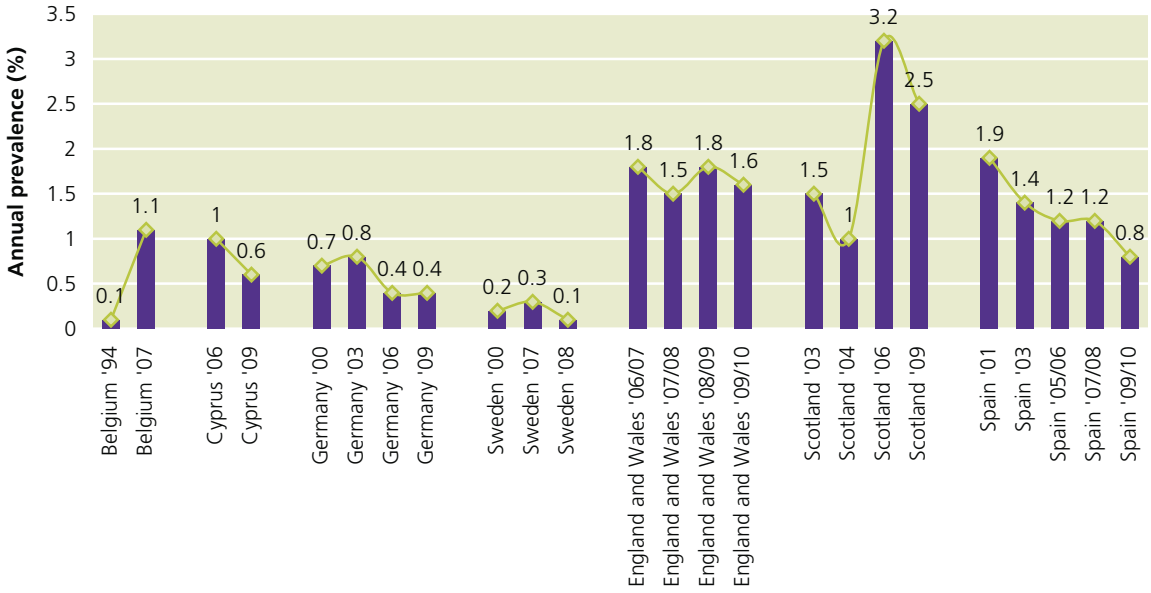
Targeted surveys in nightlife settings in European countries suggest that the prevalence and patterns of stimulants and 'ecstasy' use, together with alcohol, remains high. Some studies even suggest that drug use patterns among club-goers are becoming increasingly 'polarized,' that is, showing ever higher prevalence rates, in sharp contrast to the situation among the general population.[31]

### Lack of information from Africa makes it difficult to determine any trends in 'ecstasy' use in the region

Based on very limited country information, the annual prevalence of 'ecstasy' use – based on UNODC's

**Fig. 115: Europe: trends in 'ecstasy' use in selected countries and areas, various years**

Source: EMCDDA; UNODC ARQ.




*nal Sobre O Uso De Álcool, Tabaco E Outras Drogas Entre Universitarios Das 27 Capitais Brasileiras,* Secretaria Nacional Politicas sobre Drogas, Brasilia 2010.

31 EMCDDA, *The State of the Drugs Problem in Europe: Annual Report 2010,* 2010.

**Table 34: Asia: countries and areas reporting expert perception in 'ecstasy' use in 2009**

Source: UNODC ARQ.

| Decrease | Stable | Increase |
|---|---|---|
| China | Korea (Republic of) | Armenia |
| Hong Kong, China | Kuwait | Georgia |
| Macao, China | Malaysia | Israel |
| Indonesia | | Lebanon |
| Japan | | Pakistan |
| Kazakhstan | | Viet Nam |
| Singapore | | |
| Thailand | | |

standard model - is estimated between 0.1% and 0.3% in Africa. The actual figures are probably closer to the lower end of the range or perhaps even below that range, as 'ecstasy' use in Africa is still primarily a phenomenon of youth from the upper classes and/or concentrations in some tourist resorts where the prime target group is foreigners from overseas. The wide range in the estimates is due to missing data or information on 'ecstasy' use from most of the region. Only three countries in Africa - Algeria, Morocco and South Africa - reported expert opinions on 'ecstasy' use trends through the ARQ in 2009. While Morocco reported an increase in 'ecstasy' use, Algeria and South Africa reported stabilizing trends for 2009.

### Mixed trends on 'ecstasy' use reported from Asia

In 2009, nearly half (47%) of the Asian countries reporting expert opinion on 'ecstasy' use through the ARQ considered its trends to be decreasing, while one third of the countries reported increasing trends in the past year. The annual prevalence of 'ecstasy' use in Asia is estimated between 0.1% and 0.6% of the population aged 15-64, or some 2.4 to 17 million people who could have used 'ecstasy' at least once in the previous year. The wide range in the estimates reflects the uncertainty due to lack of information on 'ecstasy' use for most parts of Asia.

### 'Ecstasy' use in New Zealand and Australia remains high

Oceania (primarily Australia and New Zealand) has the highest prevalence of 'ecstasy' use in the world, with annual prevalence ranging from 3.6% to 4% of the adult population. This corresponds to between 850,000 and 920,000 people who had used 'ecstasy' at least once in the preceding year.

The annual prevalence of 'ecstasy' use among the population aged 16-64 in New Zealand ranged from 2% to 3%, or an estimated 67,000 people which reported having used 'ecstasy' in the previous year (2007/2008). The highest prevalence, like in other countries, was reported among the 18-24 year age group; higher among men than women (annual prevalence of 8.9% among men and 4.9% among women in this age group). Most of the 'ecstasy' users in New Zealand were reported to have used it with alcohol (78.9%), cannabis (42.8%) and benzylpiperazine (BZP) party pills[32] (13.5%).[33]

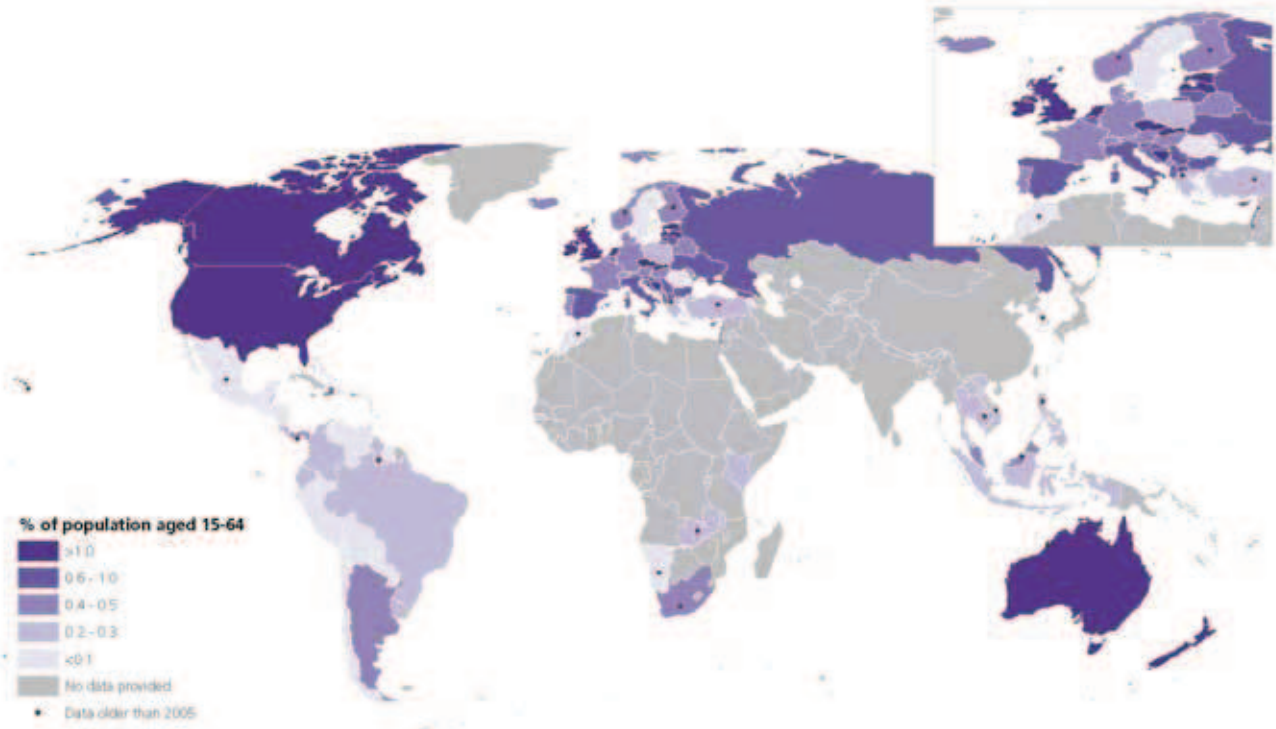
In Australia, 'ecstasy' use was estimated at around 4.2% of the population aged 15-64 in 2007. Since then, there has been no update on drug use prevalence in Australia. However, in 2010, a survey carried out among 974 athletes indicated that one quarter had been offered or had the opportunity to use 'ecstasy' in the past 12 months. This was a higher proportion than for cannabis (22%) and cocaine (17%). Past year 'ecstasy' use was reported by 3.2% of the sample.[34]

32 Products containing benzylpiperazine (BZP) and related substances, with stimulant and euphoric effects.

33 Ministry of Health *Drug Use in New Zealand: Key Results of the 2007/08, New Zealand Alcohol and Drug Use Survey*, 2010.

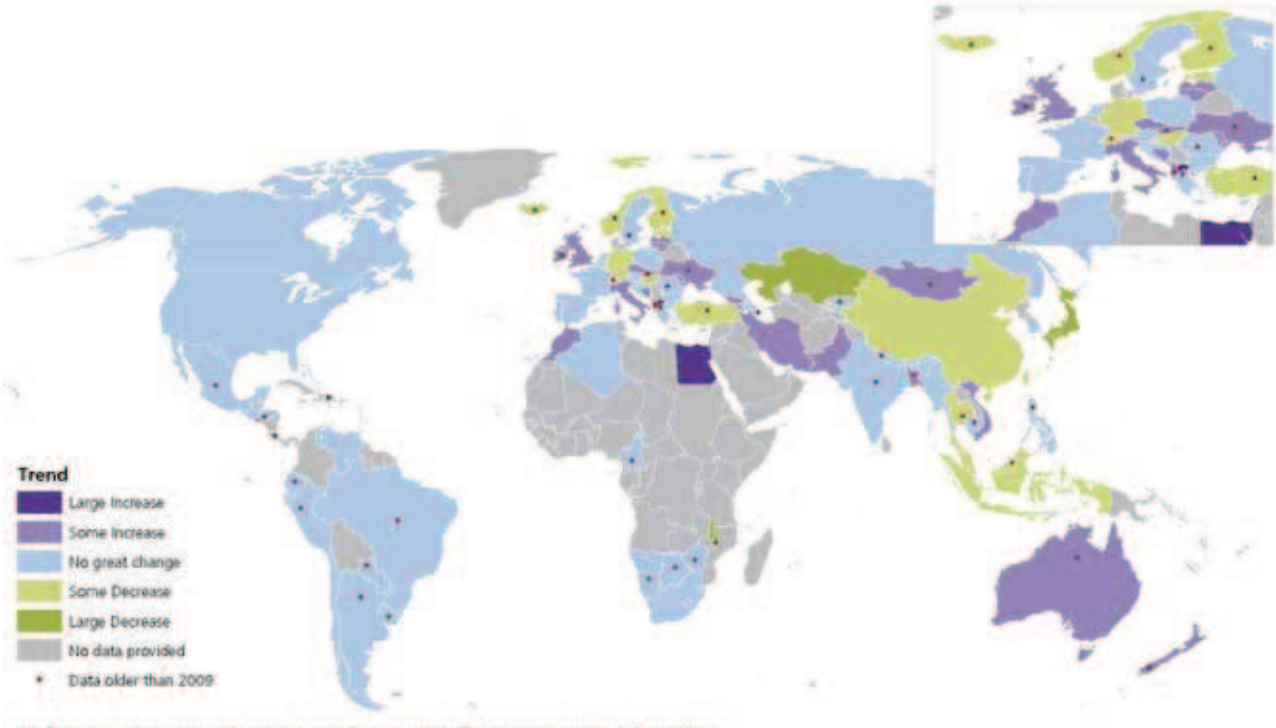
34 Dunn, M. and Thomas, J.O., 'Attitudes toward, knowledge of, and prevalence of recreational drug use among elite Australian athletes,' *EDRS Drug Trends Bulletin*, April 2010, Sydney: National Drug and Alcohol Research Centre, University of New South Wales.

## Map 31: Use of 'ecstasy' in 2009 (or latest year available back to 2005)




Note: The boundaries and names shown and the designations used on this map do not imply official endorsement or acceptance by the United Nations.
Dotted line represents approximately the Line of Control in Jammu and Kashmir agreed upon by India and Pakistan. The final status of Jammu and Kashmir has not yet been agreed upon by the parties.

## Map 32: Expert perception of trend changes in the use of 'ecstasy', 2009 (or latest year available back to 2005)




Note: The boundaries and names shown and the designations used on this map do not imply official endorsement or acceptance by the United Nations.
Dotted line represents approximately the Line of Control in Jammu and Kashmir agreed upon by India and Pakistan. The final status of Jammu and Kashmir has not yet been agreed upon by the parties.

## 4.3 Manufacture

Unlike the illicit cultivation of coca plant and opium poppy which is constrained to specific locations, the manufacture of ATS is not geographically limited. ATS laboratories tend to be located close to the illicit markets for these drugs. Precursors and other chemicals used in the illicit manufacture of ATS are frequently trafficked across regions.

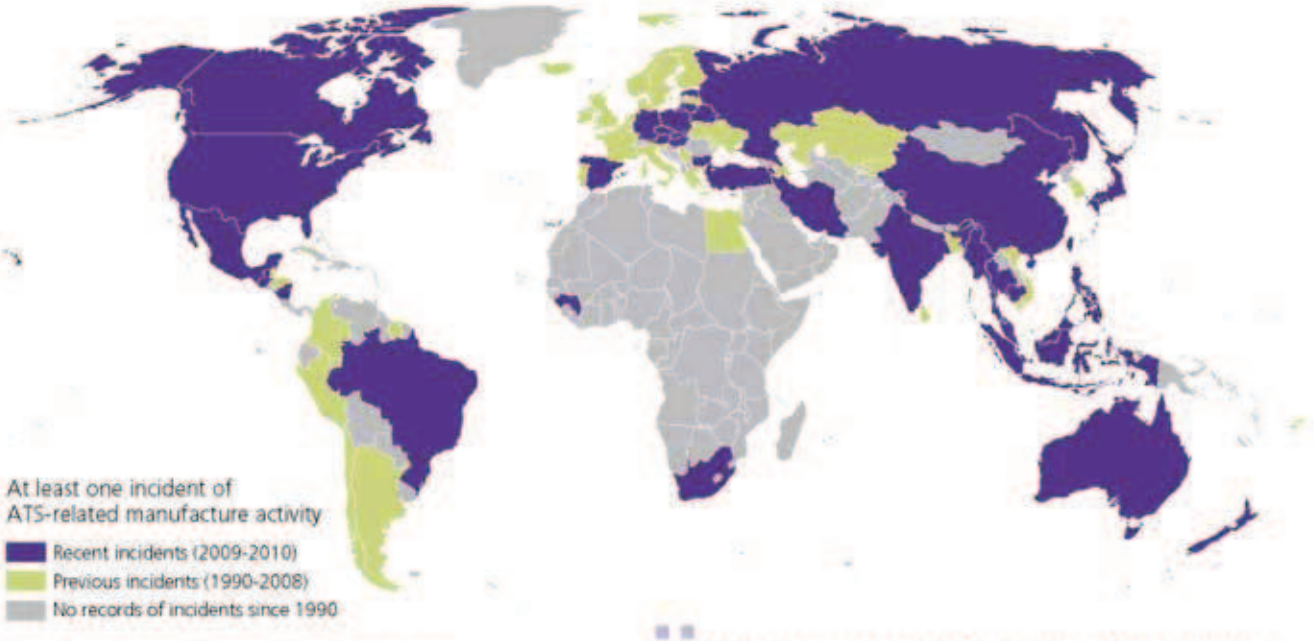
Over the past two decades, there has been a spread in ATS manufacture, with more than 60 Member States having reported ATS manufacturing activity to date. Manufacture has been reported from all regions of the world. Since 2000, significant ATS manufacture has been reported to UNODC in a number of small clandestine laboratories, as well as in larger-scale operations, from Australia, Belgium, Bulgaria, Canada, China,[35] the Czech Republic, Germany, Indonesia, Malaysia, Mexico, Republic of Moldova, Myanmar, the Netherlands, New Zealand, the Philippines, Poland, the Russian Federation, Slovakia, South Africa and the United States of America.

### The global number of ATS laboratories continues to increase

In 2009, the seizure of some 10,600 ATS-related laboratories was reported to UNODC through the Annual Reports Questionnaire, which represents an increase of 26% from the 8,400 laboratories reported in 2008, though still down from the peak of 19,800 reported in 2004.[36] The overall trend reflects seizures reported from the United States which continues to dismantle the vast majority of all illicit ATS laboratories worldwide. Small methamphetamine labs are the typical pattern in the United States.

Methamphetamine is still, by far, the most widely manufactured amphetamine-type stimulant worldwide. Amphetamine and 'ecstasy' manufacture operations tend to be fewer in number but more sophisticated, as they require more specialized equipment, precursor chemicals and greater skill levels.

**Map 33: Member States reporting ATS-related manufacture* since 1990**



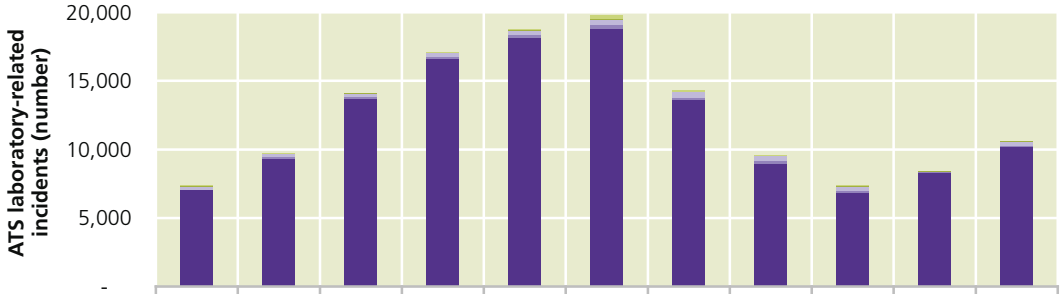

* Includes ATS precursor extraction laboratories and attempts thwarted by law enforcement.
Note: The boundaries and names shown and the designations used on this map do not imply official endorsement or acceptance by the United Nations. Dotted line represents approximately the Line of Control in Jammu and Kashmir agreed upon by India and Pakistan. The final status of Jammu and Kashmir has not yet been agreed upon by the parties.

35 Includes all provinces and Special Administrative Regions.

36 As there is no standardized definition of a clandestine laboratory, figures reflect any stage of a seized laboratory operation reported to UNODC, such as a location containing laboratory equipment and chemicals in preparation for manufacturing, a location where synthesis or tableting are/were occurring and toxic dumpsites where chemicals and equipment are illicitly discarded.

**Fig. 116: Total number of ATS laboratory incidents, 1999-2009**

Source: UNODC DELTA.




| | 1999 | 2000 | 2001 | 2002 | 2003 | 2004 | 2005 | 2006 | 2007 | 2008 | 2009 |
|---|---|---|---|---|---|---|---|---|---|---|---|
| ATS lab total | 7,412 | 9,726 | 14,138 | 17,093 | 18,783 | 19,799 | 14,312 | 9,611 | 7,398 | 8,415 | 10,598 |
| Other synthetic stimulants | 68 | 19 | 5 | 24 | 70 | 282 | 92 | 51 | 35 | 1 | 7 |
| Ecstasy group | 62 | 64 | 70 | 59 | 49 | 87 | 63 | 56 | 72 | 53 | 52 |
| Combined ATS | 204 | 221 | 272 | 244 | 314 | 330 | 370 | 361 | 344 | 15 | 300 |
| Amphetamine | 59 | 115 | 85 | 132 | 161 | 322 | 159 | 154 | 109 | 44 | 44 |
| Methamphetamine | 7,019 | 9,307 | 13,706 | 16,634 | 18,189 | 18,778 | 13,628 | 8,989 | 6,838 | 8,302 | 10,195 |

In 2009, the global number of methamphetamine laboratories increased significantly, by 22%, to almost 10,200, up from 8,300 in 2008. The numbers of reported methamphetamine laboratories have continued to increase since 2007, but are still significantly lower than their peak in 2004. While the overall number of dismantled methamphetamine laboratories increased at the global level in 2009, the increase was largely concentrated in the United States. The number of dismantled (and reported) laboratories outside the United States declined in 2009 from a year earlier, but was still at the second highest level so far.

### Significant manufacturing locations

Methamphetamine is manufactured in all North American countries. Over the last decade - and notably in 2009 - Mexico has become an important manufacturing location. In 2009, Mexico reported the dismantling of 191 laboratories, up from 21 in 2008. The upward trend in manufacturing appears to have continued in 2010, with 63 laboratories dismantled up to May 2010.[37] While the number of laboratories seized in Mexico is still substantially lower than in the United States, the Mexican operations tend to manufacture large quantities of end products, whereas many laboratories in the United States appear to be manufacturing the substance on a far smaller scale. There are also increasing incidents of methamphetamine-related manufacturing occurring throughout Central and South America. In 2010, for instance, authorities in Nicaragua dismantled a large clandestine methamphetamine laboratory.

Another important region in terms of illicit methamphetamine manufacture is East and South-East Asia, where a significant number of clandestine methamphetamine laboratories have been dismantled over the past several years.[38] Previously, illicit ATS manufacturing laboratories were primarily large industrial-scale operations. In recent years, however, several countries reported seizures of a significant number of smaller laboratories, a trend that continued in 2009.

China reported the seizure of 391 clandestine synthetic drug laboratories and storage facilities in 2009. Most of these were in Guangdong, Sichuan and Hubei provinces and were primarily manufacturing crystalline methamphetamine and ketamine. In 2008, a total of 244 unspecified laboratories were dismantled in China. ATS manufacture is becoming increasingly diversified in China with different stages of manufacturing being divided across provinces.

Indonesia seized 35 clandestine synthetic drug-manufacturing laboratories in 2009, the highest figure reported to date. These included 25 large-scale and 10 small-scale laboratories.

Clandestine ATS manufacture in Hong Kong, China has been dominated by tableting and repackaging operations. In 2009, two small-scale manufacturing facilities for crystalline methamphetamine were reported in Hong Kong, China.[39]

Over the past five years, Malaysia has become a significant methamphetamine manufacturing location. In

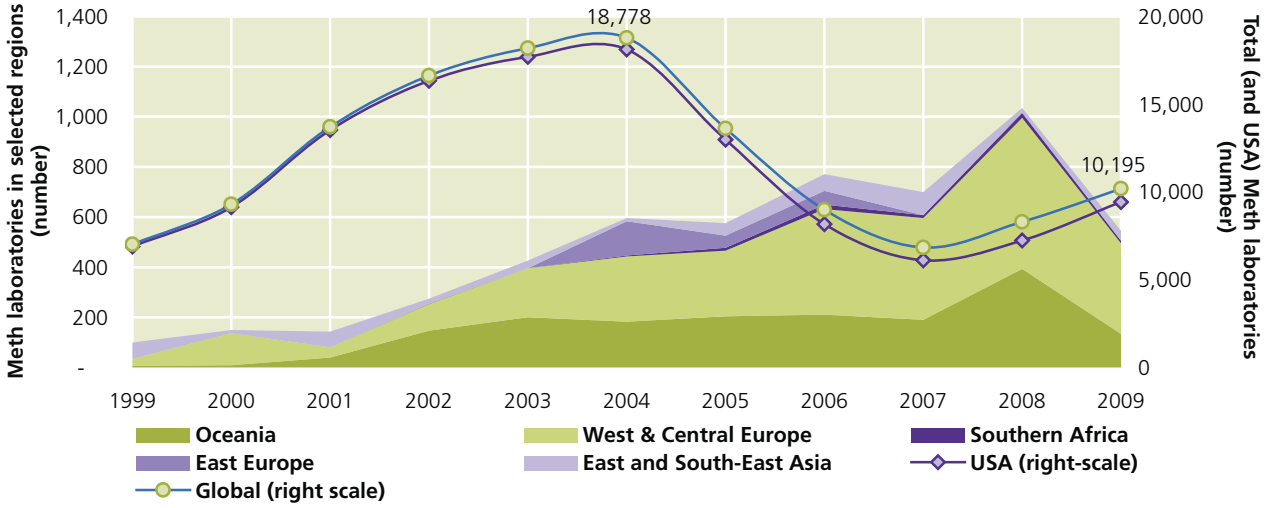
37 US Department of State, *International Narcotics Control Strategy Report*, March 2011.

38 For East and South-East Asia, most ATS data is available through the UNODC Global Synthetics Monitoring: Analyses, Reporting and Trends (SMART) Programme, which assists countries in the region in the monitoring of drug trends, with a particular focus on ATS.

39 UNODC, *Patterns and trends of amphetamine-type stimulants and other drugs- Asia and the Pacific*, Global SMART Programme, November 2010.

**Fig. 117: Number of reported methamphetamine laboratory incidents, 1999-2009**

Source: UNODC DELTA.




2009, 11 clandestine ATS manufacturing laboratories were seized. Most of the laboratories were located in Kuala Lumpur and southern Malaysia.[40]

In the Philippines, illicit manufacture of crystalline methamphetamine was first reported in 1996, and in 1997, the first industrial-scale clandestine manufacturing facility was reported. The manufacture of crystalline methamphetamine continues in the Philippines, with 9 manufacturing laboratories detected in 2009. Clandestine methamphetamine manufacturing laboratories have been seized across the country in recent years and have been located in both rural and urban areas. The laboratories have also shifted from large and medium-sized facilities in previous years to smaller 'kitchen type' facilities in 2009.[41] In 2009, most of the seized clandestine laboratories were again located in urban areas.[42]

### Myanmar main source of methamphetamine pills in South-East Asia

Myanmar is the primary source of the region's methamphetamine in pill form. Reported seizures of clandestine manufacturing laboratories in Myanmar in previous years have mainly consisted of tableting operations. This is inconsistent, however, with the vast number of pills seized throughout the region. Extensive forensic profiling of methamphetamine seized in Thailand suggests that there are likely 12 large-scale methamphetamine manufacturing operations in the 'Golden Triangle' region. While there have been no facilities seized for crystalline methamphetamine manufacture, authorities in both Myanmar and Thailand confirm that manufacture occurs in Myanmar and has been the source of most crystalline methamphetamine seized in the northern part of Thailand in the past few years.

In Japan, the illicit manufacture of ATS is rare. In June 2010, however, police arrested two nationals of the Islamic Republic of Iran on suspicion of manufacturing methamphetamine. This was the first such incident in the country since 1995.

### Australia and New Zealand report methamphetamine manufacture; little data from the Pacific Island states and territories

In Oceania, ATS manufacture has been reported from Australia and New Zealand. Australia reported the dismantling of 316 ATS manufacturing laboratories in 2009. Most of the laboratories were identified as manufacturing methamphetamine and amphetamine. New Zealand reported that a total of 135 laboratories were dismantled in 2009, primarily for methamphetamine. Further increases in the number of laboratories might be recorded in 2010 due to the increased efforts of the Government of New Zealand to tackle methamphetamine.[43]

Little data is available from the Pacific Island states and territories, which remain vulnerable to illicit manufacture of amphetamine-type stimulants, given the fact that several of the countries are not parties to the 1988 United Nations Convention Against Illicit Traffic in Narcotic Drugs and Psychotropic Substances.[44]

40 UNODC, *Patterns and trends of amphetamine-type stimulants and other drugs- Asia and the Pacific*, Global SMART Programme, November 2010.

41 Communication with the Philippine Drug Enforcement Agency, August 2010.

42 Philippine Drug Enforcement Agency, *Philippine National ATS Situation 2008-2009,* presented at the Global SMART Programme Regional Workshop, Bangkok, 5-6 August 2010.

43 *Monthly Illicit Drug Assessment*, National Drug Intelligence Bureau (NDIB), Wellington, January 2010.

44 These include Kiribati, Nauru, Palau, Papua New Guinea, Solomon

### Level of methamphetamine manufacture in Europe comparatively low

Compared to most other regions of the world, illicit manufacture of methamphetamine in Europe is fairly low. Until recently, methamphetamine manufacture was largely confined to the Czech Republic, where some 300-400 mostly small-scale manufacturing sites are being dismantled every year. These are so-called kitchen laboratories, which typically manufacture a few grams of drugs at a time. Seizures of methamphetamine manufacturing facilities were also reported to Europol in neighbouring countries such as Slovakia, Germany, Poland and Austria. The second hub of methamphetamine supply is centred around the Baltic countries, particularly Lithuania and Estonia.[45]

Methamphetamine manufacture is rarely reported from Africa, except for South Africa and Egypt. In 2009, 10 methamphetamine laboratory incidents were reported from South Africa, compared to 20 such incidents reported for 2008.

### The global number of dismantled amphetamine laboratories remains stable

In 2009, 44 amphetamine laboratories were reported, remaining essentially stable compared to 2008. Most of these laboratories continue to be reported in Europe, particularly West, Central and East Europe.

According to the European Monitoring Centre on Drugs and Drug Addiction, most amphetamine seized in Europe is manufactured, in order of importance, in the Netherlands, Poland and Belgium, and to a lesser extent in Estonia, Lithuania and the United Kingdom. In 2007, 29 sites involved in the production, tableting or storage of amphetamine were discovered in the European Union and reported to Europol.

The relatively low number of amphetamine laboratories reported is inconsistent with the high number of global amphetamine seizures which have continued to rise over the past two years.

### Increase in seizures of precursors for methamphetamine and amphetamine manufacture

Ephedrine and pseudoephedrine are the main precursors for methamphetamine and both substances are controlled in Table I of the 1988 United Nations Convention Against Illicit Traffic in Narcotic Drugs and Psychotropic Substances. Seizures of these precursors can provide some indications about manufacturing trends. In 2009, 41.9 mt of ephedrine and 7.2 mt of pseudoephedrine were seized, compared to 18.2 mt of ephedrine and 5.1 mt of pseudoephedrine in 2008.[46] Recently, there has been a shift from bulk substances to pharmaceutical preparations used in the illicit manufacture of methamphetamine.

**Fig. 118: Number of seized amphetamine laboratories, 1999-2009**

Source: UNODC ARQ.

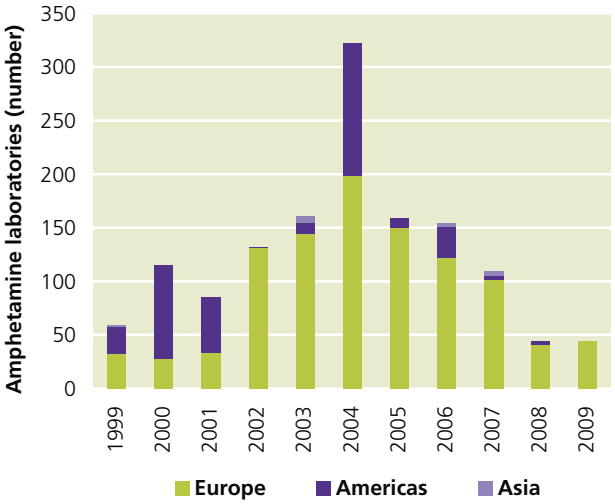
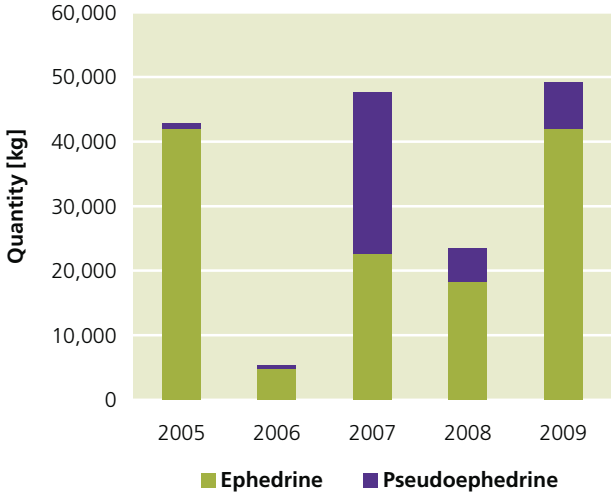



**Fig. 119: Global seizures of ephedrine and pseudoephedrine, 2005-2009***

* The chart is based on data on domestic seizures and on seizures effected at points of entry or exit. They do not include reported seizures of substances where it is known that the substances were not intended for the illicit manufacture of drugs. Stopped shipments are also not included.

Source: INCB.




Islands and Tuvalu, status as of 7 April 2011.

45 EMCDDA, *Amphetamine and methamphetamine use in Europe*, Lisbon, November 2010.

46 International Narcotics Control Board, *Precursors and chemicals frequently used in the illicit manufacture of narcotic drugs and psychotropic substances*, E/INCB/2010/4, March 2011.

### Traffickers adopt alternative strategies to evade stricter control measures

As awareness, restrictions and enforcement against illicit ATS manufacture increases, manufacturing operations tend to move to more vulnerable countries. When controls over precursors were strengthened in the United States, manufacture shifted to Mexico. As Mexico has responded with strong counter-methamphetamine initiatives, manufacturing activities are increasingly reported from countries in Central and South America.

Traffickers also resort to substitute chemicals. As Governments have restricted the availability of ephedrine and pseudoephedrine, some traffickers could turn to other chemicals such as norephedrine which can replace these two chemicals with only slight modifications to the illicit manufacturing process. Traffickers have also attempted to divert the ephedra plant - a natural source of ephedrine - for illicit ATS manufacture. In addition, there have been reports that traffickers transform existing precursors into new uncontrolled chemicals, which are subsequently converted back to the original precursor chemical once in the final destination country.

A precursor chemical commonly used in the illicit manufacture of methamphetamine and amphetamine is 1-phenyl-2-propanone (P-2-P). The diversion of this chemical may be fuelling the market for amphetamine in the Near and Middle East, where amphetamine is often sold as Captagon on illicit markets. In 2009 and 2010, Jordan reported the world's highest annual legitimate requirement of P-2-P to the International Narcotics Control Board, accounting for half of the global total. The high legitimate need is based on the purported formulation of P-2-P into cleaning and disinfection products. The volume represents a significant risk of diversion into illicit manufacture, however, particularly as P-2-P is not an essential ingredient in the formulation of cleaning and disinfection products and alternative chemicals exist.

### Number of reported ecstasy-group laboratories remains essentially stable

In 2009, 52 ecstasy-group laboratories were reported, compared to 53 in 2008. The highest number of dismantled laboratories was reported from Asia and Oceania, namely Indonesia (18) and Australia (19). This might indicate that Indonesia has replaced Europe as the main source for 'ecstasy' used in South-East Asia.

In the past, ecstasy-group substances used to be manufactured predominantly in West Europe. Manufacture peaked in 2000, when 50 laboratories were reported as having been dismantled in Europe. Since that time, however, manufacture of ecstasy-group substances has shifted away from the region to a number of other markets around the world. Large-scale manufacturing operations are more frequently being dismantled in East and South-East Asia, the Americas and Oceania. In 2008, only four laboratories were reported from Europe; for

**Map 34: Routes of notable ephedrine/pseudoephedrine diversion, 2008-2010**

**Notable ephedrine & pseudoephedrine trafficking route cases**

– –→ Established trafficking routes
——→ Routes identified in 2008-2010

Other government sources include: ACC (2010), DEA-ODC (2008), INSCR (2011), NDIB (2009), RCMP (2010 and previous years) and WCO (2010 and previous years)

Note: The boundaries and names shown and the designations used on this map do not imply official endorsement or acceptance by the United Nations. Lines represent origin and intended destination, not necessarily exact route, and include completed or stopped trafficking attempts. Modes of transport include by air, sea, overland, or any combination thereof.

**Fig. 120: Distribution of global annual legitimate requirement for P-2-P, 2010**

Source: INCB.

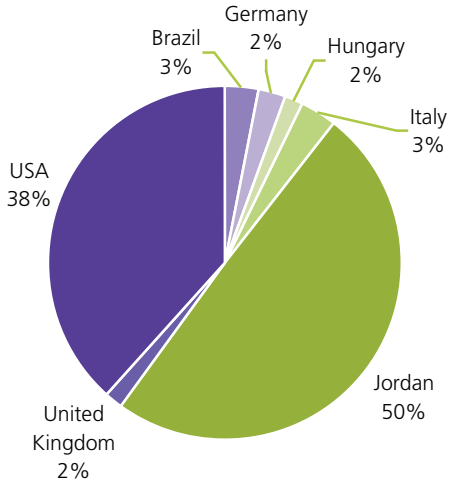
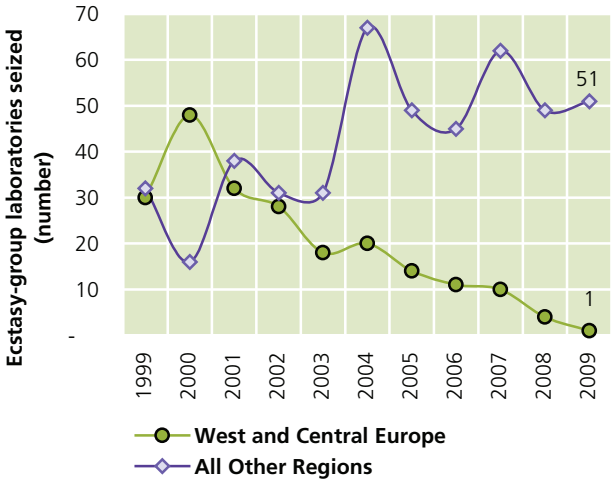



**Fig. 121: Number of seized ecstasy-group laboratories by region, 1999-2009**

Source: UNODC DELTA.




2009, there was only one reported to have been seized in Belgium.

### Shift in ecstasy manufacture

Manufacture of ecstasy increasingly takes place in regions other than Europe, such as East and South-East Asia, North America, Oceania and Latin America. Illicit manufacture of ecstasy has been reported in Argentina, Belize, Brazil, Guatemala, Mexico and Suriname. In Brazil, a small-scale laboratory was seized in 2008 and another, more commercial-size operation in 2009, which included the seizure of 20,000 tablets.[47]

Precursors for ecstasy-group substances include safrole (including in the form of safrole-rich oils), isosafrole, piperonal, and 3,4—MDP-2-P, which are all controlled in Table 1 of the 1988 United Nations Convention Against Illicit Traffic in Narcotic Drugs and Psychotropic Substances. Reported global seizures of these precursors have strongly declined, reflecting the declining availability of ecstasy in Europe, one of the main markets for the substance.

However, in January 2010, authorities in Australia uncovered the country's first clandestine laboratory for the domestic extraction and processing of safrole-rich oil for the manufacture of 'ecstasy'.

### Significant increase in other synthetic drug manufacture incidents

For the first time, the number of other synthetic drug manufacture incidents reported to UNODC through the ARQ has surpassed those of 'ecstasy'. This is due to a significant number of incidents relating to unspecified ATS precursors reported from the United States. Such cases also appear to occur in other parts of the world.

**Table 35: Other synthetic drug manufacture incidents, 1999-2009**

Source: UNODC DELTA.

| | 1999 | 2000 | 2001 | 2002 | 2003 | 2004 | 2005 | 2006 | 2007 | 2008 | 2009 |
|---|---|---|---|---|---|---|---|---|---|---|---|
| ATS precursors | 0 | 5 | 0 | 0 | 2 | 0 | 0 | 22 | 1 | 3 | 40 |
| Fentanyl | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 1 | 1 | 1 | 0 |
| Gamma-Hydroxybutyric acid (GHB) | 0 | 1 | 0 | 9 | 21 | 17 | 8 | 10 | 8 | 12 | 9 |
| Ketamine | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 44 | 0 | 0 |
| Lysergic acid diethylamide (LSD) | 1 | 1 | 1 | 0 | 1 | 0 | 1 | 1 | 1 | 0 | 1 |
| Methaqualone | 0 | 4 | 5 | 6 | 15 | 16 | 5 | 3 | 4 | 1 | 4 |
| Phencyclidine (PCP) | 1 | 1 | 4 | 6 | 16 | 0 | 11 | 4 | 0 | 16 | 7 |
| **Total** | **2** | **12** | **10** | **21** | **55** | **33** | **25** | **41** | **59** | **33** | **61** |

47 UNODC, *Global SMART Update*, vol.2, October 2009.

The number of GHB laboratory incidents decreased from 12 in 2008 to 9 in 2009. No ketamine laboratory was reported through the ARQ. As ketamine is not under international control, however, the extent of manufacture is probably underreported. Government sources in China indicate that ketamine laboratories are regularly dismantled in that country.

### Seizures of precursors used in the illicit manufacture of ATS

Chemical precursors are necessary for the synthesis of amphetamine-type stimulants, and many of the chemicals are controlled internationally through the 1988 United Nations Convention Against Illicit Traffic in Narcotic Drugs and Psychotropic Substances. Their seizures are reported to the International Narcotics Control Board and can provide some indications about trends in illicit manufacture.

Seizures in 2009 included:

#### *Amphetamines-group*

- Methamphetamine: 41,931 kg of ephedrine and 7,241 kg of pseudoephedrine, sufficient to manufacture 32.7 mt of methamphetamine.
- Amphetamine: 4,885 litres of phenyl-2-propoanone (P-2-P), sufficient for 2.4 mt of amphetamine or methamphetamine.
- 195 kg of norephedrine, sufficient to manufacture 130 kg of amphetamine.

#### *Ecstasy-group*

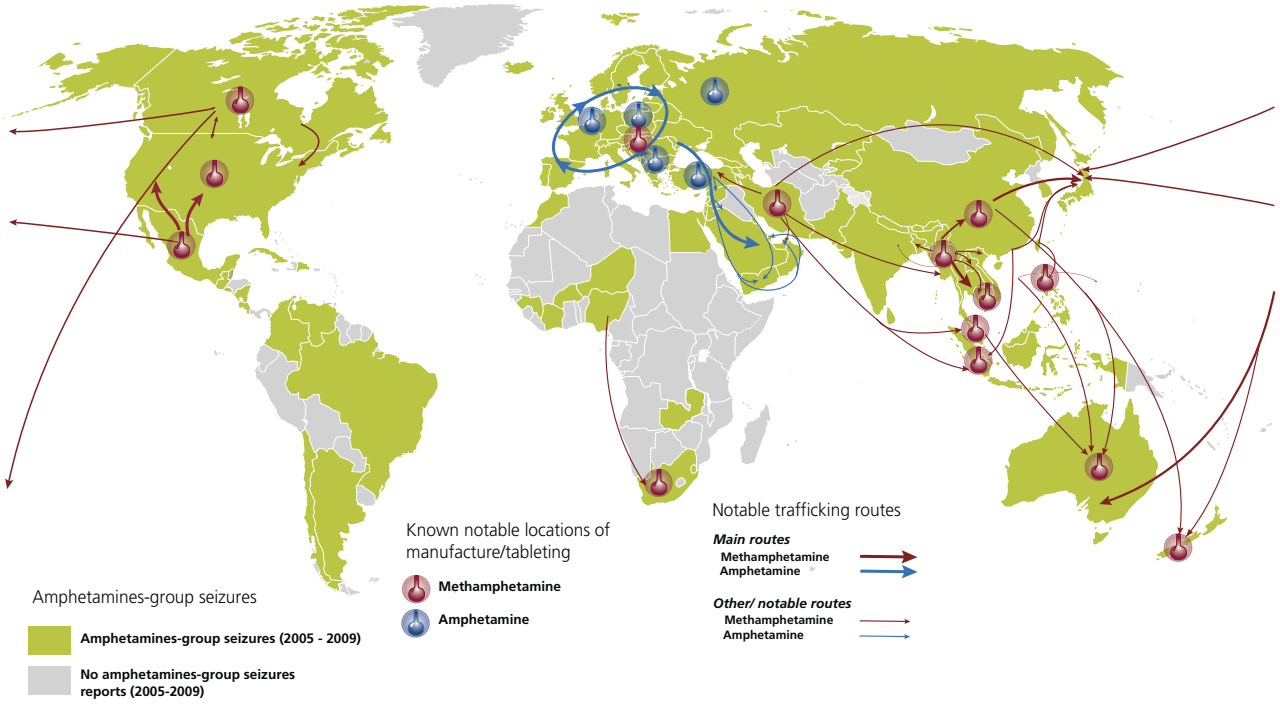
- 40 litres of 3,4-MDP-2-P, enough to manufacture 33 kg of MDMA;
- 1048 l of safrole oil, sufficient to manufacture 222 kg of MDMA;
- 4.3 mt of piperonal which could be converted into 1.6 mt of MDMA; and
- 5 l of isosafrole, which could be used in the manufacture of 2.36 kg of MDMA.

The low amounts of precursor chemicals seized are inconsistent with the size of the consuming market, suggesting that much of the trafficking of precursors needed for ATS manufacture goes undetected. Criminal organizations adopt several strategies to avoid control by trafficking precursors through new locations, such as Africa, by relocating manufacturing operations to new countries and by changing precursor chemicals.

Seizure data for precursors can only provide a partial picture of precursor availability. Diversions and stopped shipments are not included in the traditional seizure statistics, neither are domestic diversions followed by onward smuggling.

These figures largely represent raw chemical seizures and in some cases pharmaceutical preparations, and thus are not representative of all precursors seized.

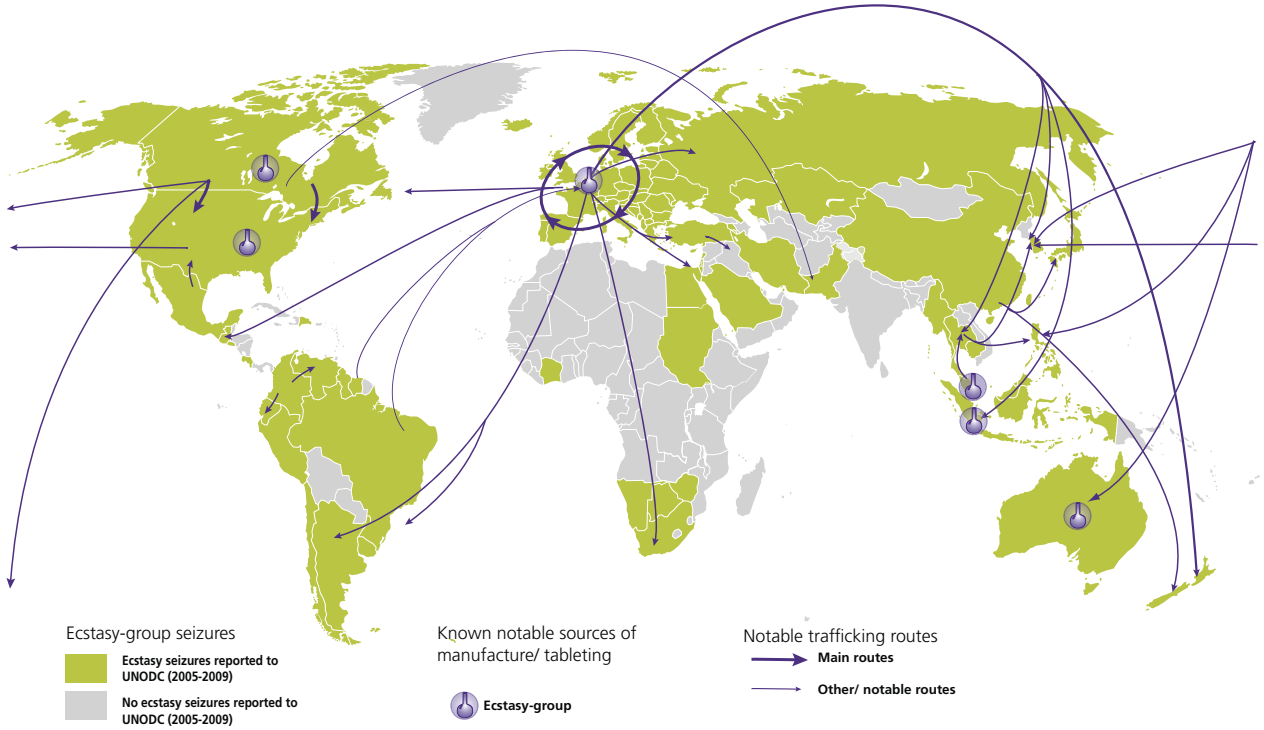
**Map 35: Notable locations of manufacture and main trafficking routes of ATS**




Other government sources include: ACC (2010), DCHIRI (2008), ICPO (2010), INSCR (2011), JNPA (2010), LDECB (2008), RCMP (2010), TKOM (2008-2009), and WCO (2010)

Note: The boundaries and names shown and the designations used on this map do not imply official endorsement or acceptance by the United Nations. Lines represent origin and intended destination, not necessarily exact route, and include completed or stopped trafficking attempts. Modes of transport include by air, sea, overland, or any combination thereof.

## Map 36: Notable locations of manufacture and main trafficking routes of ecstasy-group substances




Other government sources include: ACC (2010), DCHIRI (2008), ICPO (2010), INSCR (2011), JNPA (2010), LDECB (2008), RCMP (2010), TKOM (2008-2009), and WCO (2010)

Note: The boundaries and names shown and the designations used on this map do not imply official endorsement or acceptance by the United Nations. Lines represent origin and intended destination, not necessarily exact route, and include completed or stopped trafficking attempts. Modes of transport include by air, sea, overland, or any combination thereof.

## 4.4 Trafficking

### Global ATS seizures

In 2009, global seizures of ATS rose significantly (by 16%), slightly exceeding the high level of 2007 (following a dip of 9% in 2008). The increase was driven by the quantities of seized methamphetamine, which rose markedly to 31 mt (from 22 mt in 2008) and amphetamine, which rose more moderately (33 mt, up from 30 mt in 2008). Seizures of ecstasy amounted to 5.4 mt, remaining below the reduced level of 2008. The increases in methamphetamine and amphetamine were also partly offset by a drop in seizures of non-specified amphetamines, so that total ATS seizures in 2009 amounted to 71 mt. Due to the paucity of data from some countries, the decline in non-specified amphetamines is not statistically significant, and the total for amphetamine, methamphetamine and ecstasy rose by 22% in 2009.

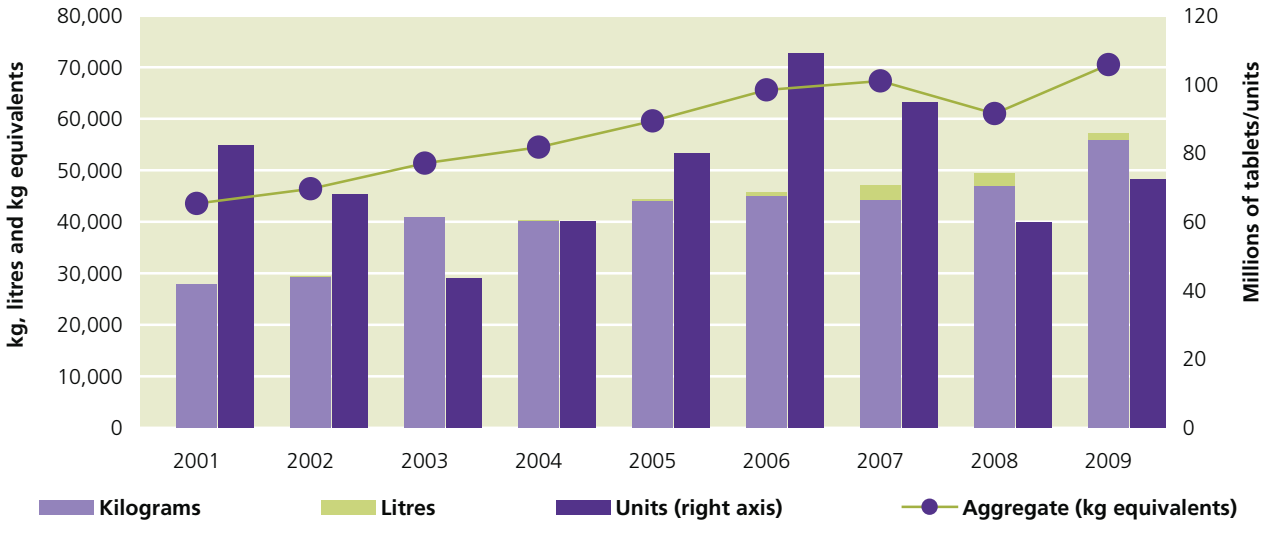
Seizures of amphetamine-type stimulants are reported by weight (in kg), by volume (in litres, usually when the seized drugs are in liquid form) and by number of tablets, doses or 'units'. Although UNODC maintains and publishes records to reflect - as closely as possible - seizure quantities as reported by countries, it is often useful to aggregate data of different types to compare over time or across countries and regions. For the purposes of this aggregation, conversion factors are used to convert the quantities into 'kilogram equivalents.'

The aggregate statistics used in this report depend on the conversion factors used, and the impact of these conversion factors can be especially pronounced in the case of amphetamine-type stimulants, as a significant share of seizures of these drug types are quantified by number of tablets. In previous editions of the *World Drug Report* the conversion factors used were intended to reflect the amount of psychoactive ingredient in the seized tablets. In order to enhance the comparability with seizures reported by weight, which are quantified by bulk weight and can only be adjusted for purity in a minority of cases where the availability of data allows, UNODC has revised the conversion factors used for amphetamine-type stimulants to reflect the bulk weight of the seized tablets. The new factors are based on forensic studies and range between 90 mg and 300 mg per tablet, depending on the region as well as the drug type. These factors are subject to revision as the available information improves; details can be found in the methodology section.

Although trafficking in and consumption of amphetamine-type stimulants has come to affect all regions of the world, different types of ATS prevail in different regions. In past years, seizures of ATS in Europe have been dominated by ecstasy and amphetamine; however, ecstasy seizures in Europe fell sharply between 2007 and

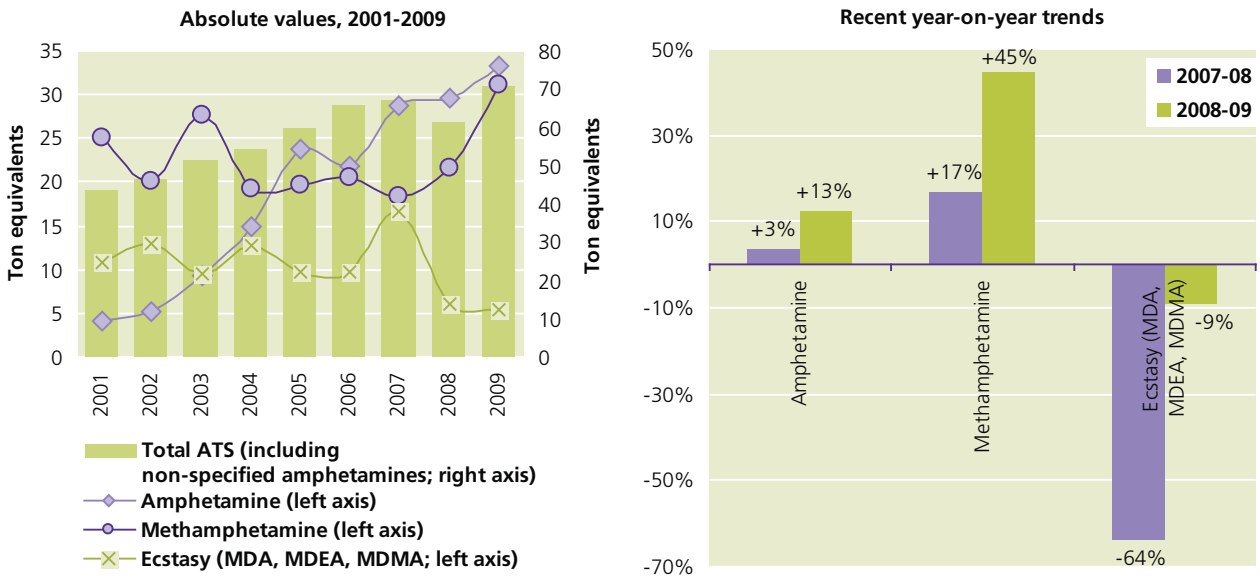
**Fig. 122: ATS seizures worldwide, in kg, litres, number of units and aggregates, 2001-2009**

Source: UNODC DELTA.



## Fig. 123: Seizures of ATS by type

Source: UNODC DELTA.




2009, while methamphetamine seizures reached a record level by European standards in 2009. Ecstasy accounted for only 10% of ATS seizures in Europe in 2009, compared with 6% for methamphetamine. In North America, seizures continue to be dominated by methamphetamine and 'ecstasy'. In relative terms, seizures of 'ecstasy' remained important also in Central and South America and the Caribbean, although the majority of reported ATS seizures in this region consisted of amphetamine in 2009. The market in Oceania remained diversified among the various types of amphetamine-type stimulants. In the Near and Middle East/South-West Asia, seizures of amphetamine-type stimulants are mainly in the form of Captagon, believed to contain amphetamine as the main psychoactive ingredient. Methamphetamine seizures have been reported from Nigeria and South Africa. For 2009, however, only South Africa reported seizures of methamphetamine, out of a total of four African countries reporting any ATS seizures in the ARQ. Approximately one half of the ATS seized in Africa referred to amphetamine. The paucity of the data thus does not allow for a reliable characterization for the continent as a whole.

## Fig. 124: Distribution of ATS seizures by region, 2009

Source: UNODC DELTA.

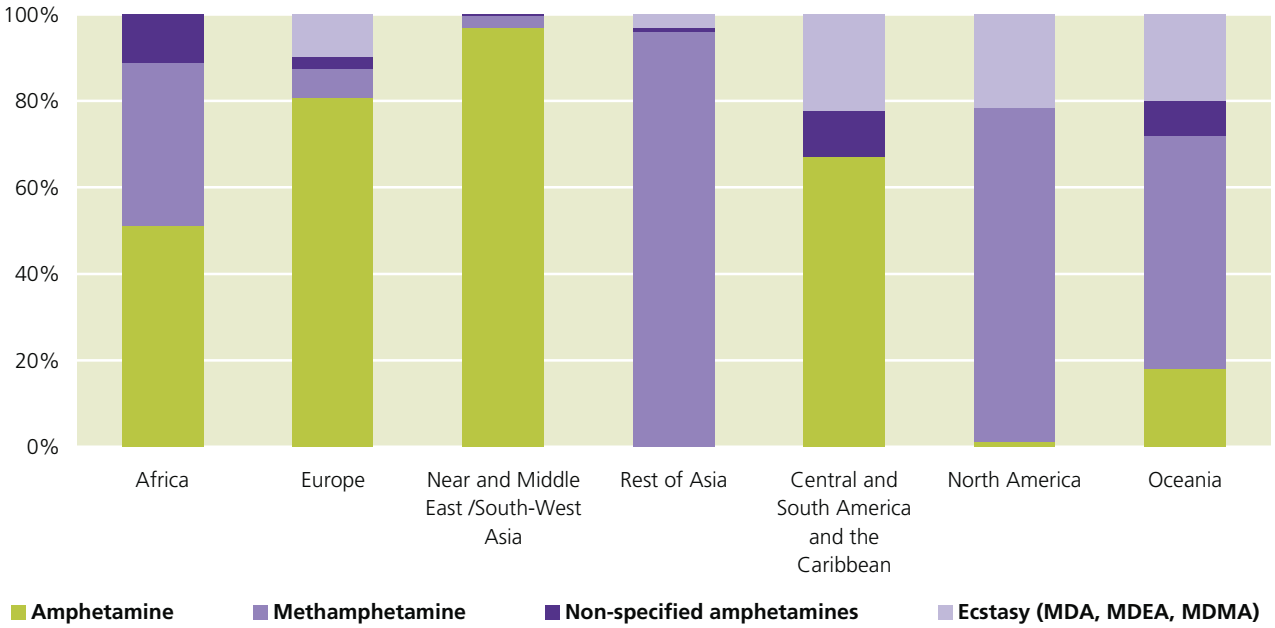
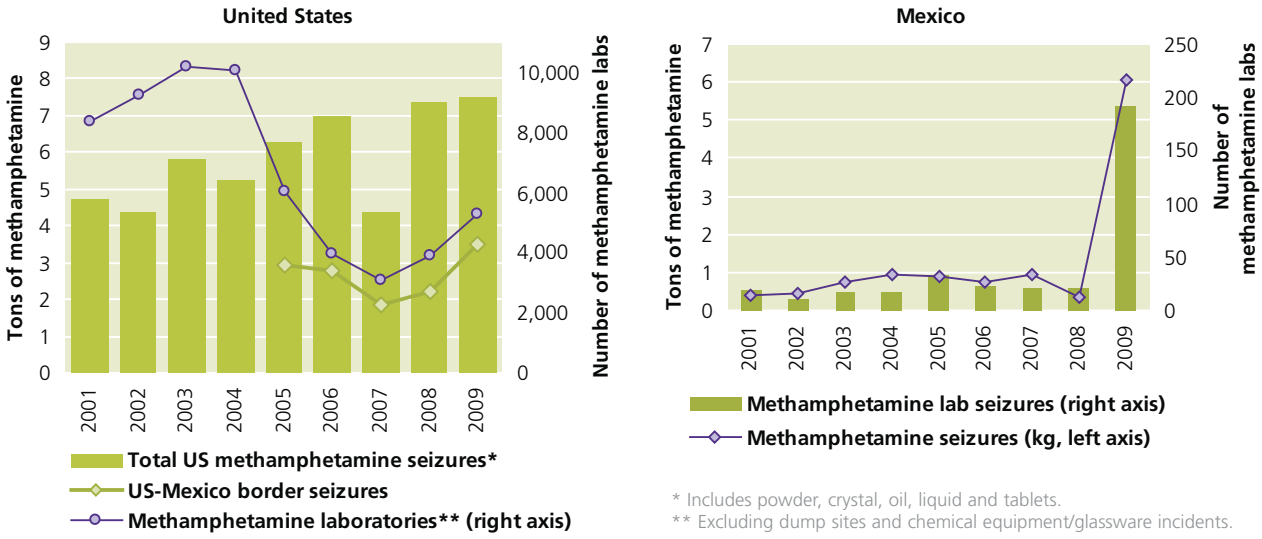


**Fig. 125: Methamphetamine laboratories and seizures of methamphetamine in the United States and Mexico, 2001-2009**

Sources: UNODC DELTA; US Department of Justice.




* Includes powder, crystal, oil, liquid and tablets.
** Excluding dump sites and chemical equipment/glassware incidents.

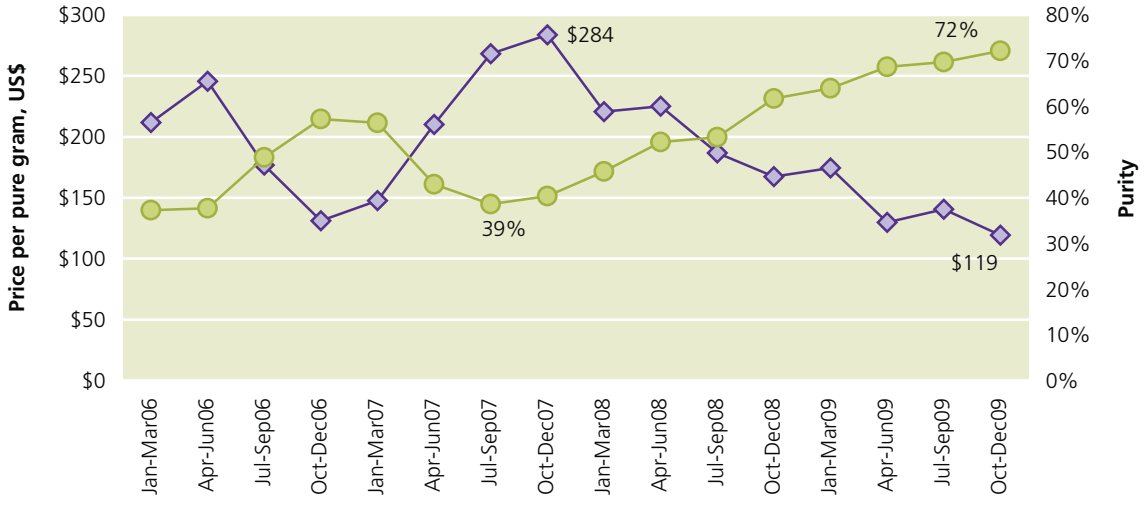
## North America: Increase in the supply of methamphetamine

In 2009, North America accounted for 44% of global seizures of methamphetamine, due to continued high seizures in the United States (7.5 mt, compared with 7.4 mt in 2008) as well as a sharp increase in methamphetamine seizures in Mexico, which reached a comparable level (6.1 mt, up from 341 kg in 2008). This was in sharp contrast to prior years; over the period 2001-2008, annual seizures in the United States ranged between 5 and 21 times the level in Mexico.

Methamphetamine in the United States' consumer market continued to be supplied by manufacture of methamphetamine in Mexico as well as the United States. Following a substantial decline in 2007, the availability of methamphetamine in the United States appears to have rebounded. According to the United States Department of Justice,[48] methamphetamine availability in the United States seems to be directly related to methamphetamine production trends in Mexico. The decline in availability in 2007, possibly triggered by more stringent import restrictions of methamphetamine precursors in Mexico, was reflected in reduced seizures and

**Fig. 126: Mean price and purity of methamphetamine purchases by law enforcement agencies in the United States, 2006-2009**

Source: UNODC ARQ.




48 US Department of Justice, *National Drug Threat Assessment 2010*, February 2010.

increased prices, and may have led to an increase in manufacture of methamphetamine in the United States. The number of methamphetamine laboratories detected in the United States rose from 3,049 in 2007 to 3,873 in 2008 and 5,286 in 2009. The increase was mainly attributable to the number of small-scale laboratories. Moreover, some Mexican drug trafficking organizations shifted their production operations from Mexico to the United States, particularly to California.

Since 2007, manufacture of methamphetamine in Mexico appears to have grown significantly. Mexico reported 191 methamphetamine laboratories in 2009, up from 21 in 2008. In 2009, the laboratories were discovered in the central Pacific region (in particular, the states of Michoacan, Jalisco and Sinaloa). Between 2007 and 2009, seizures of methamphetamine by United States authorities along the border with Mexico increased by at least 87%, as the partial total for 2009 amounted to 3,478 kg (compared with 1,860 kg in 2007).[49] The increased availability in the United States is also visible in price and purity data. Between the fourth quarter of 2007 and the fourth quarter of 2009, the average price per pure gram of methamphetamine followed a generally decreasing trend, falling from US$284 to US$119, while the average purity followed a distinct increasing trend, rising from 39% to 72%.[50]

The rising purity and falling price are, however, also due to a less potent product being manufactured – a racemic 'd/l methamphetamine'. The loss in potency of this inferior product can, however, be compensated by higher purity levels – and this is currently happening. It appears that the reduced availability of ephedrine and pseudoephedrine (which would be required for the manufacture of the more potent 'd-methamphetamine') in Mexico had led to an increased use of alternative methods for the manufacture of methamphetamine. Such techniques either synthesize these chemicals from others more easily available or bypass their use entirely, employing for example the 1-phenyl-2-propanone (P-2-P) method, or its pre-precursor, phenylacetic acid (PAA). The product obtained from the use of PAA or P-2-P is a less potent racemic 'd/l methamphetamine,' unless an additional purification step is added on to obtain again the traditional 'd-methamphetamine.' Mexico made large seizures of phenylacetic acid (31 mt in 2009), which can be used to obtain P-2-P, as well as other closely related chemicals, including some which are not under international control (such as esters of phenylacetic acid in 2008[51] and phenylacetyl amide in 2009). In 2010 and 2011, Mexican authorities continued to make seizures of esters of phenylacetic acid.[52]

### Increasing seizures of MDMA in the United States and Canada

For the second year in a row, North America accounted for more than half of global 'ecstasy' seizures in 2009. The United States alone accounted for 63% of the global total. Contrary to the trend in global seizures, which essentially remained at the significantly reduced level of 2008, in 2009, seizures in North America sustained the increased levels of 2007 and 2008. According to the United States Department of Justice,[53] the resurgence of MDMA availability in the United States was fuelled by the manufacture of MDMA in Canada and subsequent smuggling into the United States across the northern border. MDMA seizures at the northern border more than doubled between 2007 and 2008.

Canada reported 23 methamphetamine laboratories and 12 MDMA laboratories in 2009. Although 'ecstasy' seizures in Canada fell for the second year in a row – from 1 mt in 2007 to 715 kg in 2008 and 405 kg in 2009 – Canada reported an increased amount of powder MDMA shipments destined for foreign countries and an apparent expansion of international consumer markets for Canadian-produced MDMA. Destinations for MDMA shipments seized in or en route from Canada included the Philippines, Malaysia, Taiwan Province of China, Mexico and Jamaica. While cross-border methamphetamine trafficking between Canada and the United States continued to be limited in comparison with cross-border MDMA trafficking, a slight increase was registered in the number of methamphetamine shipments intercepted in both directions.

### Central America, South America and the Caribbean

In this region, seizures of amphetamine-type stimulants are limited. In recent years however, illicit manufacture of amphetamine-type stimulants has emerged in several countries with little or no previous history of reported manufacture.

In Argentina, seizures of 'ecstasy' tablets rose from 11,072 in 2008 to 136,550 in 2009.[54] Argentina also seized 20 kg of methamphetamine in 2008, and small quantities of methamphetamine tablets in 2008 and 2009. Argentina reported the seizure of one 'ecstasy' laboratory in 2008. In August 2009, Argentine authorities seized 4.2 mt of ephedrine (a precursor for metham-

49 Ibid.

50 US Department of Justice, *National Drug Threat Assessment 2010*. Based on data extracted from System To Retrieve Information on Drug Evidence (STRIDE).

51 International Narcotics Control Board, *Precursors and chemicals frequently used in the illicit manufacture of narcotic drugs and psychotropic substances, 2008,* February 2009.

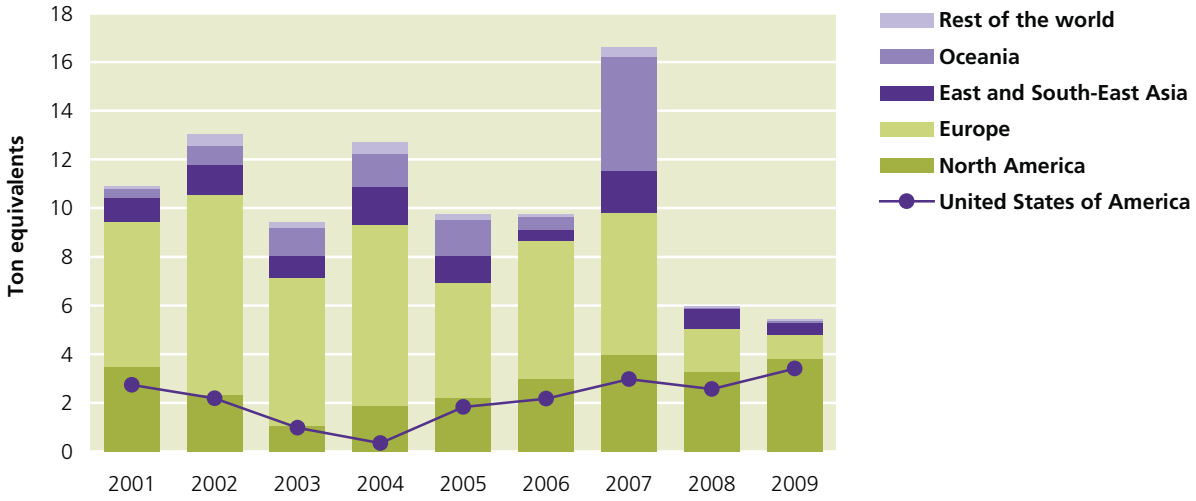
52 Procuraduría General de la República, Mexico, Secretaría de Marina, Mexico.

53 US Department of Justice, *National Drug Threat Assessment 2010*, February 2010.

54 In addition, Argentina also reported 15 grams and 10 grams of 'ecstasy' seized in 2008 and 2009 respectively.

**Fig. 127: Ecstasy seizures in the United States and by region, 2001-2009**

Source: UNODC DELTA.




phetamine) in two operations in the outskirts of Buenos Aires. Although manufacture in Argentina cannot be ruled out, it is likely that the large quantity of precursor chemical was intended for other destinations, possibly Mexico.[55]

In 2010, Brazil seized 2,740 'ecstasy' tablets and 5,910 units of methamphetamine.[56] Brazilian authorities seized one 'ecstasy' laboratory in 2008[57] in the state of Paraná, and, according to preliminary data, one 'ecstasy' laboratory, again in Paraná, as well as one methamphetamine laboratory in the state of Santa Catarina, in 2009.[58] Chile seized one laboratory manufacturing mescaline[59] in 2009. Seizures and investigations by Chilean authorities also point to trafficking of ephedrine from Chile to Mexico.[60] Colombia seized 126,573 ATS tablets in 2009, including 23,477 'ecstasy' tablets.[61]

In the Dominican Republic – for years an important trans-shipment location of ecstasy – seizures of 'ecstasy' tablets fell from 20,861 units in 2007 to 17,885 in 2008[62] and 10,166 in 2009. In August 2009, authorities in the Dominican Republic intercepted more than 409,000 pseudoephedrine tablets in a shipment en route to Guatemala and originating in Bangladesh.[63]

55 UNODC, *Global SMART Update*, Volume 2, October 2009.

56 Brazil Federal Police.

57 Brazil Federal Police. *Dados Estatísticos apreensão de drogas*, Coordenação Geral Polícia de Repressão a Entorpecentes. December 2010.

58 UNODC, *Global SMART Update*, Volume 2, October 2009.

59 Although mescaline is not classified as an amphetamine-type stimulant, it is a psychotropic substance and a hallucinogen.

60 UNODC, *Global Smart Update*, Volume 2, October 2009.

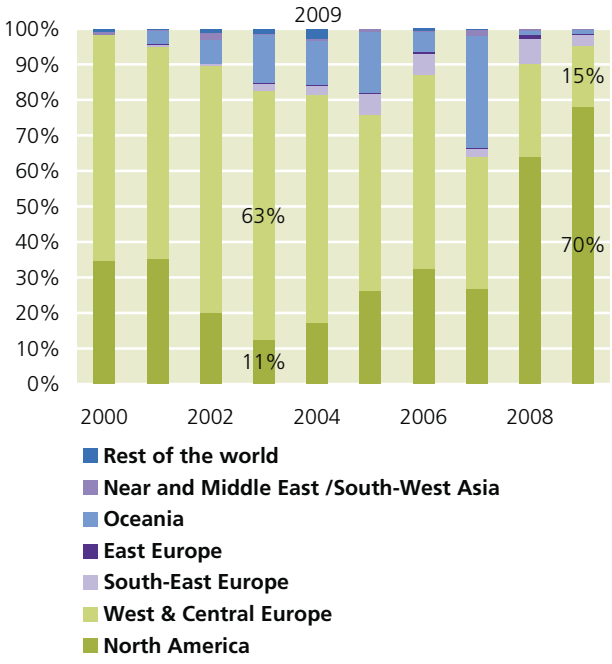
61 Observatorio de Drogas de Colombia.

62 In addition, in 2008, 49 grams of 'ecstasy' were seized in the Dominican Republic.

63 UNODC, *Global Smart Update*, Volume 2, October 2009.

**Fig. 128: Distribution of global ecstasy seizures, by region, 2000-2009**

Source: UNODC DELTA.




Guatemala reported the seizure of one ATS laboratory in 2008 and three in 2009, as well as the seizure of 12 mt of pseudoephedrine in 2009. In 2008, Honduran authorities discovered some establishments used for extracting pseudoephedrine. In Nicaragua, police discovered a laboratory manufacturing illicit synthetic drugs in February 2010, and seized a small quantity of amphetamine. This represented the third reported ATS laboratory in Nicaragua.[64]

64 UNODC, *Global Smart Update,* Volume 3, March 2010.

**Fig. 129: Seizures of amphetamine in the Near and Middle East/South-West Asia and worldwide, 2000-2009**

Source: UNODC DELTA.

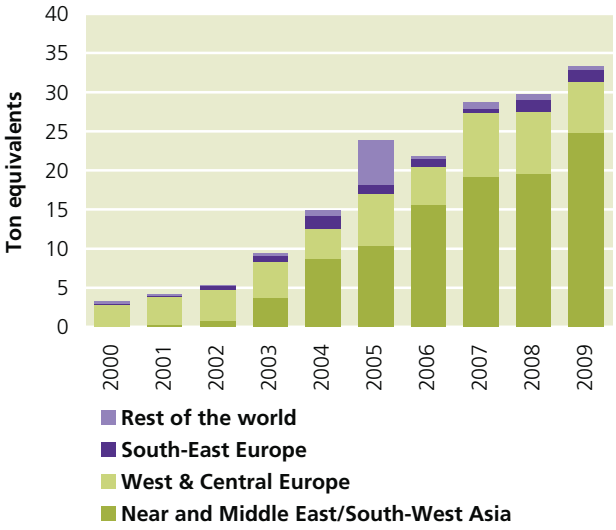
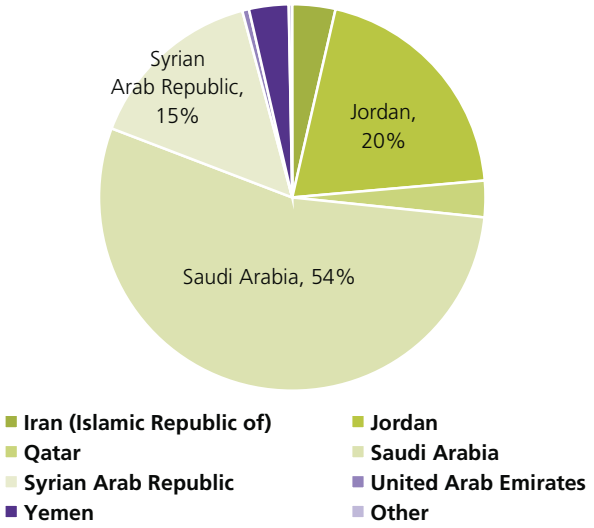



**Fig. 130: Distribution of amphetamine seizures in the Near and Middle East/South-West Asia, 2009 (kg equivalents)**

Source: UNODC DELTA.




In 2009, small quantities of amphetamine-type stimulants were also seized in Costa Rica (methamphetamine and 'ecstasy'), Chile (amphetamine and 'ecstasy') Cuba (methamphetamine and unspecified ATS), the Bahamas ('ecstasy') and El Salvador (amphetamine).

### Near and Middle East/South-West Asia: Rise in amphetamine seizures

Countries in the Near and Middle East/South-West Asia continued to be affected by trafficking of Captagon on a large scale. The content of tablets bearing the Captagon logo is not always clear, but the main psychoactive ingredient in such tablets is now amphetamine (rather than fenetylline, the active ingredient in the licit pharmaceutical preparation some 15 years ago). Caffeine is also frequently found in such tablets.

Seizures of amphetamine in the Near and Middle East/South-West Asia increased steadily between 2000 and 2007, appeared to stabilize in 2008, amounting to 19.6 mt, and resumed the increasing trend in 2009, reaching 24.8 tons. The long-term growth in seizures in this region was driven mainly by seizures in Saudi Arabia, which rose consistently over the period 2000-2007, reaching 13.9 mt[65] in 2007. Seizures in this country have remained stable since then, amounting to 12.8 mt in 2008 and 13.4 mt[66] in 2009. Saudi Arabia has a significant consumer market for Captagon tablets. In January 2010, eight million Captagon pills were confiscated in a single seizure in Saudi Arabia. The traffickers were believed to have ties to an amphetamine manufacturing and distribution ring that was broken in Turkey a few months earlier.[67] Turkey is believed to be mainly a transit country for Captagon, and a gateway for illicit trafficking from South-East Europe to the Middle East.

Replies to the Annual Reports Questionnaire from the Near and Middle East identified Saudi Arabia as a major destination for amphetamine (specifically Captagon) trafficked on their territory. It also appeared that Egypt had become a point of departure for amphetamine shipments. In a single seizure at Dhuba seaport, Saudi Arabian Customs seized over 1.3 million tablets that were concealed on board a vessel that had arrived from Egypt.[68]

Jordan registered significant increases in amphetamine seizures in 2008 and again in 2009. Seizures in this country averaged 11 million tablets over the period 2004-2007, and rose to 14 million tablets in 2008 and 29 million tablets (specifically Captagon tablets) in 2009. Seizures also continued to increase in the Syrian Arab Republic, from 12 million tablets in 2007 and 2008 to 22 million tablets in 2009.

Turkey reported seizures of 2.8 million Captagon tablets in 2009,[69] in addition to 479 kg of amphetamine, of which 473 kg[70] were seized at a Captagon laboratory

65 Data relative to the period 2002-2007 and 2009 were sourced from the World Customs Organization and ICPO/INTERPOL.

66 World Customs Organization.

67 UNODC, *Global SMART Update, Volume 3,* March 2010.

68 World Customs Organization, *Customs and Drugs Report 2009.* June 2010.

69 Turkey also confirmed that, in 2009, Captagon tablets contained amphetamine rather than fenetylline.

70 Ministry of Interior, Turkish National Police, Department of Anti-Smuggling and Organized Crime. *Turkish Report on Drugs and*

discovered in Istanbul in September 2009. According to Turkish authorities,[71] such establishments, which are discovered sporadically, carry out the conversion into tablet form, rather than the chemical process whereby amphetamine is manufactured from other substances. In 2010 seizures of Captagon tablets fell to 1.1 million.[72]

### Increased seizures of methamphetamine in the Islamic Republic of Iran

Starting in 2005, the Islamic Republic of Iran has seized increasing quantities of methamphetamine. In the first nine months of 2010, the country seized 883 kg of methamphetamine, up from 571 kg in 2009.[73] The results of research in the country, as reported by the Drug Control Headquarters[74], indicate that the use of methamphetamine has increased. The Islamic Republic of Iran reported that, in 2009, methamphetamine trafficked on its territory originated in North-West Asia, South-East Asia and northern and western Europe, with 1% manufactured domestically. It also reported the detection of six 'kitchen' laboratories manufacturing methamphetamine. In 2009, the Islamic Republic of Iran registered legitimate requirements of 55 mt[75] of the precursor pseudoepehedrine, the fourth largest level worldwide for that year.

According to Thai authorities,[76] there was an emergent trend of Iranian nationals trafficking methamphetamine into the region. This pattern was also observed in Japan, where Iranian nationals accounted for one fifth of arrests of non-resident foreigners related to methamphetamine.[77] In two incidents in July 2009 and February 2010, a total of five Iranian nationals were arrested in Malaysia for attempting to traffic a total of 75 kg of methamphetamine on flights from the United Arab Emirates.[78] In August 2010, police in Sri Lanka arrested three Iranian nationals, confiscating 16 kg of methamphetamine.[79] Turkey, which registered methamphetamine seizures for the first time in 2009, also reported that methamphetamine was smuggled overland from the Islamic Republic of Iran into Turkey and then trafficked by air to countries in East and South-East Asia such as Indonesia, Japan, Malaysia and the Republic of Korea. Indonesia also mentioned the Islamic Republic of Iran as a source country for methamphetamine in 2009, and Turkey as a transit country. Trafficking of methamphetamine from the Islamic Republic of Iran via Turkey was also confirmed by Philippine authorities.[80]

### Asia-Pacific: Increased seizures of methamphetamine

The Asia-Pacific region - notably the area encompassing Cambodia, the Lao People's Democratic Republic, Myanmar, Thailand, Viet Nam and bordering provinces of south China - continued to be affected by manufacture, trafficking and consumption of methamphetamine on a large scale. In 2009, seizures in East and South-East Asia rose by more than one third, from 11.6 mt in 2008 to 15.8 mt, mainly due to the quantities seized in Myanmar. In relative terms, Thailand recently also registered significant increases. The largest seizures in the Asia-Pacific region continued to be made by China, while East and South-East Asia as a whole continued to account for approximately one half of global seizures of methamphetamine. Moreover, there were signs of diversification in trafficking routes, with methamphetamine reaching the region from Africa and the Islamic Republic of Iran.

In China, aggregate seizures of methamphetamine were remarkably stable over the period 2005-2009, ranging between 6.1 mt and 6.8 mt (6.6 mt in 2009). According to Chinese authorities,[81] there was an increase in trafficking of amphetamine-type stimulants from neighbouring countries (referred to as the 'Golden Triangle') into Yunnan province. Methamphetamine seizures in this province rose from 2.2 mt in 2008 to 3.2 mt in 2009. There was also an increase in the domestic manufacture of illicit drugs, with the number of dismantled clandestine laboratories rising from 244 in 2008 to 391 in 2009. Manufacture occurred in particular in the provinces of Guangdong, Sichuan and Hubei, and the substances involved were mainly amphetamine-type stimulants and ketamine.

*Organized Crime 2009.*

71 Ibid.

72 Ministry of Interior, Turkish National Police, Department of Anti-Smuggling and Organized Crime. *Turkish Report on Drugs and Organized Crime 2010.*

73 Drug Control Headquarters, Islamic Republic of Iran, *Drug Control in 2010*, Annual Report.

74 Drug Control Headquarters, Islamic Republic of Iran. *Drug control in 2008, Annual Report and Rapid Situation Assessment*,

75 International Narcotics Control Board, *Precursors and chemicals frequently used in the illicit manufacture of narcotic drugs and psychotropic substances*, Report of the International Narcotics Control Board for 2009 on the Implementation of Article 12 of the United Nations Convention against Illicit Traffic in Narcotic Drugs and Psychotropic Substances of 1988, E/INCB/2009/4. February 2010.

76 Office of the Narcotics Control Board of Thailand, presentation at the Twentieth Anti-Drug Liaison Officials' Meeting for International Cooperation (ADLOMICO), October 2010, Seoul, Republic of Korea.

77 Fifteenth Asia-Pacific Operational Drug Enforcement Conference, February 2010, Tokyo, Japan. Country report by Japan.

78 UNODC, *Global SMART Update, Volume 3,* March 2010.

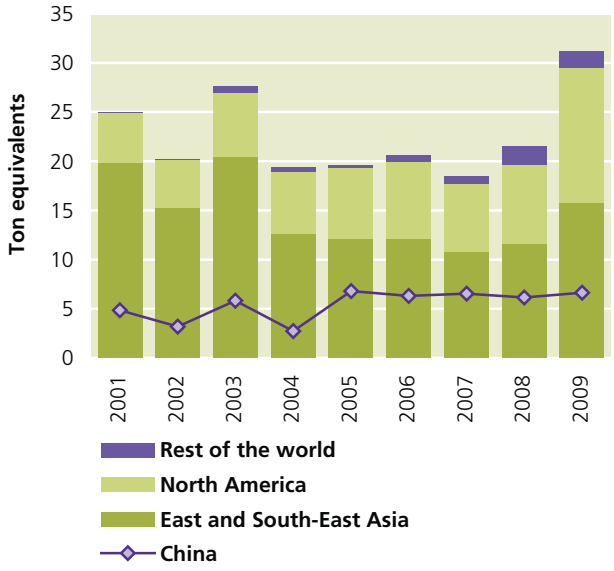
79 UNODC, *Global SMART Update, Volume 4,* October 2010.

80 Twentieth Anti-Drug Liaison Officials' Meeting for International Cooperation (ADLOMICO), October 2010, Seoul, Republic of Korea. Country report by the Philippines.

81 National Narcotics Control Commission of China, presentation at the Twentieth Anti-Drug Liaison Officials' Meeting for International Cooperation (ADLOMICO), October 2010, Seoul, Republic of Korea.

**Fig. 131: Methamphetamine seizures in China, East and South-East Asia, North America and worldwide, 2001-2009**

Source: UNODC DELTA.




In 2009, a notable increase in methamphetamine seizures was registered in Myanmar, where annual seizures of methamphetamine averaged 528 kg over the period 2003-2008 and rose to 3.4 mt in 2009. This increase was concurrent with a similar increase in heroin seizures in the same country and may reflect a strengthened presence of law enforcement agencies in parts of Myanmar.

Thailand continues to constitute a major market for methamphetamine, and there were signs that trafficking methamphetamine was on the rise. According to data collated by the Drug Abuse Information Network for Asia and the Pacific, seizures of methamphetamine tablets rose from 14 million in 2007 to 22 million in 2008 and 27 million in 2009, while seizures of crystalline methamphetamine increased from 47 kg in 2007 and 53 kg in 2008 to 209 kg in 2009.[82] According to Thai authorities,[83] manufacture of illicit substances was very limited in Thailand, and methamphetamine was trafficked into Thailand from neighbouring countries. Thailand was also being used by traffickers as a transit point for methamphetamine intended for other markets.

Large quantities of methamphetamine were seized in the Philippines in 2008 and 2009. The Philippines also dismantled 10 methamphetamine laboratories in 2008 (including four 'kitchen' laboratories) and nine in 2009 (including eight 'kitchen' laboratories), and further reported an increase of 36% in the average price of methamphetamine hydrochloride in 2009, as compared to that in 2008, suggesting an increased demand for the substance.

Methamphetamine seizures in Malaysia amounted to 1.1 mt in 2008 and 1.2 mt in 2009.[84] These levels are significantly higher than those registered prior to 2008. In a single seizure in May 2009, Malaysian police seized 978 kg of high purity crystalline methamphetamine in the city of Johor Bahru.[85]

Methamphetamine seizures in Indonesia, in contrast, fell to the lowest level since 2004. Indonesia also reported the seizure of five 'kitchen' methamphetamine laboratories in 2008 and 17 in 2009.

The general declining trend in ecstasy seizures prevalent worldwide since 2007 (with the exception of North America) was also to be seen in several countries in the Asia-Pacific region. By 2009, ecstasy seizures in China, Indonesia, Japan, Malaysia and Thailand had fallen significantly by comparison with the level in 2007. However, Indonesia reported that nine 'kitchen' laboratories manufacturing ecstasy were seized in 2008 and 18 in 2009.

Oceania continued to be affected by trafficking of amphetamine, methamphetamine and ecstasy, with no single type dominating the market. In 2009, Australia seized 56 kg of amphetamine, 150 kg of methamphetamine and 59 kg of ecstasy. The number of laboratories dismantled in Australia rose significantly, from 11 ATS laboratories in 2007-2008 to 316 in 2008-09, of which 19 were manufacturing primarily MDMA and the rest were manufacturing amphetamine or methamphetamine. New Zealand also seized smaller quantities of amphetamine, methamphetamine and ecstasy; however, all 135 seized laboratories reported by New Zealand were manufacturing methamphetamine.

### Africa: Few countries report seizures

The variety of substances, combinations of substances, precursor chemicals and chemical processes for manufacturing ATS hinders the collection of good quality data, in particular the proper identification and classification of seized controlled substances, especially in countries lacking laboratory services for forensic purposes, and this is an issue of concern especially in Africa. The vast majority represent seizures whose precise nature is unknown. Several African countries appear to be affected by trafficking in, and consumption of, diverted or counterfeit prescription drugs containing controlled substances whose nature is not always clear, possibly

82 In its reply to the Annual Reports Questionnaire for 2009, Thailand reported seizures of 2.4 mt of methamphetamine pills and 210 kg of crystalline methamphetamine.

83 Office of the Narcotics Control Board of Thailand, presentation at the Twentieth Anti-Drug Liaison Officials' Meeting for International Cooperation (ADLOMICO), October 2010, Seoul, Republic of Korea.

84 Data collated by DAINAP.

85 UNODC, *Global SMART Update, Volume 2.* October 2009.

including amphetamine-type stimulants as well as sedatives and tranquillisers.

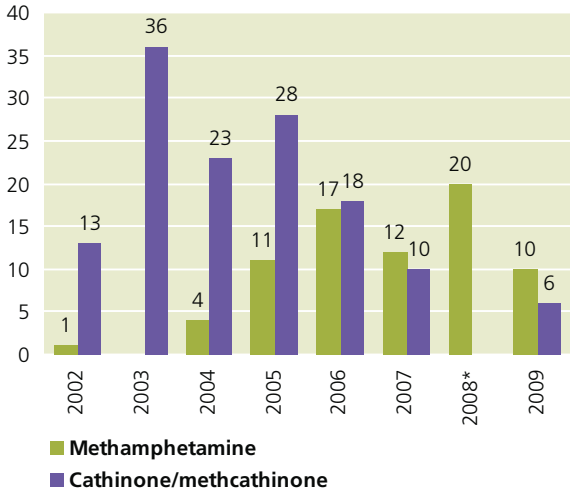
Nigeria reported seizures of 712 kg of psychotropic substances in 2009, up from 530 kg of psychotropic substances in 2008. Burkina Faso reported seizures of 3,403 kg of 'médicaments de la rue' in 2008. Morocco reported seizures of 48,293 units of psychotropic substances in 2008, rising to 61,254 in 2009 and 105,940 in 2010.[86] South Africa reported aggregate seizures of 48 kg of amphetamine-type stimulants in 2009, including 37 kg of methamphetamine. Algeria reported aggregate seizures of 90,630 tablets of sedatives and tranquillisers in 2009. Côte d'Ivoire seized 43 kg of amphetamine in 2008, as well as 17,155 amphetamine tablets (in addition to seizures of clonazepam and diazepam tablets).[87] In 2009, seizures of amphetamine in Côte d'Ivoire fell to 1,200 tablets. The World Customs Organization also reported that Sudanese officials foiled an attempt to smuggle 18.3 kg of stimulant tablets at Khartoum airport.

Every year from 2000 to 2009, Egyptian authorities seized small quantities of 'ecstasy tablets'. Seizures exceeded 10,000 tablets in 2006, but had fallen to 203 tablets by 2008 to 76 tablets in 2009. In April 2010,[88] one methamphetamine laboratory was seized in Egypt.

According to South African authorities, amphetamine-type stimulants, in particular methamphetamine and club drugs such as ecstasy and cathinone, continued to be used in South Africa.[89] These drugs, with the exception of ecstasy, were manufactured locally in clandestine laboratories, while ecstasy was mainly smuggled in from Europe by air freight and parcel post. Over the period 1 April 2008 to 31 March 2009, 20 clandestine laboratories manufacturing methamphetamine were dismantled,[90] while 10 methamphetamine laboratories and six cathinone laboratories were dismantled during 2009. South Africa also reported that an increase of methamphetamine trafficking allowed for a decrease in prices.

**Fig. 132: Number of methamphetamine and cathinone/methcathinone laboratories seized in South Africa (all sizes), 2002-2009**

Source: UNODC DELTA.




*Covers the period 1 April 2008 to 31 March 2009

### Methamphetamine trafficking from Africa to Japan

One emerging trend identified by Japanese authorities[91] was that of methamphetamine trafficking from Africa to Japan. The proportion of methamphetamine seized in Japan that was sourced from Africa increased from 7.4% in 2009 to 36% in the first half of 2010. The West and Central African countries of Benin, Nigeria, Cameroon and Senegal were prominent among the source countries in Africa. It is unclear whether West Africa, already a hub for cocaine trafficking, was beginning to see the emergence of local ATS manufacture, or is simply serving as a transit point for methamphetamine manufactured elsewhere, possibly in South Africa. Nevertheless this trend, together with reports from other countries in the region, suggests that African trafficking syndicates active in the Asia-Pacific region may be expanding their activities to include trafficking of methamphetamine in addition to heroin and cocaine.

Countries in West Africa, which have assumed an important role in the trafficking of cocaine, are also vulnerable to a potentially increased role in the trafficking or manufacture of other drugs, including amphetamine-type stimulants. In July 2009, large quantities of chemicals and equipment that could be used in the manufacture of illicit drugs were discovered in multiple facilities in Guinea. Among the seized materials were more than 5,000 litres of sassafras oil and 80 litres of

86 Official communication from the Government of Morocco. The replies to the Annual Reports Questionnaire for the year 2009 and 2010 from the Kingdom of Morocco were not available at the time of preparation of the present report.

87 Country report by Côte d'Ivoire to the Nineteenth Meeting of Heads of National Drug Law Enforcement Agencies, Africa. The replies to the ARQ for 2008 from Côte d'Ivoire were not available at the time of preparation of the present report.

88 UNODC, Global SMART Update Volume 4.

89 Country report by South Africa to the Nineteenth Meeting of Heads of National Drug Law Enforcement Agencies, Africa.

90 South African Police Service, *Annual Report 2008/2009*. In the replies to the ARQ for 2008, South Africa did not report any clandestine laboratories.

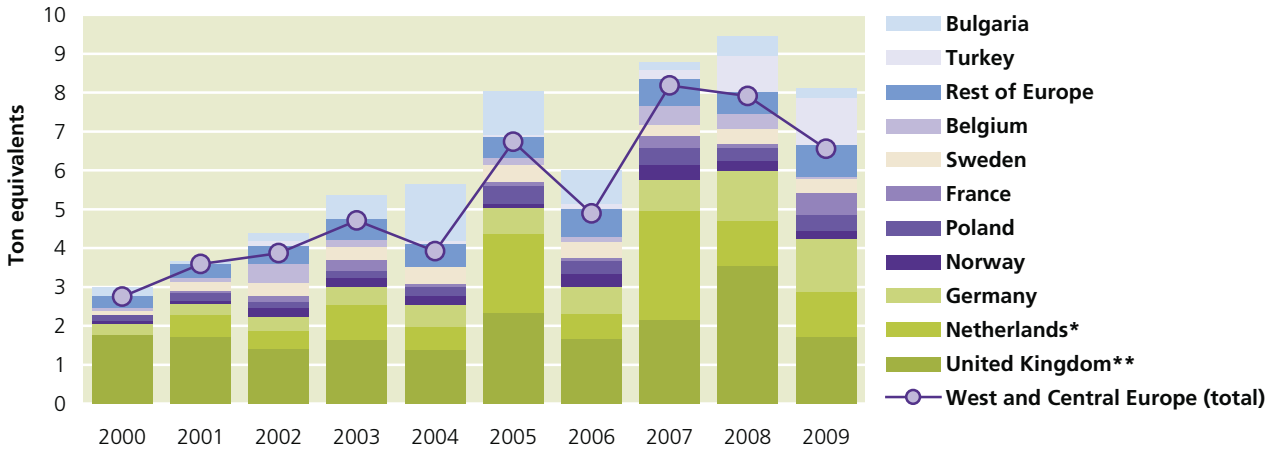
91 Japan Customs Intelligence and Targeting Centre, presentation at the Twentieth Anti-Drug Liaison Officials' Meeting for International Cooperation (ADLOMICO), October 2010, Seoul, Republic of Korea.

**Fig. 133: Amphetamine seizures in Europe, 2000-2009**

* Data for 2009 for the Netherlands were unavailable; the value used is that corresponding to the year 2008, and is only included to estimate the regional total.

** Data for the United Kingdom for 2007, 2008 and 2009 are based on incomplete data for some jurisdictions for the financial years 2007/08, 2008/09 and 2009/10 respectively, and adjusted for the missing jurisdictions using the distribution in 2006/07.

Source: UNODC DELTA.




3,4-MDP-2-P, which can be used to manufacture MDMA. In a separate single seizure, also in July 2009, Nigerian officials seized 10 kg of crystalline methamphetamine and 10 kg of amphetamine along with 57 kg of the precursor chemical ephedrine. The seizure was made at the departure concourse of a flight en route to South Africa.[92] (The methamphetamine seizures were, however, not reported separately in the ARQ but included in the broad category of psychotropic substances seizures). In 2010, Nigeria seized 75 kg of methamphetamine: over the nine-month period May 2010 – January 2011, 11 out of 150 seizures made by authorities at Murtala Muhammed International Airport involved methamphetamine, intended predominantly for the Asia-Pacific region.[93]

### Europe: Amphetamine seizures appear to recede

Europe, notably West and Central Europe, continues to be an important market for amphetamine, in terms of both manufacture and consumption. Amphetamine seizures in West and Central Europe reached a record level (8.2 mt) in 2007, and essentially sustained this level in 2008 (7.9 mt). In 2007 and 2008, the Netherlands, the United Kingdom and Germany collectively accounted for more than 70% of annual amphetamine seizures in West and Central Europe, and in 2009 the United Kingdom and Germany accounted for the largest and second largest seizure levels in Europe, respectively. Seizure data from the Netherlands for 2009 were not available; however, a comparison of seizure totals for 2008 and 2009 excluding the Netherlands indicates a decline of 20%.

A sharp drop in seizures in the United Kingdom, from the high level of 2008, was partly offset by increased seizures in France, while seizures in Germany continued the gradually increasing trend that can be traced back to 2002. Among all countries worldwide, the Netherlands continued to be the most frequently mentioned country of origin for amphetamine as well as 'ecstasy'. Poland continued to be the second most frequently mentioned country of origin for amphetamine: Poland dismantled eight amphetamine laboratories in 2009, and identified Germany, Scandinavia and the United Kingdom as the main destinations for amphetamine manufactured in Poland.

### Ecstasy seizures continue to decline

Seizures of ecstasy in Europe have declined sharply, standing at 1.8 mt in 2008 – approximately one third the prior levels – and appearing to decline by a further 59% in 2009 (excluding seizures in the Netherlands). The decreases were prevalent throughout Europe but were more pronounced in some countries than others; due to recent decreases in countries which historically accounted for a dominant portion of European 'ecstasy' seizures (notably the United Kingdom and, up till 2008, the Netherlands), in 2009 the largest 'ecstasy' seizures reported by European countries were made in Turkey (432,513 tablets) and Spain (404,334 tablets), while Poland registered seizures comparable with the quantities seized in the United Kingdom (6% of the European total). Poland assessed that some of the `ecstasy' on its territory originated in Poland itself, as well as the Netherlands. According to Colombian authorities,[94] a

92 UNODC, *Global SMART Update*, Volume 2, October 2009.

93 National Drug Law Enforcement Agency of Nigeria.

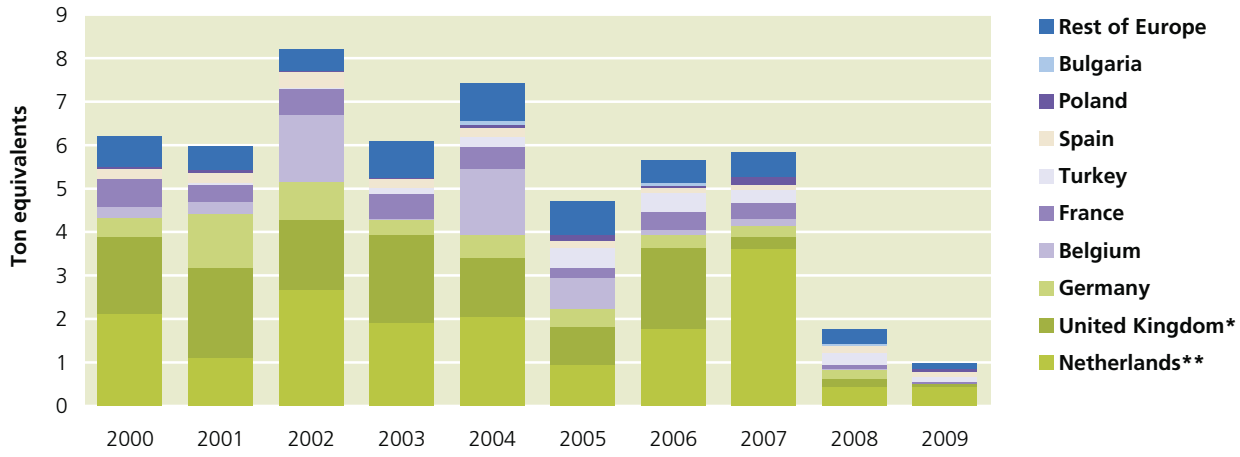
94 Dirección Nacional de Estupefacientes, Ministerio del Interior y de Justicia, Colombia.

**Fig. 134: Seizures of ecstasy in Europe, 2000-2009**

* Data for the United Kingdom for 2007, 2008 and 2009 are based on incomplete data for some jurisdictions for the financial years 2007/08, 2008/09 and 2009/10 respectively, and adjusted for the missing jurisdictions using the distribution in 2006/07.

** Data for 2009 for the Netherlands were unavailable; the value used is that corresponding to the year 2008, and is only included to estimate the regional total.

Source: UNODC DELTA.



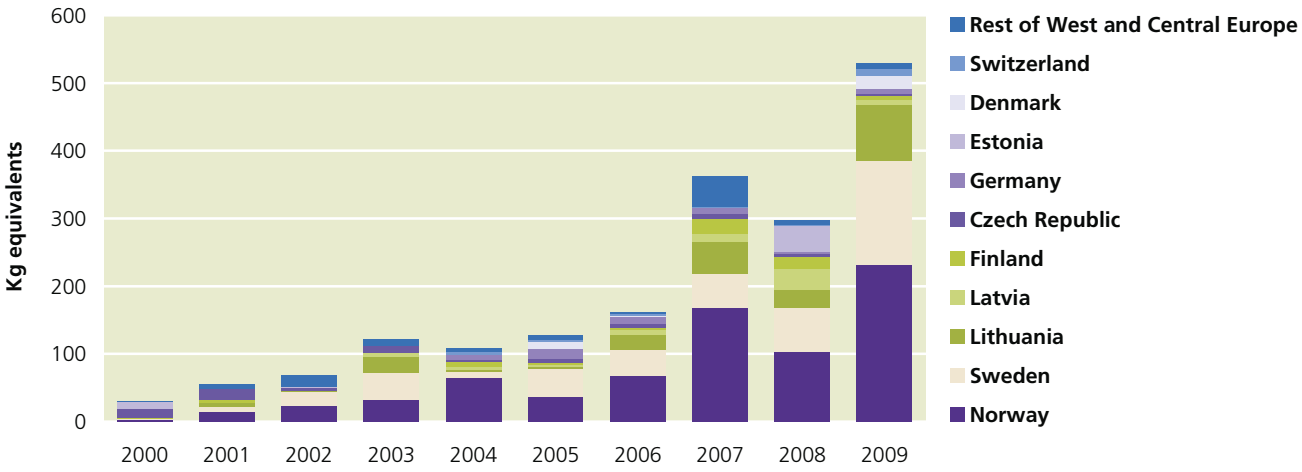

shipment of 15 million 'ecstasy' tablets seized in Poland and intended for Colombia suggested that Colombian syndicates were accepting payment for cocaine in the form of 'ecstasy' tablets manufactured in Europe. Similar arrangements were also reported from other European countries in the past.

### Methamphetamine emerging in Europe

While the European ATS market has in the past been dominated by amphetamine and 'ecstasy', recent years have seen the emergence of methamphetamine manufacture, trafficking and consumption in parts of Europe. Between 2004 and 2009, there was a five-fold increase of methamphetamine seizures in West and Central Europe, driven mainly by seizures in Norway, Sweden and Lithuania. Over the period 2002-2009, Lithuania and the Netherlands were the European countries most frequently mentioned as a country of origin for methamphetamine, followed by Poland, the Czech Republic and Slovakia. Lithuania assessed that methamphetamine on its territory originated entirely in Lithuania itself in 2009, while the percentage of domestic manufacture was estimated at 98% by Slovakia and 95% by the Czech Republic. The Czech Republic reported seizures of a large number of methamphetamine laboratories (342); one methamphetamine laboratory was also dismantled in Lithuania and an unspecified number in Slovakia.

**Fig. 135: Methamphetamine seizures in West and Central Europe, 2000-2009**

Source: UNODC DELTA.



## 4.5 Emerging trends

### Market expansion for ATS markets in East and South-East Asia

Established markets for amphetamine-type stimulants in East and South-East Asia have seen an expansion over the past year. Expert perceptions confirm that ATS - notably methamphetamine - play a significant role in the region. ATS may even have overtaken the use of plant-based drugs in some countries over the past few years. Methamphetamine in pill form has been reported as the primary drug of use in the Lao People's Democratic Republic and Thailand, while methamphetamine in crystalline form has been reported as the primary drug of use in Brunei Darussalam, Cambodia, Japan, the Republic of Korea and the Philippines. Methamphetamine in pill and crystalline form ranked as the second most commonly used drug type in China, with 'ecstasy' ranking third. In Indonesia, crystalline methamphetamine and 'ecstasy' ranked as the second and third most commonly used drugs, respectively. Crystalline methamphetamine ranked as the third most commonly used drug in Malaysia and Singapore.

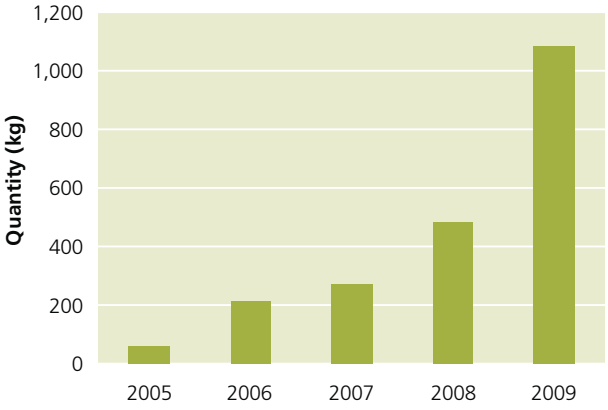
Over the past few years, several expanding markets have emerged in the region. For example, the market for methamphetamine in Viet Nam has grown as the country becomes an attractive target for traffickers due to its large, increasingly affluent and urban population. The use of crystalline methamphetamine, in particular, has increased among young people in major cities and seizures of methamphetamine pills have increased significantly over the past three years. Viet Nam also reports the existence of drug storage points along the northern border with the Lao People's Democratic Republic.

In Indonesia, crystalline methamphetamine use has been increasing each year since 2003 according to experts, and the drug now ranks as the second most commonly used drug, after having ranked fifth in 2005. Over the past five years, Indonesia - hitherto primarily a transit country for methamphetamine - has become a manufacturing centre for crystalline methamphetamine. Malaysia is a key transit country for crystalline methamphetamine trafficking in the region and in recent years has seen seizures of several small and large-scale manufacturing laboratories, echoing the same pattern as some other countries.

Another trend is the increasing trafficking and use of ketamine which is often sold in the traditional ATS markets of South-East Asia. In 2009, 6.9 mt of ketamine was seized in East and South-East Asia. Almost 90% of this was seized in China, which, along with India, is one of the major source countries for ketamine in the region. Ketamine seizure figures are almost certainly underreported, particularly in Asia. Ketamine is not under international control and only some countries in the region have imposed restrictions on its availability. Use is reportedly increasing in several countries and areas, and in Hong Kong, China, it was the main drug of use, with 2009 seizures reaching five times their 2007 level. One reason for its growing popularity is that ketamine is cheaper than other drugs such as MDMA and its licit use makes it widely available for diversion for illicit purposes in many countries in the region.

**Fig. 136: Seizures of ketamine in India, 2005-2009**

Source: Directorate of Revenue Intelligence and Narcotics Control Board, India.




Ketamine is also frequently trafficked in South Asia, particularly from India. Seizures of ketamine in India have increased from 60 kg in 2005 to more than 1 mt in 2009. Ketamine has been trafficked to countries in East and South-East Asia as well as to North America (notably Canada) and some European countries (notably the United Kingdom and the Netherlands).

### The emergence of analogue substances in established ATS markets

The appearance of several new unregulated synthetic compounds in established ATS markets, particularly in

Europe, the United States, Canada, Australia and New Zealand, has been an important trend observed over the past years. Many of these substances are marketed as 'legal highs' and substitute for illicit stimulant drugs such as cocaine or ecstasy.

In Europe, the emergence of these substances coincided with the gradual disappearance of ecstasy from the illicit drugs market. Seizures of ecstasy precursors have continually declined over the past five years. Seizures of the main ecstasy precursor 3,4-MDP-2-P (also known as piperonyl methyl ketone) steeply declined after 2004. The slow and steady disappearance of MDMA from the illicit market coincided with a decline in laboratory activity. In 2009, only one ecstasy-related laboratory incident was reported in Europe.

At the same time, other synthetic substances, notably piperazines, have been sold as 'ecstasy' to meet the demand from the illicit market. Manufacturers and traffickers have started to exploit the lack of national and international control over piperazines and other new synthetic substances. Piperazines are not under international control although many countries have introduced national controls over BZP and taken other action to prevent their sale and distribution.

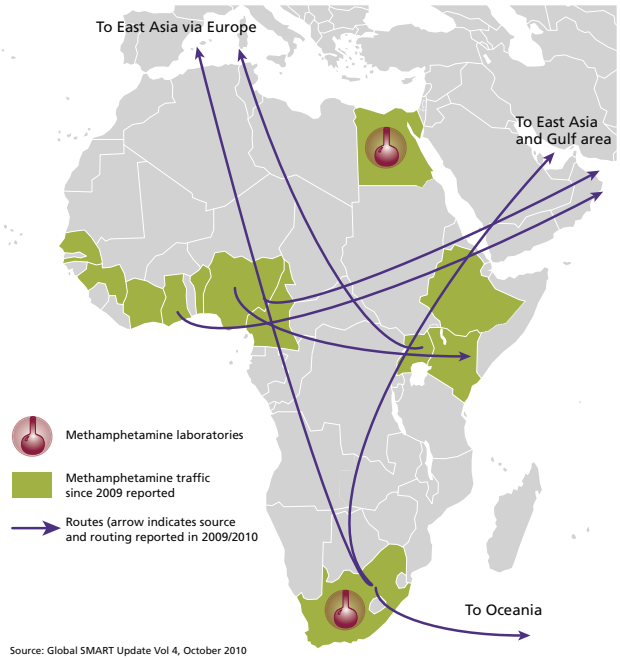
As a result, other substances have emerged, notably mephedrone. Mephedrone, 4-methylmethcathinone (4-MMC), first appeared on the illicit market around 2007. The substance has no medical use in either humans or animals and has been associated with a number of fatalities in European countries. In December 2010, mephedrone was banned in the countries of the European Union. But it is still available in illicit drug markets and has also appeared on markets in developed countries outside Europe, including the United States and Australia.

## Methamphetamine trafficking from Africa

Africa poses one of the greatest emerging threats with regard to trafficking of amphetamine-type stimulants. Trafficking of methamphetamine from Africa was reported first at the end of 2008 and reports of such trafficking have continued since. West Africa, in particular, is emerging as a source of methamphetamine for illicit markets in East Asia, with couriers transiting Europe, western Asia or East Africa. Few countries in the region have the capacity and governance structures to address the problem.

Methamphetamine manufacture is not entirely new to Africa. South Africa has had increasing reports since 2004 and Egypt reported a case as recently as April 2010. There are also indications that ATS manufacture could occur in West Africa. In July 2009, equipment that could be used in ATS manufacture was discovered in Guinea. In June 2010, the United States Government indicted members of a large international cocaine trafficking organization for, inter alia, the intent to establish large-scale manufacture of crystalline methamphetamine in Liberia.

**Map 37: Trafficking routes of methamphetamine in Africa**




Source: Global SMART Update Vol 4, October 2010

Note: The boundaries and names shown and the designations used on this map do not imply official endorsement or acceptance by the United Nations. Lines represent origin and intended destination, not necessarily exact route, and include completed or stopped trafficking attempts. Modes of transport include by air, sea, overland, or any combination thereof.

Precursor chemicals are frequently trans-shipped through the region. The International Narcotics Control Board (INCB) identified Africa as the region with the greatest number of diversions or attempted diversions of ATS precursor chemicals in 2008. Countries import precursors in considerable excess of legitimate annual needs and are targets for organized crime. For example, a single shipment to Uganda of 300 kg of pseudoephedrine was seized upon arrival in 2008. At the same time, the INCB notes that precursor trafficking patterns in Africa stand in sharp contrast to the low number of seizures made by Governments in the region. Only two cases were reported in 2009: 1.25 mt of ephedrine to the Central African Republic and 1 mt of pseudoephedrine to Kenya, both of which can be used in the manufacture of methamphetamine.

The World Customs Organization (WCO) noted a small number of methamphetamine trafficking cases from Africa (southern) to East Asia in mid-2008 with no prior cases reported. The year 2009 saw both the number of seizures and their quantities originating from Africa more than triple. This trend appears to be growing and spreading. Cases of methamphetamine trafficking have emerged from various West African nations. Trafficking of methamphetamine originating in or transiting through Benin, Cameroon, Côte d'Ivoire, Ghana,

Guinea, Senegal and in particular Nigeria have all been reported since 2009.

The most common destinations for methamphetamine have been outside the region, primarily Japan, followed by the Republic of Korea, with new reports from Malaysia and Thailand. Cases are typically multi-kilo and transported via air passengers hidden in luggage or by body concealment resembling methods employed by West African syndicates for other drugs. Couriers transit via Gulf countries, East African as well as European countries. Significantly larger shipments have also been reported. For example, in May 2010, Nigerian authorities stopped two separate cargo shipments totalling 63 kg of methamphetamine and amphetamine to Japan and South Africa. In July 2009, 10 kg of crystalline methamphetamine, 10 kg of amphetamine and 57 kg of ephedrine were seized in Nigeria en route to South Africa.

The infrastructure established by transnational cocaine and heroin traffickers in West Africa is readily adaptable to accommodate the flexibility of ATS manufacture. While the capacity to report on the situation in the region remains limited, initial indications suggest that the products are a threat for lucrative markets around the world. This raises the need for a truly global effort to address the synthetic drugs problem.

## ATS in South Asia

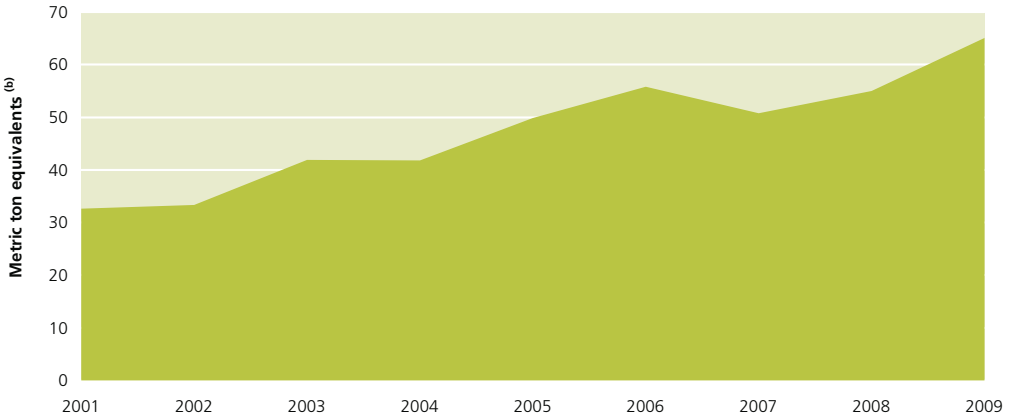
Located at the crossroads of drug supply between the sources in South-East and South-West Asia, South Asia has traditionally been affected by illicit manufacture, trafficking and use of drugs, mostly opiates. Over the past few years, however, South Asia has emerged as a source for amphetamine-type stimulants (ATS) and the precursors needed to manufacture them.

The geographical proximity to East and South-East Asian source countries of illicit methamphetamine is one of several factors which makes South Asia a vulnerable target for illicit manufacture of amphetamine-type stimulants. The first clandestine ATS manufacture operation was detected in India in May 2003. Since then, several additional facilities have been uncovered. In August 2010, a methamphetamine laboratory was discovered in India. However, attempts at illicit ATS manufacture are not limited to India, they have also been reported from Bangladesh and Sri Lanka. In Sri Lanka, for example, a large-scale methamphetamine laboratory was dismantled in May 2008.

In addition, South Asia has become one of the main regions used by drug traffickers to obtain ephedrine and pseudoephedrine for the illicit manufacture of methamphetamine. India is one of the world's largest manufacturers of precursor chemicals and Bangladesh also has a growing chemical industry. Despite efforts to control precursor chemicals, both countries have been identified in a number of cases as the source of diverted precursor chemicals for a range of drugs, including methamphetamine. Several significant seizures of pseudoephedrine in Central America and the Caribbean (such as the Dominican Republic, Guatemala and Honduras) are believed to have originated in Bangladesh. Many countries in Central America and the Caribbean are vulnerable as destinations for these shipments. Africa also remains at risk at being used by traffickers to obtain precursor chemicals.

Amphetamine, methamphetamine and ecstasy have been regularly seized in South Asia over the past five years. Methamphetamine pills originating from Myanmar are trafficked into Bangladesh, India and Nepal. The recent upsurge of methamphetamine seizures originating from Myanmar may therefore be felt acutely in the region.

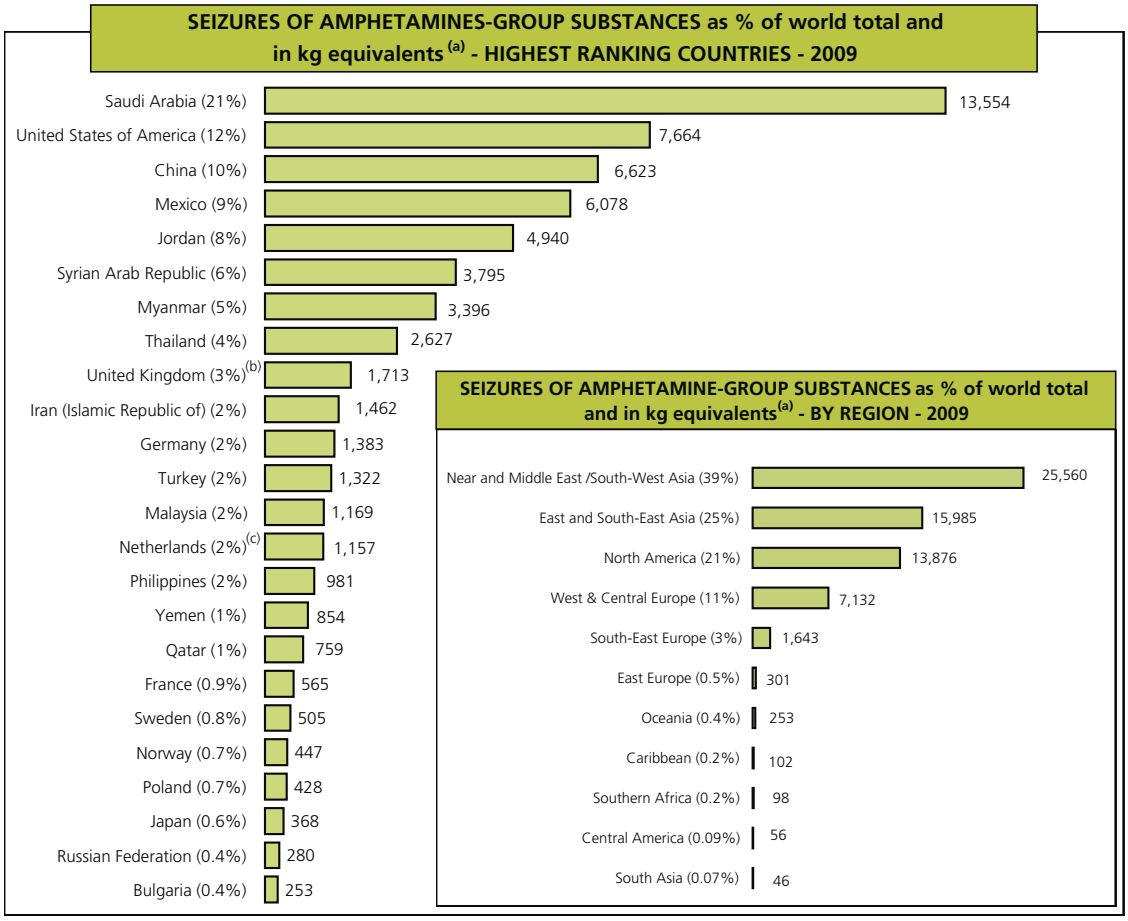
## Fig. 137: Global seizures of amphetamines[a], 2001-2009




[a] Amphetamine, methamphetamine and related non-specified amphetamines.

[b] This quantity reflects the bulk weight of seizures, with no adjustment for purity. Seizures of amphetamines-group substances reported in tablets or similar units are converted using assumed bulk tablet weights between 90mg and 300 mg, depending on the region and specific drug type, and based on information currently available to UNODC. This differs from the approach adopted in earlier editions of the World Drug Report.

| Year | 2001 | 2002 | 2003 | 2004 | 2005 | 2006 | 2007 | 2008 | 2009 |
|---|---|---|---|---|---|---|---|---|---|
| Metric ton equivalents[b] | 33 | 33 | 42 | 42 | 50 | 56 | 51 | 55 | 65 |



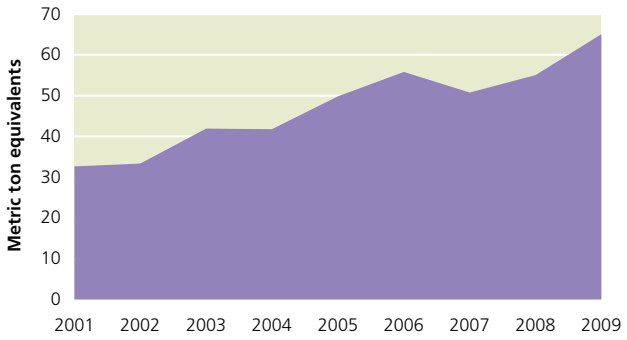

[a] This quantity reflects the bulk weight of seizures, with no adjustment for purity. Seizures of amphetamines-group substances reported in tablets or similar units are converted using assumed bulk tablet weights between 90mg and 300 mg, depending on the region and specific drug type, and based on information currently available to UNODC. This differs from the approach adopted in earlier editions of the World Drug Report.

[b] Data for the United Kingdom for 2009 are based on incomplete data for some jurisdictions for the financial year 2009/10, and adjusted for the missing jurisdictions using the latest available complete distribution (relative to the financial year 2006/07).

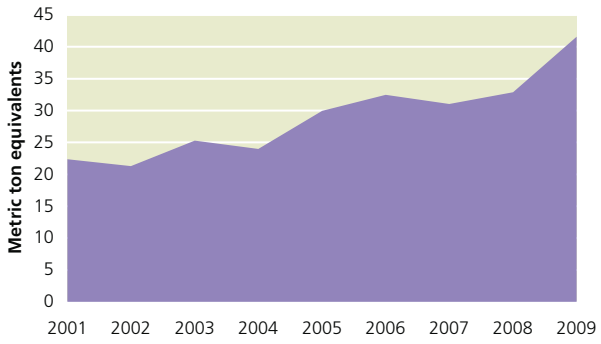
[c] Data relative to 2008. Data for 2009 from the Netherlands were not available.

## Fig. 138: Interception of amphetamines-group substances, 2001-2009

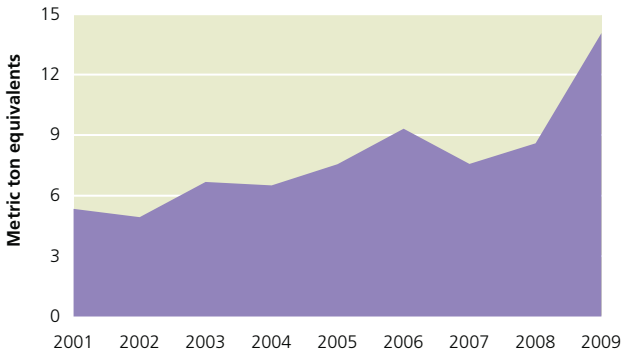
AMPHETAMINES-GROUP SUBSTANCES INTERCEPTED - WORLD: 2001-2009



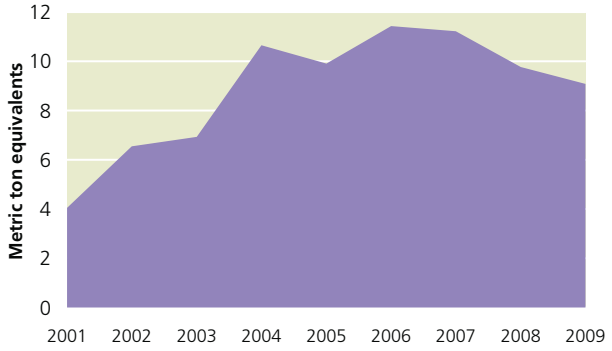

AMPHETAMINES-GROUP SUBSTANCES INTERCEPTED - ASIA: 2001-2009



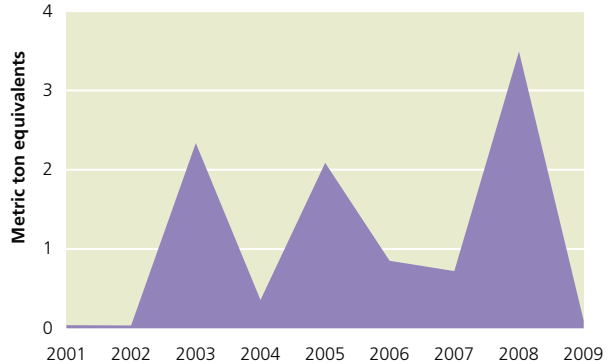

AMPHETAMINES-GROUP SUBSTANCES INTERCEPTED - AMERICAS: 2001-2009



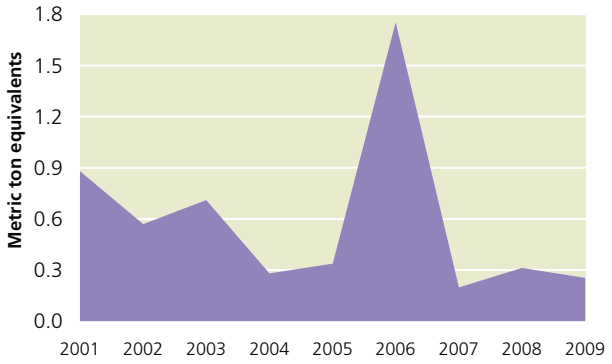

AMPHETAMINES-GROUP SUBSTANCES INTERCEPTED - EUROPE: 2001-2009



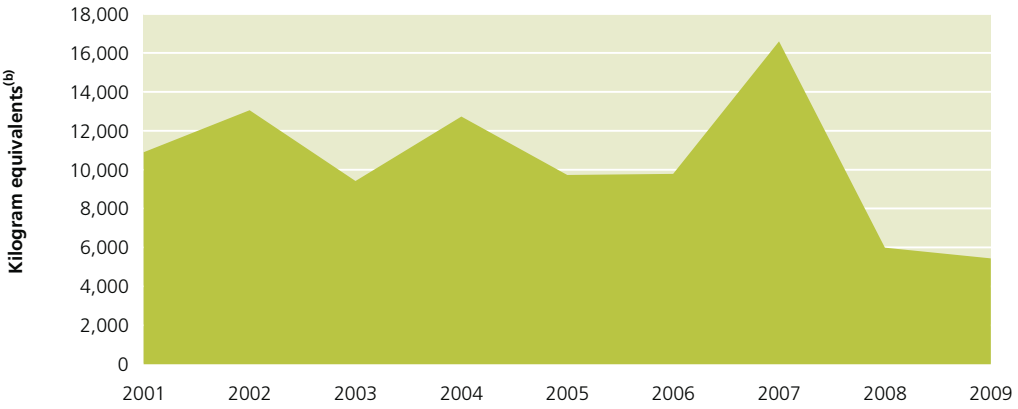

AMPHETAMINES-GROUP SUBSTANCES INTERCEPTED - AFRICA: 2001-2009




AMPHETAMINES-GROUP SUBSTANCES INTERCEPTED - OCEANIA: 2001-2009

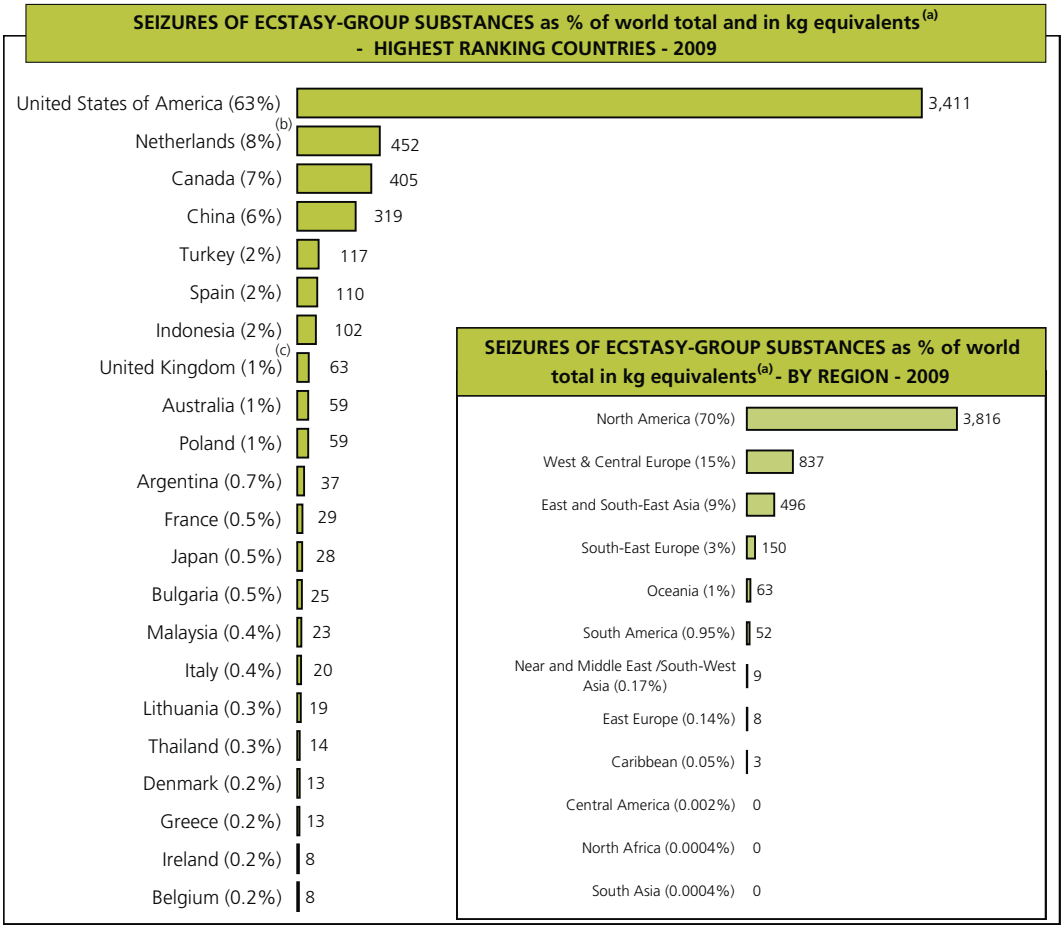


## Fig. 139: Global seizures of 'ecstasy'-group[a] substances, 2001-2009



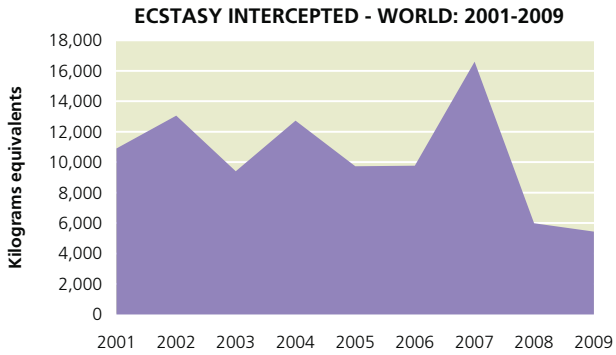

[a] Includes substances believed to be ecstasy (e.g. MDMA, MDA, MDE) which may not have been confirmed by forensic testing.
[b] This quantity reflects the bulk weight of ecstasy seizures, with no adjustment for purity. Seizures of ecstasy reported in tablets or similar units are converted using assumed bulk tablet weights between 200mg and 300mg, depending on the region and based on information currently available to UNODC. This differs from the approach adopted in earlier editions of the World Drug Report.

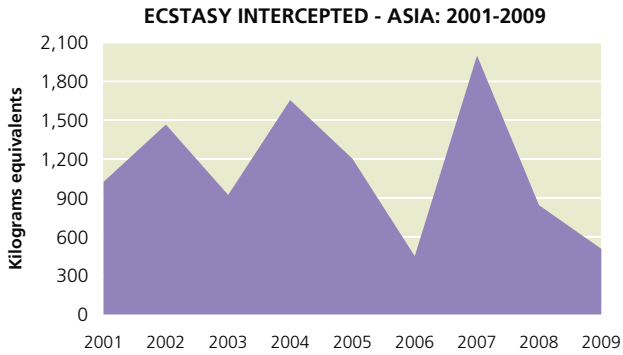
| Year | 2001 | 2002 | 2003 | 2004 | 2005 | 2006 | 2007 | 2008 | 2009 |
|---|---|---|---|---|---|---|---|---|---|
| Kilogram equivalents | 10,895 | 13,049 | 9,410 | 12,727 | 9,729 | 9,776 | 16,595 | 5,991 | 5,435 |

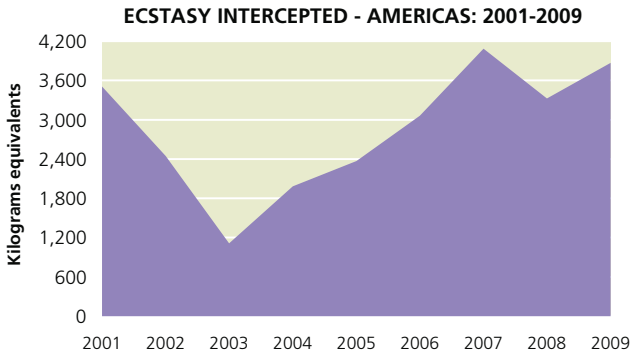


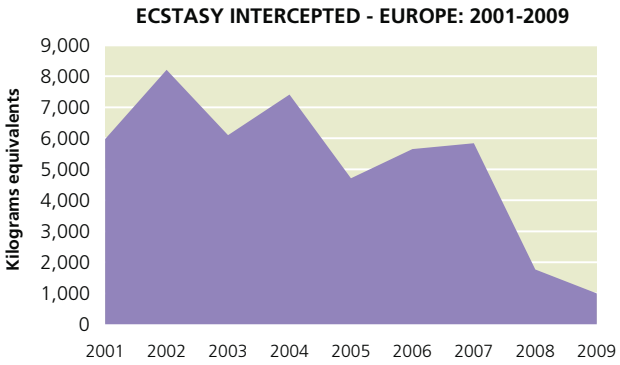

[a] This quantity reflects the bulk weight of ecstasy seizures, with no adjustment for purity. Seizures of ecstasy reported in tablets or similar units are converted using assumed bulk tablet weights between 200mg and 300mg, depending on the region and based on information currently available to UNODC. This differs from the approach adopted in earlier editions of the World Drug Report.
[b] Data relative to 2008. Data for 2009 from the Netherlands were not available
[c] Data for the United Kingdom for 2009 are based on incomplete data for some jurisdictions for the financial year 2009/10, and adjusted for the missing jurisdictions using the latest available complete distribution (relative to the financial year 2006/07).

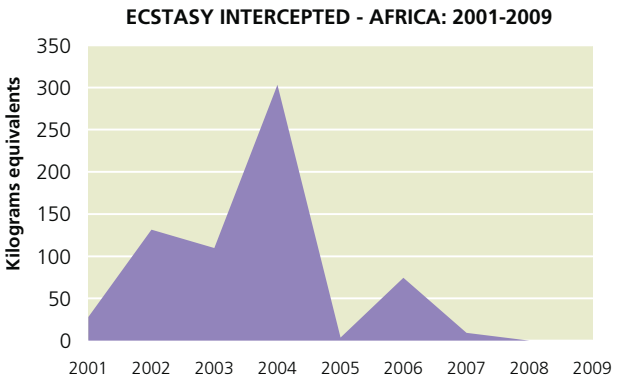
## Fig. 140: Interception of 'ecstasy'-group substances, 2001-2009

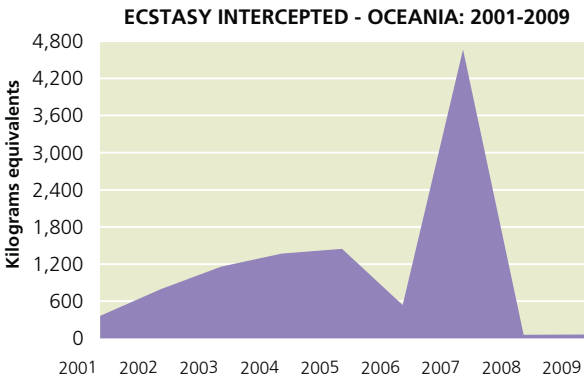


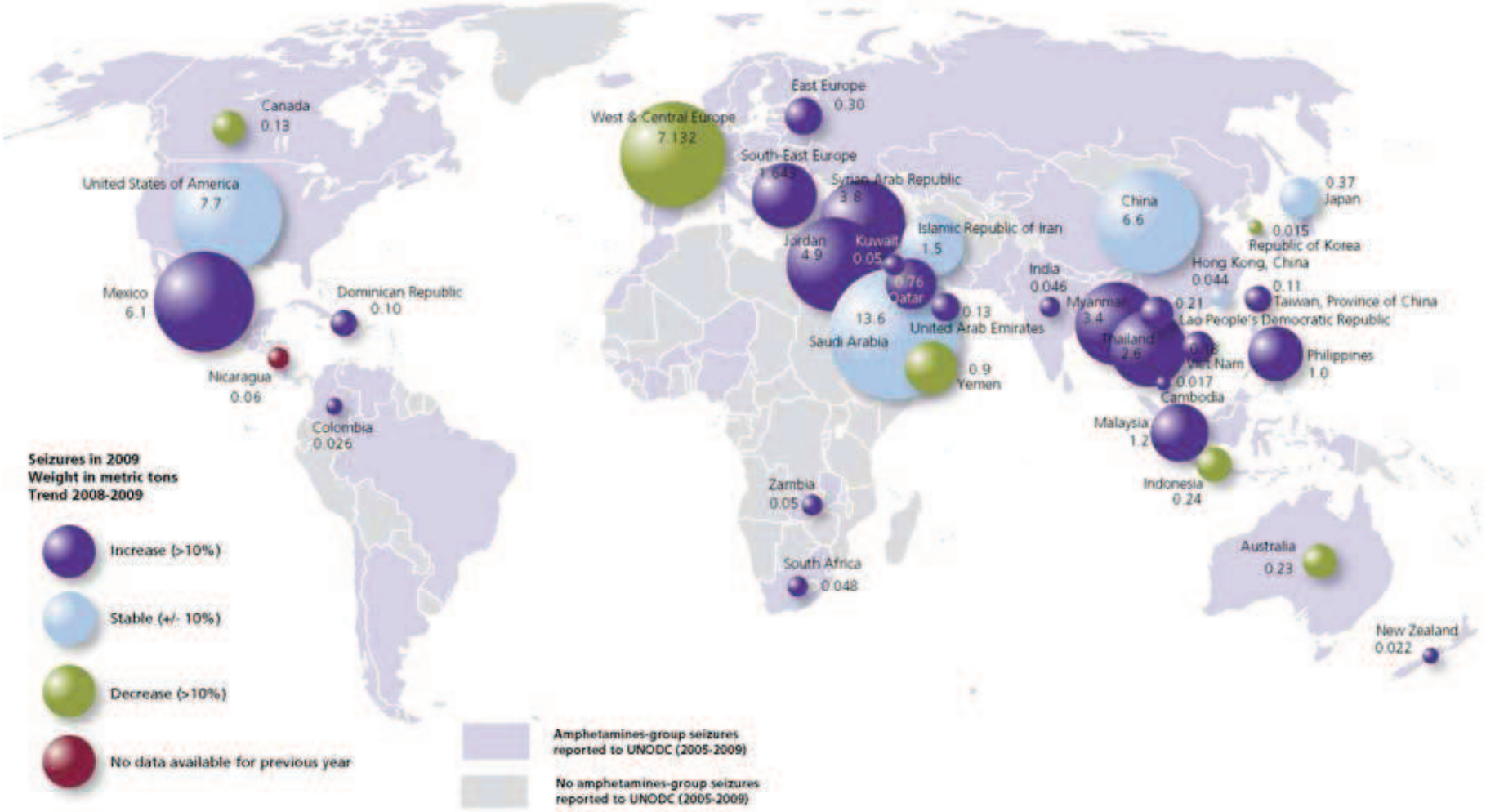



## Map 38: Seizures of amphetamines-group substances, 2009 (countries and territories reporting seizures of more than 10 kg)*

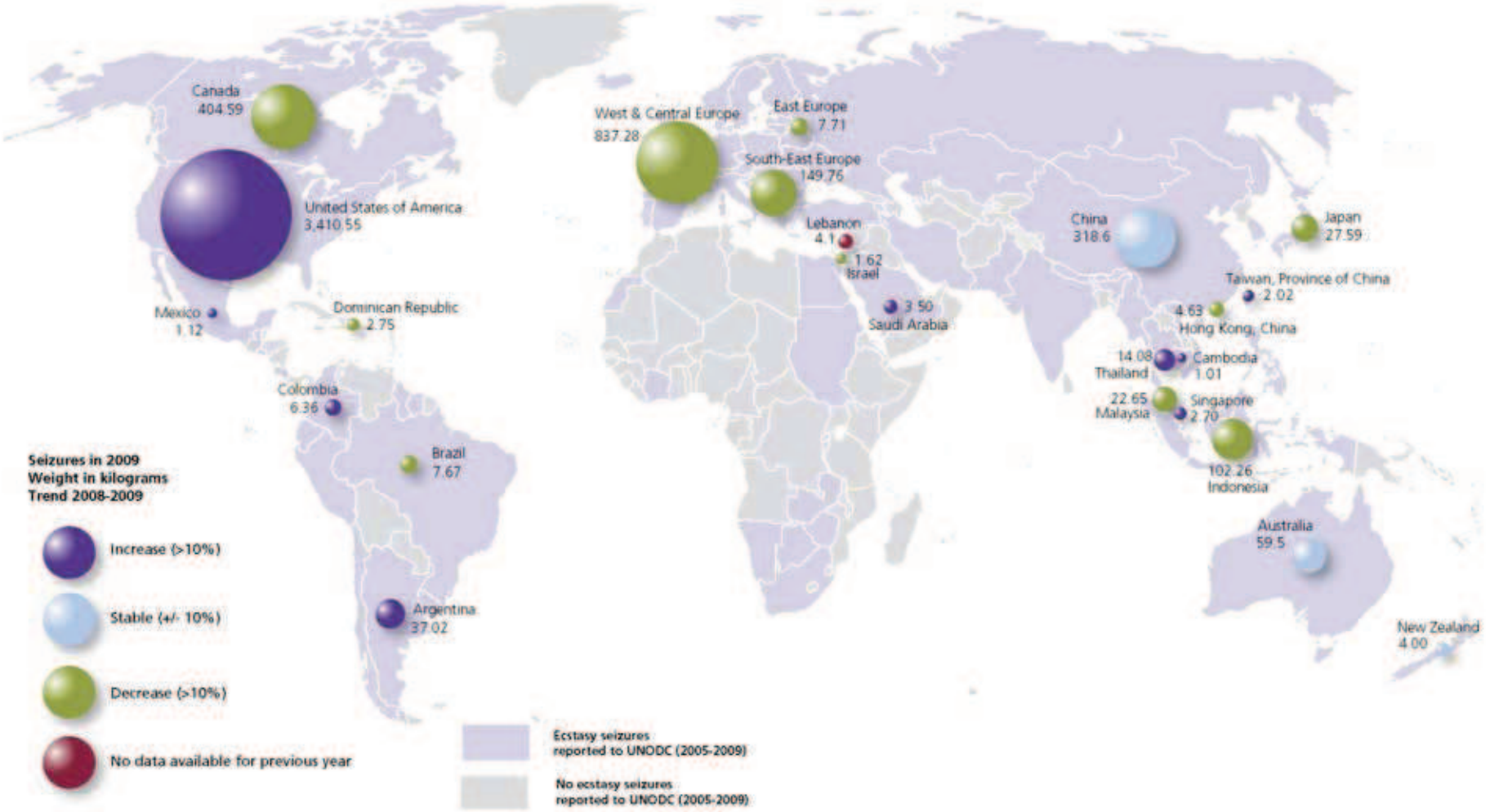



* This quantity reflects the bulk weight of amphetamine group seizures, with no adjustment for purity. Seizures of amphetamines-group reported in tablets or similar units are converted using assumed bulk tablet weights between 90mg and 300mg, depending on the region and specific drug type and based on information currently available to UNODC. This differs from the approach adopted in earlier editions of the World Drug Report.

Source: UNODC Annual Reports Questionnaires data supplemented by other sources

Note: The boundaries and names shown and the designations used on this map do not imply official endorsement or acceptance by the United Nations.

## Map 39: Seizures of ecstasy, 2009 (countries and territories reporting seizures of more than 10 kg)*




* This quantity reflects the bulk weight of ecstasy seizures, with no adjustment for purity. Seizures of ecstasy reported in tablets or similar units are converted using assumed bulk tablet weights between 200mg and 300mg, depending on the region and based on information currently available to UNODC. This differs from the approach adopted in earlier editions of the World Drug Report.
Source: UNODC Annual Reports Questionnaires data supplemented by other sources
Note: The boundaries and names shown and the designations used on this map do not imply official endorsement or acceptance by the United Nations.

# 5. The cannabis market

## 5.1 Introduction

Cannabis remains the most widely produced and consumed illicit substance globally. The extent of the global cannabis problem did not change significantly in 2009, though the consumption estimates show a wider range. This is the result of some increases in cannabis use in the United States of America, Africa, South and Central America and Asia, though consumption in Canada, western Europe and Oceania remained stable or showed a decline.

In Europe, cannabis resin seizures are now at their lowest level for the last 10 years, whereas seizures of resin in North Africa have increased. The major cannabis resin-producing countries showed little evidence of changes in the production levels. Global herbal cannabis seizures have increased, principally due to increased seizures in the United States of America and Mexico, where data on use and cultivation also point to an increase in the availability of cannabis herb in the market.

There is more and more evidence that intensive exposure to cannabis products with high potency levels increases the risk of psychotic disorders (see text box). Some recent studies show that the average concentration of the major psychoactive substance in cannabis products (THC) is nowadays at higher levels than 10-15 years ago; however, data for the past five years show a stable trend in some countries although the pattern is not consistent for all products and all countries.

From a market perspective, both cannabis producers and users are apparently searching for more diversified products which are not only determined by different THC concentrations, but also by choices in 'flavours.' This diversification is illustrated by the rise of synthetic cannabinoids ('spice'). In a short time, these products have become popular among young adults and teenagers in Europe and the United States. While there are some indications that these products might cause more damage to the health of users, there is a need for more pharmacological and toxicological research in this area. At the same time, the large number of products being marketed as cannabinoids also challenges the control measures taken by regulatory authorities in the Member States, the World Health Organization, the International Narcotics Control Board and the Commission on Narcotic Drugs.

## 5.2 Consumption

UNODC estimates that in 2009, between 2.8% and 4.5% of the world population aged 15-64, corresponding to between 125 and 203 million people, had used cannabis at least once in the past year. Compared to the previous year, the lower and upper levels of the estimates have increased, thereby widening the range.[1] This is in part due to greater uncertainty in the estimates as there are limited recent or reliable prevalence data available from many countries in Asia and Africa.

1 In 2008, the annual prevalence was estimated between 2.9% and 4.3% of the population aged 15-64.

**Table 36: Annual prevalence and estimated number of cannabis users, by region, subregion and globally, 2009**

| Region/subregion | Estimated number of users annually (lower) | - | Estimated number of users annually (upper) | Percent of population age 15-64 (lower) | - | Percent of population age 15-64 (upper) |
|---|---|---|---|---|---|---|
| **Africa** | 21,630,000 | - | 59,140,000 | 3.8 | - | 10.4 |
| East Africa | 2,340,000 | - | 8,870,000 | 1.7 | - | 6.5 |
| North Africa | 4,780,000 | - | 10,620,000 | 3.6 | - | 8.0 |
| Southern Africa | 3,130,000 | - | 7,810,000 | 3.9 | - | 9.8 |
| West and Central Africa | 11,380,000 | - | 31,840,000 | 5.2 | - | 14.6 |
| **Americas** | 40,950,000 | - | 42,860,000 | 6.7 | - | 7.0 |
| Caribbean | 440,000 | - | 2,060,000 | 1.6 | - | 7.6 |
| Central America | 550,000 | - | 610,000 | 2.2 | - | 2.5 |
| North America | 32,520,000 | - | 32,520,000 | 10.7 | - | 10.7 |
| South America | 7,410,000 | - | 7,630,000 | 2.9 | - | 3.0 |
| **Asia** | 31,340,000 | - | 67,970,000 | 1.2 | - | 2.5 |
| Central Asia | 1,950,000 | - | 2,260,000 | 3.8 | - | 4.4 |
| East/South-East Asia | 5,440,000 | - | 24,160,000 | 0.4 | - | 1.6 |
| Near and Middle East | 6,060,000 | - | 12,360,000 | 2.4 | - | 4.8 |
| South Asia | 16,830,000 | - | 28,110,000 | 1.9 | - | 3.1 |
| **Europe** | 28,730,000 | - | 29,250,000 | 5.2 | - | 5.3 |
| East/South-East Europe | 5,980,000 | - | 6,380,000 | 2.6 | - | 2.6 |
| West/Central Europe | 22,750,000 | - | 22,860,000 | 7.1 | - | 7.1 |
| **Oceania** | 2,160,000 | - | 3,460,000 | 9.3 | - | 14.8 |
| **Global** | **124,810,000** | - | **202,680,000** | **2.8** | - | **4.5** |

**Fig. 141: Estimated number of cannabis users by region, 2009**

Source: UNODC.

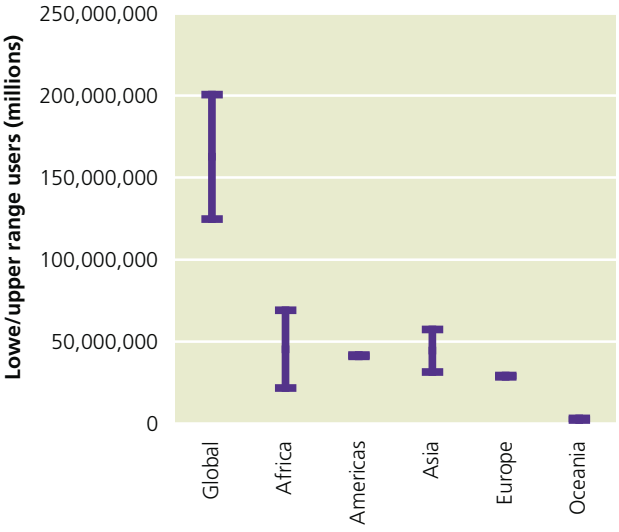
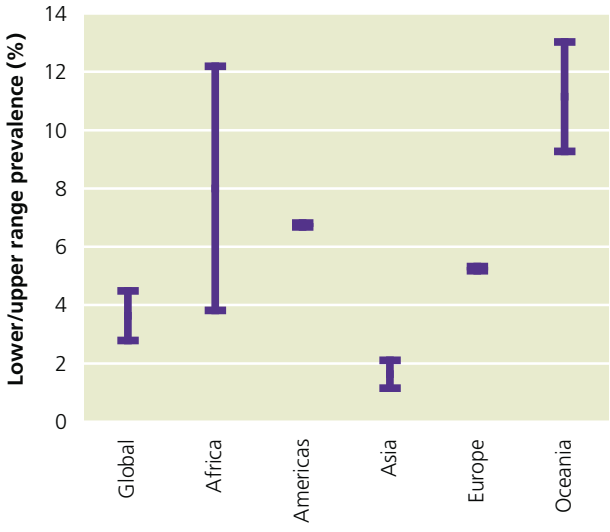


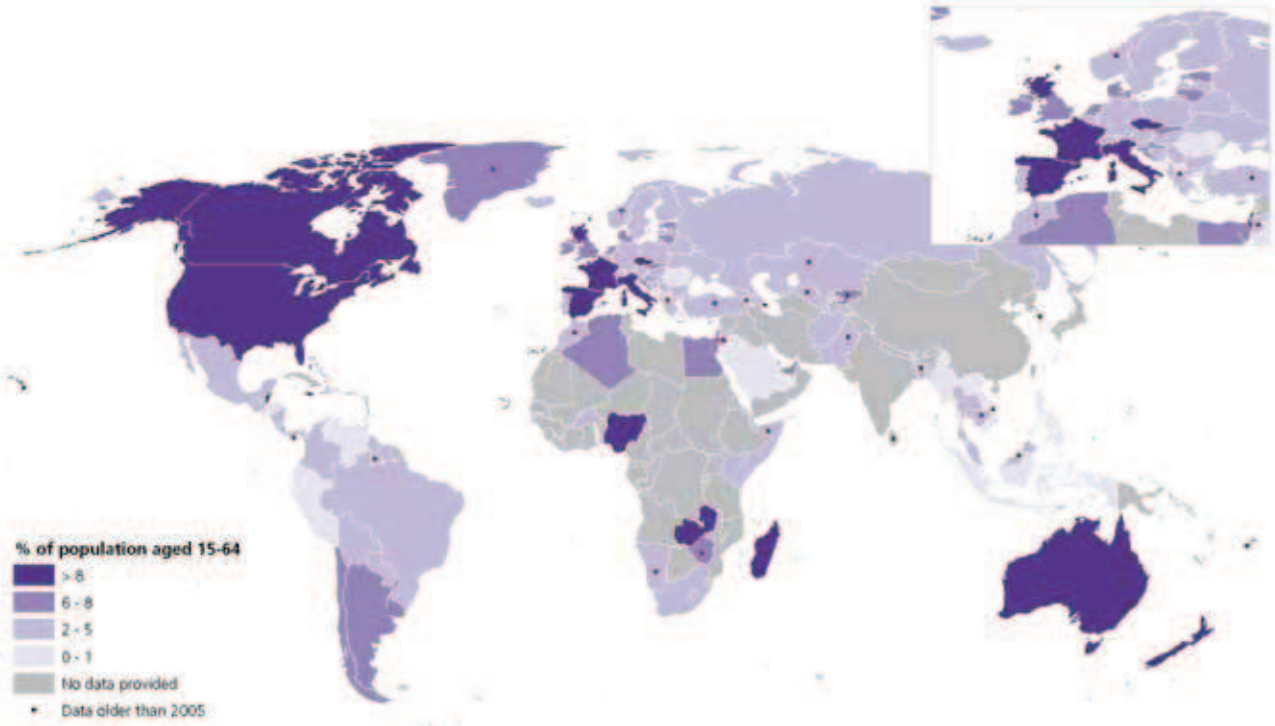

**Fig. 142: Annual prevalence of cannabis users by region, 2009**

Source: UNODC.



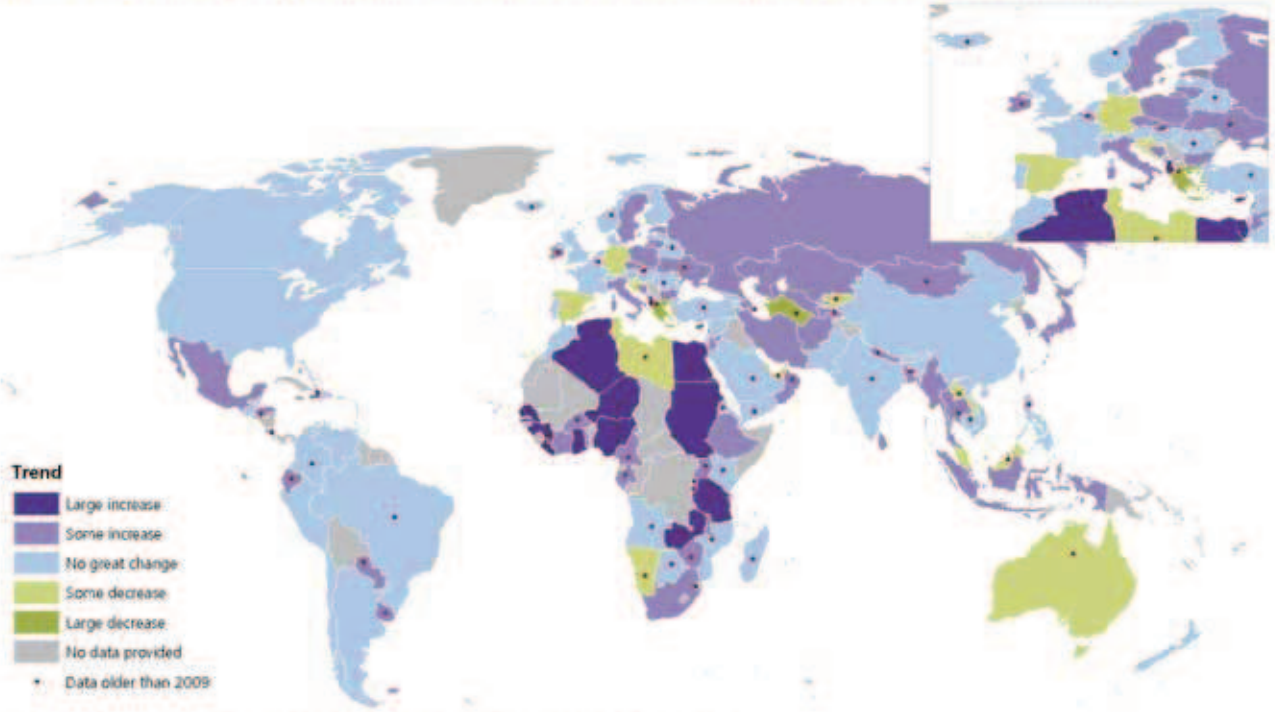

In 2009, among the Member States who provided expert perceptions on the trends of cannabis use in their countries, nearly half of the countries reported a stable trend. This number was even higher in countries in the Americas (67%). Less than half of Member States (44%), mainly in Africa, Asia and to a lesser extent Europe, reported that cannabis use had increased in their countries. As an overall trend, over the past 10 years, an increasing number of countries have been reporting stable trends for the use of cannabis.

## Map 40: Prevalence of cannabis use, 2009 (or latest year available)




Note: The boundaries and names shown and the designations used on this map do not imply official endorsement or acceptance by the United Nations.
Dotted line represents approximately the Line of Control in Jammu and Kashmir agreed upon by India and Pakistan. The final status of Jammu and Kashmir has not yet been agreed upon by the parties.

## Map 41: Expert perception of trends in the use of cannabis, 2009 (or latest year available)




Note: The boundaries and names shown and the designations used on this map do not imply official endorsement or acceptance by the United Nations.
Dotted line represents approximately the Line of Control in Jammu and Kashmir agreed upon by India and Pakistan. The final status of Jammu and Kashmir has not yet been agreed upon by the parties.

## Cannabis users

The typology presented below is based on selected behavioural studies undertaken in a few developed countries (including the United States, Australia and the United Kingdom). It gives an indication of the risk factors and cannabis use patterns in some high-prevalence countries.

### Experimental:

Experimental cannabis users typically try the drug for the first time in adolescence. They constitute a group of people who want to experience illegal drugs, but for the majority of these people, experience with cannabis suffices. A stage pattern suggests that 'experimenters' begin with alcohol and tobacco, followed by cannabis or inhalants.

Poor relations with parents, depression symptoms, exposure to drug-using peers and accessibility of drugs are important factors for initiation into illicit drugs. However, adolescents' beliefs and values favourable to the use of cannabis and association with cannabis-using peers are the strongest predictors of cannabis experimentation. Sensation-seeking in adolescence represents a propensity toward novel experiences and could also lead to the experimental use of cannabis. A number of experimental users may continue to use cannabis more regularly for recreational purposes or long-term to become chronic or dependent users.

### Recreational:

During the last quarter of the twentieth century, recreational use of cannabis increased greatly across the world and came to be seen by larger numbers of young people as a *normal* leisure activity. Recreational users use cannabis mostly on weekends, are likely to have used or use other drugs and have a more active night life in the city than other users. These users report that the main purpose of their use of cannabis is to reach a 'social high' and that they also use it to relax, enhance activity, decrease boredom, increase confidence, reduce anxiety or feel better. These young people do not contact public or private addiction counselling services because they are at times unaware of their existence, do not consider themselves dependent or feel these services are not designed for their specific needs. Early repeated use of cannabis during adolescence may be a risk factor for chronic cannabis use.

### Long-term or chronic:

People who start using cannabis at an early age and those who used other illicit drugs are more likely to continue using cannabis in their mid-30s or beyond, suggesting that cannabis use is part of their routine lifestyle choices. Lower income and marital rates, higher unemployment rates and having cannabis-using friends in young adulthood are commonly reported among this population.

Long-term cannabis users express lower levels of satisfaction on measures of quality of life. They report using cannabis to enhance positive feelings and perceive the drug as having calming effects, and may use it for stress-coping purposes. They also report using cannabis to escape from problems, alleviate anger or frustration, and 'get through the day'. Greater antisocial behaviour distinguishes chronic users from experimental and recreational users. It has been reported that psychosocial factors, antisocial personality disorder and alcohol dependence could predict long-term cannabis use. A social taboo against chronic drug use among women may be a protective factor, which is reflected in lower long-term female use rates.

**References**

Coffey, C., Lynskey M., Wolfe R. and Patton, G.C., 'Initiation and progression of cannabis use in a population-based Australian adolescent longitudinal study,' *Addiction*, Nov. 2000; 95(11): pp. 1679-1690.

Brook, J. S., Zhang, C. and Brook, D. W., 'Developmental Trajectories of Marijuana Use from Adolescence to Adulthood: Personal Predictors,' *Archives of Paediatric & Adolescence Medicine*, Jan. 2011; 165(1): pp.55-60.

Hall W. and Degenhardt, L., 'Adverse health effects of non-medical cannabis use,' *The Lancet,* 2009, Vol. 374, Issue 9698, pp. 1383-1391.

Duff, C., 'Party drugs and party people: examining the 'normalization' of recreational drug use in Melbourne, Australia,' *International Journal of Drug Policy*, 16, 2005, pp. 161–170.

Boys, A., Marsden, J. and Strang, J., 'Understanding reasons for drug use amongst young people: a functional perspective,' *Health Education Research,* 2001, 16 (4): pp. 457-469.

DiNitto D.M. and Choi, N.G., 'Marijuana use among older adults in the USA.: user characteristics, patterns of use, and implications for intervention,' *International Psychogeriatric Association,* Nov. 2010, 25: pp. 1-10.

Gruber, A.J. et al., 'Attributes of long-term heavy cannabis users: a case–control study,' *Psychological Medicine*, 2003, 33, pp. 1415–1422.

Perkonigg, A. et al. 'The natural course of cannabis use, abuse and dependence during the first decades of life,' *Addiction*, Mar. 2008;103(3): pp. 439-49.

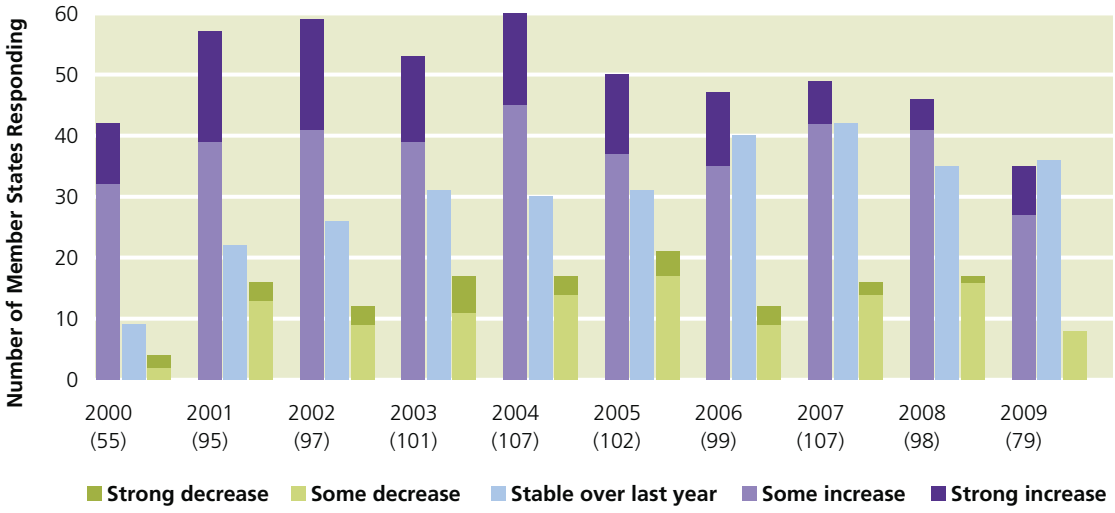
**Table 37: Expert perceptions of trends in cannabis use by region, 2009**

Source: UNODC ARQ.

| Region | Member States providing perception data | Member States perception response rate | Use problem increased | Percent use problem increased | Use problem stable | Percent use problem stable | Use problem decreased | Percent use problem decreased |
|---|---|---|---|---|---|---|---|---|
| Africa | 11 | 21% | 7 | 64% | 3 | 27% | 1 | 9% |
| Americas | 15 | 43% | 5 | 33% | 10 | 67% | 0 | 0% |
| Asia | 22 | 49% | 11 | 50% | 8 | 36% | 3 | 14% |
| Europe | 30 | 67% | 12 | 40% | 14 | 47% | 4 | 13% |
| Oceania | 1 | 7% | 0 | 0% | 1 | 100% | 0 | 0% |
| **Global** | **79** | **41%** | **35** | **44%** | **36** | **46%** | **8** | **10%** |

**Fig. 143: Expert perceptions of trends in cannabis use, 2000-2009**

Source: UNODC ARQ.




### Cannabis use in the United States shows a resurgence, while there is a decrease in Canada

The annual prevalence of cannabis use in North America is estimated at around 10.7% of the adult population aged 15-64. These estimates are higher than the annual prevalence of 9.9% reported in the 2010 *World Drug Report*, and essentially reflect the increase in the annual prevalence of cannabis use in the United States of America.

In the United States, cannabis remained the most common illicit drug used in the past year. The annual prevalence of cannabis use that had been declining steadily between 2002 and 2007 begun to show an increase over the past two years, and in 2009 was estimated slightly higher than the prevalence in 2002.[2] Comparable trends of cannabis use have been observed both among the general population and high school students.

In 2009, among the people who had initiated drug use in the past year in the United States, the largest number - 2.4 million people aged 12 years or older - had used cannabis as their first drug. This was followed by the non-medical use of pain relievers (2.2 million). Among the estimated 22.5 million drug users who were classified with substance dependence or abuse in the past year, the highest number was among cannabis users (4.3 million people aged 12 or older).[3]

Past month prevalence of cannabis use among the US population aged 12 or older increased from 6.1% in 2008 to 6.6% in 2009. The rate of current illicit drug use, including cannabis, among the older population

2 Substance Abuse and Mental Health Services Administration, *Results from the 2009 National Survey on Drug Use and Health: Volume I.* Summary of National Findings, 2010, Rockville, Maryland, USA.

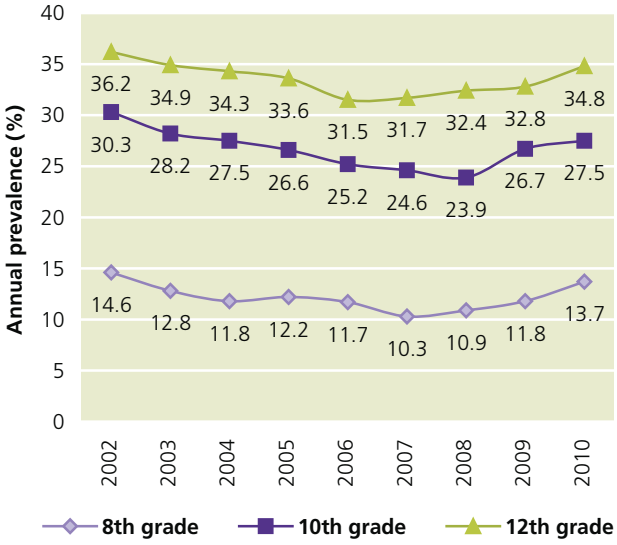
3 Ibid.

**Fig. 144: United States: Trends in the annual prevalence of cannabis use among the population aged 12 or older, 2002-2009**

Source: Substance Abuse and Mental Health Services Administration, Results from the 2009 National Survey on Drug Use and Health: Summary of National Findings.


**Fig. 145: United States: Trends in the annual prevalence of cannabis use among secondary school students, 2002-2010**

Source: Monitoring the Future: national results on adolescent drug use.




(aged 50-59) has also increased from 2.7% in 2002 to 6.2% in 2009,[4] mainly due to the ageing cohort of baby boomers[5] that have had high rates of illicit drug use. Among secondary school students in grades 8, 10 and 12, after some decreases observed between 2002 and 2006, there has been a steady increase in the annual prevalence of cannabis use since 2007. Use is still not reaching the levels reported in 2002, however.[6] The reversal in cannabis trends from 2006 onwards is in part attributed to a softening of the perceptions related to the risks of cannabis use among the student population,[7] which coincided with a period of public debates around an initiative aiming at the legalization of cannabis in one US state.

In 2009, among emergency department visits related to cannabis use, the rate was slightly higher for the population aged 20 years or younger (125.3 visits per 100,000 people) compared to those aged 21 or older (121.5 visits per 100,000 people).[8] For all other illicit drugs, the rate of emergency department visits was much lower among the younger population.

In Canada, the annual prevalence of cannabis use among the adult population remains at levels comparable to those in the United States, although the annual prevalence has been declining since 2004. In 2009 the annual prevalence was reported at 12.6%, a decrease from 13.6% in 2008 and 14.1% in 2004.[9] There has also been a decline in the annual prevalence of cannabis use among youth aged 15-24, from 37% in 2004 to 26.3% in 2009.[10]

There is no update on the extent of cannabis use in Mexico, but experts perceive an increase since 2008 when use was reported at 1% among the adult population. Cannabis use in Mexico remains at much lower levels than in the United States or Canada.

### Some countries in South and Central America report increases in cannabis use

Cannabis use patterns and trends in the Caribbean, South and Central America remain unchanged, with the prevalence of cannabis use at comparable levels in these subregions. One third of the countries that reported expert opinions on trends of drug use considered that cannabis use in their countries had increased. Countries with high prevalence of cannabis use among the adult

4 Substance Abuse and Mental Health Services Administration, *Results from the 2009 National Survey on Drug Use and Health: Volume I.* Summary of National Findings, 2010, Rockville, Maryland, USA.

5 Baby boomers refers to the cohort of persons born in the United States between 1946 and 1964.

6 Johnston, L. D., O'Malley, P. M., Bachman, J. G. and Schulenberg, J. E., *Monitoring the Future, national results on adolescent drug use: Overview of key findings, 2010*, Institute for Social Research, University of Michigan, 2011, Ann Arbor, Michigan, USA.

7 NIDA, *Research Report Series: Marijuana Abuse,* US Department of Health and Human Services, National Institutes of Health, September 2010.

8 Substance Abuse and Mental Health Services Administration, Centre for Behavioural Health Statistics and Quality, The *DAWN Report: Highlights of the 2009 Drug Abuse Warning Network (DAWN) Findings on Drug-Related Emergency Department Visits*, December 2010, Rockville, Maryland, USA.

9 UNODC ARQ.

10 Health Canada, *Canadian Alcohol and Drug Use Monitoring Survey: Summary Results for 2009,* 2010.

## Profile of clients in treatment with cannabis as the primary drug of concern in the United States (2000-2008)

Contrary to the general belief that cannabis use can result in little harm to users, in recent years, an increasing number of people in many regions have entered treatment for problems related to cannabis use. Presented below are some characteristics of a typical cannabis user entering treatment services in the United States, using data aggregated over the years 2000-2008. Based on this information, it can be inferred that cannabis users in treatment:

1. Are most likely adolescents or young adults, single and male with secondary-level schooling. One third of clients are less than 17 years old.
2. Are most likely not in the workforce, that is, unemployed or students.
3. Initiated their use of cannabis at a very young age - more than half by the age of 14 and almost 90% before the age of 18.

More than a quarter were daily users immediately prior to entering treatment, although more than a third had ceased use in the month prior to admission. The majority of referrals came through the criminal justice system.

| Characteristic | | % of total |
|---|---|---|
| Age | 12-17 | 32.5 |
| | 18-24 | 32.5 |
| | 25+ | 34.9 |
| Gender | Male | 74.4 |
| | Female | 25.6 |
| Marital status | Never married | 80.5 |
| Education | 12 years or less | 90.4 |
| Employment status | Full time | 19.2 |
| | Part time | 9.2 |
| | Unemployed | 25.3 |
| | Not in labour force | 46.3 |
| | (of which 55.4% are students) | |
| Frequency of cannabis use | No use in past month | 35.0 |
| | 1-3 times in past month | 16.4 |
| | 1-2 times in past week | 10.4 |
| | 3-6 times in past week | 11.8 |
| | daily | 26.4 |
| Age at first use | 11 and under | 13.6 |
| | 12-14 | 42.3 |
| | 15-17 | 31.2 |
| | 18-20 | 8.5 |
| | 21+ | 4.4 |
| Source of referral | Individual (includes self-) | 16.1 |
| | Healthcare provider | 10.3 |
| | School | 3.9 |
| | Employer | 1 |
| | Community referral | 11.5 |
| | Court/criminal justice system | 57.1 |
| DSM diagnosis | Cannabis dependence | 40.8 |
| | Cannabis abuse | 28.8 |
| Psychiatric problem in addition to cannabis problem | | 23.2 |

Source: SAMHSA, Treatment Episode Data Set (TEDS).

population in these regions include Argentina, Belize, the Plurinational State of Bolivia, Chile and Guatemala. As observed in other regions, the prevalence of cannabis use in Central and South America tends to be higher among youth than in the general population. One exception is Guatemala, where the prevalence of cannabis use is higher in the adult population aged 15-64 (4.8%) than in the 12-19 age group (1%). In Argentina, the annual prevalence of cannabis use among the populations aged 15-64 and 13-17 is almost identical (7.2% and 7.6%, respectively).

**Fig. 146: Annual prevalence of cannabis use among adult and youth* populations in selected countries in the Caribbean, Central and South America**

* Youth: Argentina and Uruguay 13-17 years; Belize ages 13,15 and 17; Brazil, Chile and Colombia 15-16 years; Costa Rica grade 10; Ecuador 12-17 years; Guatemala 12-19 years.

Source: UNODC ARQ.

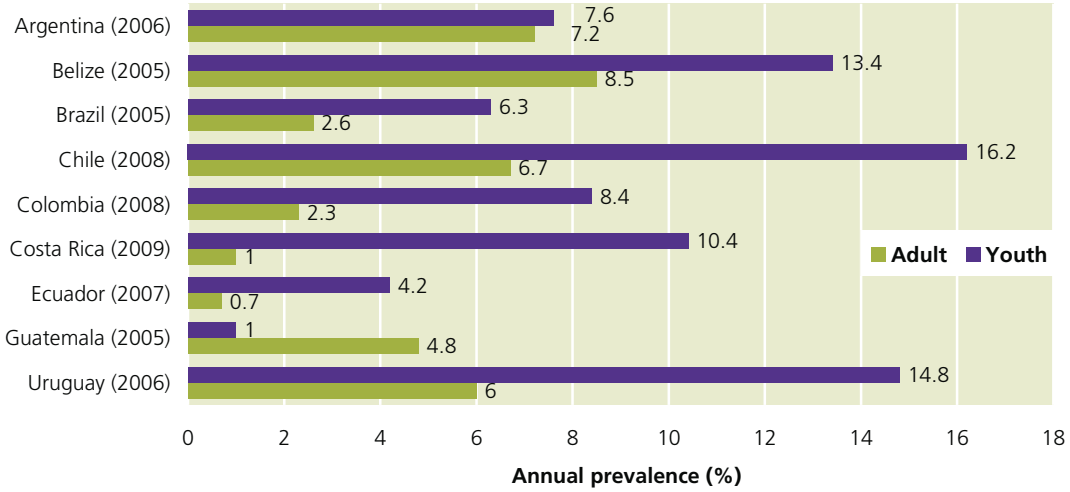
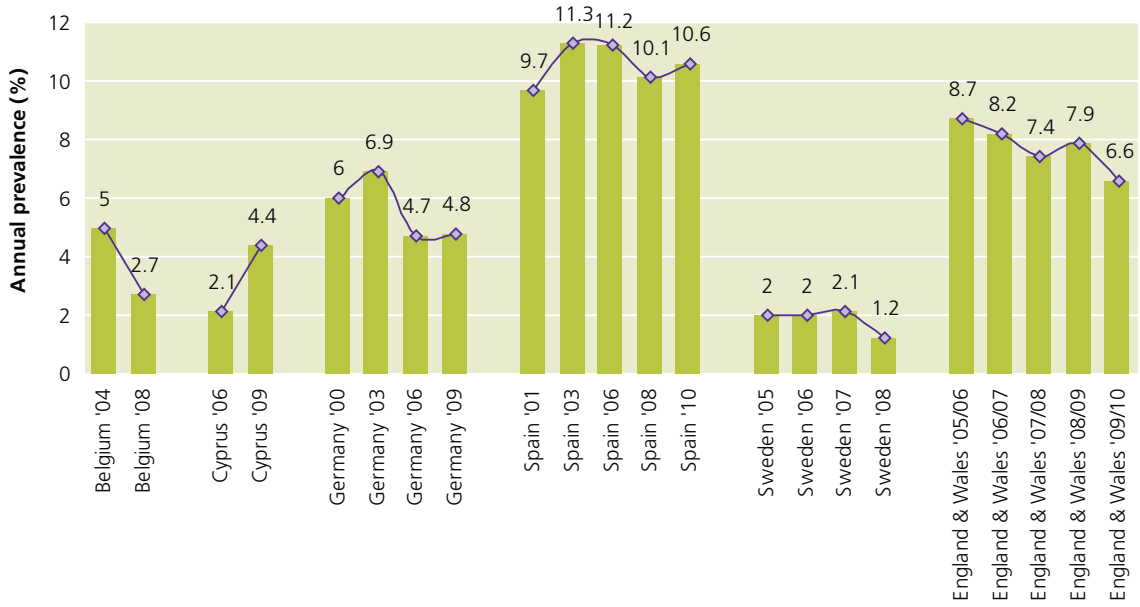



**Fig. 147: Europe: Trends in annual prevalence of cannabis use in countries with new* data**

* This refers to new or most recent data provided by Member States in 2010, either through the ARQ or in survey reports.

Source: UNODC ARQ; Government reports.




**Most countries in Europe have shown stable or declining levels of cannabis use, but it is reportedly on the increase in eastern Europe**

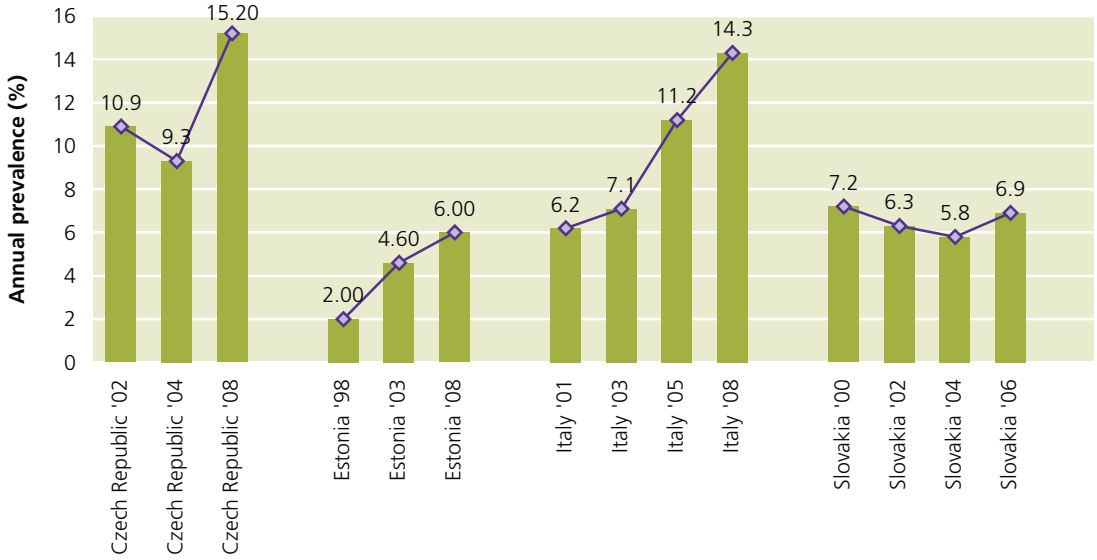
In some countries in eastern Europe, cannabis use exceeds the prevalence levels in western Europe. New data are available from a few countries in Europe, and they confirm the stabilization of cannabis use in West Europe. The Czech Republic, Estonia, Italy, Slovakia, Spain and the United Kingdom remain countries with high levels of cannabis use among the general population and among young adults with perceived trends of increasing use reported in recent years.[11]

In Europe, the annual prevalence of cannabis use is estimated at 5.2%-5.3% of the population aged 15-64. The prevalence of cannabis use is much higher in West and

11 A new household survey in Italy indicates a strong decline in annual prevalence from 14.3% in 2008 to 5.2% in 2009 as well as a parallel decline in the lifetime prevalence of cannabis use among the general population. The comparability of the findings between these two surveys, however, is uncertain.

**Fig. 148: Trends in annual prevalence of cannabis use in high prevalence countries**

Source: EMCDDA; UNODC ARQ.




Central Europe (7.1%) than in East and South-East Europe (2.6%). The use of cannabis is in large part concentrated among young people, with the highest annual prevalence reported among those aged 15-24 (13.9%), compared to an average annual prevalence of 10% among the population aged 15-34 in West, Central and South-East Europe.

The individual risk related to cannabis use seems lower than for heroin or cocaine, but health problems do exist and due to the high prevalence of use, the impact of cannabis on public health may be significant.[12] On average, cannabis was reported as the primary drug in treatment for 21% of cases in West and Central Europe and 14% of cases in East and South-East Europe. Cannabis was also reported as a secondary drug by 24% of all outpatient clients in Europe. Among the younger drug users (aged 15-19) in treatment, a much higher proportion (83%) were in treatment for primary cannabis use.[13] As reported by EMCDDA, many cannabis clients also report the use of alcohol or other drugs. Based on data collected in 14 EU member states, 65% of the cannabis users had taken another substance – mostly alcohol or cocaine – and some reported the use of both alcohol and cocaine in the previous year.

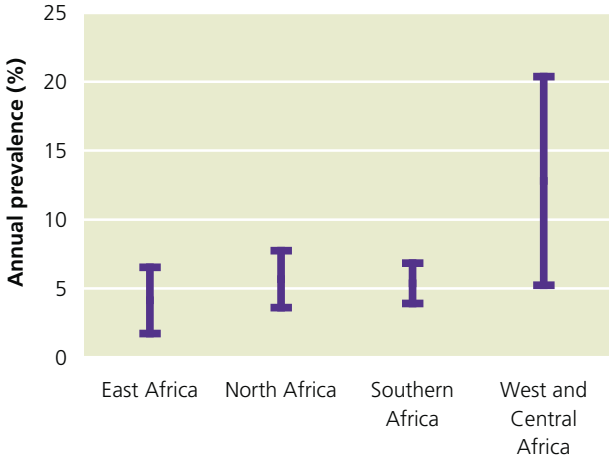
**Although there is not much reliable information on the extent of cannabis use in Africa, it is perceived to be widespread, and most countries reporting expert opinion consider that cannabis use continues to increase**

The estimated annual prevalence rates of cannabis use for Africa is the second highest in the world, with estimates ranging between 3.8% and 10.4% of the population aged 15-64, or between 21.6 and 59.1 million people. Higher levels of cannabis use are estimated for West and Central Africa compared to other subregions.

In Kenya, a 2009 survey conducted among 4,500 households in the coastal provinces indicated that the overall lifetime prevalence of cannabis use was 10.6% among all

**Fig. 149: Annual prevalence of cannabis use in Africa by subregion, 2009**

Source: UNODC.




12 European Monitoring Centre for Drugs and Drug Addiction (EMCDDA) *Annual Report 2010: The State of the drugs problem in Europe*, Lisbon, 2010.

13 Ibid.

## Cannabis use and psychosis

Evidence suggests that cannabis and other cannabinoids can produce a range of transient psychotic symptoms and cognitive deficits, such as transient deficits in learning, short-term memory, working memory, executive function, abstract ability, decision-making and attention. Increasing evidence also suggests that early onset and heavy cannabis exposure could increase the risk of developing a psychotic disorder such as schizophrenia.

In a case control study conducted by Di Forti et al. in the United Kingdom (2009), it was reported that patients with a first episode of psychosis were more likely to have smoked higher potency cannabis (that is, cannabis with higher THC content) with greater frequency and for a longer period. The study found that 78% of the case groups used the high potency cannabis (Sinsemilla or Skunk with THC concentrations ranging between 12-18% and 0% cannabidiol) compared with 37% of the control group (that smoked cannabis resin with both THC concentration and cannabidiol of 3.4%) (AOR* 6.8); were daily users (AOR = 6.4), and had smoked cannabis for more than 5 years (AOR 2.1).

Recent studies also indicate that cannabidiol reduces the acute cognitive effects of THC, an important aspect since the potency of cannabis has increased in Europe during the last 10 years and THC has been associated with the detrimental effects of cannabis on the mental health of at-risk users.

A recently published 10-year follow-up cohort study investigated the relationship between cannabis use and the subsequent development of psychosis over time and concluded that cannabis use was a risk factor for the development of incident psychotic symptoms. The study also concluded that continued cannabis use might increase the risk of psychotic disorder by impacting on the persistence of symptoms.

* AOR stands for Adjusted Odds Ratio, meaning that adjusting for age, gender, ethnicity, et cetera, those who had smoked higher THC content cannabis were 6.8 times more likely to report psychosis than the other group.

**References:**


Sewell et al, 'Behavioral, cognitive and psychophysiological effects of cannabinoids: relevance to psychosis and schizophrenia,' *Revista Brasileira de Psiquiatria*, Vol 32, Suppl I, May 2010.

Compton et al, 'Association of Pre-Onset Cannabis, Alcohol, and Tobacco Use With Age at Onset of Prodrome and Age at Onset of Psychosis in First-Episode Patients,' *American Journal of Psychiatry*, Nov. 2009; 166: pp. 1251–1257.

Arseneault et al, 'Causal association between cannabis and psychosis: examination of the evidence,' *British Journal of Psychiatry*, 2004, 184: pp. 110–117.

EMCDDA, *Insights: An overview of cannabis potency in Europe*, 2004.

Di Forti et al., 'High-potency cannabis and the risk of psychosis,' *British Journal of Psychiatry*, Dec. 2009; 195(6): pp. 488–491.

Ramaekers et al, 'High-Potency Marijuana Impairs Executive Function and Inhibitory Motor Control,' *Neuropsychopharmacology*, 2006, 31, pp. 2296–2303.

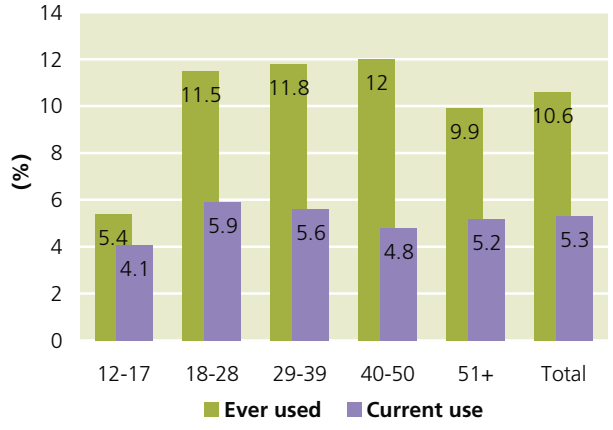
Morgan et al, 'Impact of cannabidiol on the acute memory and psychotomimetic effects of smoked cannabis: naturalistic study,' *British Journal of Psychiatry*, 2010, 197, pp. 285–290.

Henquet, C. and Kuepper, R., 'Does Cannabidiol protect against the negative effects of THC?,' *British Journal of Psychiatry*, 2010. 197: pp. 259–260.

Keupper et al, 'Continued cannabis use and risk of incidence and persistence of psychotic symptoms: 10-year follow-up cohort study,' *British Medical Journal*, 2011: 342:d738.


**Fig. 150: Kenya: Lifetime and current use prevalence of cannabis by age group, 2009**

Source: National Campaign Against Drug Abuse Authority (NACADA), Report of Survey on Drug and Substance Abuse in Coast Province Kenya – Main Report.




ages, with a much higher prevalence among the urban (11%) than the rural population (4%). The lifetime prevalence was at similar levels for all age groups except the 12-17 year olds, whereas the current use,[14] reported at 5.3% among all age groups, was fairly consistent.[15]

In terms of treatment demand, compared to the other regions, cannabis remains the most common primary drug for which drug users seek treatment in Africa. This proportion varies from nearly all treatment admissions in countries such as Botswana, Malawi and Ghana to around one third of treatment admissions in Kenya, Mozambique and South Africa.

14 Defined as use in the past 4 weeks before the interview.

15 National Campaign Against Drug Abuse Authority (NACADA), *Report of Survey on Drug and Substance Abuse in Coast Province Kenya – Main Report,* March 2010.

**Fig. 151: Africa: Distribution of primary drug of people entering treatment, 2009***

* Total is greater than 100% due to polydrug use.
Source: UNODC ARQ.

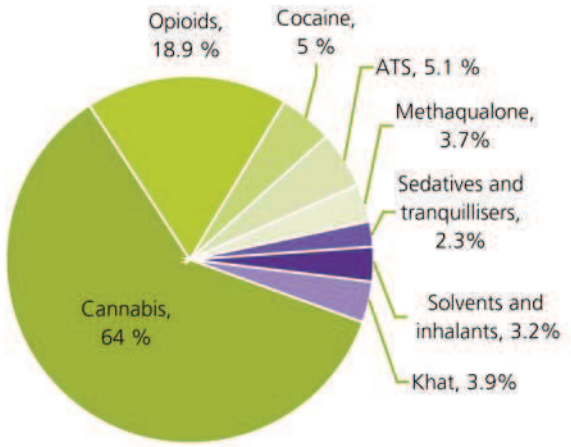
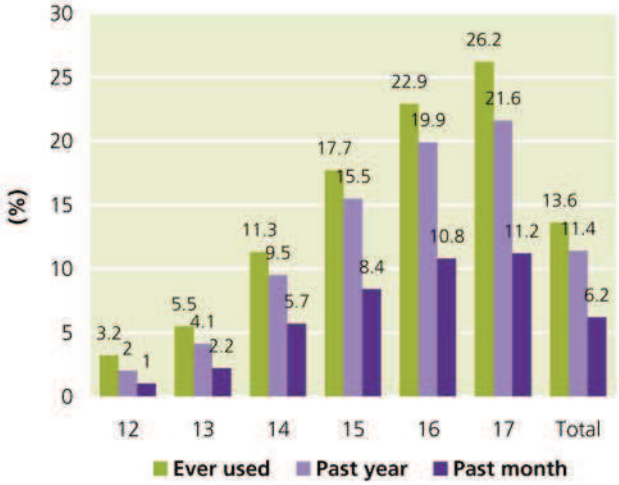



**Fig. 152: Australia: Cannabis use among students, 2008**

Source: Australian School Survey 2008.




**Recent information on the extent of cannabis use from most parts of Asia - especially from countries with large populations such as China and India - is not available**

Among the countries reporting expert opinions on trends of drug use, more experts considered that cannabis use had increased over the past year.

The annual prevalence of cannabis use in Asia is estimated at between 1.2% and 2.5% of the population aged 15-64. This corresponds to between 31 and 68 million people using cannabis at least once in the past year. In terms of prevalence, Asia has the lowest rate, but because of its population size, may have the largest absolute number of cannabis users globally. Most of the countries that reported an increase in cannabis use are in East and South-East Asia, whereas higher cannabis use prevalence is reported from Central Asia and the Near and Middle East.

**Table 38: Asia: Member States reporting an increase in cannabis use, 2009**

Source: UNODC ARQ.

| Near and Middle East/ South-West Asia | East and South-East Asia | South Asia | Central Asia |
|---|---|---|---|
| Afghanistan | Brunei Darussalam | Sri Lanka | Kazakhstan |
| Jordan | Indonesia | | Uzbekistan |
| Lebanon | Malaysia | | |
| | Singapore | | |
| | Thailand | | |

**Cannabis use in Oceania remains at high levels, but shows decreasing trends in Australia and New Zealand**

Oceania has one of the highest prevalence rates of cannabis use globally, ranging between 9.3% and 14.8% of the population aged 15-64. The main information on the extent of cannabis use from the region is available from Australia and New Zealand, and to some extent from the smaller Pacific Island states.

No new data on the prevalence of cannabis use among the general population in Australia has been reported. The annual prevalence was estimated at 10% of the population aged 15-64 in 2007, with an almost one fifth decline in cannabis use reported between 2004 and 2007. The lifetime prevalence of cannabis use among 12-17 year old students who participated in the Australian secondary school survey was 13.6% in 2008. This has declined from a lifetime prevalence of 17.8% in 2005 and 25% in 2002. Among the students who participated in the 2008 survey, the use of cannabis across all periods, that is, lifetime, past year and past month use, increased by age and was highest among the 17-year -old students.[16]

In Australia, cannabis was also the most common drug detected among police detainees, where 48% of all detainees tested positive for cannabis use in 2009. Among detainees who self-reported, 54% reported cannabis use during the past 12 months, with the highest proportion reported among the 21-25 age group.[17]

16 White, V. and Smith, G., *Australian secondary school students 'use of tobacco, alcohol, and over the counter and illicit substances in 2008*, Drugs Strategy Branch, Australian Department of Health and Ageing.

17 Gaffney, A., Jones, W., Seeney, J. and Payne J., *Drug Use monitoring in Australia: 2008 annual report on drug use among police detainees.*

For New Zealand, the latest information on cannabis use dates from 2008, when the annual prevalence was estimated between 13.4% and 15.7% of the population aged 16-64. As commonly observed, men (21%) were more likely to have used cannabis in the past year than women (13.9%). Among the adult population, the past year cannabis use was highest among younger age groups and decreased with increasing age in the adult population. The highest past year use prevalence was among men in the 18-24 year age group and for women in the 16-17 and 18-24 year age groups.[18]

As shown in previous years, high annual prevalence of cannabis use is reported from many Pacific Island states and territories, ranging from 24.2% in Palau or 22.2% in Northern Mariana Islands to around 5% in Fiji and Marshall Islands.

### The emergence of synthetic cannabinoids in herbal products

In 2008, several synthetic cannabinoids were detected in herbal smoking blends which were sold on the internet and in specialized shops under a variety of brand names such as 'Spice Silver,' 'Spice Gold,' 'Spice Diamond,' 'Yucatan Fire' and 'Smoke.' These colourful and professionally designed herbal products typically contain about 3 grams of finely cut plant material to which one or more synthetic cannabinoids have been added.

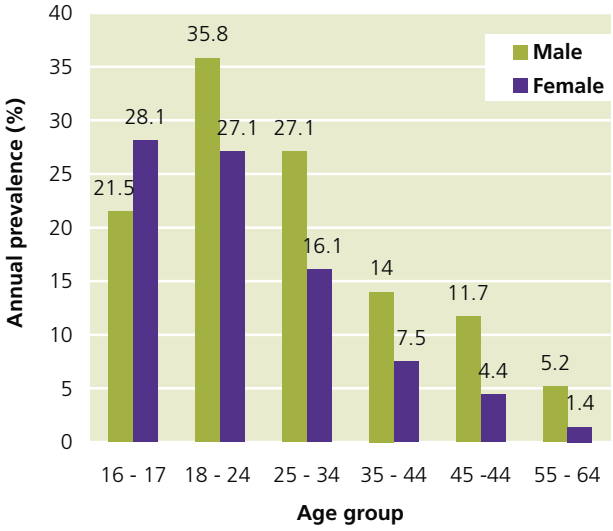
Before 2008, the use of these herbal products seemed to be restricted to a small number of experimental users. However, in 2008,[19] these products achieved immense popularity in Germany and other European countries through the internet and subsequent media reports, where they were referred to as 'legal alternatives' to cannabis, thus unintentionally promoting the use of these drugs.

The synthetic cannabinoids are generally administered by smoking either as a joint or in a water-pipe. These products do not contain tobacco or cannabis but when smoked were claimed to be able to produce cannabis-like effects.

Although so far, relatively little is known about the pharmacology and toxicology of the various (and frequently changing) synthetic cannabinoids that are added to the herbal mixtures, a number of these substances may have a higher addictive potential compared to cannabis due to quicker development of tolerance (see text box).

**Fig. 153: New Zealand: annual prevalence of cannabis use by gender and age group, 2008**

Source: Drug use in New Zealand, Key Results 2007/08 New Zealand Alcohol and Drug Use Survey, Ministry of Health 2010.




Currently, none of the synthetic cannabinoids found in these herbal products are internationally controlled under the 1961 or 1971 UN drug control conventions and at present, the control status of these compounds differ significantly from country to country. Most countries are challenged by the sheer number of synthetic cannabinoids constantly emerging, which means that control measures targeting individual compounds can be easily circumnavigated. Some Member States, for example, the United Kingdom, Ireland and Luxembourg, have adopted a more generic approach to controlling synthetic cannabinoids of similarly structured compounds. Nevertheless, effective implementation of control measures could be hampered by the lack of analytical data and reference samples, as well as methodologies for toxicological identification of metabolites in biological specimens.

Monitoring Reports 09, Australian Institute of Criminology.

18 Drug use in New Zealand, *Key Results 2007/08 New Zealand Alcohol and Drug Use Survey*, Ministry of Health, 2010.

19 Although a recent study showed a sharp decline in the use of spice in Germany, from 3% to 1% in 2009 (source: Abschlussbericht, Spice, Smoke, Sence & Co. – Cannabinoidhaltige Räuchermischungen: Konsum und Konsummotivation vor dem Hintergrund sich wandelnder Gesetzgebung, Goethe-Universität).

# Chemistry and effects of synthetic cannabinoids

## Chemistry

Synthetic cannabinoids are typically synthetic cannabinoid agonists that function similarly to D9-tetrahydrocannabinol (THC), the principal psychoactive component in cannabis. Like THC, synthetic cannabinoids have structural features that allow binding to one of the known cannabinoid receptors, that is, CB1 or CB2, in the brain and other organs to produce cannabis-like pharmacological activity. Currently, there are many compounds with chemically unrelated structures that fall under this definition and could be classified as follows:*

i) Classical cannabinoids (for example, HU-210, AM-906, AM-411, O-1184)
ii) Nonclassical cannabinoids (for example, CP-47,497-C8, CP-55,940, CP-55,244)
iii) Hybrid cannabinoids (for example, AM-4030)
iv) Aminoalkylindoles (for example, JWH-018, JWH-073, JWH-398, JWH-015, JWH-122, JWH-210, JWH-081, WIN-55,212, JWH-250, JWH-251, pravadoline, AM-694, RSC-4)
v) Eicosanoids (for example, anandamide, methanandamide)
vi) Others (for example, Rimonabant®, JWH 307, CRA-13)


## Synthesis and precursors

A number of methods for synthesizing synthetic cannabinoids have been described in detail in the scientific literature.** Precursor chemicals can also be obtained from commercial chemical suppliers. In general, syntheses of classical, nonclassical or hybrid cannabinoids are much more elaborate and complicated due to the presence of asymmetric centres in these compounds. As a result, stereoselective synthesis or elaborate separation of stereoisomers are often necessary to isolate the desired compound. As for compounds without asymmetric centres like most aminoalkylindoles, a vast variety of similar compounds could be easily synthesized by the addition of a halogen, alkyl, alkoxy or other substituents to one of the aromatic ring systems, or other small changes could be made, such as variation of the length and configuration of the alkyl chain.

Most of the aminoalkylindoles can be easily synthesized with standard laboratory equipment and readily available reagents. The synthesis of nonclassical cannabinoids requires more elaborate equipment and technical know-how, but it should be feasible for a chemist with a sound basic training in organic synthesis.

## Medicinal use

Some synthetic cannabinoids are commercially available for medicinal purposes such as Nabilone (Cesamet®) for treatment of cancer patients under chemotherapy and Dronabinol (Marinol®) which is a synthetically produced pure THC applied in multiple sclerosis and palliative care.

## Pharmacology and toxicity

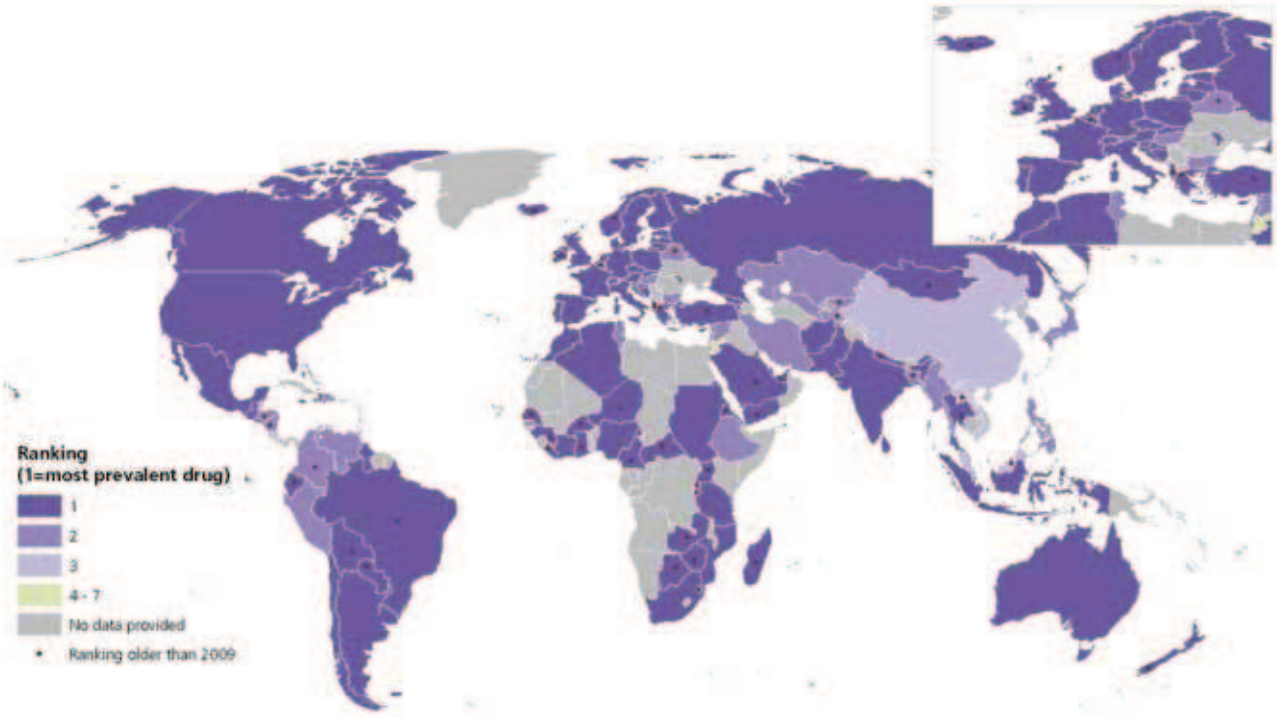
So far, little is known about the pharmacology and toxicology of these compounds. Some case reports have shown that health-related problems associated with the use of these herbal products seem to be very similar to problems reported after cannabis use.*** Cardiovascular problems and psychological disorders such as panic attacks were among the frequently reported symptoms. A number of these substances may have a higher addictive potential compared to cannabis due to quicker development of tolerance. Some synthetic cannabinoids, for example, HU-210, CP-55,940 and WIN-55,212-2, which act as full agonists at the CB1 receptor, could possibly cause severe or even life-threatening intoxications when overdosed. Furthermore, due to its structural features in certain aminoalkylindoles, some carcinogenic potential could also be possible.

* Howlett et al., 'International Union of Pharmacology. XXVII. Classification of cannabinoid receptors,' *Pharmacol Rev*, 2002. 54(2): p. 161–202.

** Huffman et al., 'Structure-activity relationships for 1-alkyl-3-(1-naphthoyl)indoles at the cannabinoid CB1 and CB2 receptors: steric and electronic effects of naphthoyl substituents. New highly selective CB2 receptor agonists,' *Bioorganic and Medicinal Chemistry*, 2005, 13(1): pp. 89–112.

*** Vardakou et al., 'Spice drugs as a new trend: mode of action, identification and legislation,' *Toxicology Letters*, 2010. 197(3): pp. 157–62.

## Map 42: Ranking of cannabis in order of prevalence, 2009 (or latest year available back to 2005)




Note: The boundaries and names shown and the designations used on this map do not imply official endorsement or acceptance by the United Nations.
Dotted line represents approximately the Line of Control in Jammu and Kashmir agreed upon by India and Pakistan. The final status of Jammu and Kashmir has not yet been agreed upon by the parties.

## 5.3 Production

Cannabis is produced in practically every country of the world, making it the most widely produced illicit drug. Cannabis herb is mostly produced for domestic or regional markets, whereas cannabis resin is trafficked over larger distances. The major countries identified as sources by the cannabis resin consumer markets are Afghanistan, Morocco, Lebanon and Nepal/India. Attempts to estimate cannabis production encounter severe deficiencies in the data, which were extensively described in former *World Drug Reports* and is reflected in the reporting. In the 2009 *World Drug Report*, it was estimated that the production of cannabis herb ranged from 13,300-66,100 mt and of cannabis resin from 2,200-9,900 mt. The resulting total area under cannabis cultivation was estimated at 200,000-641,800 ha. The calculations were based on the minimum and maximum levels from reported cultivation and production, seizures and user prevalence rates. In 2010, these indicators did not show significant changes that would justify an update of the production estimates, taking into account the large minimum and maximum levels. Therefore, the production estimates were not updated for this *World Drug Report*. This chapter focuses on some production trends found in the last year, with a focus on trends in potency.

**Table 39: Update of available information on the extent of cannabis cultivation and production in major producing countries, 2009***

Source: UNODC ARQ 2009 unless otherwise specified.

| Country | Cultivated area (ha) | Eradication | | Harvestable area (ha) | Production (mt) | |
|---|---|---|---|---|---|---|
| | | Area (ha) | Plants | | Resin | Herb |
| Afghanistan[20] | 9,000-29,000 (2010) | | | 9,000-29,000 (2010) | | |
| Belarus | 300 | | | 300 | | |
| Bolivia[21] | | | 1,910,857 (kg) | | 1,200-3,700 (2010) | |
| Guatemala | | | 429,610 (kg) | | | |
| India | 4,265 | 4,265 | | 0 | | |
| Lebanon | 1,310 | 1,310 | | 0 | | |
| Mexico | | 16,547 | | 17,500[22] | | |
| Morocco | | | | 47,500[23] | | |
| Nigeria | | 925 | | | | |
| Philippines | | | 477,927 (kg) | | | |
| South Africa | 880 | 567 | | 313 | | 657[24] |
| Spain | | | | | | 29 |
| Sri Lanka | 500 | | | | | |
| Swaziland | | 542 | | | | |
| USA[25] | | | 9,980,038 outdoor plants/ 414,604 indoor plants | | | |

* Or other year, if mentioned.

20 UNODC, Afghanistan cannabis survey 2010 (preliminary).

21 OAS, Mecanismo de *Evaluación Multilateral, Evaluación del progreso de control de drogas 2007-2009*.

22 US Department of State, *International Narcotics Control Strategy Report, 2011*.

23 Note Verbale to UNODC, 27 December 2010.

24 Calculated from the harvestable area, number of harvests and yield figures in UNODC, ARQ 2009.

25 US Department of Justice, Drug Enforcement Administration, 2009.

### Cannabis cultivation in some major producing countries

In 2010, UNODC and the Government jointly carried out a survey in an important cannabis resin producing country, Afghanistan. The results of the first cannabis survey in 2009 indicated that Afghanistan is among the major cannabis resin producing countries and that cannabis has become a competitor to opium poppy as a lucrative crop for farmers in the country. The preliminary 2010 survey gave no indications for major changes in the levels of cultivation and production compared to 2009. It showed a cultivation range of 9,000 to 29,000 hectares, compared to 10,000-24,000 hectares in 2009. Resin production ranged between 1,200 and 3,700 mt, compared to 1,500 to 3,500 mt in 2009.

The importance of Afghanistan as a cannabis resin producer is reflected in the seizures reported by other countries. 10% of all countries reporting cannabis seizures mentioned Afghanistan as the source of cannabis. The Government of Morocco reported a reduction of cultivation area to 47,500 ha,[26] however, Morocco continued to be mentioned as source by the majority of countries reporting cannabis resin seizures to UNODC (19%). This suggests that Morocco continued to be a major producer of cannabis resin. Data on seizures and prices in Europe suggest that the supply of cannabis resin from Morocco to the region has remained the same or slightly decreased.

Other countries were increasingly reported as sources of cannabis, including Lebanon, Spain (as a transit country for Moroccan cannabis), Turkey and India. India also reported substantial cannabis cultivation and subsequent eradication of 4,265 ha.

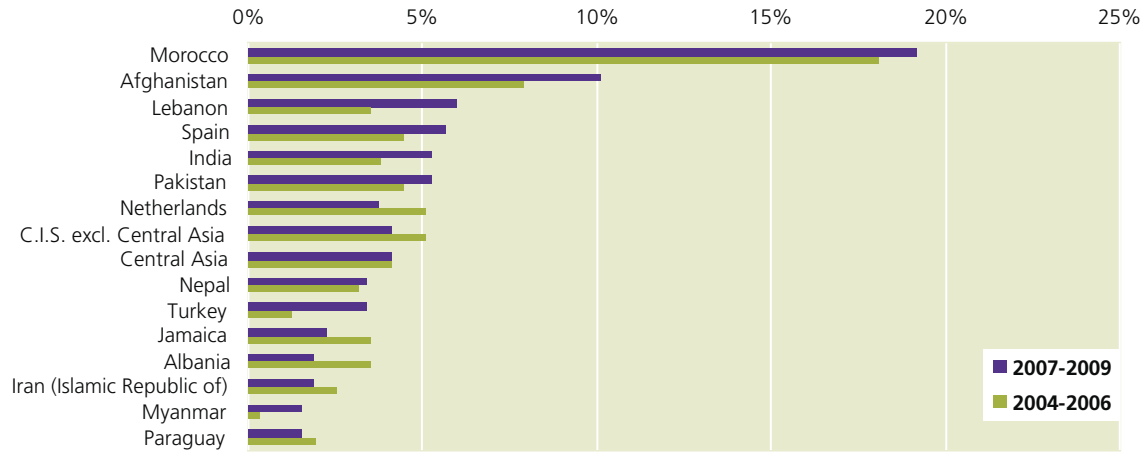
The amount of cannabis herb produced in the United States is unknown but believed to be high and rising. The rise is illustrated by the continuing increase of eradicated cannabis plants, mainly grown on public lands by foreign criminal groups (attributed to Caucasian, Asian, Cuban and Mexican criminal groups/drug trafficking organizations.[27]) The indoor production is believed to be increasing as well; however, the number of eradicated indoor-grown plants is stable.[28]

Although the Mexican Government does not estimate its national production level,[29] reports from the United States suggest that cannabis cultivation in Mexico has increased. The US estimates suggest that cultivation in Mexico has increased from 5,600 ha in 2005 to 17,500 ha in 2009. According to the US sources, the increase may be a result of a shifting law enforcement focus from reduction of illicit crop cultivation to public security tasks.[30]

Cannabis production in Europe is believed to be increasing,[31] mostly in indoor settings and increasingly controlled by organized crime groups. Herbal cannabis is now commonly produced inside Europe (29 European countries reported domestic cultivation in 2008), closer to its intended market and therefore less likely to be intercepted.[32]

**Fig. 154: Main source* countries of cannabis resin reported to UNODC in the periods 2007-2009 and 2004-2006****

* Source countries might not always mean the country where it was produced and might also indicate the latest known transit country.
** Number of times that countries were identified as source countries, represented as proportion of countries reporting.
Source: UNODC ARQ.




26 The last joint survey by UNODC and the Moroccan Government was carried out in 2005.

27 US Department of Justice, *National Drug Threat Assessment 2010.*

28 US Department of Justice, Drug Enforcement Administration, 2009.

29 Currently, the Mexican Government is preparing to conduct its own cannabis production surveys in cooperation with UNODC.

30 US Department of State, *International Narcotics Control Strategy Report*, 2011.

31 EMCDDA, *Annual Report 2010.*

32 Ibid.

**Fig. 155: Eradicated cannabis plants at indoor and outdoor cultivation sites in the United States, 2003-2009**

Source: US Department of Justice, Drug Enforcement Administration, 2009.

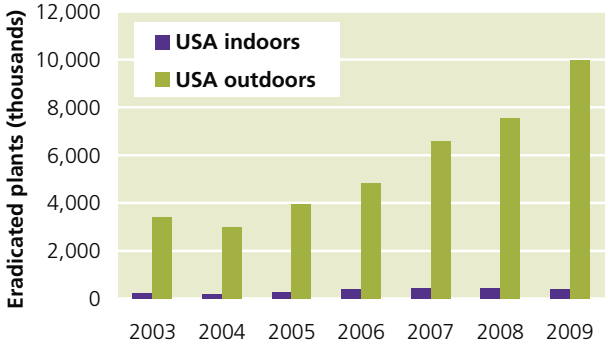
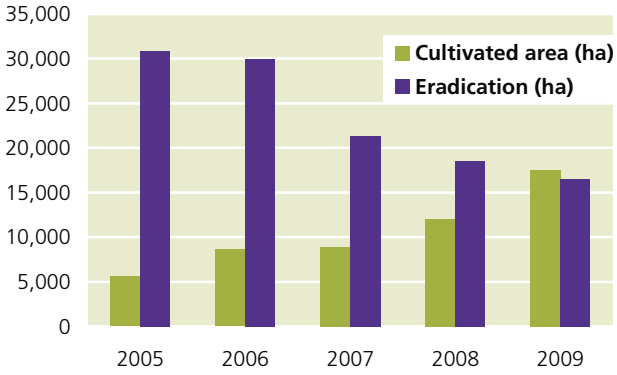
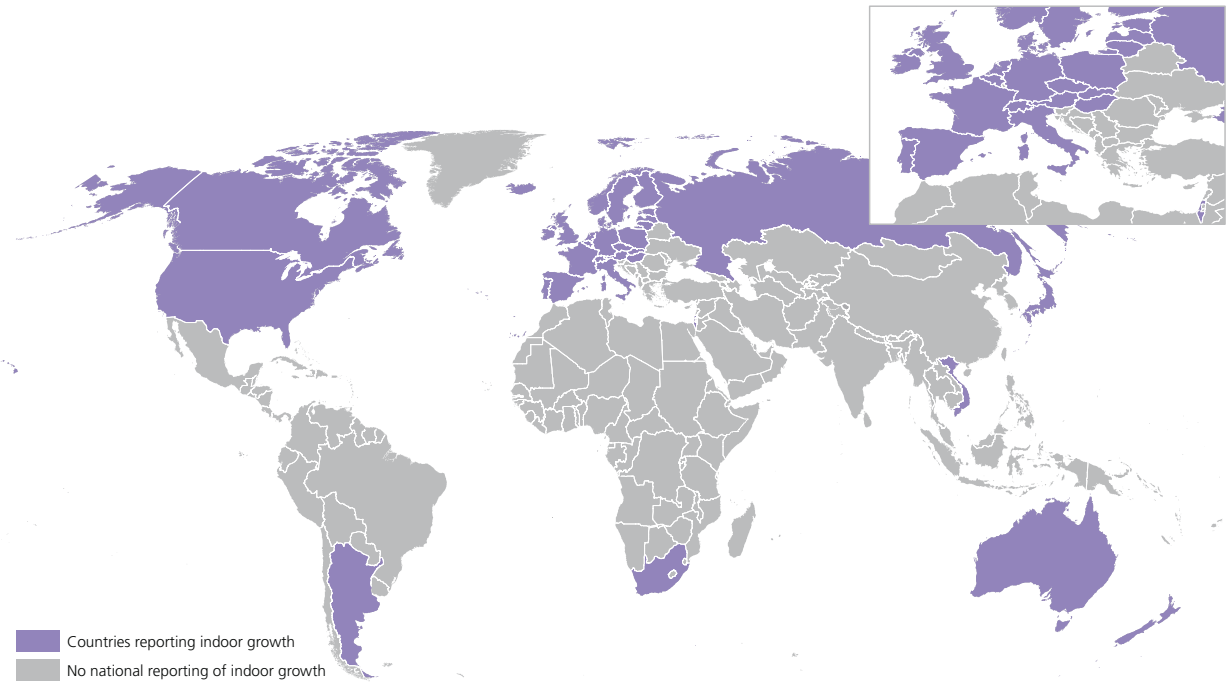



**Fig. 156: Cultivation and eradication figures for Mexico, 2005-2009**

Sources: UNODC ARQ; US International Narcotics Control Strategy Reports.




**Map 43: Evidence of indoor cannabis cultivation in the world**




Sources: UNODC, ARQ 2008-2009; National reports to the INCB 2007-2010; INCSR 2010-2011; Thirty-third Meeting of Heads of National Drug Law Enforcement Agencies, Asia and the Pacific, (Denpasar, Indonesia, 6-9 October 2009); Kilmer and Hoorens, Understanding illicit drug markets, supply- reduction efforts, and drug-related crime in the European Union, RAND Europe, 2010; REITOX reports, National Reports to the EMCDDA, 2009-2010; OAS, Multilateral Evaluation Mechanism, 2008; Netherlands Police Agency (KLPD-IPOL).
Note: The boundaries and names shown and the designations used on this map do not imply official endorsement or acceptance by the United Nations.

## Changes in THC concentrations

In the recent past there were claims of strong increases in THC concentrations (frequently referred to as 'potency') of cannabis, the main active component of cannabis. Cannabis THC contents have changed frequently in different countries. The most systematic and standardized collections of THC content are performed in the United States, the Netherlands and Germany[33] and are presented below.

### *THC concentration in herbal cannabis in the United States, the Netherlands and Germany*

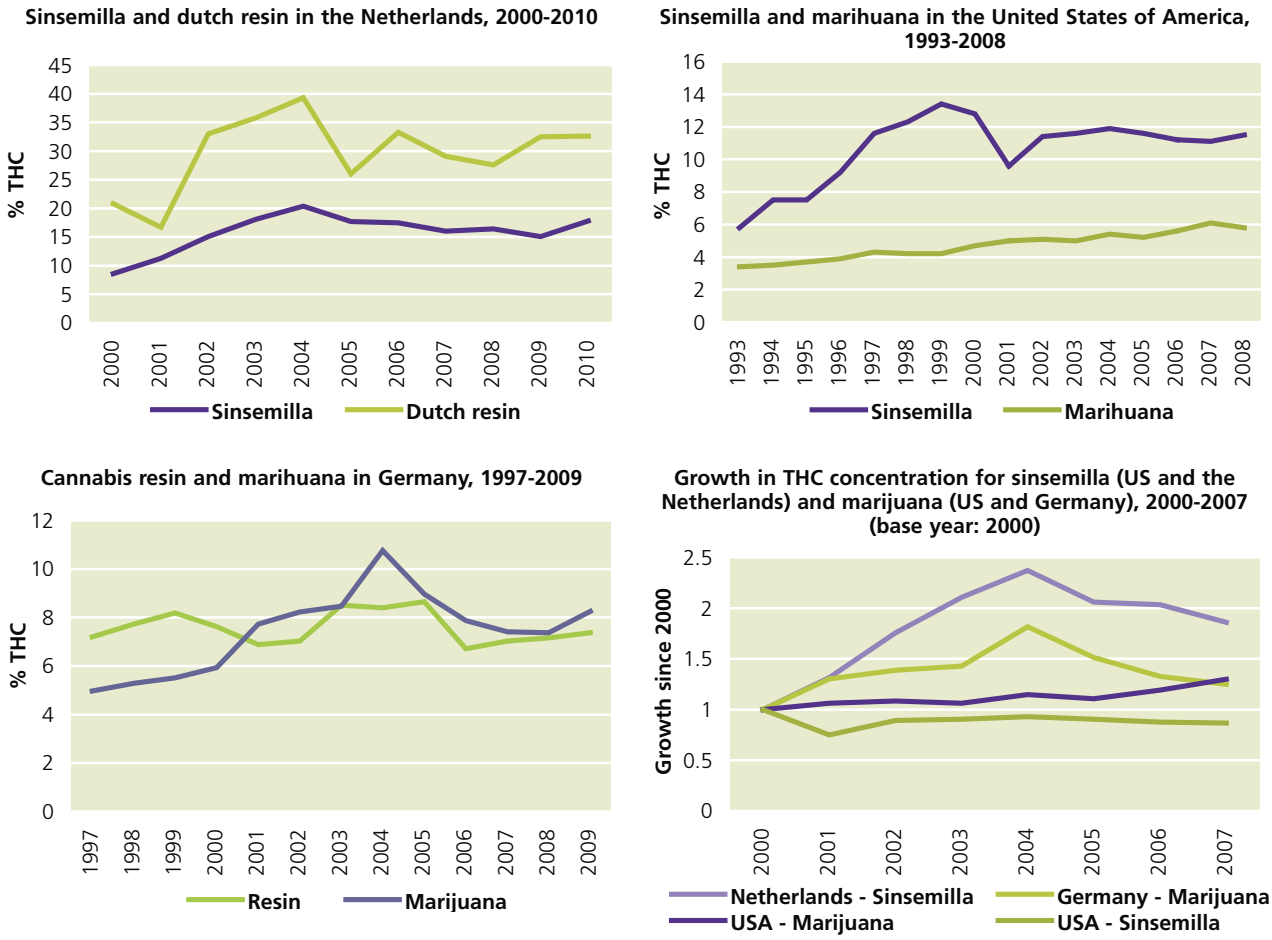
At the end of the 1990s/beginning of the 2000s, both the US and the Netherlands experienced an increase of the average THC contents in their herbal cannabis products. In the US, the average THC concentration of sinsemilla doubled from 6% to 13% from the early 1990s to the late 1990s, after which the level decreased and became practically stable around 11% over the past decade.[34] At the same time, THC contents of the more

33 Measured from samples: in the USA, from 46,211 samples confiscated by law enforcement agencies; in the Netherlands, from yearly collected samples from 50 randomly selected coffeeshops; in Germany, calculated from seizure data, in 2009 from 9,250 samples.

34 These are average values and the ranges of potency have not changed. High potency cannabis was also available in the past, however, it was less common.

**Fig. 157: THC concentrations for different cannabis products in the Netherlands, United States and Germany, with varying time series**

Sources: THC-concentraties in wiet, nederwiet en hasj in Nederlandse coffeeshops 2009-2010; THC-concentraties in wiet, nederwiet en hasj in Nederlandse coffeeshops 2005-2006.; Mehmedic, Z. et al, 'Potency Trends of 9-THC and Other Cannabinoids in Confiscated Cannabis Preparations from 1993 to 2008,' Journal of Forensic Sciences, September 2010, Vol. 55, No.5, pp. 1209-1217; 2010 national report (2009 data) to the EMCDDA by the Reitox National Focal Point for Germany.




commonly grown marijuana are significantly lower since the consumed marijuana in the USA is mainly produced outdoors; THC contents in marijuana show a consistent but slowly increasing trend in the 15-year period.

In the Netherlands, yearly analyses have been performed since 2000, and the results show a sharp increase in THC concentration of sinsemilla in the early 2000s, from nearly 9% to 19%. This is attributed to the increasingly common use of improved breeds, indoor cultivation and the use of sophisticated techniques. Although these techniques were already available in the 1980s, the profile of the cultivators has changed to organized professionals. Nevertheless, since 2004, the general trend was downwards to 15% in 2009. In Germany, the THC concentration of marijuana, which is a broader group than sinsemilla alone, shows a similar trend, doubling its THC content from 5% in 1997 to more than 10% in 2004, dropping back again to around 8% in 2009. The similar patterns probably reflect similar production sources. Reports from other countries are fragmented and less systematic; the European countries that reported sufficient data for herbal cannabis reported divergent trends for the period 2003-2008. Six countries reported an increase, four a decrease.[35]

### THC concentration in cannabis resin

In the Netherlands, THC contents of cannabis resin show a growth trend similar to that of sinsemilla. The level in the Netherlands increased from 20% to almost 40% in the early 2000s, after which it dropped to around 30% during 2005-2010. In Germany, the THC contents have been fluctuating around 8%, without showing a long-term change. The THC contents of cannabis resin in other European countries followed divergent patterns, with some countries showing an increase and others a decrease.

35 EMCDDA, *Annual Report 2010.*

## 5.4 Trafficking

Among the four major drug groups, cannabis derivatives constitute the most widely trafficked and most easily available class of illicit drugs. Reports of cannabis seizures refer mainly to cannabis herb and cannabis resin, but also cannabis plant, cannabis oil and cannabis seed. Large quantities of cannabis herb are seized worldwide, while seizures of cannabis resin are concentrated mainly in Europe, North Africa and the Near and Middle East/South-West Asia, reflecting the locations of production and main consumer markets for cannabis resin. The fact that production of cannabis resin occurs to a large extent in countries removed from the main consumer markets brings about the necessity for trafficking of cannabis resin across different regions, in contrast with the more localized trafficking patterns of cannabis herb.

### Cannabis herb

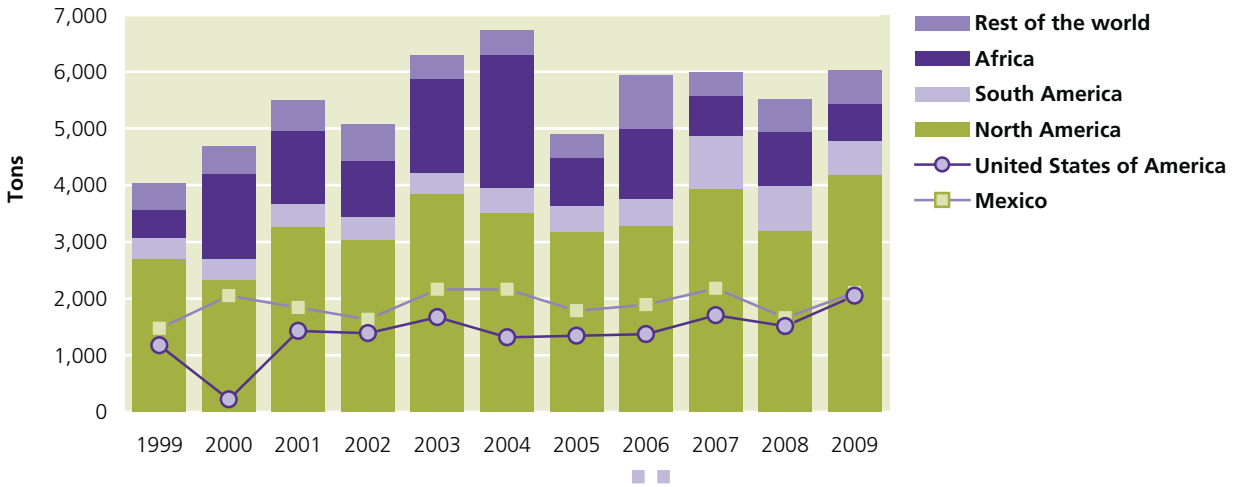
Following a slight drop (8%) in 2008, in 2009, global cannabis herb seizures returned to the levels of 2006 and 2007, amounting to 6,022 mt. North America accounted for 70% of global seizures, followed by Africa (11%), South America (10%), Asia (6%) and Europe (3%).

Given the relative ease of cannabis cultivation, the supply of cannabis herb can often be locally sourced, with the result that the trafficking patterns tend to be rather localized in comparison with cannabis resin or other drugs. In the ARQ replies for 2009, out of 68 countries that provided information about the country of origin of cannabis herb trafficked in their territories, 44 countries assessed that some or all cannabis herb originated in their own country. For these countries, on average 75% of all herb originated from their own country.[36]

Cannabis herb retail prices displayed significant inter-regional as well as intra-regional variation, even when adjusted for purchasing power parity. Retail prices appear to be driven both by the availability of cannabis herb, which is in turn linked to domestic production levels, as well as the disposable income of consumers. Overall, prices were significantly lower in Africa and in Central and South America and the Caribbean. Some of the lowest prices were registered in Togo, India, Guatemala and the United Republic of Tanzania, while the highest price was registered in Japan. The low prices in some of these countries could be partly due to high production, but income levels likely also play a significant role. Similarly, the price in Japan may be high partly because of the high income level of consumers and partly because, contrary to the common pattern in other countries, a significant share of cannabis herb in Japan appears to be imported.

**Fig. 158: Cannabis herb seizures worldwide, 1999-2009**

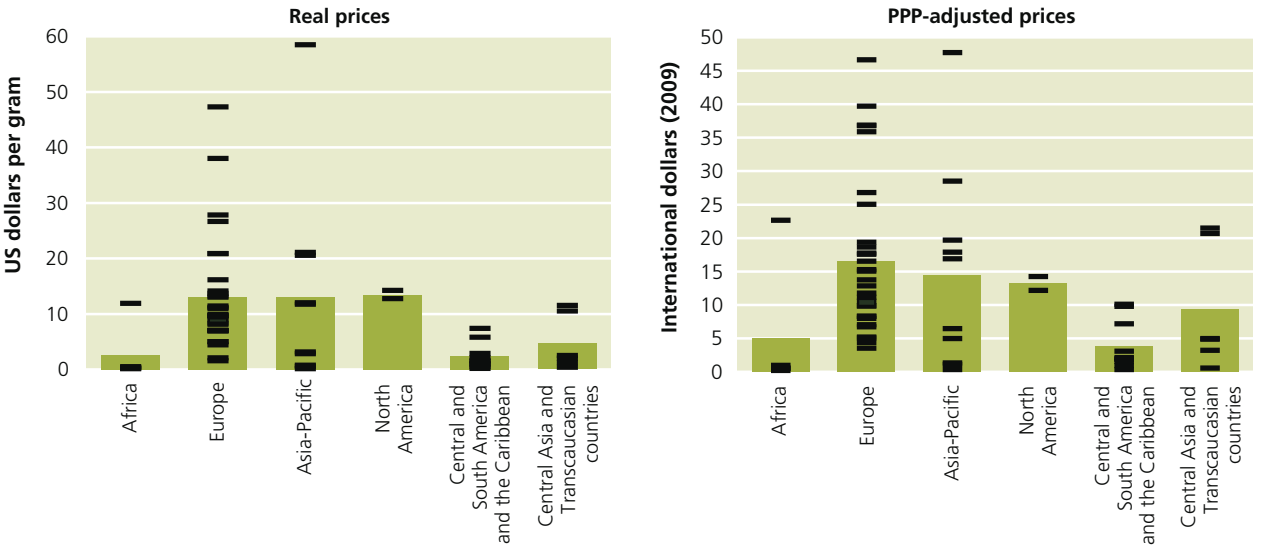
Source: UNODC DELTA.




36 Calculated based on the 33 countries that gave a percentage. The other 11 countries pointed to their own country without specifying the proportion.

**Fig. 159: Cannabis herb retail prices worldwide, by region, 2009**

Source: UNODC DELTA.




## Americas

Cannabis herb seizures in North America rose from 3,205 mt in 2008 to 4,189 mt in 2009, driven by increases in both Mexico and the United States, which continued to report the largest cannabis herb seizures worldwide. Large quantities of cannabis herb are produced in Mexico and trafficked to the United States. Seizures in the United States rose to a record level of 2,049 mt in 2009, up by one third on the previous year, and a similar increase was registered in Mexico, with seizures rising from 1,658 mt in 2008 to 2,105 mt in 2009.

Seizures in Mexico were made mainly close to the areas of cultivation or close to the border with the United States. In 2009, the contiguous states of Sinaloa, Durango, Chihuahua and Sonora accounted for 75% of cannabis herb seizures, while Sinaloa, Chihuahua and Durango accounted for 76% of eradication, with the states of Nayarit, Jalisco, Michoacán, Guerrero and Oaxaca on the Pacific coast accounting for an additional 20% of eradication.

The supply of cannabis herb in the consumer market in the United States is partly locally produced and partly trafficked into the country from Mexico as well as, to a smaller extent, from Canada. In 2008, border seizures of cannabis herb made by US authorities amounted to 1,253 mt on the US-Mexico border and 3 mt on the US-Canada border; based on partial data for 2009, seizures on both borders rose in 2009, but they remained concentrated on the US-Mexico border. According to US authorities, cannabis herb in Mexico was widely available, in part due to rising production there.[37]

37 US Department of Justice, *National Drug Threat Assessment 2010*.

The United States also reported that foreign drug trafficking organizations were increasingly engaging in indoor and outdoor cannabis cultivation, and their distribution networks were growing. Canada reported that Asian organized crime groups continued to specialize in cannabis cultivation while Indo-Canadian and East European organized crime groups were involved in cross-border smuggling.

Large quantities of cannabis herb, as well as cannabis plants, continued to be seized in South America. Seizures in this region peaked at 946 mt in 2007 and since then fell twice in succession, standing at 598 mt in 2009. The largest seizures were registered in Colombia, where seizures declined from 255 mt in 2008 to 209 mt, and in Brazil, where seizures also fell, from 187 mt in 2008 to 131 mt. In relative terms, a significant increase was registered in the Bolivarian Republic of Venezuela, where seizures rose by 58% in 2009, reaching 33 mt – the highest level since 1990.

Considering seizures of the various forms of cannabis collectively (cannabis herb, plant, resin, oil and seed), the Plurinational State of Bolivia recorded a consistent increase over the period 1998-2009. The reported quantities, which include predominantly cannabis plant, amounted to 320 kg in 1998, 28 mt in 2004 and 1,937 mt in 2009. According to preliminary data, seizures receded to 1,073 mt in 2010.

The recent high levels of cannabis plant seizures in the Plurinational State of Bolivia are comparable with cannabis plant seizures registered in Paraguay in 2007 and 2008 – 4,667 mt in 2007 and 5,185 mt in 2008. Seizures of very large numbers of cannabis plants have also been reported by Guatemala: 10.8 million in 2008 and 4.3 million in 2009.

**Fig. 160: Growth of aggregate cannabis* seizures in selected South American countries, 1997-2009 (baseline: 1997)**

*Cannabis herb, plant, resin, oil and seed. For the purposes of aggregation, one cannabis plant is assumed to have a weight of 100 grams.

Source: UNODC DELTA.

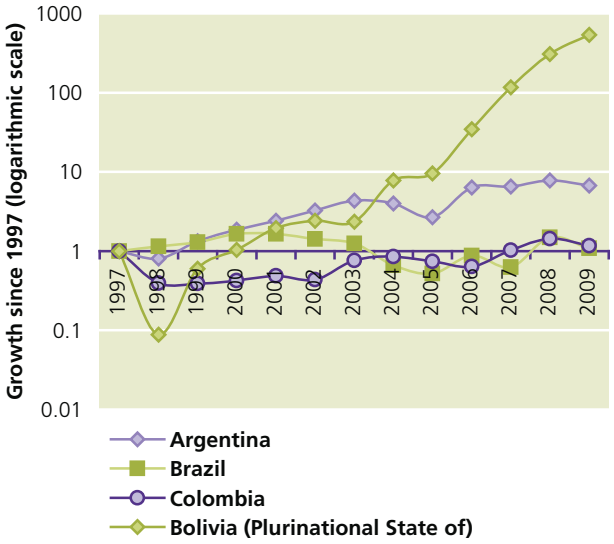



**Fig. 161: Africa: seizures of cannabis herb by subregion, 1999-2009**

Source: UNODC DELTA.

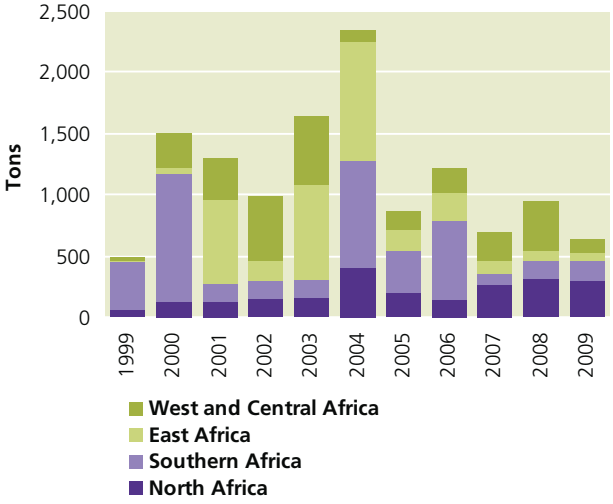
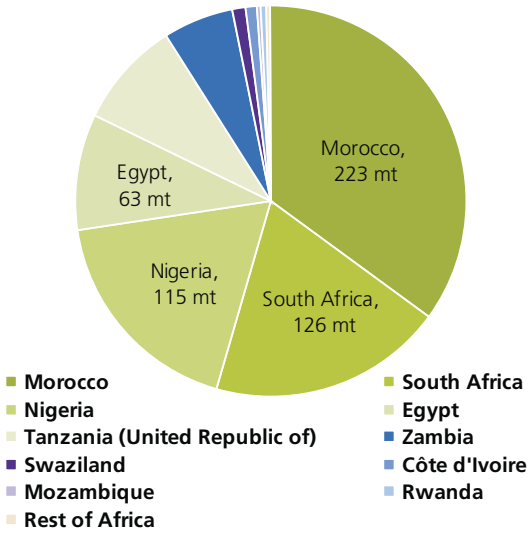



**Fig. 162: Africa: cannabis herb seizures, by country, 2009**

Source: UNODC DELTA.




## Africa

Seizures of cannabis herb in Africa have fluctuated considerably in recent years, but have followed a generally decreasing trend since the peak level of 2004. In 2009, total seizures in Africa fell to 640 mt, from 936 mt in 2008. The decline was partly due to a significant drop in Nigeria.

Although cannabis herb continues to be trafficked throughout Africa, seizures tend to be concentrated in a small number of countries. Over the period 2000-2009, UNODC collated records of cannabis herb seizures from 48 countries in Africa. However, seizures in seven of these countries (Egypt, Kenya, Malawi, Morocco, Nigeria, South Africa and the United Republic of Tanzania) accounted for 90% or more of the annual total for Africa each year from 2000 to 2009 and for 94% of the quantity seized in Africa over the entire period.

In 2007 and 2008, the largest annual seizures of cannabis herb in Africa were reported by Nigeria. However, in 2009 seizures in this country fell by almost two thirds, to 115 mt, from 336 mt in 2008. Nigeria assessed that, in 2009, cannabis herb on its territory originated entirely in Nigeria itself, but was destined for the Netherlands (50%), Japan (30%) and Italy (20%). Nigeria also reported a notable increase in the farm-gate price of cannabis – from 8,000 Naira per kg in 2008 to 35,000 Naira per kg in 2009. Both the decline in seizures and the increase in price were attributed to the destruction of cannabis farms by law enforcement operatives in Nigeria.

Morocco continued to seize large quantities of 'kif,' selected parts of herbal cannabis which can be further processed into cannabis resin.[38] However, Morocco has also been mentioned by other countries as a country of origin for cannabis herb, sometimes in addition to cannabis resin. Seizures of 'kif' amounted to 223 mt in 2009 to 187 mt in 2010. In 2009, seizures of cannabis herb declined in Egypt, from 81 mt in 2008 to 63 mt, and in the United Republic of Tanzania, from 70 mt in 2008 to 56 mt.

38 Stambouli, H., El Bouri, A., Bellimam, M. A., Bouayoun, T. and El Karn, N., 'Cultivation of Cannabis sativa L. in northern Morocco,' *Bulletin on Narcotics*, Volume LVII, Nos. 1 and 2, 2005.

South Africa continued to be a source, consumer and transit country for cannabis herb. It appears that the ports of South Africa provide a gateway for cannabis herb produced in neighbouring countries, as well as South Africa itself, and exported to consumer markets outside Africa. This reflects the role of this country as a major trans-shipment hub for legitimate trade. South Africa assessed that, in 2009, 80% of cannabis herb on its territory originated in neighbouring countries (Lesotho and Swaziland). Moreover, an estimated 30% were destined for the consumer markets of Europe. Seizures in South Africa amounted to 126 mt in 2009. In the ARQ replies for 2007-2009, South Africa was mentioned eight times by other countries as a country of origin for cannabis herb. Contrary to the prevalent trend of localized trafficking patterns for cannabis herb, seven of these mentions were by countries outside Africa.

### Asia-Pacific

In 2009, the Asia-Pacific region accounted for 5.5% of global cannabis herb seizures. Seizures in this region rose for the second year in a row, standing at 333 mt in 2009. The increases were mainly due to the amounts seized in India and Indonesia, which reported the largest seizures in this region by far.

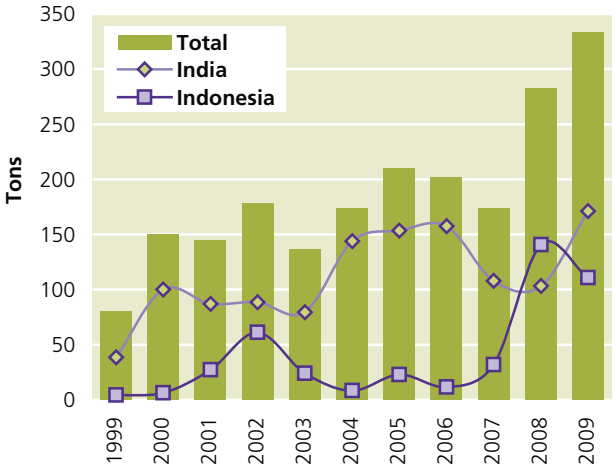
In 2008, seizures in Indonesia reached a record level of 141 mt. In 2009, seizures fell to 111 mt, but remained high in comparison with historical levels, which averaged 20 mt over the 2003-2007 period. Indonesia assessed that 99% of cannabis herb on its territory originated in Indonesia itself. The increased levels were attributed to improvements in law enforcement efforts, and the decline in 2009 to the success of alternative development programmes.

In 2009, cannabis herb seizures in India rose by almost two thirds, from 103 mt in 2008 to 171 mt – the highest level since 1994. India assessed that 81% of the cannabis seized on its territory in 2009 originated in India itself, with the remainder originating in Nepal. An unspecified proportion was intended for Bangladesh. In 2008, seizures of cannabis herb in Nepal rose to 9.6 mt (the highest level since 1987), and increased by a further 73% in 2009, reaching 17 mt.[39]

According to Thai authorities,[40] cultivation of cannabis herb in Thailand had been drastically reduced over a period of 20 years, and recent trafficking patterns for cannabis herb involved smuggling into Thailand from

**Fig. 163: Cannabis herb seizures in the Asia-Pacific region, 1999-2009**

Source: UNODC DELTA.




the Lao People's Democratic Republic and out of Thailand into Malaysia. Cannabis herb seizures in Thailand amounted to 19 mt in 2008 and 18 mt in 2009. Significant quantities were also seized in 2009 in Malaysia (2.4 mt, up from 875 kg in 2008[41]) and the Philippines (1.9 mt, down from 3.7 mt in 2008).

In Japan, seizures declined from 504 kg in 2007 to 207 kg in 2009. Japan attributed the decline to a decrease in cases of illegal importation accompanied by an increase in domestic illicit cultivation of cannabis. According to Japanese authorities, one case of large-scale indoor cultivation of cannabis was discovered in Japan and involved six Vietnamese and one Japanese national.[42] Moreover, the number of arrests for cannabis cultivation rose from 207 in 2008 to 243 in 2009, while the number of arrests for smuggling of cannabis fell from 85 in 2008 to 48 in 2009.[43] Nevertheless, in 2009 cannabis herb also continued to be smuggled into Japan from other countries, such as Botswana, France, South Africa and the United States.[44]

Seizures of cannabis herb in Oceania have declined significantly since the peak level of 2001, mainly due to Australian seizures. In 2009 seizures in New Zealand amounted to 759 kg, while in Australia seizures amounted

39 Fifteenth Asia-Pacific Operational Drug Enforcement Conference, February 2010, Tokyo, Japan, country report by Nepal.

40 Fifteenth Asia-Pacific Operational Drug Enforcement Conference, February 2010, Tokyo, Japan, country report by Thailand and Office of the Narcotics Control Board of Thailand, presentation at the Twentieth Anti-Drug Liaison Officials' Meeting for International Cooperation (ADLOMICO), October 2010, Seoul, Republic of Korea.

41 Data collated by DAINAP.

42 International Intelligence Division, Narcotics Control Department, Japan. Presentation at the Twentieth Anti-Drug Liaison Officials' Meeting for International Cooperation (ADLOMICO), October 2010, Seoul, Republic of Korea.

43 Drugs and Firearms Division, National Police Agency, Japan. Presentation at the Twentieth Anti-Drug Liaison Officials' Meeting for International Cooperation (ADLOMICO), October 2010, Seoul, Republic of Korea.

44 Twentieth Anti-Drug Liaison Officials' Meeting for International Cooperation (ADLOMICO), October 2010, Seoul, Republic of Korea, country report by Japan.

to 629 kg[45] in 2009 and 745 kg in 2008, significantly less than previous levels in this country, which averaged 6.1 mt over the 2001-2003 period. Despite the high prevalence rate of cannabis use in Australia, the seized quantities are relatively low, even when compared on a per capita basis with similar consumer markets such as Europe and the United States.

### Rest of the world

In Central Asia, the largest quantities of cannabis herb continued to be seized by Kazakhstan (26 mt in 2009) where cannabis was partially supplying the domestic market and partially intended for other markets such as the Russian Federation where significant seizures were also registered (33 mt, up from 25 mt in 2008). Seizures in West and Central Europe amounted to 101 mt, essentially sustaining the increased level of 2008.

In recent years, seizures of cannabis herb in Turkey have followed a notable increasing trend, rising six-fold over a period of 5 years, from 6.8 mt in 2004 to a record level of 42 mt in 2009. According to Turkish authorities,[46] the increase in cannabis trafficking was attributable to illicit cultivation taking place in some rural parts of the country.

## Cannabis resin

Global cannabis resin seizures reached a record of 1,648 mt in 2008, and in 2009 declined to 1,261 mt - a level comparable to those registered in previous years. Every year from 2001 onwards, West and Central Europe, the Near and Middle East/South-West Asia and North Africa together accounted for 95% or more of global cannabis resin seizures. The proportion attributable to West and Central Europe declined gradually from 73% in 2004 to 48% in 2009. The year 2009 marked a significant shift in cannabis resin seizures, away from the consumer market of West and Central Europe and toward North Africa, an important source region for cannabis resin reaching Europe.

The high level of 2008 was partly due to increases in the Near and Middle East/South-West Asia; in particular a single extraordinarily large seizure of 236.8 mt[47]of cannabis resin made by Afghan authorities in Kandahar province in June 2008. A less pronounced increase in seizures was registered in West and Central Europe in 2008; however, in 2009 seizures fell in both West and Central Europe and the Near and Middle East/South-West Asia, and the drop was partially offset by seizures in North Africa.

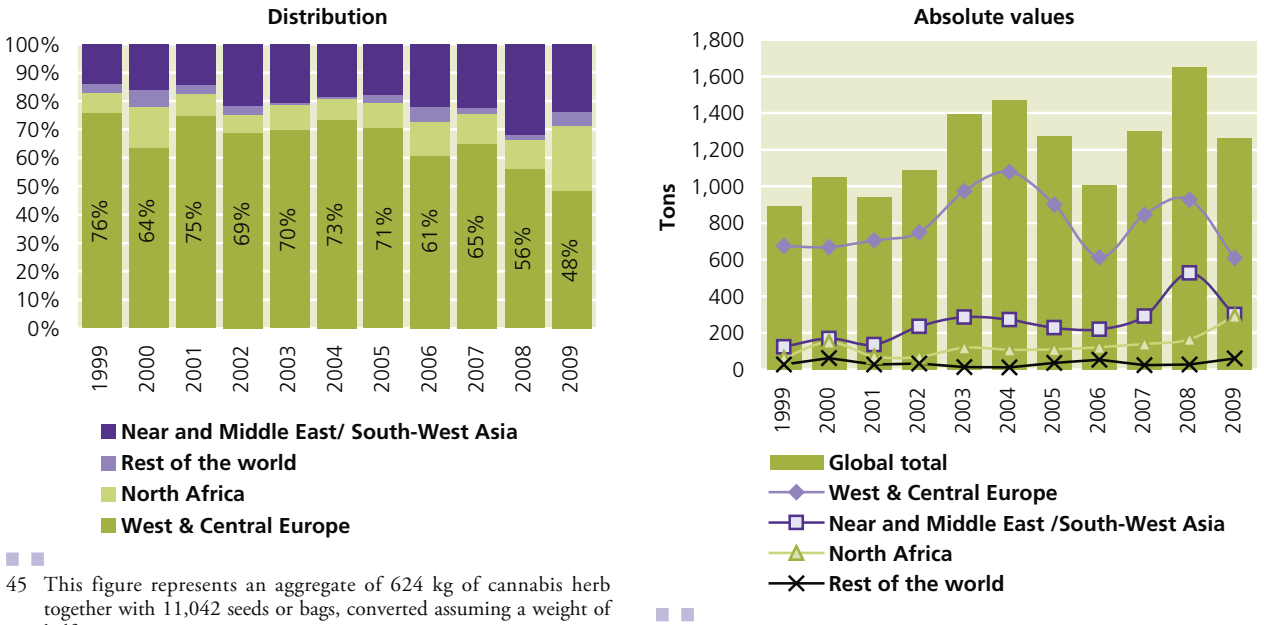
In contrast with cannabis herb, the demand for which tends to be met by production occurring in relative proximity to consumption, large quantities of cannabis resin are trafficked significant distances to reach consumer markets.

### Europe and North Africa

Spain continued to report the largest annual seizures of cannabis resin worldwide. Large quantities of cannabis resin are trafficked from the source country of Morocco to Spain, and on to other countries in Europe. In 2009,

**Fig. 164: Global cannabis resin seizures, by region, 1999-2009**

Source: UNODC DELTA.



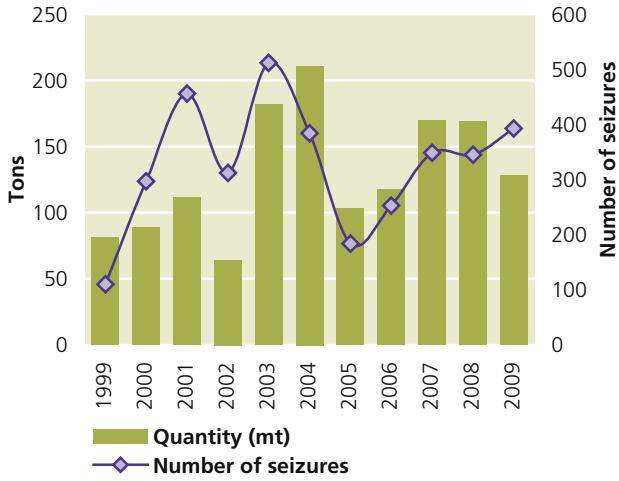

45 This figure represents an aggregate of 624 kg of cannabis herb together with 11,042 seeds or bags, converted assuming a weight of half a gram per unit.

46 Ministry of Interior, Turkish National Police, Department of Anti-Smuggling and Organized Crime, *Turkish Report on Drugs and Organized Crime 2009*.

47 International Security Assistance Force, Press Release 11 June 2008 (http://www.nato.int/isaf/docu/pressreleases/2008/06-june/pr080611-246.html) and UNODC press release, 12 June 2008 (http://www.unodc.org/unodc/en/press/releases/2008-06-12.html).

**Fig. 165: Significant individual seizures of cannabis resin in Spain originating in Morocco, 1999-2009**

Source: UNODC IDS.



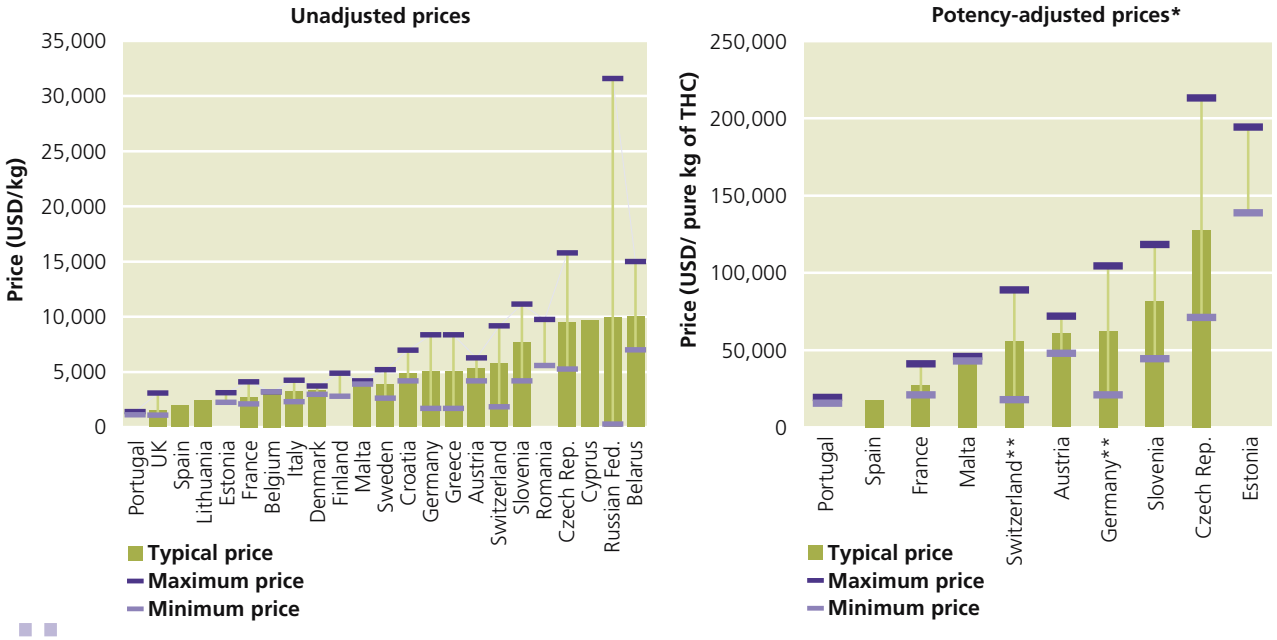

seizures of cannabis resin in Spain fell to 445 mt – the lowest level since 1999 (431 mt) - while seizures in Morocco rose from 114 mt in 2008 to 188 mt in 2009 – the highest level on record. Over the period 1999-2009, approximately one half of significant individual drug seizures reported by Spain involved cannabis resin. Among these seizure cases, Morocco was practically the only country of origin[48] for the seized cannabis resin. However, Morocco is likely not the only source country for cannabis resin reaching Europe, and Spain assessed that the drop in the total quantity of resin seized in Spain was due to the European market drawing from another supplier than Morocco. In 2010, seizures in Morocco fell back to 118 mt.

Increases in cannabis resin seizures were also observed in other North African countries. In Algeria and Egypt, seizures more than doubled in 2008, reaching a record level of 38 mt in Algeria and a level of 12.8 mt – the highest since 1989 - in Egypt. In 2009, seizures in Egypt appeared to stabilize, amounting to 11.4 mt, but seizures in Algeria rose even further, registering the fourth consecutive year-on-year increase. Indeed, seizures in Algeria amounted to 74.6 mt in 2009, compared with 1.7 mt in 2005. Algeria reported that in 2009 cannabis resin and cannabis herb in its territory originated entirely in Morocco.

Seizure data and, to some extent, price data support the flow of cannabis resin from North Africa into western Europe via Spain. Apart from Spain, which reports the largest cannabis seizures in Europe by far, the largest seizures among European countries in 2009 were reported by France and Portugal, followed by Italy and Belgium. The decrease in seizures in Spain in 2009 was reflected in similar decreases in the four European countries which seized the largest quantities in 2008 (apart from Spain): France (-21%), Portugal (-62%), Italy (-43%) and the United Kingdom (-61%). Seizures in Belgium have fluctuated considerably, amounting to 18.7 mt in 2009 (up from 1.5 mt in 2008).

**Fig. 166: Wholesale cannabis resin prices in Europe, 2009**

Source: UNODC DELTA.




48 This excludes mentions of Spain itself as the country of 'origin,' which likely refer to the point of departure of the consignment rather than the actual country of origin of the drug.

* UNODC estimates based on reported price and typical purity data.
** Purity data for Germany and Switzerland relative to 2008.

## Map 44: Wholesale cannabis resin prices* in Europe, 2009

*Not adjusted for THC concentration due to lack of data.


Source: UNODC, ARQ 2009.
Note: The boundaries and names shown and the designations used on this map do not imply official endorsement or acceptance by the United Nations.

Wholesale prices of cannabis resin (unadjusted for potency) in Europe are also compatible with a flow of cannabis resin from Spain to the rest of Europe, with some notable exceptions. In 2009, the lowest wholesale prices in Europe were registered by Portugal and Spain, while France, Italy and Belgium reported slightly higher prices. Prices reported by the United Kingdom and the neighbouring countries of Estonia and Lithuania, however, were low. A clearer picture emerges when prices are adjusted for potency, with the price in Estonia being the highest among those countries where both price and potency data were available.[49]

Although large quantities of cannabis resin continue to be trafficked from Morocco to Europe, cannabis resin also reaches Europe from other regions. Afghanistan and India were both frequently mentioned by European countries as countries of origin for cannabis resin in 2009. India assessed that approximately half of the cannabis resin on its territory in 2009 was produced in India itself, and identified western Europe and Canada among the intended destinations.

### Asia-Pacific

In 2007 and 2008, Viet Nam accounted for the largest seizures of cannabis resin in the Asia-Pacific region. Seizures in this country amounted to 8 mt in 2007 and 8.8 mt in 2009.[50] According to Vietnamese authorities,[51] in May 2008, more than 8 mt of cannabis resin was seized in a single case in the town of Mong Cai, on the border with China. The circumstances of the case suggest that Viet Nam was serving as a transit country for cannabis resin, and anecdotal reports indicate that the consignment could be traced back to Pakistan, and was intended for Canada.

Significant quantities of cannabis resin continued to be seized in India, although seizures fell from the peak level of 2007 (5.2 mt) to 3.5 mt in 2009. India assessed that, in 2009, half of the cannabis resin present on its territory was trafficked into India from Nepal, with the remainder originating in India itself. The intended destinations included the metropolitan areas and tourist destinations within India, but cannabis resin was also trafficked from India to Europe and Canada.

According to Nepalese authorities,[52] seizures of cannabis resin fell from 2.0 mt in 2008 to 1.6 mt in 2009. Cannabis resin was produced in Nepal and trafficked to

49 Data on potency for 2009 were unavailable for Lithuania and the United Kingdom.

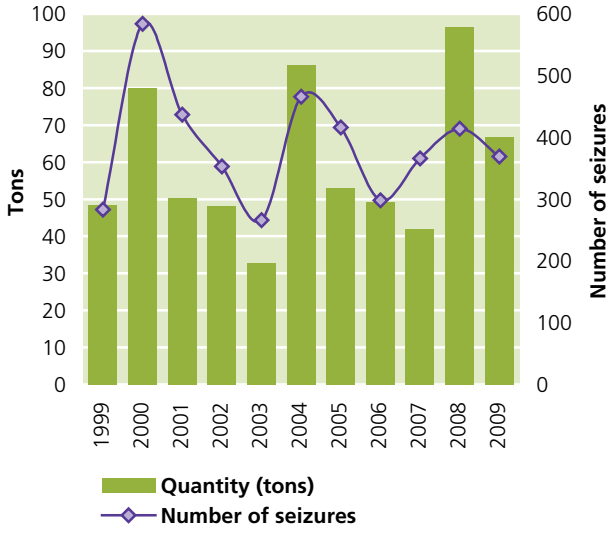
50 Data collated by DAINAP.

51 Seventh ACCORD Task Force III Meeting, Philippines, July 2008. Presentation by Viet Nam.

52 Fifteenth Asia-Pacific Operational Drug Enforcement Conference, February 2010, Tokyo, Japan, country report by Nepal.

**Fig. 167: Significant individual seizures of cannabis resin in Pakistan originating in Afghanistan, 1999-2009**

Source: UNODC IDS.




China and India overland. Cannabis resin was further distributed from India to other destinations via cargo couriers.

### Near and Middle East/South-West Asia

Seizures of cannabis resin in Pakistan rose for two years running, reaching 205 mt in 2009 – the highest level since 1995. Pakistan continued to assess the share of cannabis resin originating in Afghanistan at 98%. Over the period 1999-2009, 41% of significant individual drug seizures reported by Pakistan involved cannabis resin; the country of origin for these consignments was identified almost exclusively as Afghanistan.

In the Islamic Republic of Iran, seizures of cannabis resin fell twice in succession, from the record level of 2007 (90 mt) to 69 mt in 2009. Based on data for the first nine months of the year, it appears that the decreasing trend continued into 2010. The Islamic Republic of Iran assessed that, in 2009, one quarter of cannabis resin trafficked on its territory was intended for the country itself, with the remainder intended for Arab countries, Turkey and Europe.

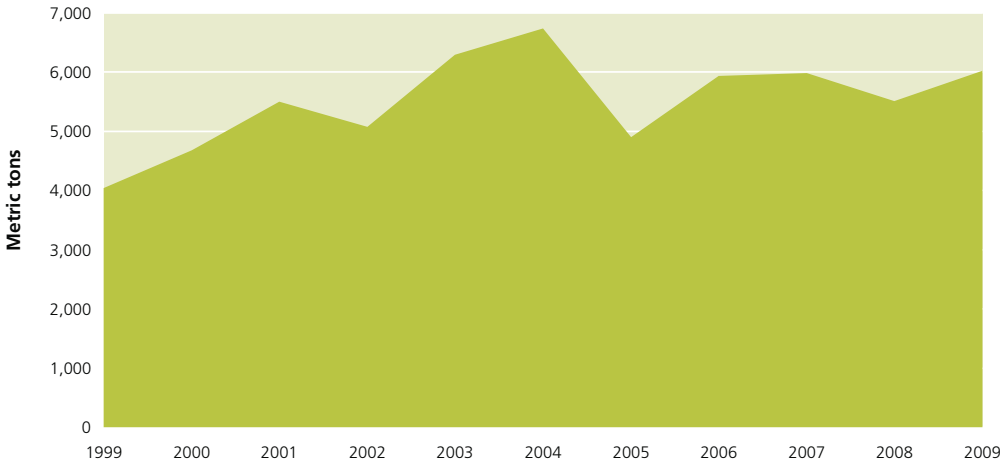
Seizures in Afghanistan fell from the record level of 2008 (271 mt) to the relatively low level of 10.5 mt in 2009, representing slightly less than 1% of the global total for 2009. Seizures in Afghanistan averaged 56 mt over the 2002-2007 period.

### North America

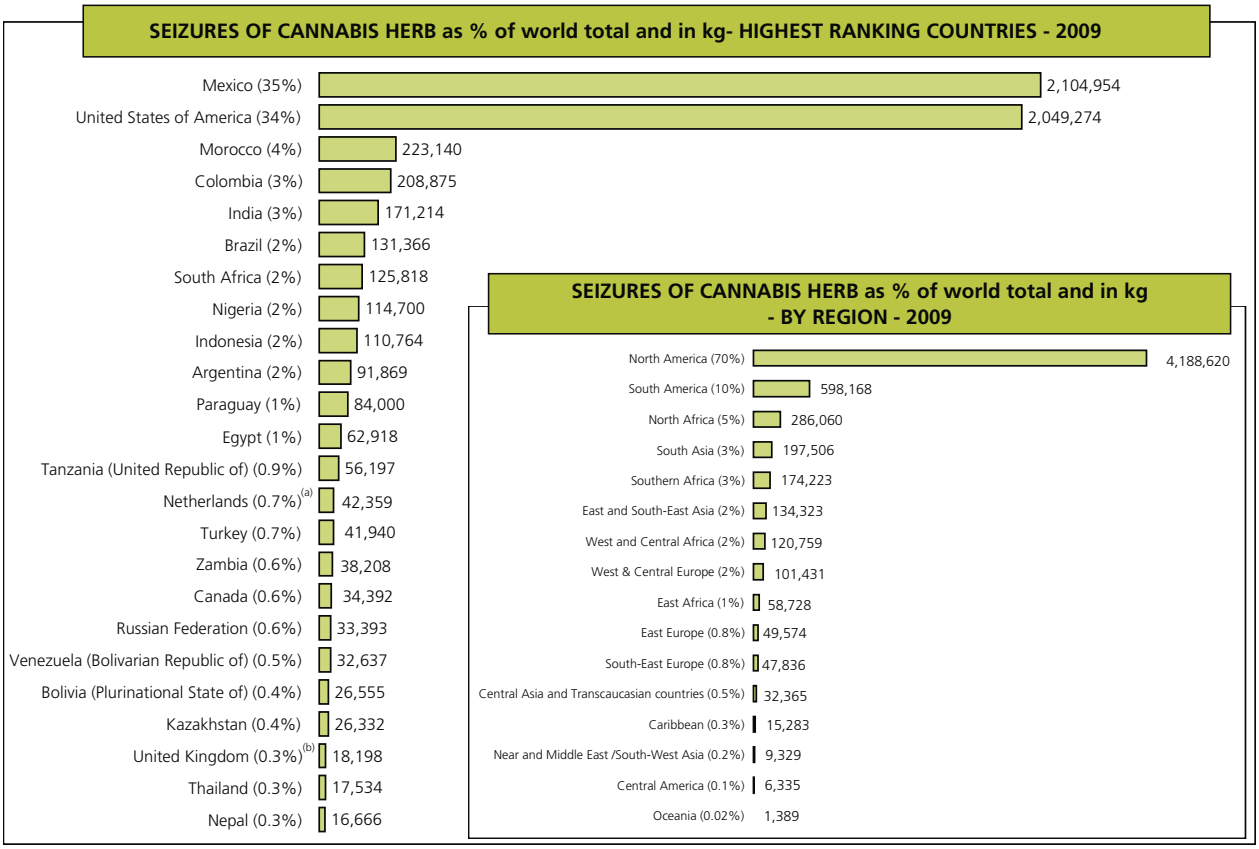
Seizures of cannabis resin in the Americas remained limited. In 2009, seizures rose significantly but at 10.8 mt, remained below 1% of the global total. Nevertheless, Canada has a significant consumer market for cannabis resin. In 2008, almost one half of cannabis resin seizures in the Americas were made by Canada (899 kg). In 2009, Canada seized a much larger quantity - 9.7 mt - in 2,045 individual seizures, two of which together accounted for 82% of the total. Moreover, the trafficking routes for cannabis resin reaching Canada appeared to undergo significant changes. Canada identified the Caribbean, North Africa and South-East Asia as the origin for cannabis resin reaching its territory in 2008, but these were replaced by Southern Africa and South-West Asia in 2009.

In the United States, seizures rose from 367 kg in 2008 to 811 kg in 2009. The United States also assessed that, in 2008, cannabis resin was trafficked both to the United States via Canada (from North Africa), and to Canada via the United States (of Caribbean origin). Seizures of cannabis resin in Mexico rose from 6 kg in 2007 to 297 kg in 2008 – the highest level since 1995. However, seizures fell to 11 kg in 2009. In Brazil, cannabis resin seizures tripled between 2006 and 2008, reaching the record level of 301 kg in 2008, but fell to 204 kg in 2009.

## Fig. 168: Global seizures of cannabis herb, 1999-2009




| Year | 1999 | 2000 | 2001 | 2002 | 2003 | 2004 | 2005 | 2006 | 2007 | 2008 | 2009 |
|---|---|---|---|---|---|---|---|---|---|---|---|
| Metric tons | 4,042 | 4,680 | 5,504 | 5,076 | 6,295 | 6,739 | 4,901 | 5,932 | 5,982 | 5,510 | 6,022 |

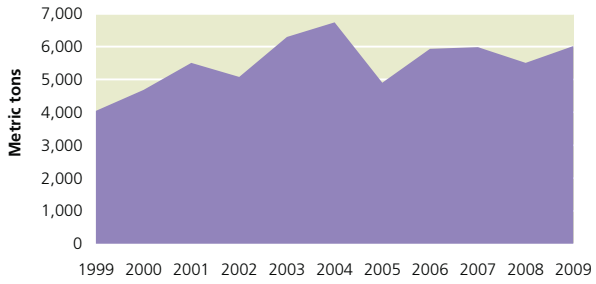



(a) Data relative to 2008. Data for 2009 from the Netherlands were not available.

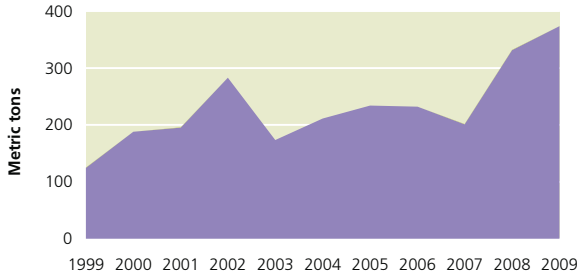
(b) Data for the United Kingdom for 2009 are based on incomplete data for some jurisdictions for the financial year 2009/10, and adjusted for the missing jurisdictions using the latest available complete distribution (relative to the financial year 2006/07).

## Fig. 169: Global seizures of cannabis herb, 1999-2009

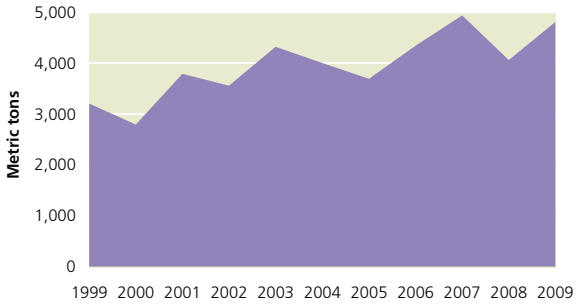
CANNABIS HERB INTERCEPTED - WORLD: 1999-2009



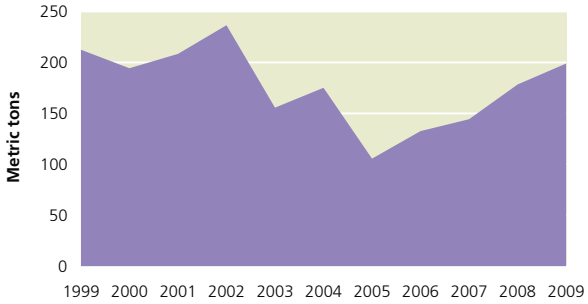

CANNABIS HERB INTERCEPTED - ASIA: 1999-2009



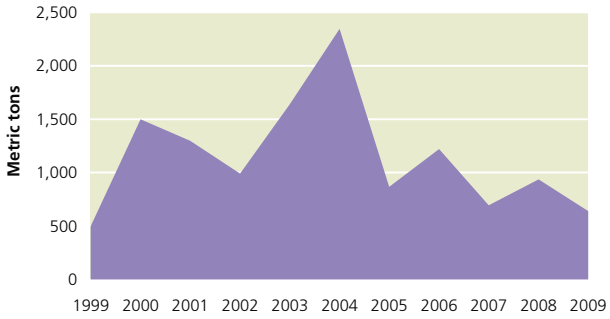

CANNABIS HERB INTERCEPTED - AMERICAS: 1999-2009



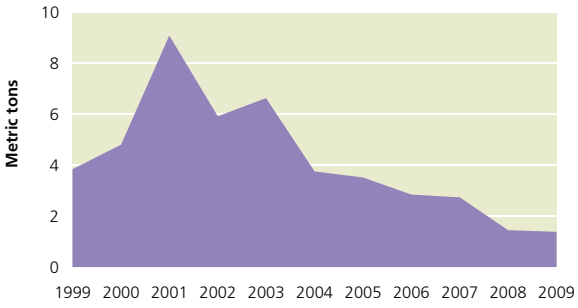

CANNABIS HERB INTERCEPTED - EUROPE: 1999-2009



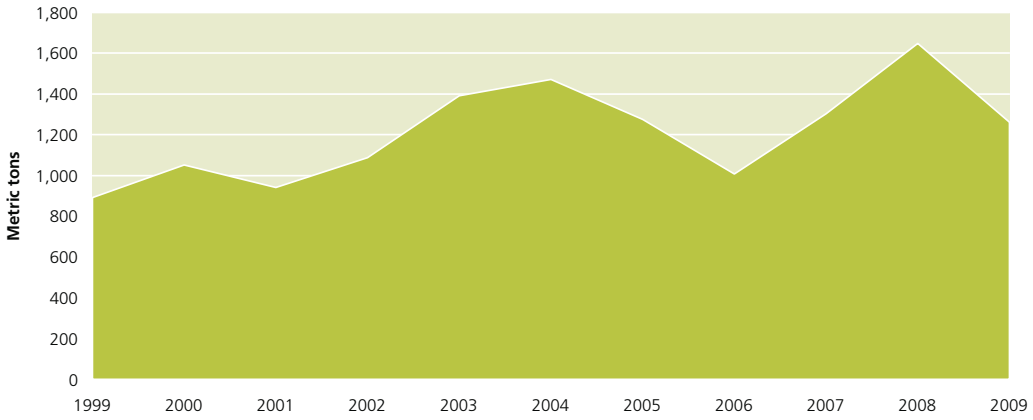

CANNABIS HERB INTERCEPTED - AFRICA: 1999-2009



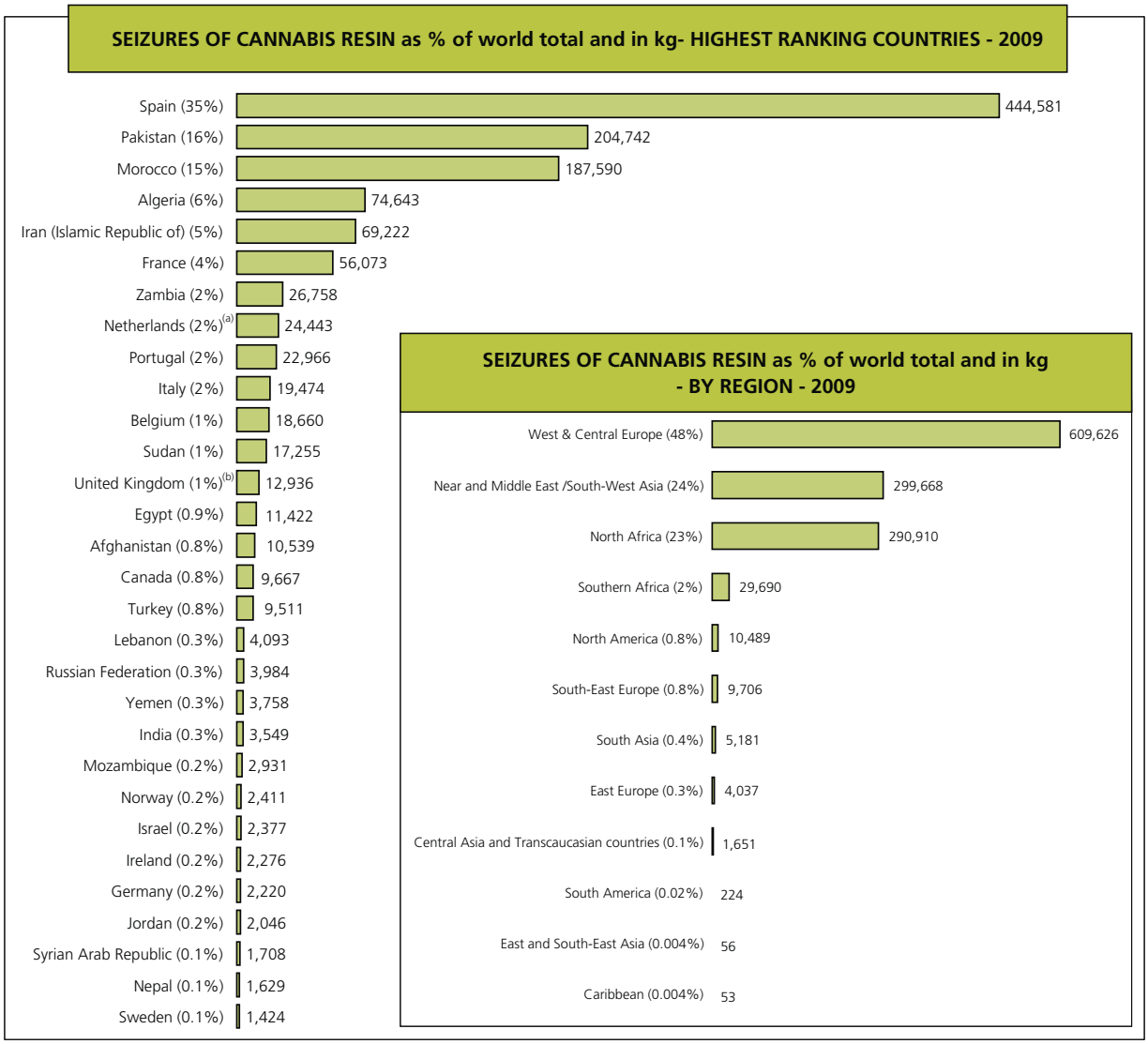

CANNABIS HERB INTERCEPTED - OCEANIA: 1999-2009



## Fig. 170: Global seizures of cannabis resin, 1999-2009




| Year | 1999 | 2000 | 2001 | 2002 | 2003 | 2004 | 2005 | 2006 | 2007 | 2008 | 2009 |
|---|---|---|---|---|---|---|---|---|---|---|---|
| Metric tons | 891 | 1,051 | 942 | 1,088 | 1,392 | 1,472 | 1,274 | 1,008 | 1,303 | 1,648 | 1,261 |

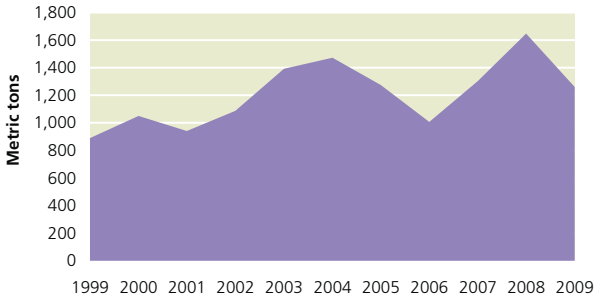



(a) Data relative to 2008. Data for 2009 from the Netherlands were not available.

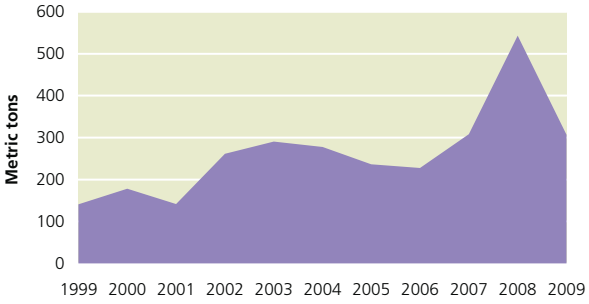
(b) Data for the United Kingdom for 2009 are based on incomplete data for some jurisdictions for the financial year 2009/10, and adjusted for the missing jurisdictions using the latest available complete distribution (relative to the financial year 2006/07).

## Fig. 171: Global seizures of cannabis resin, 1999-2009

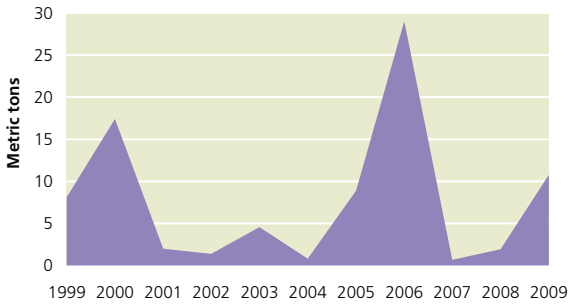
CANNABIS RESIN INTERCEPTED - WORLD: 1999-2009



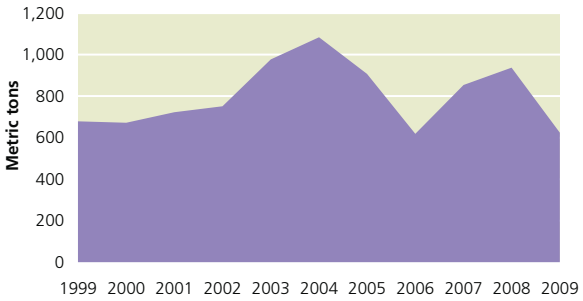

CANNABIS RESIN INTERCEPTED - ASIA: 1999-2009



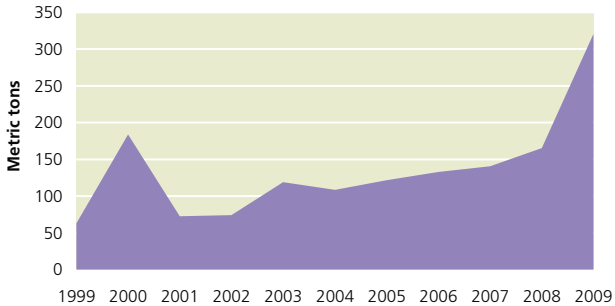

CANNABIS RESIN INTERCEPTED - AMERICAS: 1999-2009



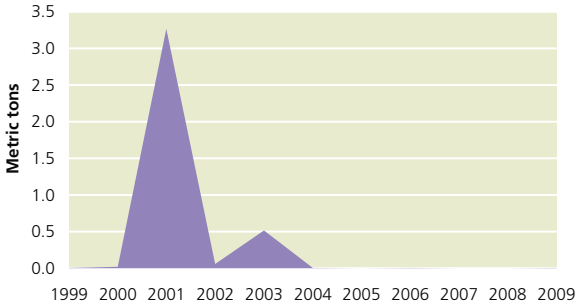

CANNABIS RESIN INTERCEPTED - EUROPE: 1999-2009



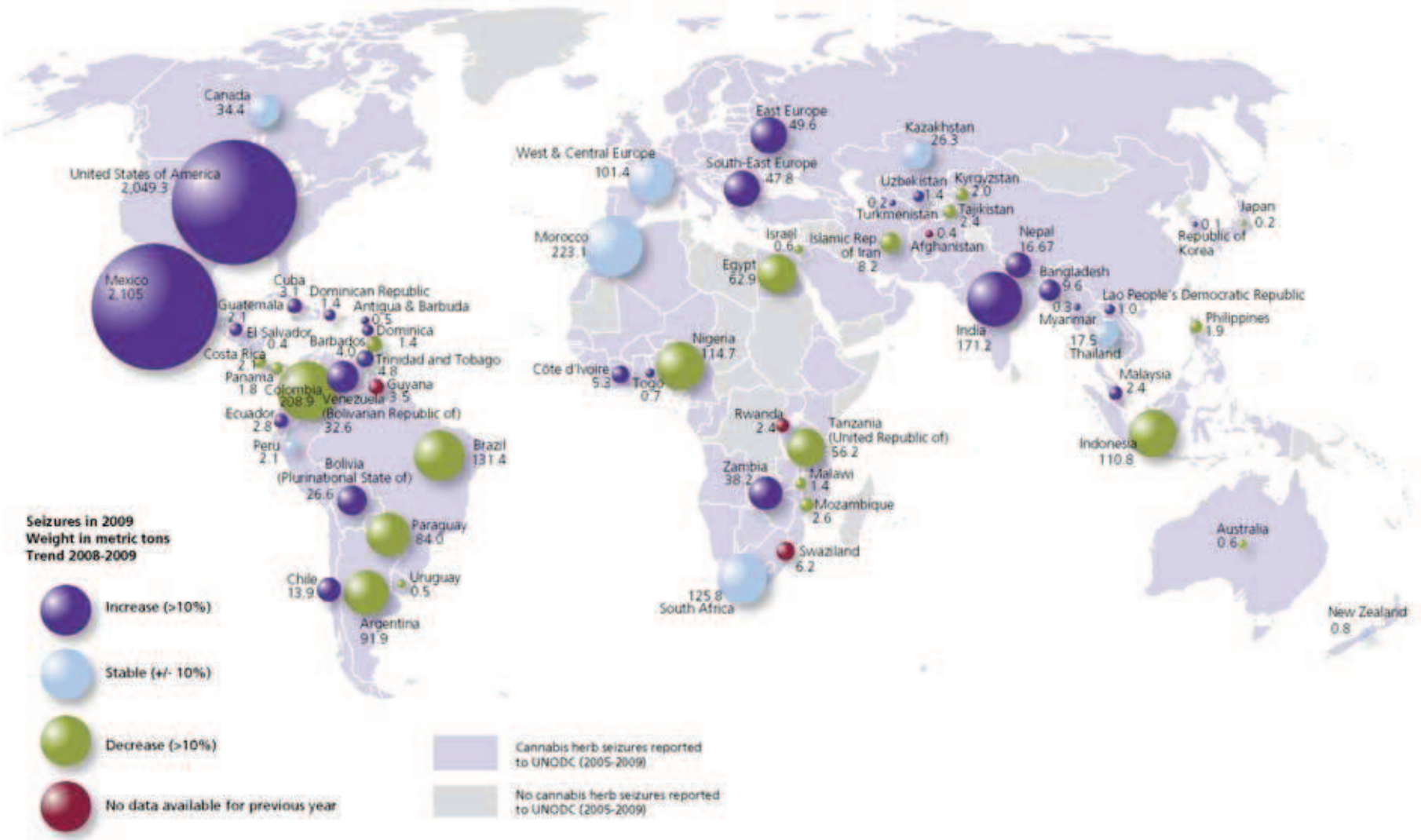

CANNABIS RESIN INTERCEPTED - AFRICA: 1999-2009




CANNABIS RESIN INTERCEPTED - OCEANIA: 1999-2009

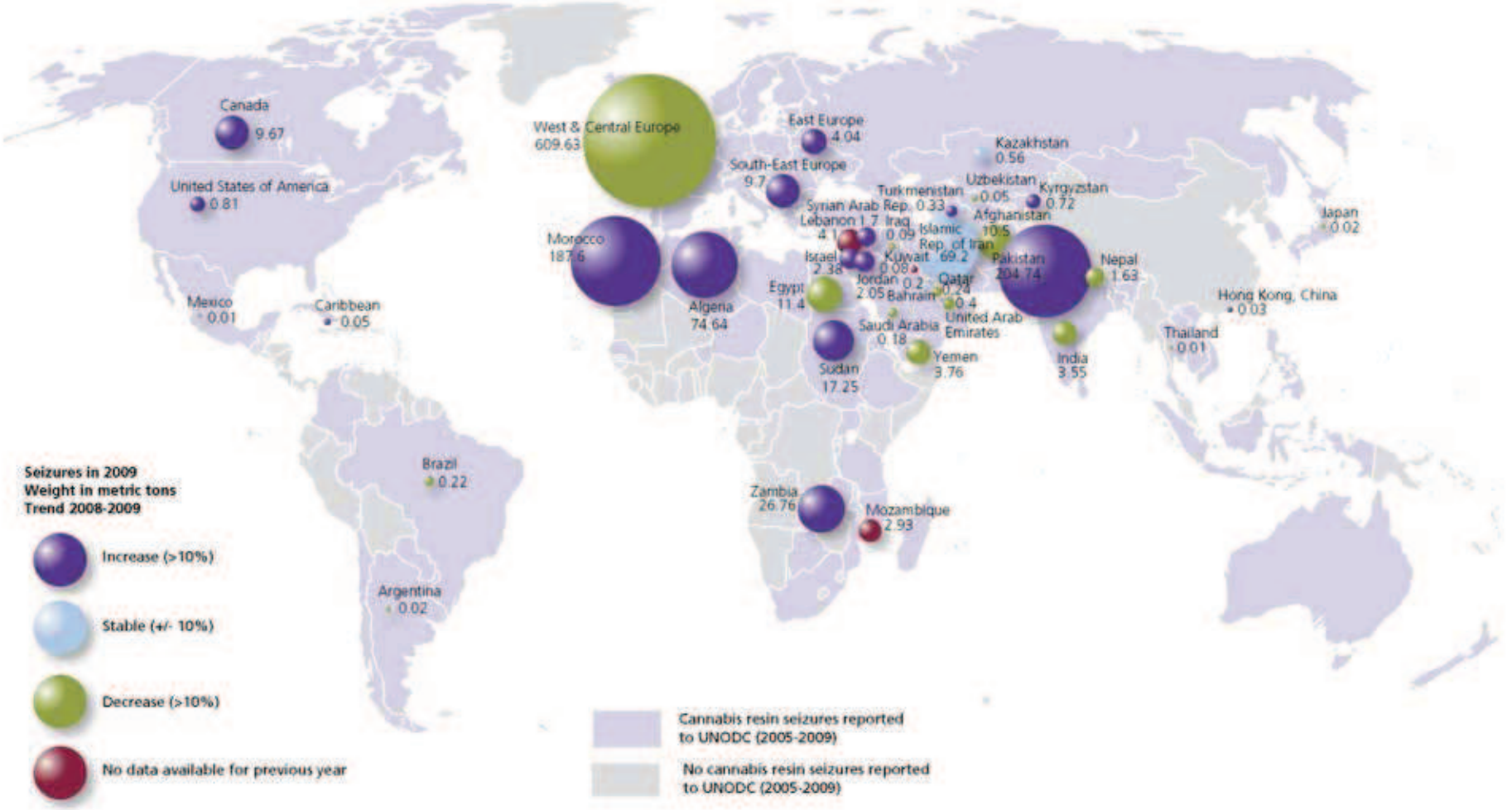


## Map 45: Seizures of cannabis herb, 2009 (countries reporting seizures of more than 100 kg)




Source: UNODC Annual Reports Questionnaires data supplemented by other sources
Note: The boundaries and names shown and the designations used on this map do not imply official endorsement or acceptance by the United Nations.

## Map 46: Seizures of cannabis resin, 2009 (countries and territories reporting seizures of more than 10 kg)




Source: UNODC Annual Reports Questionnaires data supplemented by other sources.
Note: The boundaries and names shown and the designations used on this map do not imply official endorsement or acceptance by the United Nations.

# 6. STATISTICAL ANNEX

# 6.1 Consumption

## 6.1.1 Annual prevalence

### 6.1.1.1 Opiates

**Annual Prevalence of Use as a percentage of the population aged 15-64 (unless otherwise indicated)**

| | | | Opioids | | Opiates | | Prescripition Opioids | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Country or Territory | | | UNODC Best Estimate | Uncertainty Range | UNODC Best Estimate | Uncertainty Range | UNODC Best Estimate | Uncertainty Range | Ages | Year | Source (original) | Method | UNODC Adjusted |
| Africa | East Africa | Burundi | | | | | | | | | No recent, reliable estimate | | |
| | | Comoros | | | | | | | | | No recent, reliable estimate | | |
| | | Djibouti | | | | | | | | | No recent, reliable estimate | | |
| | | Eritrea | | | | | | | | | No recent, reliable estimate | | |
| | | Ethiopia | | | | | | | | | No recent, reliable estimate | | |
| | | Kenya | 0.73 | 0.16 - 1.30 | 0.73 | 0.16 - 1.30 | | | 15-64 | 2004 | IDU ref. group | I | c, i |
| | | Madagascar | | | | | | | | | No recent, reliable estimate | | |
| | | Mauritius | 1.95 | 1.95 - 1.95 | 0.91 | 0.91 - 0.91 | 1.04 | 1.04 - 1.04 | 15-54 | 2007 | UNODC Estimate based | I | |
| | | Rwanda | 0.14 | 0.14 - 0.14 | 0.14 | 0.14 - 0.14 | | | 15-64 | 2004 | Cure Research estimate | | |
| | | Seychelles | | | | | | | | | No recent, reliable estimate | | |
| | | Somalia | 0.16 | 0.16 - 0.16 | 0.16 | 0.16 - 0.16 | | | 15-64 | 2004 | Cure Research estimate | | |
| | | Tanzania (United Republic of) | | | | | | | | | No recent, reliable estimate | | |
| | | Uganda | 0.05 | 0.05 - 0.05 | 0.05 | 0.05 - 0.05 | | | 15-64 | 2004 | Cure Research estimate | | |
| | North Africa | Algeria | 0.12 | 0.12 - 0.12 | 0.12 | 0.12 - 0.12 | | | 15-64 | 2004 | UNODC Estimate | | |
| | | Egypt | 0.44 | 0.14 - 0.73 | 0.44 | 0.14 - 0.73 | | | 15-64 | 2006 | Govt; Academic Research | HHS, SS | a, d |
| | | Libyan Arab Jamahiriya | 0.14 | 0.14 - 0.14 | 0.14 | 0.14 - 0.14 | | | 15-64 | 2004 | UNODC Estimate | | |
| | | Morocco | 0.02 | 0.02 - 0.02 | 0.02 | 0.02 - 0.02 | | | 15-64 | 2003 | ARQ | | |
| | | Sudan | | | | | | | | | No recent, reliable estimate | | |
| | | Tunisia | 0.09 | 0.09 - 0.09 | 0.09 | 0.09 - 0.09 | | | 15-64 | 2006 | UNODC Estimate | | |
| | Southern Africa | Angola | 0.25 | 0.25 - 0.25 | 0.25 | 0.25 - 0.25 | | | 15-64 | 2001 | UNODC Estimate | | |
| | | Botswana | | | | | | | | | No recent, reliable estimate | | |
| | | Lesotho | | | | | | | | | No recent, reliable estimate | | |
| | | Malawi | | | | | | | | | No recent, reliable estimate | | |
| | | Mozambique | | | | | | | | | No recent, reliable estimate | | |
| | | Namibia | | | | | | | | | No recent, reliable estimate | | |
| | | Réunion | | | | | | | | | No recent, reliable estimate | | |
| | | South Africa | 0.50 | 0.50 - 0.50 | 0.41 | 0.41 - 0.41 | 0.09 | 0.09 - 0.09 | 15-64 | 2008 | UNODC Estimate | | |
| | | Swaziland | 0.17 | 0.17 - 0.17 | 0.17 | 0.17 - 0.17 | | | 15-64 | 2004 | Cure Research estimate | | |
| | | Zambia | 0.37 | 0.37 - 0.37 | 0.37 | 0.37 - 0.37 | | | 15-64 | 2003 | UNODC Estimate | | |
| | | Zimbabwe | 0.04 | 0.04 - 0.04 | 0.04 | 0.04 - 0.04 | | | 15-64 | 2004 | Cure Research estimate | | |
| | West and Central Africa | Benin | | | | | | | | | No recent, reliable estimate | | |
| | | Burkina Faso | | | | | | | | | No recent, reliable estimate | | |
| | | Cameroon | | | | | | | | | No recent, reliable estimate | | |
| | | Cape Verde | 0.18 | 0.18 - 0.18 | 0.18 | 0.18 - 0.18 | | | 15-64 | 2004 | UNODC Estimate | | |
| | | Central African Republic | 0.05 | 0.05 - 0.05 | 0.05 | 0.05 - 0.05 | | | 15-64 | 2004 | Cure Research estimate | | |
| | | Chad | 0.22 | 0.22 - 0.22 | 0.22 | 0.22 - 0.22 | | | 15-64 | 2004 | Cure Research estimate | | |
| | | Congo | 0.13 | 0.13 - 0.13 | 0.13 | 0.13 - 0.13 | | | 15-64 | 2004 | Cure Research estimate | | |
| | | Congo (Dem. Rep. of the) | 0.17 | 0.17 - 0.17 | 0.13 | 0.13 - 0.13 | | | 15-64 | 2004 | Cure Research estimate | | |
| | | Côte d'Ivoire | | | | | | | | | No recent, reliable estimate | | |
| | | Equatorial Guinea | | | | | | | | | No recent, reliable estimate | | |
| | | Gabon | | | | | | | | | No recent, reliable estimate | | |
| | | Gambia | | | | | | | | | No recent, reliable estimate | | |
| | | Ghana | 0.14 | 0.14 - 0.14 | 0.14 | 0.14 - 0.14 | | | 15-65 | 2004 | Cure Research estimate | | |
| | | Guinea | | | | | | | | | No recent, reliable estimate | | |
| | | Guinea-Bissau | | | | | | | | | No recent, reliable estimate | | |
| | | Liberia | 0.17 | 0.17 - 0.17 | 0.17 | 0.17 - 0.17 | | | 15-64 | 2004 | Cure Research estimate | | |
| | | Mali | | | | | | | | | No recent, reliable estimate | | |
| | | Mauritania | | | | | | | | | No recent, reliable estimate | | |
| | | Niger | 0.20 | 0.20 - 0.20 | 0.20 | 0.20 - 0.20 | | | 15-64 | 2004 | IDU ref. group | I | |
| | | Nigeria | 0.70 | 0.30 - 1.00 | 0.70 | 0.30 - 1.00 | | | 15-64 | 2008 | UNODC Estimate | | |
| | | Saint Helena | | | | | | | | | No recent, reliable estimate | | |
| | | Sao Tome and Principe | | | | | | | | | No recent, reliable estimate | | |
| | | Senegal | 0.08 | 0.08 - 0.08 | 0.08 | 0.08 - 0.08 | | | 15-64 | 2006 | UNODC Estimate | SS | a, d, e |
| | | Sierra Leone | 0.17 | 0.17 - 0.17 | 0.17 | 0.17 - 0.17 | | | 15-64 | 2004 | Cure Research estimate | | |
| | | Togo | | | | | | | | | No recent, reliable estimate | | |
| Americas | Caribbean | Anguilla | | | | | | | | | No recent, reliable estimate | | |
| | | Antigua and Barbuda | 0.05 | 0.05 - 0.05 | 0.05 | 0.05 - 0.05 | | | 15-64 | 2000 | ARQ | | |
| | | Aruba | | | | | | | | | No recent, reliable estimate | | |
| | | Bahamas | 0.22 | 0.22 - 0.22 | 0.22 | 0.22 - 0.22 | | | 15-64 | 2003 | UNODC Estimate | | |
| | | Barbados | 0.23 | 0.16 - 0.29 | 0.11 | 0.10 - 0.13 | 0.16 | 0.12 - 0.21 | 15-64 | 2006 | UNODC Estimate | | |
| | | Bermuda | | | | | | | | | No recent, reliable estimate | | |
| | | British Virgin Islands | | | | | | | | | No recent, reliable estimate | | |
| | | Cayman Islands | | | | | | | | | No recent, reliable estimate | | |
| | | Cuba | | | | | | | | | No recent, reliable estimate | | |
| | | Dominica | | | | | | | | | No recent, reliable estimate | | |
| | | Dominican Republic | 0.14 | 0.14 - 0.14 | 0.11 | 0.11 - 0.11 | 0.03 | 0.03 - 0.03 | 15-64 | 2001 | UNODC Estimate | | |
| | | Grenada | | | | | | | | | No recent, reliable estimate | | |
| | | Guadeloupe | | | | | | | | | No recent, reliable estimate | | |
| | | Haiti | 0.20 | 0.19 - 0.22 | 0.07 | 0.07 - 0.07 | 0.13 | 0.13 - 0.13 | 15-64 | 2006 | ARQ | SS | a, d, e |
| | | Jamaica | 0.10 | 0.10 - 0.10 | 0.10 | 0.10 - 0.10 | | | 15-64 | 2001 | UNODC Estimate | | |
| | | Martinique | | | | | | | | | No recent, reliable estimate | | |
| | | Montserrat | | | | | | | | | No recent, reliable estimate | | |
| | | Netherlands Antilles | | | | | | | | | No recent, reliable estimate | | |
| | | Puerto Rico | 1.15 | 1.15 - 1.15 | 1.15 | 1.15 - 1.15 | | | 15-64 | 2002 | IDU ref. group | I | |
| | | Saint Kitts and Nevis | | | | | | | | | No recent, reliable estimate | | |
| | | Saint Lucia | | | | | | | | | No recent, reliable estimate | | |
| | | Saint Vincent and the Grenadines | | | | | | | | | No recent, reliable estimate | | |
| | | Trinidad and Tobago | 0.09 | 0.09 - 0.09 | 0.09 | 0.09 - 0.09 | | | 15-64 | 2002 | UNODC Estimate | | |
| | | Turks and Caicos Islands | 0.07 | 0.07 - 0.07 | 0.07 | 0.07 - 0.07 | | | 15-64 | 2002 | UNODC Estimate | | |
| | | United States Virgin Islands | | | | | | | | | No recent, reliable estimate | | |
| | Central America | Belize | | | | | | | | | No recent, reliable estimate | | |
| | | Costa Rica | 2.80 | 2.80 - 2.90 | 0.09 | 0.09 - 0.09 | 2.80 | 2.80 - 2.80 | 12-70 | 2006 | ARQ | HHS | |
| | | El Salvador | 0.14 | 0.14 - 0.14 | 0.11 | 0.11 - 0.11 | 0.06 | 0.06 - 0.06 | 15-64 | 2005 | UNODC Estimate | HHS | e |
| | | Guatemala | 0.04 | 0.04 - 0.04 | 0.04 | 0.04 - 0.04 | | | 15-65 | 2005 | ARQ | | |
| | | Honduras | 0.15 | 0.15 - 0.15 | 0.15 | 0.15 - 0.15 | | | 15-64 | 2005 | UNODC Estimate | HHS | e |
| | | Nicaragua | | | | | | | | | No recent, reliable estimate | | |
| | | Panama | | | | | | | | | No recent, reliable estimate | | |
| | North America | Canada | 0.68 | 0.50 - 0.86 | 0.36 | 0.28 - 0.47 | 0.50 | 0.50 - 0.50 | 15-64 | 2009 | ARQ & IDU Ref Group | HHS, I x | |
| | | Mexico | 0.08 | 0.06 - 0.10 | 0.04 | 0.04 - 0.04 | 0.06 | 0.06 - 0.06 | 15-64 | 2008 | ARQ | HHS | |
| | | Saint Pierre and Miquelon | | | | | | | | | No recent, reliable estimate | | |

Method: HHS=Household survey, SS=School survey, A=Adjusted from other sources, I=Indirect estimates, R=Registry. * approximate estimates

UNODC Adjustments: a=adjusted for age (15-64), b=population-based/household-type study/survey, c=adjusted from a limited geographic population-based study/survey, d=adjusted from school/youth survey, e=adjusted from lifetime/monthly prevalence adjusted to annual prevalence, f=adjusted from specialized population surveys (including Rapid Assessments), g=adjusted from treatment data, h=adjusted from drug registries, i=adjusted from HIV, problematic drug users (only for heroin), j=lifetime prevalence reported, x=figure may include non-medical use of prescription opioids, z=figures may also include other non-ATS stimulants.

**Annual Prevalence of Use as a percentage of the population aged 15-64 (unless otherwise indicated)**

| | | | Opioids | | Opiates | | Prescripition Opioids | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Country or Territory | | | UNODC Best Estimate | Uncertainty Range | UNODC Best Estimate | Uncertainty Range | UNODC Best Estimate | Uncertainty Range | Ages | Year | Source (original) | Method | UNODC Adjusted |
| The 'Method' and 'UNODC Adj.' columns have been completed only for more recent data included in previous and present issues of the World Drug Report. | | | | | | | | | | | | | |
| | | United States of America | 5.90 | 5.60 - 6.20 | 0.57 | 0.43 - 0.71 | 5.60 | 5.60 - 5.60 | 15-64 | 2009 | ARQ, SAMHSA, ONDCP | HHS, I x | |
| | South America | Argentina | 0.19 | 0.13 - 0.26 | 0.13 | 0.09 - 0.17 | 0.11 | 0.10 - 0.13 | 15-64 | 2007 | UNODC Estimate | | e |
| | | Bolivia (Plurinational State of) | 0.60 | 0.30 - 0.90 | 0.45 | 0.30 - 0.60 | 0.30 | 0.30 - 0.30 | 12-65 | 2007 | ARQ | HHS | e |
| | | Brazil | 0.50 | 0.50 - 0.50 | | | 0.50 | 0.50 - 0.50 | 12-65 | 2005 | ARQ | HHS | e |
| | | Chile | 0.50 | 0.50 - 0.50 | 0.10 | 0.10 - 0.10 | 0.40 | 0.40 - 0.40 | 15-64 | 2008 | HHS | HHS | |
| | | Colombia | 0.10 | 0.10 - 0.10 | 0.02 | 0.02 - 0.02 | | | 15-64 | 2004 | UNODC Estimate | | |
| | | Ecuador | 0.12 | 0.12 - 0.12 | 0.12 | 0.12 - 0.12 | | | 15-64 | 2005 | UNODC Estimate | | e |
| | | Falkland Islands (Malvinas) | | | | | | | | | No recent, reliable estimate | | |
| | | French Guiana | | | | | | | | | No recent, reliable estimate | | |
| | | Guyana | 0.25 | 0.25 - 0.25 | 0.07 | 0.07 - 0.07 | 0.18 | 0.18 - 0.18 | 15-64 | 2002 | UNODC Estimate | | |
| | | Paraguay | 0.03 | 0.03 - 0.03 | 0.03 | 0.03 - 0.03 | | | 12-65 | 2003 | ARQ | HHS | e |
| | | Peru | 0.18 | 0.18 - 0.18 | 0.18 | 0.18 - 0.18 | | | 12-64 | 2005 | UNODC Estimate | | |
| | | Suriname | 0.08 | 0.08 - 0.08 | 0.08 | 0.08 - 0.08 | | | 15-64 | 2002 | UNODC Estimate | | e |
| | | Uruguay | 0.10 | 0.10 - 0.10 | 0.10 | 0.10 - 0.10 | | | 15-64 | 2006 | ARQ | HHS | e |
| | | Venezuela (Bolivarian Republic of) | 0.10 | 0.03 - 0.16 | 0.10 | 0.03 - 0.16 | | | 15-64 | 2003 | ARQ | SS | a, d, e |
| Asia | Central Asia and Transcaucasian countries | Armenia | 0.30 | 0.30 - 0.30 | 0.22 | 0.22 - 0.22 | 0.08 | 0.08 - 0.08 | 15-64 | 2005 | UNODC Estimate | HHS | |
| | | Azerbaijan | 0.20 | 0.20 - 0.20 | 0.20 | 0.20 - 0.20 | | | 15-64 | 2008 | ARQ | | i |
| | | Georgia | 0.58 | 0.58 - 0.58 | 0.31 | 0.31 - 0.31 | 0.27 | 0.27 - 0.27 | 15-64 | 2006 | UNODC Estimate | | |
| | | Kazakhstan | 1.00 | 1.00 - 1.00 | 0.89 | 0.89 - 0.89 | 0.11 | 0.11 - 0.11 | 15-64 | 2006 | UNODC (GAP survey) | | i |
| | | Kyrgyzstan | 0.80 | 0.80 - 0.80 | 0.74 | 0.74 - 0.74 | 0.06 | 0.06 - 0.06 | 15-64 | 2006 | UNODC (GAP survey) | | i |
| | | Tajikistan | 0.54 | 0.54 - 0.54 | 0.54 | 0.54 - 0.54 | | | 15-64 | 2006 | UNODC (GAP survey) | | i |
| | | Turkmenistan | 0.32 | 0.32 - 0.32 | 0.32 | 0.32 - 0.32 | | | 15-64 | 2007 | ARQ | | |
| | | Uzbekistan | 0.80 | 0.80 - 0.80 | 0.78 | 0.78 - 0.78 | 0.02 | 0.02 - 0.02 | 15-64 | 2006 | UNODC (GAP survey) | | i |
| | East and South-East Asia | Brunei Darussalam | | | | | | | | | No recent, reliable estimate | | |
| | | Cambodia | 0.03 | 0.01 - 0.09 | 0.03 | 0.01 - 0.09 | | | 15-64 | 2004 | INCSR/ IDU ref. group | I | |
| | | China | 0.25 | 0.19 - 0.31 | 0.25 | 0.19 - 0.31 | | | 15-64 | 2005 | Academic research/ IDU ref. group | I | |
| | | China, Hong Kong SAR | 0.20 | 0.20 - 0.20 | 0.20 | 0.20 - 0.20 | | | 15-64 | 2006 | ARQ | | |
| | | China, Macao SAR | 1.12 | 1.12 - 1.12 | 1.12 | 1.12 - 1.12 | | | 15-64 | 2003 | ARQ | | |
| | | Guam | | | | | | | | | No recent, reliable estimate | | |
| | | Indonesia | 0.16 | 0.16 - 0.16 | 0.16 | 0.16 - 0.16 | | | 15-64 | 2005 | ARQ | | |
| | | Japan | | | | | | | | | No recent, reliable estimate | | |
| | | Korea (Dem. People's Rep.) | | | | | | | | | No recent, reliable estimate | | |
| | | Korea (Republic of) | 0.08 | 0.06 - 0.10 | | | 0.08 | 0.06 - 0.10 | 15-64 | 2004 | ARQ | HHS | a,e |
| | | Lao People's Democratic Republic | 0.37 | 0.37 - 0.37 | 0.37 | 0.37 - 0.37 | | | 15-64 | 2008 | UNODC (ICMP) | HHS | a, c |
| | | Malaysia | 0.94 | 0.94 - 0.94 | 0.94 | 0.94 - 0.94 | | | 15-64 | 2009 | SMART | I | |
| | | Mongolia | | | | | | | | | No recent, reliable estimate | | |
| | | Myanmar | 0.80 | 0.70 - 0.90 | 0.80 | 0.70 - 0.90 | | | 15-64 | 2010 | UNODC (ICMP) | HHS | a,c |
| | | Philippines | 0.05 | 0.05 - 0.05 | | | 0.05 | 0.05 - 0.05 | 15-64 | 2005 | IDU ref. group; ARQ | | |
| | | Singapore | 0.01 | 0.01 - 0.01 | | | | | 15-64 | 2006 | ARQ | R | |
| | | Taiwan, Province of China | 0.20 | 0.20 - 0.20 | 0.20 | 0.20 - 0.20 | | | 12-64 | 2005 | Government source | | |
| | | Thailand | 0.20 | 0.20 - 0.20 | 0.20 | 0.20 - 0.20 | | | 15-64 | 2007 | ARQ | HHS | |
| | | Timor-Leste | | | | | | | | | No recent, reliable estimate | | |
| | | Viet Nam | 0.27 | 0.25 - 0.28 | 0.27 | 0.25 - 0.28 | | | 15-64 | 2005 | INCSR/ IDU ref. group | | |
| | Near and Middle East /South-West Asia | Afghanistan | 2.92 | 2.65 - 3.20 | 2.65 | 2.34 - 2.96 | 0.55 | 0.46 - 0.63 | 15-64 | 2009 | UNODC/ Govt. Source | HHS | |
| | | Bahrain | | | | | | | | | No recent, reliable estimate | | |
| | | Iran (Islamic Republic of) | 2.26 | 1.77 - 2.75 | 2.26 | 1.77 - 2.75 | | | 15-64 | 2010 | Government Source | | |
| | | Iraq | | | | | | | | | No recent, reliable estimate | | |
| | | Israel | 0.72 | 0.46 - 0.97 | 0.61 | 0.46 - 0.76 | 0.21 | 0.21 - 0.21 | 18-40 | 2008 | UNODC Estimate | HHS | |
| | | Jordan | 0.17 | 0.17 - 0.17 | 0.17 | 0.17 - 0.17 | | | 15-64 | 2001 | UNODC Estimate | | |
| | | Kuwait | 0.17 | 0.17 - 0.17 | 0.17 | 0.17 - 0.17 | | | 15-64 | 2004 | UNODC Estimate | | |
| | | Lebanon | 0.20 | 0.20 - 0.20 | 0.20 | 0.20 - 0.20 | | | 15-64 | 2003 | ARQ | | |
| | | Occupied Palestinian Territory | | | | | | | | | No recent, reliable estimate | | |
| | | Oman | | | | | | | | | No recent, reliable estimate | | |
| | | Pakistan | 0.70 | 0.70 - 0.70 | 0.57 | 0.57 - 0.57 | 0.13 | 0.13 - 0.13 | 15-64 | 2006 | UNODC (GAP survey) | | |
| | | Qatar | | | | | | | | | No recent, reliable estimate | | |
| | | Saudi Arabia | 0.06 | 0.06 - 0.06 | 0.06 | 0.06 - 0.06 | | | 15-64 | 2006 | UNODC Estimate | | |
| | | Syrian Arab Republic | 0.02 | 0.02 - 0.02 | 0.02 | 0.02 - 0.02 | | | | 2005 | UNODC Estimate | | |
| | | United Arab Emirates | 0.02 | 0.02 - 0.02 | 0.02 | 0.02 - 0.02 | | | 15-64 | 2004 | UNODC Estimate | | |
| | | Yemen | | | | | | | | | No recent, reliable estimate | | |
| | South Asia | Bangladesh | 0.40 | 0.40 - 0.40 | 0.37 | 0.37 - 0.37 | 0.03 | 0.03 - 0.03 | 15-64 | 2003 | ARQ | HHS | a, e |
| | | Bhutan | | | | | | | | | No recent, reliable estimate | | |
| | | India | | | | | | | | | No recent, reliable estimate | | |
| | | Maldives | | | | | | | | | No recent, reliable estimate | | |
| | | Sri Lanka | 0.11 | 0.11 - 0.11 | 0.11 | 0.11 - 0.11 | | | 15-64 | 2006 | ARQ | | |
| Europe | East Europe | Belarus | 0.43 | 0.08 - 0.74 | 0.39 | 0.07 - 0.67 | 0.04 | 0.01 - 0.07 | 15-64 | 2007 | UNODC Estimate | R | h,g |
| | | Moldova (Republic of) | 0.15 | 0.12 - 0.17 | | | | | 15-64 | 2008 | Government source | R, HHS | e |
| | | Russian Federation | 1.64 | 0.31 - 1.64 | 1.64 | 0.31 - 1.64 | | | 15-64 | 2007 | UNODC Estimate | | g |
| | | Ukraine | 1.16 | 1.00 - 1.31 | 1.16 | 1.00 - 1.31 | | | 15-64 | 2006 | IDU ref. group | I | |
| | Southeast Europe | Albania | 0.45 | 0.45 - 0.45 | 0.45 | 0.45 - 0.45 | | | 15-64 | 2007 | UNODC Estimate | R | h,g |
| | | Bosnia and Herzegovina | 0.30 | 0.30 - 0.30 | 0.30 | 0.30 - 0.30 | | | 15-64 | 2005 | IDU ref. group | I | |
| | | Bulgaria | 0.45 | 0.30 - 0.60 | | | | | 15-64 | 2008 | UNODC Estimate | I | |
| | | Croatia | 0.36 | 0.36 - 0.36 | 0.36 | 0.36 - 0.36 | | | 15-64 | 2006 | ARQ | I | |
| | | Macedonia (TFYR) | 0.50 | 0.50 - 0.50 | 0.40 | 0.40 - 0.50 | | | 15-64 | 2005 | ARQ | | |
| | | Montenegro | | | | | | | | | No recent, reliable estimate | | |
| | | Romania | 0.16 | 0.11 - 0.21 | | | | | 15-64 | 2004 | ARQ based on heroin injectors | I | |
| | | Serbia | 0.28 | 0.18 - 0.38 | 0.28 | 0.18 - 0.38 | | | 15-64 | 2008 | ARQ | I | |
| | | Turkey | 0.05 | 0.05 - 0.11 | | | | | 15-64 | 2008 | EMCDDA | I | |
| | West & Central Europe | Andorra | | | | | | | | | No recent, reliable estimate | | |
| | | Austria | 0.41 | 0.40 - 0.43 | | | | | 15-64 | 2007 | ARQ | I | |
| | | Belgium | 0.20 | 0.20 - 0.20 | | | | | 15-64 | 2008 | ARQ | HHS | |
| | | Channel Islands | | | | | | | | | No recent, reliable estimate | | |
| | | Cyprus | 0.20 | 0.20 - 0.20 | 0.20 | 0.20 - 0.20 | | | 15-64 | 2009 | ARQ | HHS | |
| | | Czech Republic | 0.40 | 0.40 - 0.40 | | | | | 15-64 | 2008 | Government source | HHS | |
| | | Denmark | 0.60 | 0.60 - 0.60 | | | | | 15-64 | 2005 | ARQ | I | |
| | | Estonia | 1.52 | 0.89 - 3.79 | 0.81 | 0.47 - 2.02 | 0.71 | 0.42 - 1.77 | 15-64 | 2004 | Annual report 2008 to EMCDDA | I | |
| | | Faeroe Islands | | | | | | | | | No recent, reliable estimate | | |
| | | Finland | 0.29 | 0.29 - 0.30 | | | | | 15-64 | 2005 | UNODC Estimate | I | |
| | | France | 0.47 | 0.42 - 0.51 | | | | | 15-64 | 2007 | Government source | I | |

Method: HHS=Household survey, SS=School survey, A=Adjusted from other sources, I=Indirect estimates, R=Registry. * approximate estimates

UNODC Adjustments: a=adjusted for age (15-64), b=population-based/household-type study/survey, c=adjusted from a limited geographic population-based study/survey, d=adjusted from school/youth survey, e=adjusted from lifetime/monthly prevalence adjusted to annual prevalence, f=adjusted from specialized population surveys (including Rapid Assessments), g=adjusted from treatment data, h=adjusted from drug registries, i=adjusted from HIV, problematic drug users (only for heroin), j=lifetime prevalence reported, x=figure may include non-medical use of prescription opioids, z=figures may also include other non-ATS stimulants.

The 'Method' and 'UNODC Adj.' columns have been completed only for more recent data included in previous and present issues of the World Drug Report.

**Annual Prevalence of Use as a percentage of the population aged 15-64 (unless otherwise indicated)**

| | | | Opioids | | Opiates | | Prescripition Opioids | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Country or Territory | | | UNODC Best Estimate | Uncertainty Range | UNODC Best Estimate | Uncertainty Range | UNODC Best Estimate | Uncertainty Range | Ages | Year | Source (original) | Method | UNODC Adjusted |
| | | Germany | 0.22 | 0.18 - 0.25 | | | | | 15-64 | 2008 | EMCDDA | I | |
| | | ***Gibraltar*** | | | | | | | | | No recent, reliable estimate | | |
| | | Greece | 0.27 | 0.23 - 0.31 | | | | | 15-64 | 2008 | EMCDDA | I | |
| | | Greenland | | | | | | | | | No recent, reliable estimate | | |
| | | Hungary | 0.10 | 0.04 - 0.20 | | | | | 18-64 | 2007 | Government source | HHS | g |
| | | Iceland | 0.40 | 0.40 - 0.40 | | | | | 15-64 | 2005 | ARQ | | |
| | | Ireland | 0.72 | 0.62 - 0.81 | | | | | 15-64 | 2006 | EMCDDA | I | |
| | | Isle of Man | | | | | | | | | No recent, reliable estimate | | |
| | | Italy | 0.55 | 0.53 - 0.57 | | | | | 15-64 | 2008 | EMCDDA | I | |
| | | Latvia | 0.75 | 0.70 - 0.80 | 0.75 | 0.70 - 0.80 | | | 15-64 | 2007 | ARQ | HHS | |
| | | Liechtenstein | 0.20 | 0.20 - 0.20 | 0.20 | 0.20 - 0.20 | | | 15-64 | 2005 | ARQ | SS | |
| | | Lithuania | 0.10 | 0.10 - 0.10 | 0.10 | 0.10 - 0.10 | | | 15-64 | 2008 | Government source | HHS | |
| | | Luxembourg | 0.59 | 0.50 - 0.76 | | | | | 15-64 | 2007 | EMCDDA | I | |
| | | Malta | 0.57 | 0.54 - 0.59 | | | | | 15-64 | 2007 | ARQ | I | |
| | | Monaco | | | | | | | | | No recent, reliable estimate | | |
| | | Netherlands | 0.31 | 0.31 - 0.31 | 0.31 | 0.31 - 0.31 | | | 15-64 | 2005 | ARQ | | |
| | | Norway | 0.30 | 0.21 - 0.39 | | | | | 15-64 | 2008 | Government source | I | |
| | | Poland | 0.10 | 0.09 - 0.11 | | | | | 15-64 | 2005 | ARQ | I | |
| | | Portugal | 0.46 | 0.43 - 0.50 | | | | | 15-64 | 2005 | ARQ | I | |
| | | San Marino | | | | | | | | | No recent, reliable estimate | | |
| | | Slovakia | 0.30 | 0.30 - 0.30 | | | | | 15-64 | 2009 | ARQ | I | |
| | | Slovenia | 0.74 | 0.66 - 0.92 | | | | | 15-64 | 2004 | ARQ | I | g |
| | | Spain | 0.13 | 0.12 - 0.14 | | | | | 15-64 | 2007 | Government source | I | |
| | | Sweden | 0.23 | 0.19 - 0.28 | | | | | 15-64 | 2007 | ARQ | I | g |
| | | Switzerland | 0.61 | 0.51 - 0.78 | | | | | 15-64 | 2000 | Government source | I | |
| | | United Kingdom (England and Wales) | 0.81 | 0.78 - 0.87 | | | | | 15-64 | 2007 | EMCDDA | I | |
| | | United Kingdom (Northern Ireland) | 0.12 | 0.11 - 0.16 | | | | | 15-64 | 2004 | EMCDDA | | |
| | | United Kingdom (Scotland) | 1.59 | 1.57 - 1.65 | | | | | 15-64 | 2006 | EMCDDA | I | |
| **Oceania** | **Oceania** | American Samoa | | | | | | | | | No recent, reliable estimate | | |
| | | Australia | 0.40 | 0.40 - 0.40 | 0.20 | 0.20 - 0.20 | 0.20 | 0.20 - 0.20 | 15-64 | 2007 | ARQ | HHS | a |
| | | Christmas Islands | | | | | | | | | No recent, reliable estimate | | |
| | | Cocos (Keeling) Islands | | | | | | | | | No recent, reliable estimate | | |
| | | Cook Islands | | | | | | | | | No recent, reliable estimate | | |
| | | Fiji | | | | | | | | | No recent, reliable estimate | | |
| | | French Polynesia | | | | | | | | | No recent, reliable estimate | | |
| | | Kiribati | | | | | | | | | No recent, reliable estimate | | |
| | | Marshall Islands | | | | | | | | | No recent, reliable estimate | | |
| | | Micronesia (Federated States of) | | | | | | | | | No recent, reliable estimate | | |
| | | Nauru | | | | | | | | | No recent, reliable estimate | | |
| | | New Caledonia | | | | | | | | | No recent, reliable estimate | | |
| | | New Zealand | 1.10 | 0.70 - 1.50 | 0.10 | 0.10 - 0.30 | 1.00 | 0.70 - 1.30 | 16-64 | 2008 | Government source | HHS, x | |
| | | Norfolk Island | | | | | | | | | No recent, reliable estimate | | |
| | | Northern Mariana Islands | | | | | | | | | No recent, reliable estimate | | |
| | | Palau | | | | | | | | | No recent, reliable estimate | | |
| | | Papua New Guinea | | | | | | | | | No recent, reliable estimate | | |
| | | Pitcairn | | | | | | | | | No recent, reliable estimate | | |
| | | Samoa | | | | | | | | | No recent, reliable estimate | | |
| | | Solomon Islands | | | | | | | | | No recent, reliable estimate | | |
| | | Tonga | | | | | | | | | No recent, reliable estimate | | |
| | | Tuvalu | | | | | | | | | No recent, reliable estimate | | |
| | | Vanuatu | | | | | | | | | No recent, reliable estimate | | |
| | | Wallis and Futuna Islands | | | | | | | | | No recent, reliable estimate | | |

Method: HHS=Household survey, SS=School survey, A=Adjusted from other sources, I=Indirect estimates, R=Registry. * approximate estimates

UNODC Adjustments: a=adjusted for age (15-64), b=population-based/household-type study/survey, c=adjusted from a limited geographic population-based study/survey, d=adjusted from school/youth survey, e=adjusted from lifetime/monthly prevalence adjusted to annual prevalence, f=adjusted from specialized population surveys (including Rapid Assessments), g=adjusted from treatment data, h=adjusted from drug registries, i=adjusted from HIV, problematic drug users (only for heroin), j=lifetime prevalence reported, x=figure may include non-medical use of prescription opioids, z=figures may also include other non-ATS stimulants.

The 'Method' and 'UNODC Adj.' columns have been completed only for more recent data included in previous and present issues of the World Drug Report.

## 6.1.1.2 Cocaine

**COCAINE**

**Annual Prevalence of Use as a percentage of the population aged 15-64 (unless otherwise indicated)**

| Country or Territory | UNODC Best Estimate | Uncertainty Range | Ages | Year | Source (original) | Method | UNODC Adjusted |
|---|---|---|---|---|---|---|---|
| **AFRICA** | | | | | | | |
| **East Africa** | | | | | | | |
| Burundi | | | | | No recent, reliable estimate located | | |
| Comoros | | | | | No recent, reliable estimate located | | |
| Djibouti | | | | | No recent, reliable estimate located | | |
| Eritrea | | | | | No recent, reliable estimate located | | |
| Ethiopia | | | | | No recent, reliable estimate located | | |
| Kenya | 0.3 | 0.2 - 0.4 | 15 - 65 | 2007 | Government source | HHS | b, e |
| Madagascar | | | | | No recent, reliable estimate located | | |
| Mauritius | | | | | No recent, reliable estimate located | | |
| Rwanda | | | | | No recent, reliable estimate located | | |
| Seychelles | | | | | No recent, reliable estimate located | | |
| Somalia | | | | | No recent, reliable estimate located | | |
| Tanzania (United Republic of) | | | | | No recent, reliable estimate located | | |
| Uganda | | | | | No recent, reliable estimate located | | |
| **North Africa** | | | | | | | |
| Algeria | | | | | No recent, reliable estimate located | | |
| Egypt | <0.1 | | 15 - 64 | 2006 | Govt; Academic Research | HHS, SS | a, d |
| Libyan Arab Jamahiriya | | | | | No recent, reliable estimate located | | |
| Morocco | <0.1 | | 15 - 64 | 2004 | ARQ | | |
| Sudan | | | | | No recent, reliable estimate located | | |
| Tunisia | | | | | No recent, reliable estimate located | | |
| **Southern Africa** | | | | | | | |
| Angola | | | | | No recent, reliable estimate located | | |
| Botswana | | | | | No recent, reliable estimate located | | |
| Lesotho | | | | | No recent, reliable estimate located | | |
| Malawi | | | | | No recent, reliable estimate located | | |
| Mozambique | | | | | No recent, reliable estimate located | | |
| Namibia | | | | | No recent, reliable estimate located | | |
| *Réunion* | | | | | No recent, reliable estimate located | | |
| South Africa | 0.8 | 0.6 - 1.2 | 15 - 64 | 2008 | ARQ | HHS | a, e |
| Swaziland | | | | | No recent, reliable estimate located | | |
| Zambia | 0.2 | | 15 - 64 | 2000 | UNODC Estimate | | |
| Zimbabwe | 0.1 | | 15 - 64 | 2000 | UNODC Estimate | | |
| **West and Central Africa** | | | | | | | |
| Benin | | | | | No recent, reliable estimate located | | |
| Burkina Faso | | | | | No recent, reliable estimate located | | |
| Cameroon | | | | | No recent, reliable estimate located | | |
| Cape Verde | 0.2 | | 15 - 64 | 2004 | UNODC Estimate | | d, e |
| Central African Republic | | | | | No recent, reliable estimate located | | |
| Chad | | | | | No recent, reliable estimate located | | |
| Congo | | | | | No recent, reliable estimate located | | |
| Congo (Dem. Rep. of the) | | | | | No recent, reliable estimate located | | |
| Côte d'Ivoire | | | | | No recent, reliable estimate located | | |
| Equatorial Guinea | | | | | No recent, reliable estimate located | | |
| Gabon | | | | | No recent, reliable estimate located | | |
| Gambia | | | | | No recent, reliable estimate located | | |
| Ghana | | | | | No recent, reliable estimate located | | |
| Guinea | | | | | No recent, reliable estimate located | | |
| Guinea-Bissau | | | | | No recent, reliable estimate located | | |
| Liberia | | | | | No recent, reliable estimate located | | |
| Mali | | | | | No recent, reliable estimate located | | |
| Mauritania | | | | | No recent, reliable estimate located | | |
| Niger | | | | | No recent, reliable estimate located | | |
| Nigeria | 0.7 | 0.3 - 1.1 | 15 - 64 | 2008 | ARQ | HHS | a, b, e |
| *Saint Helena* | | | | | No recent, reliable estimate located | | |

Method: HHS=Household survey, SS=School survey, A=Adjusted from other sources, I=Indirect estimates, R=Registry. * approximate estimates

UNODC Adjustments: a=adjusted for age (15-64), b=population-based/household-type study/survey, c=adjusted from a limited geographic population-based study/survey, d=adjusted from school/youth survey, e=adjusted from lifetime/monthly prevalence adjusted to annual prevalence, f=adjusted from specialized population surveys (including Rapid Assessments), g=adjusted from treatment data, h=adjusted from drug registries, i=adjusted from HIV, problematic drug users (only for heroin), j=lifetime prevalence reported,

x=figure may include non-medical use of prescription opioids, z=figures may also include other non-ATS stimulants

The 'Method' and 'UNODC Adj.' columns have been completed only for more recent data included in previous and present issues of the World Drug Report.

**COCAINE**

**Annual Prevalence of Use as a percentage of the population aged 15-64 (unless otherwise indicated)**

| Country or Territory | UNODC Best Estimate | Uncertainty Range | Ages | Year | Source (original) | Method | UNODC Adjusted |
|---|---|---|---|---|---|---|---|
| Sao Tome and Principe | | | | | No recent, reliable estimate located | | |
| Senegal | | | | | No recent, reliable estimate located | | |
| Sierra Leone | | | | | No recent, reliable estimate located | | |
| Togo | | | | | No recent, reliable estimate located | | |
| **AMERICAS** | | | | | | | |
| **Caribbean** | | | | | | | |
| *Anguilla* | | | | | No recent, reliable estimate located | | |
| Antigua and Barbuda | 0.9 | 0.3 - 1.6 | 15 - 64 | 2005 | Government source | SS | d, e |
| *Aruba* | | | | | No recent, reliable estimate located | | |
| Bahamas | 0.2 | <0.1 - 0.3 | 15 - 64 | 2008 | ARQ | SS | d, e |
| Barbados | 0.4 | | 12 - 65 | 2006 | CICAD | HHS | |
| *Bermuda* | | | | | No recent, reliable estimate located | | |
| *British Virgin Islands* | | | | | No recent, reliable estimate located | | |
| *Cayman Islands* | 0.6 | | 15 - 64 | 2000 | UNODC Estimate | | |
| Cuba | | | | | No recent, reliable estimate located | | |
| Dominica | | | | | No recent, reliable estimate located | | |
| Dominican Republic | 0.3 | 0.1 - 0.6 | 15 - 64 | 2008 | ARQ | SS | d, e |
| Grenada | 0.9 | 0.2 - 1.9 | 15 - 64 | 2005 | CICAD | SS | d, e |
| *Guadeloupe* | | | | | No recent, reliable estimate located | | |
| Haiti | 0.9 | | 15 - 64 | 2005 | UNODC Estimate | | |
| Jamaica | 1.1 | | 15 - 64 | 2006 | UNODC Estimate | SS | a, d |
| *Martinique* | | | | | No recent, reliable estimate located | | |
| *Montserrat* | | | | | No recent, reliable estimate located | | |
| *Netherlands Antilles* | | | | | No recent, reliable estimate located | | |
| *Puerto Rico* | 0.8 | 0.3 - 1.4 | 15 - 64 | 2005 | Government source | SS | d, e |
| Saint Kitts and Nevis | 1.7 | 0.4 - 3.2 | 15 - 64 | 2006 | Government source | SS | d, e |
| Saint Lucia | 1.0 | | 15 - 64 | 2002 | UNODC Estimate | | |
| Saint Vincent and the Grenadines | 0.7 | | 15 - 64 | 2002 | UNODC Estimate | SS | |
| Trinidad and Tobago | | | | | No recent, reliable estimate located | | |
| *Turks and Caicos Islands* | 0.7 | | 15 - 64 | 2002 | UNODC Estimate | | |
| *United States Virgin Islands* | | | | | No recent, reliable estimate located | | |
| **Central America** | | | | | | | |
| Belize | 0.9 | | 12 - 65 | 2005 | CICAD | HHS | |
| Costa Rica | 0.4 | | 12 - 70 | 2006 | ARQ | HHS | |
| El Salvador | 0.4 | 0.2 - 0.5 | 12 - 65 | 2005 | CICAD | HHS | |
| Guatemala | 0.2 | | 15 - 64 | 2005 | ARQ | HHS | |
| Honduras | 0.9 | | 15 - 64 | 2005 | ARQ | | |
| Nicaragua | 0.7 | 0.5 - 0.9 | 12 - 65 | 2006 | CICAD | HHS, c | |
| Panama | 1.2 | | 12 - 65 | 2003 | Government source | HHS | |
| **North America** | | | | | | | |
| Canada | 1.4 | | 15 - 64 | 2009 | ARQ | HHS | |
| Mexico | 0.4 | | 12 - 65 | 2008 | Govt. source (ENA) | HHS | |
| *Saint Pierre and Miquelon* | | | | | No recent, reliable estimate located | | |
| United States of America | 2.4 | | 15 - 64 | 2009 | Govt. source (SAMSHA) | HHS | |
| **South America** | | | | | | | |
| Argentina | 2.6 | | 15 - 64 | 2006 | UNODC/ CICAD | HHS, a, c | |
| Bolivia (Plurinational State of) | 0.8 | | 12 - 65 | 2007 | UNODC/ CICAD | HHS, a, c | |
| Brazil | 0.7 | | 12 - 65 | 2005 | Government source | HHS, c | |
| Chile | 2.4 | | 15 - 64 | 2008 | ARQ | HHS | |
| Colombia | 0.8 | 0.7 - 0.9 | 12 - 65 | 2008 | Government source | HHS, c | |
| Ecuador | 0.3 | | 15 - 64 | 2007 | UNODC/ CICAD | HHS, a, c | |
| *Falkland Islands (Malvinas)* | | | | | No recent, reliable estimate located | | |
| *French Guiana* | | | | | No recent, reliable estimate located | | |
| Guyana | | | | | No recent, reliable estimate located | | |
| Paraguay | 0.3 | 0.2 - 0.3 | 12 - 64 | 2003 | CICAD | HHS | |
| Peru | 0.5 | 0.3 - 0.6 | 12 - 64 | 2006 | ARQ | HHS, c | |

Method: HHS=Household survey, SS=School survey, A=Adjusted from other sources, I=Indirect estimates, R=Registry. * approximate estimates

UNODC Adjustments: a=adjusted for age (15-64), b=population-based/household-type study/survey, c=adjusted from a limited geographic population-based study/survey, d=adjusted from school/youth survey, e=adjusted from lifetime/monthly prevalence adjusted to annual prevalence, f=adjusted from specialized population surveys (including Rapid Assessments), g=adjusted from treatment data, h=adjusted from drug registries, i=adjusted from HIV, problematic drug users (only for heroin), j=lifetime prevalence reported,
x=figure may include non-medical use of prescription opioids, z=figures may also include other non-ATS stimulants

The 'Method' and 'UNODC Adj.' columns have been completed only for more recent data included in previous and present issues of the World Drug Report.

**COCAINE**

**Annual Prevalence of Use as a percentage of the population aged 15-64 (unless otherwise indicated)**

| Country or Territory | UNODC Best Estimate | Uncertainty Range | Ages | Year | Source (original) | Method | UNODC Adjusted |
|---|---|---|---|---|---|---|---|
| Suriname | 0.3 | | 12 - 65 | 2007 | Government source | HHS | |
| Uruguay | 1.4 | | 12 - 65 | 2006 | UNODC/ CICAD | HHS, a, c | |
| Venezuela (Bolivarian Republic of) | 0.6 | | 15 - 64 | 2005 | Government source | HHS | |
| **ASIA** | | | | | | | |
| **Central Asia and Transcaucasian countries** | | | | | | | |
| Armenia | 0.1 | | 15 - 64 | 2005 | UNODC Estimate | HHS | |
| Azerbaijan | | | | | No recent, reliable estimate located | | |
| Georgia | | | | | No recent, reliable estimate located | | |
| Kazakhstan | | | | | No recent, reliable estimate located | | |
| Kyrgyzstan | | | | | No recent, reliable estimate located | | |
| Tajikistan | | | | | No recent, reliable estimate located | | |
| Turkmenistan | | | | | No recent, reliable estimate located | | |
| Uzbekistan | | | | | No recent, reliable estimate located | | |
| **East and South-East Asia** | | | | | | | |
| Brunei Darussalam | | | | | No recent, reliable estimate located | | |
| Cambodia | | | | | No recent, reliable estimate located | | |
| China | | | | | No recent, reliable estimate located | | |
| *China, Hong Kong SAR* | 0.3 | 0.2 - 0.3 | 15 - 64 | 2008 | Government source | SS | d, e |
| *China, Macao SAR* | | | | | No recent, reliable estimate located | | |
| *Guam* | | | | | No recent, reliable estimate located | | |
| Indonesia | <0.1 | | 15 - 64 | 2008 | ARQ | HHS | |
| Japan | | | | | No recent, reliable estimate located | | |
| Korea (Dem. People's Rep.) | | | | | No recent, reliable estimate located | | |
| Korea (Republic of) | <0.1 | | 15 - 64 | 2004 | ARQ | HHS | e, f |
| Lao People's Democratic Republic | | | | | No recent, reliable estimate located | | |
| Malaysia | | | | | No recent, reliable estimate located | | |
| Mongolia | | | | | No recent, reliable estimate located | | |
| Myanmar | | | | | No recent, reliable estimate located | | |
| Philippines | <0.1 | | 15 - 64 | 2005 | UNODC Estimate | HHS | |
| Singapore | | | | | No recent, reliable estimate located | | |
| *Taiwan, Province of China* | 0.1 | | 12 - 64 | 2005 | AMCEWG | | |
| Thailand | <0.1 | | 12 - 65 | 2007 | ARQ | HHS | e |
| Timor-Leste | | | | | No recent, reliable estimate located | | |
| Viet Nam | | | | | No recent, reliable estimate located | | |
| **Near and Middle East /South-West Asia** | | | | | | | |
| Afghanistan | <0.1 | | 15 - 64 | 2009 | UNODC/ Govt. Source | HHS | |
| Bahrain | | | | | No recent, reliable estimate located | | |
| Iran (Islamic Republic of) | <0.1 | | 15 - 64 | 2008 | Government source | I | f, g |
| Iraq | | | | | No recent, reliable estimate located | | |
| Israel | 0.6 | | 18 - 40 | 2008 | Governmetn source | HHS | |
| Jordan | | | | | No recent, reliable estimate located | | |
| Kuwait | <0.1 | | 15 - 64 | 2005 | UNODC Estimate | | g |
| Lebanon | 0.1 | | 15 - 64 | 2001 | UNODC Estimate | | d, e |
| Occupied Palestinian Territory | | | | | No recent, reliable estimate located | | |
| Oman | | | | | No recent, reliable estimate located | | |
| Pakistan | | | | | No recent, reliable estimate located | | |
| Qatar | | | | | No recent, reliable estimate located | | |
| Saudi Arabia | | | | | No recent, reliable estimate located | | |
| Syrian Arab Republic | <0.1 | | 15 - 64 | 2005 | UNODC Estimate | | g |
| United Arab Emirates | | | | | No recent, reliable estimate located | | |
| Yemen | | | | | No recent, reliable estimate located | | |
| **South Asia** | | | | | | | |
| Bangladesh | | | | | No recent, reliable estimate located | | |
| Bhutan | | | | | No recent, reliable estimate located | | |
| India | | | | | No recent, reliable estimate located | | |
| Maldives | | | | | No recent, reliable estimate located | | |

Method: HHS=Household survey, SS=School survey, A=Adjusted from other sources, I=Indirect estimates, R=Registry. * approximate estimates

UNODC Adjustments: a=adjusted for age (15-64), b=population-based/household-type study/survey, c=adjusted from a limited geographic population-based study/survey, d=adjusted from school/youth survey, e=adjusted from lifetime/monthly prevalence adjusted to annual prevalence, f=adjusted from specialized population surveys (including Rapid Assessments), g=adjusted from treatment data, h=adjusted from drug registries, i=adjusted from HIV, problematic drug users (only for heroin), j=lifetime prevalence reported,

x=figure may include non-medical use of prescription opioids, z=figures may also include other non-ATS stimulants

The 'Method' and 'UNODC Adj.' columns have been completed only for more recent data included in previous and present issues of the World Drug Report.

**COCAINE**

**Annual Prevalence of Use as a percentage of the population aged 15-64 (unless otherwise indicated)**

| Country or Territory | UNODC Best Estimate | Uncertainty Range | Ages | Year | Source (original) | Method | UNODC Adjusted |
|---|---|---|---|---|---|---|---|
| Nepal | | | | | No recent, reliable estimate located | | |
| Sri Lanka | | | | | No recent, reliable estimate located | | |
| **EUROPE** | | | | | | | |
| **East Europe** | | | | | | | |
| Belarus | <0.1 | <0.1 - 0.1 | 15 - 64 | 2007 | ESPAD | SS | d, e |
| Moldova (Republic of) | <0.1 | <0.1 | 15 - 64 | 2008 | Government sources | HHS | e |
| Russian Federation* | 0.2 | 0.2 - 0.3 | 15 - 64 | 2007 | ESPAD | SS | d, e |
| Ukraine | 0.2 | 0.2 - 0.3 | 15 - 64 | 2007 | ESPAD | SS | d, e |
| **Southeast Europe** | | | | | | | |
| Albania | 0.8 | <0.1 - 1.6 | 15 - 64 | 2006 | Government sources | SS | d, e |
| Bosnia and Herzegovina | 0.6 | <0.1 - 1.9 | 15 - 64 | 2008 | ESPAD | SS | d, e |
| Bulgaria | 0.6 | | 15 - 64 | 2007 | ARQ | HHS | |
| Croatia | 0.9 | | 15 - 64 | 2007 | ESPAD | SS | d, e |
| Macedonia (TFYR) | <0.1 | | 15 - 64 | 2007 | INCSR | | |
| Montenegro | 0.8 | <0.1 - 1.7 | 15 - 64 | 2008 | ESPAD | SS | d, e |
| Romania | <0.1 | <0.1 | 15 - 64 | 2007 | ARQ | HHS | e |
| Serbia | 0.5 | 0.1 - 1.2 | 15 - 64 | 2008 | Government sources | HHS | a, d, e |
| Turkey | <0.1 | | 15 - 64 | 2003 | UNODC Estimate | | |
| **West & Central Europe** | | | | | | | |
| Andorra | | | | | No recent, reliable estimate located | | |
| Austria | 0.9 | | 15 - 64 | 2008 | Govt. | HHS | |
| Belgium | 0.9 | | 15 - 64 | 2008 | ARQ | HHS | |
| *Channel Islands* | | | | | No recent, reliable estimate located | | |
| Cyprus | 1.2 | | 15 - 64 | 2009 | ARQ | HHS | |
| Czech Republic | 0.7 | | 15 - 64 | 2008 | Government sources | HHS | |
| Denmark | 1.4 | | 16 - 64 | 2008 | ARQ | HHS | |
| Estonia | 0.6 | | 15 - 64 | 2008 | Government sources | HHS | |
| *Faeroe Islands* | 0.2 | 0.1 - 0.8 | 15 - 64 | 2007 | ARQ | SS | d, e |
| Finland | 0.5 | | 15 - 64 | 2006 | ARQ | | |
| France | 0.6 | | 15 - 64 | 2005 | ARQ | | |
| Germany | 0.9 | 0.8 - 0.9 | 18 - 64 | 2009 | Government source | HHS | |
| *Gibraltar* | | | | | No recent, reliable estimate located | | |
| Greece | 0.1 | | 15 - 64 | 2004 | ARQ | | |
| *Greenland* | 0.4 | | 15 - 64 | 2003 | UNODC Estimate | | |
| Hungary | 0.2 | <0.1 - 0.4 | 18 - 64 | 2007 | ARQ | HHS | |
| Iceland | 0.9 | | 15 - 64 | 2007 | ESPAD | SS | d, e |
| Ireland | 1.7 | | 15 - 64 | 2007 | Government source | HHS | |
| *Isle of Man* | 3.5 | 2.4 - 4.6 | 15 - 64 | 2007 | ARQ | SS | d, e |
| Italy | 2.2 | | 15 - 64 | 2008 | Government source | HHS | |
| Latvia | 0.5 | | 15 - 64 | 2007 | ARQ | HHS | |
| Liechtenstein | 0.8 | | 15 - 64 | 2005 | UNODC Estimate | | |
| Lithuania | 0.2 | | 15 - 64 | 2008 | ARQ | HHS | |
| Luxembourg | 0.9 | | 15 - 64 | 2003 | UNODC Estimate | | |
| Malta | 1.1 | 1.1 - 1.2 | 15 - 64 | 2007 | ESPAD | SS | d, e |
| Monaco | 1.9 | 1.7 - 2.0 | 15 - 64 | 2007 | ESPAD | SS | d, e |
| Netherlands | 0.6 | | 15 - 64 | 2005 | ARQ | | |
| Norway | 0.8 | | 15 - 64 | 2004 | ARQ | | |
| Poland | 0.2 | | 15 - 64 | 2006 | ARQ | | |
| Portugal | 0.6 | | 15 - 64 | 2007 | ARQ | HHS | |
| San Marino | | | | | No recent, reliable estimate located | | |
| Slovakia | 0.6 | | 15 - 64 | 2006 | ARQ | HHS | |
| Slovenia | 0.9 | | 15 - 64 | 2007 | ESPAD | SS | d, e |
| Spain | 2.6 | | 15 - 64 | 2010 | Government source | HHS | |
| Sweden | 0.5 | | 15 - 64 | 2008 | ARQ | HHS | |
| Switzerland | 0.2 | | 15 - 64 | 2007 | ARQ | hhs | |
| United Kingdom | | | | | No recent, reliable estimate located | | |
| United Kingdom (England and Wales) | 2.5 | | 16 - 59 | 2010 | Government source | HHS | |

Method: HHS=Household survey, SS=School survey, A=Adjusted from other sources, I=Indirect estimates, R=Registry. * approximate estimates

UNODC Adjustments: a=adjusted for age (15-64), b=population-based/household-type study/survey, c=adjusted from a limited geographic population-based study/survey, d=adjusted from school/youth survey, e=adjusted from lifetime/monthly prevalence adjusted to annual prevalence, f=adjusted from specialized population surveys (including Rapid Assessments), g=adjusted from treatment data, h=adjusted from drug registries, i=adjusted from HIV, problematic drug users (only for heroin), j=lifetime prevalence reported,
x=figure may include non-medical use of prescription opioids, z=figures may also include other non-ATS stimulants

The 'Method' and 'UNODC Adj.' columns have been completed only for more recent data included in previous and present issues of the World Drug Report.

**COCAINE**

**Annual Prevalence of Use as a percentage of the population aged 15-64 (unless otherwise indicated)**

| Country or Territory | UNODC Best Estimate | Uncertainty Range | Ages | Year | Source (original) | Method | UNODC Adjusted |
|---|---|---|---|---|---|---|---|
| United Kingdom (Northern Ireland) | 1.9 | | 15 - 64 | 2007 | Government source | HHS | |
| United Kingdom (Scotland) | 3.9 | 3.7 - 4.0 | 16 - 64 | 2009 | Government source | HHS | |
| **OCEANIA** | | | | | | | |
| **Oceania** | | | | | | | |
| *American Samoa* | | | | | No recent, reliable estimate located | | |
| Australia | 1.9 | | 15 - 64 | 2007 | Government Source | HHS | |
| *Christmas Islands* | | | | | No recent, reliable estimate located | | |
| *Cocos (Keeling) Islands* | | | | | No recent, reliable estimate located | | |
| *Cook Islands* | | | | | No recent, reliable estimate located | | |
| Fiji | | | | | No recent, reliable estimate located | | |
| *French Polynesia* | | | | | No recent, reliable estimate located | | |
| Kiribati | | | | | No recent, reliable estimate located | | |
| Marshall Islands | | | | | No recent, reliable estimate located | | |
| Micronesia (Federated States of) | | | | | No recent, reliable estimate located | | |
| Nauru | | | | | No recent, reliable estimate located | | |
| *New Caledonia* | | | | | No recent, reliable estimate located | | |
| New Zealand | 0.6 | | 16 - 64 | 2008 | Government source | HHS | |
| *Norfolk Island* | | | | | No recent, reliable estimate located | | |
| *Northern Mariana Islands* | | | | | No recent, reliable estimate located | | |
| Palau | | | | | No recent, reliable estimate located | | |
| Papua New Guinea | | | | | No recent, reliable estimate located | | |
| Pitcairn | | | | | No recent, reliable estimate located | | |
| Samoa | | | | | No recent, reliable estimate located | | |
| Solomon Islands | | | | | No recent, reliable estimate located | | |
| Tonga | | | | | No recent, reliable estimate located | | |
| Tuvalu | | | | | No recent, reliable estimate located | | |
| Vanuatu | | | | | No recent, reliable estimate located | | |
| *Wallis and Futuna Islands* | | | | | No recent, reliable estimate located | | |

Method: HHS=Household survey, SS=School survey, A=Adjusted from other sources, I=Indirect estimates, R=Registry. * approximate estimates

UNODC Adjustments: a=adjusted for age (15-64), b=population-based/household-type study/survey, c=adjusted from a limited geographic population-based study/survey, d=adjusted from school/youth survey, e=adjusted from lifetime/monthly prevalence adjusted to annual prevalence, f=adjusted from specialized population surveys (including Rapid Assessments), g=adjusted from treatment data, h=adjusted from drug registries, i=adjusted from HIV, problematic drug users (only for heroin), j=lifetime prevalence reported,
x=figure may include non-medical use of prescription opioids, z=figures may also include other non-ATS stimulants

The 'Method' and 'UNODC Adj.' columns have been completed only for more recent data included in previous and present issues of the World Drug Report.

## 6.1.1.3 Cannabis

**CANNABIS**

**Annual Prevalence of Use as a percentage of the population aged 15-64 (unless otherwise indicated)**

| Country or Territory | UNODC Best Estimate | Uncertainty Range | Ages | Year | Source (original) | Method | UNODC Adjusted |
|---|---|---|---|---|---|---|---|
| **AFRICA** | | | | | | | |
| **East Africa** | | | | | | | |
| Burundi | | | | | No recent, reliable estimate located | | |
| Comoros | 2.9 | | 15 - 64 | 2002 | UNODC Estimate | | |
| Djibouti | | | | | No recent, reliable estimate located | | |
| Eritrea | | | | | No recent, reliable estimate located | | |
| Ethiopia | | | | | No recent, reliable estimate located | | |
| Kenya | 2.1 | 0.3 - 4.0 | 15 - 65 | 2007 | Govt | HHS | b, e |
| Madagascar | 9.1 | | 15 - 64 | 2004 | ARQ | SS, A | d, e |
| Mauritius | 3.9 | | 15 - 54 | 2004 | ARQ | | |
| Rwanda | | | | | No recent, reliable estimate located | | |
| Seychelles | | | | | No recent, reliable estimate located | | |
| Somalia | 2.5 | | 15 - 64 | 2002 | UNODC Estimate | | |
| Tanzania (United Republic of) | | | | | No recent, reliable estimate located | | |
| Uganda | | | | | No recent, reliable estimate located | | |
| **North Africa** | | | | | | | |
| Algeria | 5.7 | 5.2 - 6.4 | 15 - 64 | 2006 | Council of Europe | SS, A | d |
| Egypt | 6.2 | 2.9 - 9.6 | 15 - 64 | 2006 | Govt; Academic Research | HHS, SS | a, d |
| Libyan Arab Jamahiriya | | | | | No recent, reliable estimate located | | |
| Morocco | 4.2 | | 15 - 64 | 2004 | ARQ | HHS | |
| Sudan | | | | | No recent, reliable estimate located | | |
| Tunisia | | | | | No recent, reliable estimate located | | |
| **Southern Africa** | | | | | | | |
| Angola | | | | | No recent, reliable estimate located | | |
| Botswana | | | | | No recent, reliable estimate located | | |
| Lesotho | | | | | No recent, reliable estimate located | | |
| Malawi | | | | | No recent, reliable estimate located | | |
| Mozambique | | | | | No recent, reliable estimate located | | |
| Namibia | 3.9 | | 15 - 64 | 2000 | ARQ | | |
| *Réunion* | | | | | No recent, reliable estimate located | | |
| South Africa | 4.3 | 3.5 - 6.2 | 15 - 64 | 2008 | ARQ | HHS | a, e |
| Swaziland | | | | | No recent, reliable estimate located | | |
| Zambia | 9.5 | 4.0 - 15.6 | 15 - 64 | 2004 | Govt; Academic Research | SS | d, e |
| Zimbabwe | 6.9 | | 15 - 64 | 2000 | UNODC Estimate | | |
| **West and Central Africa** | | | | | | | |
| Benin | | | | | No recent, reliable estimate located | | |
| Burkina Faso | 2.9 | | 15 - 64 | 2006 | UNODC Estimate | | d, e |
| Cameroon | | | | | No recent, reliable estimate located | | |
| Cape Verde | 8.1 | | 15 - 64 | 2004 | UNODC Estimate | | d, e |
| Central African Republic | | | | | No recent, reliable estimate located | | |
| Chad | | | | | No recent, reliable estimate located | | |
| Congo | | | | | No recent, reliable estimate located | | |
| Congo (Dem. Rep. of the) | | | | | No recent, reliable estimate located | | |
| Côte d'Ivoire | | | | | No recent, reliable estimate located | | |
| Equatorial Guinea | | | | | No recent, reliable estimate located | | |
| Gabon | | | | | No recent, reliable estimate located | | |
| Gambia | | | | | No recent, reliable estimate located | | |
| Ghana | | | | | No recent, reliable estimate located | | |
| Guinea | | | | | No recent, reliable estimate located | | |
| Guinea-Bissau | | | | | No recent, reliable estimate located | | |
| Liberia | | | | | No recent, reliable estimate located | | |
| Mali | | | | | No recent, reliable estimate located | | |
| Mauritania | | | | | No recent, reliable estimate located | | |
| Niger | | | | | No recent, reliable estimate located | | |
| Nigeria | 14.3 | 11.8 - 16.8 | 15 - 64 | 2008 | ARQ | HHS | a, b, e |
| *Saint Helena* | | | | | No recent, reliable estimate located | | |

Method: HHS=Household survey, SS=School survey, A=Adjusted from other sources, I=Indirect estimates, R=Registry. * approximate estimates

UNODC Adjustments: a=adjusted for age (15-64), b=population-based/household-type study/survey, c=adjusted from a limited geographic population-based study/survey, d=adjusted from school/youth survey, e=adjusted from lifetime/monthly prevalence adjusted to annual prevalence, f=adjusted from specialized population surveys (including Rapid Assessments), g=adjusted from treatment data, h=adjusted from drug registries, i=adjusted from HIV, problematic drug users (only for heroin), j=lifetime prevalence reported,
x=figure may include non-medical use of prescription opioids, z=figures may also include other non-ATS stimulants

The 'Method' and 'UNODC Adj.' columns have been completed only for more recent data included in previous and present issues of the World Drug Report.

**CANNABIS**

**Annual Prevalence of Use as a percentage of the population aged 15-64 (unless otherwise indicated)**

| Country or Territory | UNODC Best Estimate | Uncertainty Range | Ages | Year | Source (original) | Method | UNODC Adjusted |
|---|---|---|---|---|---|---|---|
| Sao Tome and Principe | | | | | No recent, reliable estimate located | | |
| Senegal | | | | | No recent, reliable estimate located | | |
| Sierra Leone | | | | | No recent, reliable estimate located | | |
| Togo | 1.0 | 0.2 - 3.1 | 15 - 64 | 2009 | ARQ | SS | d, e |
| **AMERICAS** | | | | | | | |
| **Caribbean** | | | | | | | |
| *Anguilla* | | | | | No recent, reliable estimate located | | |
| Antigua and Barbuda | 10.6 | 7.8 - 13.4 | 15 - 64 | 2005 | Government source | SS | d, e |
| *Aruba* | | | | | No recent, reliable estimate located | | |
| Bahamas | 5.5 | 3.2 - 7.9 | 15 - 64 | 2008 | ARQ | SS | d, e |
| Barbados | 8.3 | | 12 - 65 | 2006 | CICAD | HHS | |
| *Bermuda* | | | | | No recent, reliable estimate located | | |
| *British Virgin Islands* | | | | | No recent, reliable estimate located | | |
| *Cayman Islands* | | | | | No recent, reliable estimate located | | |
| Cuba | | | | | No recent, reliable estimate located | | |
| Dominica | 10.8 | 6.1 - 15.5 | 15 - 64 | 2006 | Government source | SS | d, e |
| Dominican Republic | 0.3 | 0.3 - 1.4 | 15 - 64 | 2008 | ARQ | SS | d, e |
| Grenada | 10.8 | 7.3 - 14.4 | 15 - 64 | 2005 | Government source | SS | d, e |
| *Guadeloupe* | | | | | No recent, reliable estimate located | | |
| Haiti | 1.4 | 0.4 - 2.2 | 15 - 64 | 2005 | CICAD | SS | d, e |
| Jamaica | 9.9 | 7.5 - 12.2 | 15 - 64 | 2006 | Government source | SS | d, e |
| *Martinique* | | | | | No recent, reliable estimate located | | |
| *Montserrat* | | | | | No recent, reliable estimate located | | |
| *Netherlands Antilles* | | | | | No recent, reliable estimate located | | |
| *Puerto Rico* | 4.9 | 3.1 - 6.7 | 15 - 64 | 2005 | Government source | SS | d, e |
| Saint Kitts and Nevis | 11.7 | 8.3 - 15.1 | 15 - 64 | 2006 | Government source | SS | d, e |
| Saint Lucia | 9.0 | | 15 - 64 | 2006 | UNODC Estimate | SS | d, e |
| Saint Vincent and the Grenadines | 7.1 | 5.1 - 9.1 | 15 - 64 | 2006 | Government source | SS | d, e |
| Trinidad and Tobago | 4.7 | 2.9 - 6.4 | 15 - 64 | 2006 | Government source | SS | d, e |
| *Turks and Caicos Islands* | 5.4 | | 15 - 64 | 2002 | UNODC Estimate | | |
| *United States Virgin Islands* | | | | | No recent, reliable estimate located | | |
| **Central America** | | | | | | | |
| Belize | 8.5 | | 12 - 65 | 2005 | CICAD | HHS | |
| Costa Rica | 1.0 | | 12 - 70 | 2006 | ARQ | HHS | |
| El Salvador | 0.4 | | 12 - 65 | 2005 | CICAD | HHS | |
| Guatemala | 4.8 | | 15 - 64 | 2005 | UNODC Estimate | HHS, SS | c, d |
| Honduras | 0.8 | 0.4 - 1.6 | 15 - 64 | 2005 | CICAD | SS | d, e |
| Nicaragua | 1.1 | | 12 - 65 | 2006 | CICAD | HHS, c | |
| Panama | 3.6 | 3.4 - 3.7 | 12 - 65 | 2003 | CICAD | HHS | d, e |
| **North America** | | | | | | | |
| Canada | 12.6 | | 15 - 64 | 2009 | ARQ | HHS | |
| Mexico | 1.0 | | 12 - 65 | 2008 | Govt. source (ENA) | HHS | |
| *Saint Pierre and Miquelon* | | | | | No recent, reliable estimate located | | |
| United States of America | 13.7 | | 15 - 64 | 2009 | Govt. source (SAMSHA) | HHS | |
| **South America** | | | | | | | |
| Argentina | 7.2 | | 15 - 64 | 2006 | UNODC/ CICAD | HHS, a, c | |
| Bolivia (Plurinational State of) | 4.3 | | 12 - 65 | 2007 | UNODC/ CICAD | HHS, a, c | |
| Brazil | 2.6 | | 12 - 65 | 2005 | Government source | HHS, c | |
| Chile | 6.7 | | 15 - 64 | 2008 | ARQ | HHS | |
| Colombia | 2.3 | | 12 - 65 | 2008 | Government source | HHS | |
| Ecuador | 0.7 | | 15 - 64 | 2007 | UNODC/ CICAD | HHS, a, c | |
| *Falkland Islands (Malvinas)* | | | | | No recent, reliable estimate located | | |
| *French Guiana* | | | | | No recent, reliable estimate located | | |
| Guyana | 2.6 | | 15 - 64 | 2002 | UNODC Estimate | | |
| Paraguay | 1.6 | | 15 - 64 | 2005 | UNODC Estimate | | |
| Peru | 0.7 | | 12 - 64 | 2006 | ARQ | HHS, c | |

Method: HHS=Household survey, SS=School survey, A=Adjusted from other sources, I=Indirect estimates, R=Registry. * approximate estimates

UNODC Adjustments: a=adjusted for age (15-64), b=population-based/household-type study/survey, c=adjusted from a limited geographic population-based study/survey, d=adjusted from school/youth survey, e=adjusted from lifetime/monthly prevalence adjusted to annual prevalence, f=adjusted from specialized population surveys (including Rapid Assessments), g=adjusted from treatment data, h=adjusted from drug registries, i=adjusted from HIV, problematic drug users (only for heroin), j=lifetime prevalence reported,

x=figure may include non-medical use of prescription opioids, z=figures may also include other non-ATS stimulants

The 'Method' and 'UNODC Adj.' columns have been completed only for more recent data included in previous and present issues of the World Drug Report.

**CANNABIS**

**Annual Prevalence of Use as a percentage of the population aged 15-64 (unless otherwise indicated)**

| Country or Territory | UNODC Best Estimate | Uncertainty Range | Ages | Year | Source (original) | Method | UNODC Adjusted |
|---|---|---|---|---|---|---|---|
| Suriname | 4.3 | 3.8 - 4.7 | 12 - 65 | 2007 | Government source | HHS | |
| Uruguay | 6.0 | | 12 - 65 | 2006 | UNODC/ CICAD | HHS, a, c | |
| Venezuela (Bolivarian Republic of) | 0.9 | 0.2 - 1.4 | 15 - 64 | 2005 | Government source | HHS | a, e |
| **ASIA** | | | | | | | |
| **Central Asia and Transcaucasian countries** | | | | | | | |
| Armenia | 3.5 | | 15 - 64 | 2003 | UNODC Estimate | | |
| Azerbaijan | 3.5 | | 15 - 64 | 2004 | UNODC Estimate | | |
| Georgia | 2.7 | 1.2 - 4.3 | 15 - 64 | 2009 | Government source/ NGO/Academic | SS | b, d, e |
| Kazakhstan | 4.2 | | 15 - 64 | 2003 | INCSR | | |
| Kyrgyzstan | 6.4 | | 15 - 64 | 2001 | ARQ | | |
| Tajikistan | | | | | No recent, reliable estimate located | | |
| Turkmenistan | | | | | No recent, reliable estimate located | | |
| Uzbekistan | 4.2 | | 15 - 64 | 2003 | UNODC Estimate | | e |
| **East and South-East Asia** | | | | | | | |
| Brunei Darussalam | | | | | No recent, reliable estimate located | | |
| Cambodia | 3.5 | | 15 - 64 | 2003 | UNODC Estimate | | |
| China | | | | | No recent, reliable estimate located | | |
| *China, Hong Kong SAR* | 0.4 | 0.2 - 2.0 | 15 - 64 | 2008 | Government source | SS | d, e |
| *China, Macao SAR* | 0.7 | | 15 - 64 | 2003 | UNODC Estimate | R | d, e |
| *Guam* | 18.4 | 14.7 - 22.0 | 15 - 64 | 2007 | Government source | SS | d, e |
| Indonesia | 0.4 | | 15 - 64 | 2008 | ARQ | HHS | |
| Japan | | | | | No recent, reliable estimate located | | |
| Korea (Dem. People's Rep.) | | | | | No recent, reliable estimate located | | |
| Korea (Republic of) | 0.3 | <0.1 - 0.6 | 15 - 64 | 2004 | ARQ | HHS | c, e |
| Lao People's Democratic Republic | 0.9 | 0.7 - 1.1 | 15 - 64 | 2008 | UNODC report | SS | c, d |
| Malaysia | 1.6 | | 15 - 64 | 2003 | UNODC Estimate | | |
| Mongolia | | | | | No recent, reliable estimate located | | |
| Myanmar | 0.9 | | 15 - 64 | 2005 | UNODC Estimate | | d, e |
| Philippines | 0.8 | 0.7 - 0.9 | 15 - 64 | 2008 | Government source | HHS | c, e |
| Singapore | | | | | No recent, reliable estimate located | | |
| *Taiwan, Province of China* | 0.3 | | 12 - 64 | 2005 | AMCEWG | | |
| Thailand | 1.2 | | 12 - 65 | 2007 | ARQ | HHS | |
| Timor-Leste | | | | | No recent, reliable estimate located | | |
| Viet Nam | 0.3 | | 15 - 64 | 2002 | UNODC Estimate | | |
| **Near and Middle East /South-West Asia** | | | | | | | |
| Afghanistan | 4.3 | 3.4 - 5.2 | 15 - 64 | 2009 | UNODC/ Govt. Source | HHS | |
| Bahrain | | | | | No recent, reliable estimate located | | |
| Iran (Islamic Republic of) | | | | | No recent, reliable estimate located | | |
| Iraq | | | | | No recent, reliable estimate located | | |
| Israel | 8.9 | | 18 - 40 | 2008 | Government source | HHS | |
| Jordan | 2.1 | | 15 - 64 | 2001 | ARQ | | a |
| Kuwait | 3.1 | | 15 - 64 | 2005 | UNODC Estimate | | |
| Lebanon | 1.9 | 0.7 - 4.0 | 15 - 64 | 2009 | Government source/ NGO/Academic | SS | d, e |
| Occupied Palestinian Territory | | | | | No recent, reliable estimate located | | |
| Oman | | | | | No recent, reliable estimate located | | |
| Pakistan | 3.9 | | 15 - 64 | 2000 | INCSR | | |
| Qatar | | | | | No recent, reliable estimate located | | |
| Saudi Arabia | 0.3 | | 15 - 64 | 2006 | Government source/ NGO/Academic | R | |
| Syrian Arab Republic | | | | | No recent, reliable estimate located | | |
| United Arab Emirates | 5.4 | | 15 - 64 | 2006 | UNODC Estimate | | |
| Yemen | | | | | No recent, reliable estimate located | | |
| **South Asia** | | | | | | | |
| Bangladesh | 3.3 | | 15 - 54 | 2004 | Academic research | HHS | a, e,f |
| Bhutan | | | | | No recent, reliable estimate located | | |
| India | | | | | No recent, reliable estimate located | | |
| Maldives | | | | | No recent, reliable estimate located | | |

Method: HHS=Household survey, SS=School survey, A=Adjusted from other sources, I=Indirect estimates, R=Registry. * approximate estimates

UNODC Adjustments: a=adjusted for age (15-64), b=population-based/household-type study/survey, c=adjusted from a limited geographic population-based study/survey, d=adjusted from school/youth survey, e=adjusted from lifetime/monthly prevalence adjusted to annual prevalence, f=adjusted from specialized population surveys (including Rapid Assessments), g=adjusted from treatment data, h=adjusted from drug registries, i=adjusted from HIV, problematic drug users (only for heroin), j=lifetime prevalence reported,

x=figure may include non-medical use of prescription opioids, z=figures may also include other non-ATS stimulants

The 'Method' and 'UNODC Adj.' columns have been completed only for more recent data included in previous and present issues of the World Drug Report.

**CANNABIS**

**Annual Prevalence of Use as a percentage of the population aged 15-64 (unless otherwise indicated)**

| Country or Territory | UNODC Best Estimate | Uncertainty Range | Ages | Year | Source (original) | Method | UNODC Adjusted |
|---|---|---|---|---|---|---|---|
| Nepal | | | | | No recent, reliable estimate located | | |
| Sri Lanka | 1.5 | | 15 - 64 | 2000 | UNODC Estimate | | |
| **EUROPE** | | | | | | | |
| **East Europe** | | | | | | | |
| Belarus | 1.1 | 0.9 - 1.3 | 15 - 64 | 2007 | ESPAD | SS | c, d, e |
| Moldova (Republic of) | 0.9 | | 15 - 64 | 2008 | Government source | HHS | |
| Russian Federation* | 3.5 | | 15 - 64 | 2007 | ESPAD | SS | d, e |
| Ukraine | 2.5 | 2.4 - 2.6 | 15 - 64 | 2007 | ESPAD | SS | d, e |
| **Southeast Europe** | | | | | | | |
| Albania | 1.8 | | 15 - 64 | 2006 | Government source | SS | d, e |
| Bosnia and Herzegovina | 2.8 | 2.8 - 4.6 | 15 - 64 | 2008 | ESPAD | SS | c, d, e |
| Bulgaria | 2.5 | | 15 - 64 | 2008 | ARQ | HHS | |
| Croatia | 5.2 | 5.1 - 5.3 | 15 - 64 | 2007 | ESPAD | SS | d, e |
| Macedonia (TFYR) | 0.6 | 0.5 - 2.4 | 15 - 64 | 2008 | ESPAD | SS | d, e |
| Montenegro | 0.2 | 0.2 - 2.0 | 15 - 64 | 2008 | ESPAD | SS | d, e |
| Romania | 0.4 | | 15 - 64 | 2007 | ARQ | HHS | |
| Serbia | 4.1 | 2.8 - 5.4 | 15 - 64 | 2006 | Government source | HHS | a, d, e |
| Turkey | 1.9 | | 15 - 64 | 2003 | UNODC Estimate | | |
| **West & Central Europe** | | | | | | | |
| Andorra | 14.6 | 10.3 - 18.8 | 15 - 64 | 2008 | ARQ | SS | d, e |
| Austria | 3.5 | | 15 - 64 | 2008 | Government source | HHS | a |
| Belgium | 5.1 | | 15 - 64 | 2008 | ARQ | HHS | |
| *Channel Islands* | | | | | No recent, reliable estimate located | | |
| Cyprus | 4.4 | | 15 - 64 | 2009 | ARQ | HHS | |
| Czech Republic | 15.2 | | 15 - 64 | 2008 | Government source | HHS | |
| Denmark | 5.5 | | 16 - 64 | 2008 | ARQ | HHS | |
| Estonia | 6.0 | | 15 - 64 | 2008 | Government source | HHS | |
| *Faeroe Islands* | 2.2 | 0.7 - 4.6 | 15 - 64 | 2007 | ARQ | SS | d, e |
| Finland | 3.1 | 3.0 - 3.2 | 15 - 64 | 2008 | Government source | HHS | a |
| France | 8.6 | | 15 - 64 | 2005 | ARQ | | |
| Germany | 4.8 | | 18 - 64 | 2009 | ARQ | HHS | |
| *Gibraltar* | 5.2 | 2.2 - 8.2 | 15 - 64 | 2008 | ARQ | SS | d, e |
| Greece | 1.7 | | 15 - 64 | 2004 | ARQ | | |
| *Greenland* | 7.6 | | 15 - 64 | 2003 | ESPAD | SS | d, e |
| Hungary | 2.3 | 1.7 - 2.9 | 18 - 64 | 2007 | ARQ | HHS | |
| Iceland | 3.4 | 3.2 - 3.5 | 15 - 64 | 2007 | ESPAD | SS | d, e |
| Ireland | 6.3 | | 15 - 64 | 2007 | Government source | HHS | |
| *Isle of Man* | 9.4 | 5.9 - 12.9 | 15 - 64 | 2007 | ARQ | SS | d, e |
| Italy | 14.6 | | 15 - 64 | 2008 | Government source | HHS | |
| Latvia | 4.9 | | 15 - 64 | 2007 | ARQ | | |
| Liechtenstein | 8.6 | | 15 - 64 | 2005 | UNODC Estimate | | |
| Lithuania | 5.6 | | 15 - 64 | 2008 | ARQ | HHS | |
| Luxembourg | 7.6 | | 15 - 64 | 2003 | UNODC Estimate | | |
| Malta | 4.5 | 4.4 - 4.6 | 15 - 64 | 2007 | ESPAD | SS | d, e |
| Monaco | 8.9 | 7.9 - 10.0 | 15 - 64 | 2007 | ESPAD | SS | d, e |
| Netherlands | 5.4 | | 15 - 64 | 2005 | ARQ | | |
| Norway | 4.6 | | 15 - 64 | 2004 | ARQ | | |
| Poland | 2.7 | | 15 - 64 | 2006 | ARQ | HHS | |
| Portugal | 3.6 | | 15 - 64 | 2007 | ARQ | HHS | |
| San Marino | | | | | No recent, reliable estimate located | | |
| Slovakia | 6.9 | | 15 - 64 | 2006 | ARQ | HHS | |
| Slovenia | 4.1 | | 15 - 64 | 2007 | ESPAD | SS | d, e |
| Spain | 10.6 | | 15 - 64 | 2010 | Government source | HHS | |
| Sweden | 1.2 | | 15 - 64 | 2008 | ARQ | HHS | |
| Switzerland | 3.4 | | 15 - 64 | 2008 | ARQ | HHS | |
| United Kingdom | | | | | No recent, reliable estimate located | | |
| United Kingdom (England and Wales) | 6.6 | | 16 - 59 | 2010 | Government source | HHS | |

Method: HHS=Household survey, SS=School survey, A=Adjusted from other sources, I=Indirect estimates, R=Registry. * approximate estimates

UNODC Adjustments: a=adjusted for age (15-64), b=population-based/household-type study/survey, c=adjusted from a limited geographic population-based study/survey, d=adjusted from school/youth survey, e=adjusted from lifetime/monthly prevalence adjusted to annual prevalence, f=adjusted from specialized population surveys (including Rapid Assessments), g=adjusted from treatment data, h=adjusted from drug registries, i=adjusted from HIV, problematic drug users (only for heroin), j=lifetime prevalence reported,
x=figure may include non-medical use of prescription opioids, z=figures may also include other non-ATS stimulants

The 'Method' and 'UNODC Adj.' columns have been completed only for more recent data included in previous and present issues of the World Drug Report.

**CANNABIS**

**Annual Prevalence of Use as a percentage of the population aged 15-64 (unless otherwise indicated)**

| Country or Territory | UNODC Best Estimate | Uncertainty Range | Ages | Year | Source (original) | Method | UNODC Adjusted |
|---|---|---|---|---|---|---|---|
| United Kingdom (Northern Ireland) | 7.2 | | 15 - 64 | 2007 | Government source | HHS | |
| United Kingdom (Scotland) | 8.4 | | 16 - 64 | 2009 | Government source | HHS | |
| **OCEANIA** | | | | | | | |
| **Oceania** | | | | | | | |
| *American Samoa* | 7.0 | 4.7 - 9.2 | 15 - 64 | 2007 | Government source | SS | d, e |
| Australia | 10.6 | | 15 - 64 | 2007 | Government source | HHS | |
| *Christmas Islands* | | | | | No recent, reliable estimate located | | |
| *Cocos (Keeling) Islands* | | | | | No recent, reliable estimate located | | |
| *Cook Islands* | | | | | No recent, reliable estimate located | | |
| Fiji | 5.1 | 3.0 - 7.1 | 15 - 64 | 2004 | Government source | SS | d, e |
| *French Polynesia* | | | | | No recent, reliable estimate located | | |
| Kiribati | | | | | No recent, reliable estimate located | | |
| Marshall Islands | 5.5 | 3.4 - 7.5 | 15 - 64 | 2007 | Government source | SS | d, e |
| Micronesia (Federated States of) | | | | | No recent, reliable estimate located | | |
| Nauru | | | | | No recent, reliable estimate located | | |
| *New Caledonia* | | | | | No recent, reliable estimate located | | |
| New Zealand | 14.6 | | 16 - 64 | 2008 | Government source | HHS | |
| *Norfolk Island* | | | | | No recent, reliable estimate located | | |
| *Northern Mariana Islands* | 22.2 | 18.1 - 26.4 | 15 - 64 | 2007 | Government source | SS | d, e |
| Palau | 24.2 | 19.8 - 28.6 | 15 - 64 | 2007 | Government source | SS | d, e |
| Papua New Guinea | | | | | No recent, reliable estimate located | | |
| Pitcairn | | | | | No recent, reliable estimate located | | |
| Samoa | | | | | No recent, reliable estimate located | | |
| Solomon Islands | | | | | No recent, reliable estimate located | | |
| Tonga | | | | | No recent, reliable estimate located | | |
| Tuvalu | | | | | No recent, reliable estimate located | | |
| Vanuatu | | | | | No recent, reliable estimate located | | |
| *Wallis and Futuna Islands* | | | | | No recent, reliable estimate located | | |

Method: HHS=Household survey, SS=School survey, A=Adjusted from other sources, I=Indirect estimates, R=Registry. * approximate estimates

UNODC Adjustments: a=adjusted for age (15-64), b=population-based/household-type study/survey, c=adjusted from a limited geographic population-based study/survey, d=adjusted from school/youth survey, e=adjusted from lifetime/monthly prevalence adjusted to annual prevalence, f=adjusted from specialized population surveys (including Rapid Assessments), g=adjusted from treatment data, h=adjusted from drug registries, i=adjusted from HIV, problematic drug users (only for heroin), j=lifetime prevalence reported,
x=figure may include non-medical use of prescription opioids, z=figures may also include other non-ATS stimulants

The 'Method' and 'UNODC Adj.' columns have been completed only for more recent data included in previous and present issues of the World Drug Report.

## 6.1.1.4 Amphetamines

**AMPHETAMINES**

**Annual Prevalence of Use as a percentage of the population aged 15-64 (unless otherwise indicated)**

| Country or Territory | UNODC Best Estimate | Uncertainty Range | Ages | Year | Source (original) | Method | UNODC Adjusted |
|---|---|---|---|---|---|---|---|
| **AFRICA** | | | | | | | |
| **East Africa** | | | | | | | |
| Burundi | | | | | No recent, reliable estimate located | | |
| Comoros | | | | | No recent, reliable estimate located | | |
| Djibouti | | | | | No recent, reliable estimate located | | |
| Eritrea | | | | | No recent, reliable estimate located | | |
| Ethiopia | | | | | No recent, reliable estimate located | | |
| Kenya | | | | | No recent, reliable estimate located | | |
| Madagascar | | | | | No recent, reliable estimate located | | |
| Mauritius | | | | | No recent, reliable estimate located | | |
| Rwanda | | | | | No recent, reliable estimate located | | |
| Seychelles | | | | | No recent, reliable estimate located | | |
| Somalia | | | | | No recent, reliable estimate located | | |
| Tanzania (United Republic of) | | | | | No recent, reliable estimate located | | |
| Uganda | | | | | No recent, reliable estimate located | | |
| **North Africa** | | | | | | | |
| Algeria | | | | | No recent, reliable estimate located | | |
| Egypt | 0.5 | 0.4 - 0.5 | 15 - 64 | 2006 | Govt; Academic Research | HHS, SS | a, b, d |
| Libyan Arab Jamahiriya | | | | | No recent, reliable estimate located | | |
| Morocco | | | | | No recent, reliable estimate located | | |
| Sudan | | | | | No recent, reliable estimate located | | |
| Tunisia | | | | | No recent, reliable estimate located | | |
| **Southern Africa** | | | | | | | |
| Angola | | | | | No recent, reliable estimate located | | |
| Botswana | | | | | No recent, reliable estimate located | | |
| Lesotho | | | | | No recent, reliable estimate located | | |
| Malawi | | | | | No recent, reliable estimate located | | |
| Mozambique | | | | | No recent, reliable estimate located | | |
| Namibia | <0.1 | | 15 - 64 | 2000 | ARQ | | |
| *Réunion* | | | | | No recent, reliable estimate located | | |
| South Africa | 1.0 | 0.7 - 1.4 | 15 - 64 | 2008 | ARQ | HHS | a, e |
| Swaziland | | | | | No recent, reliable estimate located | | |
| Zambia | 0.1 | | 15 - 64 | 2003 | UNODC Estimate | | |
| Zimbabwe | 0.1 | | 15 - 64 | 2000 | ARQ | | |
| **West and Central Africa** | | | | | | | |
| Benin | | | | | No recent, reliable estimate located | | |
| Burkina Faso | | | | | No recent, reliable estimate located | | |
| Cameroon | | | | | No recent, reliable estimate located | | |
| Cape Verde | | | | | No recent, reliable estimate located | | |
| Central African Republic | | | | | No recent, reliable estimate located | | |
| Chad | | | | | No recent, reliable estimate located | | |
| Congo | | | | | No recent, reliable estimate located | | |
| Congo (Dem. Rep. of the) | | | | | No recent, reliable estimate located | | |
| Côte d'Ivoire | | | | | No recent, reliable estimate located | | |
| Equatorial Guinea | | | | | No recent, reliable estimate located | | |
| Gabon | | | | | No recent, reliable estimate located | | |
| Gambia | | | | | No recent, reliable estimate located | | |
| Ghana | | | | | No recent, reliable estimate located | | |
| Guinea | | | | | No recent, reliable estimate located | | |
| Guinea-Bissau | | | | | No recent, reliable estimate located | | |
| Liberia | | | | | No recent, reliable estimate located | | |
| Mali | | | | | No recent, reliable estimate located | | |
| Mauritania | | | | | No recent, reliable estimate located | | |
| Niger | | | | | No recent, reliable estimate located | | |
| Nigeria | 1.4 | 0.7 - 2.0 | 15 - 64 | 2008 | ARQ | HHS | a, b, e |
| *Saint Helena* | | | | | No recent, reliable estimate located | | |

Method: HHS=Household survey, SS=School survey, A=Adjusted from other sources, I=Indirect estimates, R=Registry. * approximate estimates

UNODC Adjustments: a=adjusted for age (15-64), b=population-based/household-type study/survey, c=adjusted from a limited geographic population-based study/survey, d=adjusted from school/youth survey, e=adjusted from lifetime/monthly prevalence adjusted to annual prevalence, f=adjusted from specialized population surveys (including Rapid Assessments), g=adjusted from treatment data, h=adjusted from drug registries, i=adjusted from HIV, problematic drug users (only for heroin), j=lifetime prevalence reported,
x=figure may include non-medical use of prescription opioids, z=figures may also include other non-ATS stimulants

The 'Method' and 'UNODC Adj.' columns have been completed only for more recent data included in previous and present issues of the World Drug Report.

**AMPHETAMINES**

**Annual Prevalence of Use as a percentage of the population aged 15-64 (unless otherwise indicated)**

| Country or Territory | UNODC Best Estimate | Uncertainty Range | Ages | Year | Source (original) | Method | UNODC Adjusted |
|---|---|---|---|---|---|---|---|
| Sao Tome and Principe | | | | | No recent, reliable estimate located | | |
| Senegal | | | | | No recent, reliable estimate located | | |
| Sierra Leone | | | | | No recent, reliable estimate located | | |
| Togo | | | | | No recent, reliable estimate located | | |
| **AMERICAS** | | | | | | | |
| **Caribbean** | | | | | | | |
| *Anguilla* | | | | | No recent, reliable estimate located | | |
| Antigua and Barbuda | 0.6 | 0.2 - 1.2 | 15 - 64 | 2005 | Government source | SS | d, e |
| *Aruba* | | | | | No recent, reliable estimate located | | |
| Bahamas | 0.4 | 0.1 - 1.1 | 15 - 64 | 2008 | ARQ | SS | d, e |
| Barbados | 0.2 | | 12 - 65 | 2006 | CICAD | HHS, z | |
| *Bermuda* | | | | | No recent, reliable estimate located | | |
| *British Virgin Islands* | | | | | No recent, reliable estimate located | | |
| *Cayman Islands* | | | | | No recent, reliable estimate located | | |
| Cuba | | | | | No recent, reliable estimate located | | |
| Dominica | 0.9 | 0.3 - 1.6 | 15 - 64 | 2006 | Government source | SS | d, e |
| Dominican Republic | 1.0 | <0.1 - 2.6 | 15 - 64 | 2008 | ARQ | SS, z | d, e |
| Grenada | 0.7 | | 15 - 64 | 2005 | ARQ | | |
| *Guadeloupe* | | | | | No recent, reliable estimate located | | |
| Haiti | | | | | No recent, reliable estimate located | | |
| Jamaica | 1.1 | 0.4 - 1.9 | 15 - 64 | 2006 | Government source | SS | d, e |
| *Martinique* | | | | | No recent, reliable estimate located | | |
| *Montserrat* | | | | | No recent, reliable estimate located | | |
| *Netherlands Antilles* | | | | | No recent, reliable estimate located | | |
| *Puerto Rico* | 0.4 | 0.1 - 1.1 | 15 - 64 | 2005 | Government source | SS | d, e |
| Saint Kitts and Nevis | 0.2 | 0.1 - 0.6 | 15 - 64 | 2006 | Government source | SS, z | d, e |
| Saint Lucia | 1.2 | 0.4 - 1.9 | 15 - 64 | 2005 | CICAD | SS, z | d, e |
| Saint Vincent and the Grenadines | 0.6 | 0.2 - 1.3 | 15 - 64 | 2006 | CICAD | SS, z | d, e |
| Trinidad and Tobago | 0.7 | 0.2 - 1.4 | 15 - 64 | 2006 | CICAD | SS, z | d, e |
| *Turks and Caicos Islands* | 0.3 | | 15 - 64 | 2003 | UNODC Estimate | | d, e |
| *United States Virgin Islands* | | | | | No recent, reliable estimate located | | |
| **Central America** | | | | | | | |
| Belize | 1.4 | | 12 - 65 | 2005 | CICAD | HHS, z | |
| Costa Rica | 1.3 | | 12 - 70 | 2006 | ARQ | | |
| El Salvador | 3.3 | | 12 - 65 | 2005 | CICAD | HHS, z | |
| Guatemala | 0.9 | | 15 - 64 | 2005 | UNODC Estimate | | d, e |
| Honduras | 0.8 | | 15 - 64 | 2005 | UNODC Estimate | | d,e |
| Nicaragua | 0.8 | | 15 - 64 | 2003 | UNODC Estimate | | d |
| Panama | 1.2 | | 12 - 65 | 2003 | CICAD | HHS, z | |
| **North America** | | | | | | | |
| Canada | 0.7 | | 15 - 64 | 2009 | ARQ | HHS | |
| Mexico | 0.2 | | 12 - 65 | 2008 | Govt. source (ENA) | HHS | |
| *Saint Pierre and Miquelon* | | | | | No recent, reliable estimate located | | |
| United States of America | 1.5 | | 15 - 64 | 2009 | Govt. source (SAMHSA) | HHS | |
| **South America** | | | | | | | |
| Argentina | 0.6 | | 15 - 64 | 2005 | UNODC Estimate | SS, z | d, e |
| Bolivia (Plurinational State of) | 0.5 | | 12 - 65 | 2007 | ARQ | HHS | |
| Brazil | 0.7 | | 12 - 65 | 2005 | Government source | HHS, c | |
| Chile | 0.4 | | 15 - 64 | 2008 | ARQ | HHS | |
| Colombia | 0.5 | <0.1 - 1.9 | 12 - 65 | 2008 | Government source | HHS, SS | a, c, d, e |
| Ecuador | 0.2 | | 15 - 64 | 2005 | UNODC Estimate | SS, z | d, e |
| *Falkland Islands (Malvinas)* | | | | | No recent, reliable estimate located | | |
| *French Guiana* | | | | | No recent, reliable estimate located | | |
| Guyana | 0.5 | 0.1 - 1.1 | 15 - 64 | 2002 | CICAD | SS, z | d, e |
| Paraguay | 0.5 | | 15 - 64 | 2005 | UNODC Estimate | SS, z | d, e |
| Peru | 0.2 | | 12 - 64 | 2006 | Govt. | HHS | |

Method: HHS=Household survey, SS=School survey, A=Adjusted from other sources, I=Indirect estimates, R=Registry. * approximate estimates

UNODC Adjustments: a=adjusted for age (15-64), b=population-based/household-type study/survey, c=adjusted from a limited geographic population-based study/survey, d=adjusted from school/youth survey, e=adjusted from lifetime/monthly prevalence adjusted to annual prevalence, f=adjusted from specialized population surveys (including Rapid Assessments), g=adjusted from treatment data, h=adjusted from drug registries, i=adjusted from HIV, problematic drug users (only for heroin), j=lifetime prevalence reported,

x=figure may include non-medical use of prescription opioids, z=figures may also include other non-ATS stimulants

The 'Method' and 'UNODC Adj.' columns have been completed only for more recent data included in previous and present issues of the World Drug Report.

**AMPHETAMINES**

**Annual Prevalence of Use as a percentage of the population aged 15-64 (unless otherwise indicated)**

| Country or Territory | UNODC Best Estimate | Uncertainty Range | Ages | Year | Source (original) | Method | UNODC Adjusted |
|---|---|---|---|---|---|---|---|
| Suriname | 0.7 | | 12 - 65 | 2007 | Government source | HHS, z | |
| Uruguay | 0.1 | | 12 - 65 | 2006 | ARQ | | |
| Venezuela (Bolivarian Republic of) | 0.6 | | 15 - 64 | 2002 | UNODC Estimate | | d, e |
| **ASIA** | | | | | | | |
| **Central Asia and Transcaucasian countries** | | | | | | | |
| Armenia | <0.1 | | 15 - 64 | 2005 | UNODC Estimate | HHS | |
| Azerbaijan | | | | | No recent, reliable estimate located | | |
| Georgia | 0.6 | 0.1 - 1.1 | 15 - 64 | 2009 | Government source/ NGO/Academic | SS | b, d, e |
| Kazakhstan | | | | | No recent, reliable estimate located | | |
| Kyrgyzstan | | | | | No recent, reliable estimate located | | |
| Tajikistan | | | | | No recent, reliable estimate located | | |
| Turkmenistan | | | | | No recent, reliable estimate located | | |
| Uzbekistan | | | | | No recent, reliable estimate located | | |
| **East and South-East Asia** | | | | | | | |
| Brunei Darussalam | 0.3 | | 15 - 64 | 2006 | UNODC Estimate | | g |
| Cambodia | 0.6 | | 15 - 64 | 2004 | UNODC Estimate | | d, e |
| China | | | | | No recent, reliable estimate located | | |
| *China, Hong Kong SAR* | 0.4 | <0.1 - 1.1 | 15 - 64 | 2008 | Government source | SS | d, e |
| *China, Macao SAR* | | | | | No recent, reliable estimate located | | |
| *Guam* | 1.4 | 0.5 - 2.3 | 15 - 64 | 2007 | Government source | SS | d, e |
| Indonesia | 0.2 | | 15 - 64 | 2008 | ARQ | HHS | |
| Japan | | | | | No recent, reliable estimate located | | |
| Korea (Dem. People's Rep.) | | | | | No recent, reliable estimate located | | |
| Korea (Republic of) | 0.1 | <0.1 - 0.2 | 15 - 64 | 2004 | ARQ | HHS | b, c, e |
| Lao People's Democratic Republic | 1.4 | 1.1 - 1.7 | 15 - 64 | 2008 | Academic research | SS | a, c, d, e |
| Malaysia | 0.6 | | 15 - 64 | 2005 | UNODC Estimate | | d, g, h |
| Mongolia | | | | | No recent, reliable estimate located | | |
| Myanmar | 0.2 | | 15 - 64 | 2005 | UNODC Estimate | | d, f |
| Philippines | 2.1 | 1.9 - 2.4 | 15 - 64 | 2008 | Government source | HHS | c, e |
| Singapore | | | | | No recent, reliable estimate located | | |
| *Taiwan, Province of China* | 0.6 | | 12 - 64 | 2005 | AMCEWG | | |
| Thailand | 1.4 | | 12 - 65 | 2007 | ARQ | HHS | |
| Timor-Leste | | | | | No recent, reliable estimate located | | |
| Viet Nam | 0.2 | | 15 - 64 | 2003 | UNODC Estimate | | h |
| **Near and Middle East /South-West Asia** | | | | | | | |
| Afghanistan | <0.1 | | 15 - 64 | 2009 | UNODC/ Govt. Source | HHS | |
| Bahrain | | | | | No recent, reliable estimate located | | |
| Iran (Islamic Republic of) | 0.1 | 0.1 - 0.2 | 15 - 64 | 2010 | Government source | I | f, g |
| Iraq | | | | | No recent, reliable estimate located | | |
| Israel | 5.0 | 4.5 - 5.5 | 18 - 40 | 2008 | ARQ | HHS | |
| Jordan | 0.4 | | 15 - 64 | 2001 | UNODC Estimate | | |
| Kuwait | 0.3 | | 15 - 64 | 2005 | UNODC Estimate | | g |
| Lebanon | 0.4 | | 15 - 64 | 2001 | UNODC Estimate | | d, e |
| Occupied Palestinian Territory | | | | | No recent, reliable estimate located | | |
| Oman | | | | | No recent, reliable estimate located | | |
| Pakistan | | | | | No recent, reliable estimate located | | |
| Qatar | | | | | No recent, reliable estimate located | | |
| Saudi Arabia | 0.4 | | 15 - 64 | 2006 | UNODC Estimate | | g |
| Syrian Arab Republic | | | | | No recent, reliable estimate located | | |
| United Arab Emirates | | | | | No recent, reliable estimate located | | |
| Yemen | | | | | No recent, reliable estimate located | | |
| **South Asia** | | | | | | | |
| Bangladesh | | | | | No recent, reliable estimate located | | |
| Bhutan | | | | | No recent, reliable estimate located | | |
| India | | | | | No recent, reliable estimate located | | |
| Maldives | | | | | No recent, reliable estimate located | | |

Method: HHS=Household survey, SS=School survey, A=Adjusted from other sources, I=Indirect estimates, R=Registry. * approximate estimates

UNODC Adjustments: a=adjusted for age (15-64), b=population-based/household-type study/survey, c=adjusted from a limited geographic population-based study/survey, d=adjusted from school/youth survey, e=adjusted from lifetime/monthly prevalence adjusted to annual prevalence, f=adjusted from specialized population surveys (including Rapid Assessments), g=adjusted from treatment data, h=adjusted from drug registries, i=adjusted from HIV, problematic drug users (only for heroin), j=lifetime prevalence reported,

x=figure may include non-medical use of prescription opioids, z=figures may also include other non-ATS stimulants

The 'Method' and 'UNODC Adj.' columns have been completed only for more recent data included in previous and present issues of the World Drug Report.

**AMPHETAMINES**

**Annual Prevalence of Use as a percentage of the population aged 15-64 (unless otherwise indicated)**

| Country or Territory | UNODC Best Estimate | Uncertainty Range | Ages | Year | Source (original) | Method | UNODC Adjusted |
|---|---|---|---|---|---|---|---|
| Nepal | | | | | No recent, reliable estimate located | | |
| Sri Lanka | | | | | No recent, reliable estimate located | | |
| **EUROPE** | | | | | | | |
| **East Europe** | | | | | | | |
| Belarus | 0.4 | | 15 - 64 | 2006 | UNODC Estimate | | g |
| Moldova (Republic of) | <0.1 | | 15 - 64 | 2008 | Government source | HHS | e |
| Russian Federation* | 0.4 | 0.2 - 0.6 | 15 - 64 | 2007 | ESPAD | SS | d, e |
| Ukraine | 0.4 | 0.2 - 0.6 | 15 - 64 | 2007 | ESPAD | SS | d, e |
| **Southeast Europe** | | | | | | | |
| Albania | <0.1 | | 15 - 64 | 2004 | ARQ | | |
| Bosnia and Herzegovina | 1.0 | 0.4 - 1.7 | 15 - 64 | 2008 | ESPAD | SS | c, d, e |
| Bulgaria | 1.0 | | 15 - 64 | 2008 | ARQ | HHS | |
| Croatia | 0.7 | 0.6 - 0.8 | 15 - 64 | 2007 | ESPAD | SS | d, e |
| Macedonia (TFYR) | | | | | No recent, reliable estimate located | | |
| Montenegro | 0.5 | <0.1 - 0.9 | 15 - 64 | 2008 | ESPAD | SS | d, e |
| Romania | <0.1 | | 15 - 64 | 2007 | Government source | HHS | e |
| Serbia | 0.2 | 0.1 - 0.5 | 15 - 64 | 2006 | Government sources | HHS | a, e |
| Turkey | 0.2 | | 15 - 64 | 2003 | UNODC Estimate | | |
| **West & Central Europe** | | | | | | | |
| Andorra | | | | | No recent, reliable estimate located | | |
| Austria | 0.5 | | 15 - 64 | 2008 | Government source | HHS | a |
| Belgium | 0.9 | | 15 - 64 | 2008 | ARQ | HHS | |
| *Channel Islands* | | | | | No recent, reliable estimate located | | |
| Cyprus | 0.3 | | 15 - 64 | 2009 | ARQ | HHS | |
| Czech Republic | 1.7 | | 15 - 64 | 2008 | Government source | HHS | |
| Denmark | 1.2 | | 16 - 64 | 2008 | ARQ | HHS | |
| Estonia | 1.0 | | 15 - 64 | 2008 | Government source | HHS | |
| *Faeroe Islands* | 0.4 | <0.1 - 0.8 | 15 - 64 | 2007 | ARQ | SS | d, e |
| Finland | 0.6 | | 15 - 64 | 2006 | ARQ | | |
| France | 0.2 | | 15 - 64 | 2005 | ARQ | | |
| Germany | 0.7 | | 18 - 64 | 2009 | ARQ | HHS | |
| *Gibraltar* | | | | | No recent, reliable estimate located | | |
| Greece | 0.2 | | 15 - 64 | 2004 | ARQ | | |
| *Greenland* | | | | | No recent, reliable estimate located | | |
| Hungary | 0.5 | 0.2 - 0.8 | 18 - 64 | 2007 | ARQ | HHS | |
| Iceland | 0.7 | 0.6 - 0.9 | 15 - 64 | 2003 | ESPAD | SS | |
| Ireland | 0.4 | | 15 - 64 | 2007 | Government source | HHS | |
| *Isle of Man* | 0.9 | 0.3 - 1.5 | 15 - 64 | 2007 | ARQ | SS | d, e |
| Italy | 0.6 | 0.6 - 0.7 | 15 - 64 | 2007 | Government source/ ESPAD | HHS, SS | d, e |
| Latvia | 0.9 | | 15 - 64 | 2007 | ARQ | | |
| Liechtenstein | 0.2 | | 15 - 64 | 2005 | UNODC Estimate | | d |
| Lithuania | 0.7 | | 15 - 64 | 2008 | ARQ | HHS | |
| Luxembourg | | | | | No recent, reliable estimate located | | |
| Malta | 0.9 | 0.6 - 1.2 | 15 - 64 | 2007 | ESPAD | SS | d, e |
| Monaco | 0.5 | 0.5 - 0.6 | 15 - 64 | 2007 | ESPAD | SS | d, e |
| Netherlands | 0.3 | | 15 - 64 | 2005 | ARQ | HHS | |
| Norway | 1.1 | | 15 - 64 | 2004 | ARQ | HHS | |
| Poland | 0.7 | | 15 - 64 | 2006 | ARQ | HHS | |
| Portugal | 0.2 | | 15 - 64 | 2007 | ARQ | HHS | |
| San Marino | | | | | No recent, reliable estimate located | | |
| Slovakia | 0.3 | | 15 - 64 | 2006 | EMCDDA | HHS | |
| Slovenia | 0.5 | 0.4 - 0.6 | 15 - 64 | 2007 | ESPAD | SS | d, e |
| Spain | 0.6 | | 15 - 64 | 2010 | Government source | HHS | |
| Sweden | 0.8 | | 15 - 64 | 2008 | ARQ | HHS | |
| Switzerland | 0.6 | 0.6 - 0.7 | 15 - 64 | 2007 | ESPAD | SS | d, e |
| United Kingdom | | | | | No recent, reliable estimate located | | |
| United Kingdom (England and Wales) | 1.0 | | 16 - 59 | 2010 | Government source | HHS | |

Method: HHS=Household survey, SS=School survey, A=Adjusted from other sources, I=Indirect estimates, R=Registry. * approximate estimates

UNODC Adjustments: a=adjusted for age (15-64), b=population-based/household-type study/survey, c=adjusted from a limited geographic population-based study/survey, d=adjusted from school/youth survey, e=adjusted from lifetime/monthly prevalence adjusted to annual prevalence, f=adjusted from specialized population surveys (including Rapid Assessments), g=adjusted from treatment data, h=adjusted from drug registries, i=adjusted from HIV, problematic drug users (only for heroin), j=lifetime prevalence reported,
x=figure may include non-medical use of prescription opioids, z=figures may also include other non-ATS stimulants

The 'Method' and 'UNODC Adj.' columns have been completed only for more recent data included in previous and present issues of the World Drug Report.

**AMPHETAMINES**

**Annual Prevalence of Use as a percentage of the population aged 15-64 (unless otherwise indicated)**

| Country or Territory | UNODC Best Estimate | Uncertainty Range | Ages | Year | Source (original) | Method | UNODC Adjusted |
|---|---|---|---|---|---|---|---|
| United Kingdom (Northern Ireland) | 0.8 | | 16 - 59 | 2008 | Government source | HHS | |
| United Kingdom (Scotland) | 1.4 | | 16 - 64 | 2009 | Government source | HHS | a |
| **OCEANIA** | | | | | | | |
| **Oceania** | | | | | | | |
| *American Samoa* | 1.3 | 0.5 - 2.3 | 15 - 64 | 2007 | Government source | SS | d, e |
| Australia | 2.7 | | 15 - 64 | 2007 | Government source | HHS | |
| *Christmas Islands* | | | | | No recent, reliable estimate located | | |
| *Cocos (Keeling) Islands* | | | | | No recent, reliable estimate located | | |
| *Cook Islands* | | | | | No recent, reliable estimate located | | |
| Fiji | | | | | No recent, reliable estimate located | | |
| *French Polynesia* | | | | | No recent, reliable estimate located | | |
| Kiribati | | | | | No recent, reliable estimate located | | |
| Marshall Islands | 2.7 | 1.4 - 4.0 | 15 - 64 | 2007 | Government source | SS | d, e |
| Micronesia (Federated States of) | | | | | No recent, reliable estimate located | | |
| Nauru | | | | | No recent, reliable estimate located | | |
| *New Caledonia* | | | | | No recent, reliable estimate located | | |
| New Zealand | 2.1 | | 16 - 64 | 2008 | Government source | HHS | |
| *Norfolk Island* | | | | | No recent, reliable estimate located | | |
| *Northern Mariana Islands* | 1.2 | 0.4 - 2.1 | 15 - 64 | 2007 | Government source | SS | d, e |
| Palau | 1.6 | 0.6 - 2.6 | 15 - 64 | 2007 | Government source | SS | d, e |
| Papua New Guinea | | | | | No recent, reliable estimate located | | |
| Pitcairn | | | | | No recent, reliable estimate located | | |
| Samoa | | | | | No recent, reliable estimate located | | |
| Solomon Islands | | | | | No recent, reliable estimate located | | |
| Tonga | | | | | No recent, reliable estimate located | | |
| Tuvalu | | | | | No recent, reliable estimate located | | |
| Vanuatu | | | | | No recent, reliable estimate located | | |
| *Wallis and Futuna Islands* | | | | | No recent, reliable estimate located | | |

Method: HHS=Household survey, SS=School survey, A=Adjusted from other sources, I=Indirect estimates, R=Registry. * approximate estimates

UNODC Adjustments: a=adjusted for age (15-64), b=population-based/household-type study/survey, c=adjusted from a limited geographic population-based study/survey, d=adjusted from school/youth survey, e=adjusted from lifetime/monthly prevalence adjusted to annual prevalence, f=adjusted from specialized population surveys (including Rapid Assessments), g=adjusted from treatment data, h=adjusted from drug registries, i=adjusted from HIV, problematic drug users (only for heroin), j=lifetime prevalence reported,
x=figure may include non-medical use of prescription opioids, z=figures may also include other non-ATS stimulants

The 'Method' and 'UNODC Adj.' columns have been completed only for more recent data included in previous and present issues of the World Drug Report.

## 6.1.1.5 Ecstasy

**ECSTASY**

**Annual Prevalence of Use as a percentage of the population aged 15-64 (unless otherwise indicated)**

| Country or Territory | UNODC Best Estimate | Uncertainty Range | Ages | Year | Source (original) | Method | UNODC Adjusted |
|---|---|---|---|---|---|---|---|
| **AFRICA** | | | | | | | |
| **East Africa** | | | | | | | |
| Burundi | | | | | No recent, reliable estimate located | | |
| Comoros | | | | | No recent, reliable estimate located | | |
| Djibouti | | | | | No recent, reliable estimate located | | |
| Eritrea | | | | | No recent, reliable estimate located | | |
| Ethiopia | | | | | No recent, reliable estimate located | | |
| Kenya | 0.3 | 0.2 - 0.3 | 15 - 65 | 2007 | Govt | HHS | b, e |
| Madagascar | | | | | No recent, reliable estimate located | | |
| Mauritius | | | | | No recent, reliable estimate located | | |
| Rwanda | | | | | No recent, reliable estimate located | | |
| Seychelles | | | | | No recent, reliable estimate located | | |
| Somalia | | | | | No recent, reliable estimate located | | |
| Tanzania (United Republic of) | | | | | No recent, reliable estimate located | | |
| Uganda | | | | | No recent, reliable estimate located | | |
| **North Africa** | | | | | | | |
| Algeria | | | | | No recent, reliable estimate located | | |
| Egypt | | | | | No recent, reliable estimate located | | |
| Libyan Arab Jamahiriya | | | | | No recent, reliable estimate located | | |
| Morocco | <0.1 | | 15 - 64 | 2003 | ARQ | | |
| Sudan | | | | | No recent, reliable estimate located | | |
| Tunisia | | | | | No recent, reliable estimate located | | |
| **Southern Africa** | | | | | | | |
| Angola | | | | | No recent, reliable estimate located | | |
| Botswana | | | | | No recent, reliable estimate located | | |
| Lesotho | | | | | No recent, reliable estimate located | | |
| Malawi | | | | | No recent, reliable estimate located | | |
| Mozambique | | | | | No recent, reliable estimate located | | |
| Namibia | <0.1 | | 15 - 64 | 2000 | ARQ | | |
| *Réunion* | | | | | No recent, reliable estimate located | | |
| South Africa | 0.4 | | 15 - 64 | 2004 | UNODC Estimate | | d, e |
| Swaziland | | | | | No recent, reliable estimate located | | |
| Zambia | 0.3 | | 15 - 64 | 2003 | UNODC Estimate | | e, f |
| Zimbabwe | | | | | No recent, reliable estimate located | | |
| **West and Central Africa** | | | | | | | |
| Benin | | | | | No recent, reliable estimate located | | |
| Burkina Faso | | | | | No recent, reliable estimate located | | |
| Cameroon | | | | | No recent, reliable estimate located | | |
| Cape Verde | <0.1 | | 15 - 64 | 2004 | UNODC Estimate | | d |
| Central African Republic | | | | | No recent, reliable estimate located | | |
| Chad | | | | | No recent, reliable estimate located | | |
| Congo | | | | | No recent, reliable estimate located | | |
| Congo (Dem. Rep. of the) | | | | | No recent, reliable estimate located | | |
| Côte d'Ivoire | | | | | No recent, reliable estimate located | | |
| Equatorial Guinea | | | | | No recent, reliable estimate located | | |
| Gabon | | | | | No recent, reliable estimate located | | |
| Gambia | | | | | No recent, reliable estimate located | | |
| Ghana | | | | | No recent, reliable estimate located | | |
| Guinea | | | | | No recent, reliable estimate located | | |
| Guinea-Bissau | | | | | No recent, reliable estimate located | | |
| Liberia | | | | | No recent, reliable estimate located | | |
| Mali | | | | | No recent, reliable estimate located | | |
| Mauritania | | | | | No recent, reliable estimate located | | |
| Niger | | | | | No recent, reliable estimate located | | |
| Nigeria | | | | | No recent, reliable estimate located | | |
| *Saint Helena* | | | | | No recent, reliable estimate located | | |

Method: HHS=Household survey, SS=School survey, A=Adjusted from other sources, I=Indirect estimates, R=Registry. * approximate estimates

UNODC Adjustments: a=adjusted for age (15-64), b=population-based/household-type study/survey, c=adjusted from a limited geographic population-based study/survey, d=adjusted from school/youth survey, e=adjusted from lifetime/monthly prevalence adjusted to annual prevalence, f=adjusted from specialized population surveys (including Rapid Assessments), g=adjusted from treatment data, h=adjusted from drug registries, i=adjusted from HIV, problematic drug users (only for heroin), j=lifetime prevalence reported,
x=figure may include non-medical use of prescription opioids, z=figures may also include other non-ATS stimulants

The 'Method' and 'UNODC Adj.' columns have been completed only for more recent data included in previous and present issues of the World Drug Report.

**ECSTASY**

**Annual Prevalence of Use as a percentage of the population aged 15-64 (unless otherwise indicated)**

| Country or Territory | UNODC Best Estimate | Uncertainty Range | Ages | Year | Source (original) | Method | UNODC Adjusted |
|---|---|---|---|---|---|---|---|
| Sao Tome and Principe | | | | | No recent, reliable estimate located | | |
| Senegal | | | | | No recent, reliable estimate located | | |
| Sierra Leone | | | | | No recent, reliable estimate located | | |
| Togo | | | | | No recent, reliable estimate located | | |
| **AMERICAS** | | | | | | | |
| **Caribbean** | | | | | | | |
| *Anguilla* | | | | | No recent, reliable estimate located | | |
| Antigua and Barbuda | 0.2 | <0.1 - 0.7 | 15 - 64 | 2005 | Government source | SS | d, e |
| *Aruba* | | | | | No recent, reliable estimate located | | |
| Bahamas | 0.1 | <0.1 - 0.6 | 15 - 64 | 2008 | Government source | SS | d, e |
| Barbados | 0.5 | | 12 - 65 | 2006 | CICAD | HHS | |
| *Bermuda* | | | | | No recent, reliable estimate located | | |
| *British Virgin Islands* | | | | | No recent, reliable estimate located | | |
| *Cayman Islands* | | | | | No recent, reliable estimate located | | |
| Cuba | | | | | No recent, reliable estimate located | | |
| Dominica | <0.1 | <0.1 - 0.5 | 15 - 64 | 2006 | Government source | SS | d, e |
| Dominican Republic | <0.1 | <0.1 - 0.5 | 15 - 64 | 2008 | Government source | SS | d, e |
| Grenada | 0.2 | <0.1 - 0.7 | 15 - 64 | 2005 | Government source | SS | d, e |
| *Guadeloupe* | | | | | No recent, reliable estimate located | | |
| Haiti | 0.6 | 0.1 - 1.2 | 15 - 64 | 2005 | CICAD | SS | d, e |
| Jamaica | | | | | No recent, reliable estimate located | | |
| *Martinique* | | | | | No recent, reliable estimate located | | |
| *Montserrat* | | | | | No recent, reliable estimate located | | |
| *Netherlands Antilles* | | | | | No recent, reliable estimate located | | |
| *Puerto Rico* | 0.4 | <0.1 - 1.0 | 15 - 64 | 2005 | Government source | SS | |
| Saint Kitts and Nevis | 0.4 | <0.1 - 1.0 | 15 - 64 | 2006 | Government source | SS | d, e |
| Saint Lucia | | | | | No recent, reliable estimate located | | |
| Saint Vincent and the Grenadines | <0.1 | <0.1 - 0.5 | 15 - 64 | 2006 | CICAD | SS | d, e |
| Trinidad and Tobago | 0.1 | <0.1 - 0.6 | 15 - 64 | 2006 | CICAD | SS | d, e |
| *Turks and Caicos Islands* | 0.7 | | 15 - 64 | 2003 | UNODC Estimate | | d, e |
| *United States Virgin Islands* | | | | | No recent, reliable estimate located | | |
| **Central America** | | | | | | | |
| Belize | 0.3 | | 12 - 65 | 2005 | Government source | HHS | |
| Costa Rica | 0.2 | 0.1 - 0.4 | 12 - 70 | 2006 | ARQ | SS | d, e |
| El Salvador | <0.1 | | 12 - 65 | 2005 | CICAD | HHS | a, e |
| Guatemala | <0.1 | | 15 - 64 | 2005 | UNODC Estimate | | |
| Honduras | <0.1 | | 15 - 64 | 2005 | UNODC Estimate | | d |
| Nicaragua | <0.1 | | 12 - 65 | 2006 | CICAD | HHS, c | e |
| Panama | 0.4 | | 12 - 65 | 2003 | UNODC Estimate | | d |
| **North America** | | | | | | | |
| Canada | 1.1 | | 15 - 64 | 2009 | ARQ | HHS | |
| Mexico | <0.1 | | 15 - 64 | 2002 | Govt. source (CONADIC) | | |
| *Saint Pierre and Miquelon* | | | | | No recent, reliable estimate located | | |
| United States of America | 1.4 | | 15 - 64 | 2009 | Govt. source (SAMHSA) | HHS | |
| **South America** | | | | | | | |
| Argentina | 0.5 | | 15 - 64 | 2006 | Government source | | |
| Bolivia (Plurinational State of) | 0.1 | | 12 - 65 | 2007 | ARQ | HHS, c | |
| Brazil | 0.2 | | 12 - 65 | 2005 | UNODC Estimate | | |
| Chile | 0.1 | | 15 - 64 | 2008 | ARQ | HHS | |
| Colombia | 0.3 | | 12 - 65 | 2008 | Government source | HHS, c | |
| Ecuador | 0.2 | | 15 - 64 | 2005 | UNODC Estimate | | |
| *Falkland Islands (Malvinas)* | | | | | No recent, reliable estimate located | | |
| *French Guiana* | | | | | No recent, reliable estimate located | | |
| Guyana | 0.1 | | 15 - 64 | 2002 | UNODC Estimate | | |
| Paraguay | <0.1 | | 15 - 64 | 2005 | UNODC Estimate | | |
| Peru | <0.1 | | 12 - 64 | 2006 | ARQ | HHS, c | |

Method: HHS=Household survey, SS=School survey, A=Adjusted from other sources, I=Indirect estimates, R=Registry. * approximate estimates

UNODC Adjustments: a=adjusted for age (15-64), b=population-based/household-type study/survey, c=adjusted from a limited geographic population-based study/survey, d=adjusted from school/youth survey, e=adjusted from lifetime/monthly prevalence adjusted to annual prevalence, f=adjusted from specialized population surveys (including Rapid Assessments), g=adjusted from treatment data, h=adjusted from drug registries, i=adjusted from HIV, problematic drug users (only for heroin), j=lifetime prevalence reported,

x=figure may include non-medical use of prescription opioids, z=figures may also include other non-ATS stimulants

The 'Method' and 'UNODC Adj.' columns have been completed only for more recent data included in previous and present issues of the World Drug Report.

**ECSTASY**

**Annual Prevalence of Use as a percentage of the population aged 15-64 (unless otherwise indicated)**

| Country or Territory | UNODC Best Estimate | Uncertainty Range | Ages | Year | Source (original) | Method | UNODC Adjusted |
|---|---|---|---|---|---|---|---|
| Suriname | 0.1 | <0.1 - 0.2 | 12 - 65 | 2007 | Government source | HHS, c | e |
| Uruguay | 0.2 | | 12 - 65 | 2006 | Government source | HHS, a, c | c, e |
| Venezuela (Bolivarian Republic of) | <0.1 | <0.1 | 15 - 64 | 2005 | Government source | HHS | a, e |
| **ASIA** | | | | | | | |
| **Central Asia and Transcaucasian countries** | | | | | | | |
| Armenia | 0.1 | | 15 - 64 | 2005 | UNODC Estimate | HHS | |
| Azerbaijan | | | | | No recent, reliable estimate located | | |
| Georgia | 0.5 | 0.2 - 0.9 | 15 - 64 | 2009 | ARQ | SS | a, b, d, e |
| Kazakhstan | | | | | No recent, reliable estimate located | | |
| Kyrgyzstan | | | | | No recent, reliable estimate located | | |
| Tajikistan | | | | | No recent, reliable estimate located | | |
| Turkmenistan | | | | | No recent, reliable estimate located | | |
| Uzbekistan | | | | | No recent, reliable estimate located | | |
| **East and South-East Asia** | | | | | | | |
| Brunei Darussalam | | | | | No recent, reliable estimate located | | |
| Cambodia | 0.1 | | 15 - 64 | 2003 | UNODC Estimate | | |
| China | | | | | No recent, reliable estimate located | | |
| *China, Hong Kong SAR* | 0.2 | <0.1 - 0.8 | 15 - 64 | 2008 | Government source | SS | d, e |
| *China, Macao SAR* | 0.3 | | 15 - 64 | 2002 | UNODC Estimate | | c, e |
| *Guam* | | | | | No recent, reliable estimate located | | |
| Indonesia | 0.2 | | 15 - 64 | 2008 | ARQ | HHS | |
| Japan | | | | | No recent, reliable estimate located | | |
| Korea (Dem. People's Rep.) | | | | | No recent, reliable estimate located | | |
| Korea (Republic of) | <0.1 | <0.1 | 15 - 64 | 2004 | ARQ | HHS | c, e |
| Lao People's Democratic Republic | | | | | No recent, reliable estimate located | | |
| Malaysia | 0.4 | | 15 - 64 | 2003 | UNODC Estimate | | e, g |
| Mongolia | | | | | No recent, reliable estimate located | | |
| Myanmar | | | | | No recent, reliable estimate located | | |
| Philippines | 0.2 | | 15 - 64 | 2004 | Government source | HHS | |
| Singapore | | | | | No recent, reliable estimate located | | |
| *Taiwan, Province of China* | 0.5 | | 12 - 64 | 2005 | AMCEWG | | a |
| Thailand | 0.3 | | 12 - 65 | 2007 | ARQ | HHS | |
| Timor-Leste | | | | | No recent, reliable estimate located | | |
| Viet Nam | 0.2 | | 15 - 64 | 2003 | UNODC Estimate | | |
| **Near and Middle East /South-West Asia** | | | | | | | |
| Afghanistan | | | | | No recent, reliable estimate located | | |
| Bahrain | | | | | No recent, reliable estimate located | | |
| Iran (Islamic Republic of) | | | | | No recent, reliable estimate located | | |
| Iraq | | | | | No recent, reliable estimate located | | |
| Israel | 0.7 | | 18 - 40 | 2008 | Government source | HHS | |
| Jordan | | | | | No recent, reliable estimate located | | |
| Kuwait | | | | | No recent, reliable estimate located | | |
| Lebanon | 1.0 | 0.3 - 1.7 | 15 - 64 | 2009 | Government source/ NGO/Academic | SS | d, e |
| Occupied Palestinian Territory | | | | | No recent, reliable estimate located | | |
| Oman | | | | | No recent, reliable estimate located | | |
| Pakistan | | | | | No recent, reliable estimate located | | |
| Qatar | | | | | No recent, reliable estimate located | | |
| Saudi Arabia | | | | | No recent, reliable estimate located | | |
| Syrian Arab Republic | | | | | No recent, reliable estimate located | | |
| United Arab Emirates | | | | | No recent, reliable estimate located | | |
| Yemen | | | | | No recent, reliable estimate located | | |
| **South Asia** | | | | | | | |
| Bangladesh | | | | | No recent, reliable estimate located | | |
| Bhutan | | | | | No recent, reliable estimate located | | |
| India | | | | | No recent, reliable estimate located | | |
| Maldives | | | | | No recent, reliable estimate located | | |

Method: HHS=Household survey, SS=School survey, A=Adjusted from other sources, I=Indirect estimates, R=Registry. * approximate estimates

UNODC Adjustments: a=adjusted for age (15-64), b=population-based/household-type study/survey, c=adjusted from a limited geographic population-based study/survey, d=adjusted from school/youth survey, e=adjusted from lifetime/monthly prevalence adjusted to annual prevalence, f=adjusted from specialized population surveys (including Rapid Assessments), g=adjusted from treatment data, h=adjusted from drug registries, i=adjusted from HIV, problematic drug users (only for heroin), j=lifetime prevalence reported,

x=figure may include non-medical use of prescription opioids, z=figures may also include other non-ATS stimulants

The 'Method' and 'UNODC Adj.' columns have been completed only for more recent data included in previous and present issues of the World Drug Report.

**ECSTASY**

**Annual Prevalence of Use as a percentage of the population aged 15-64 (unless otherwise indicated)**

| Country or Territory | UNODC Best Estimate | Uncertainty Range | Ages | Year | Source (original) | Method | UNODC Adjusted |
|---|---|---|---|---|---|---|---|
| Nepal | | | | | No recent, reliable estimate located | | |
| Sri Lanka | | | | | No recent, reliable estimate located | | |
| **EUROPE** | | | | | | | |
| **East Europe** | | | | | | | |
| Belarus | 0.3 | | 15 - 64 | 2007 | ESPAD | SS | c, d, e |
| Moldova (Republic of) | 0.3 | | 15 - 64 | 2008 | Government sources | HHS | |
| Russian Federation* | 0.7 | | 15 - 64 | 2007 | ESPAD | SS | d, e |
| Ukraine | 0.7 | | 15 - 64 | 2007 | ESPAD | SS | d, e |
| **Southeast Europe** | | | | | | | |
| Albania | 1.0 | 0.3 - 2.1 | 15 - 64 | 2006 | Government sources | SS | d, e |
| Bosnia and Herzegovina | 1.4 | 0.4 - 2.7 | 15 - 64 | 2008 | ESPAD | SS | c, d, e |
| Bulgaria | 0.7 | | 15 - 64 | 2008 | ARQ | HHS | |
| Croatia | 0.8 | | 15 - 64 | 2007 | ESPAD | SS | d, e |
| Macedonia (TFYR) | 0.8 | 0.2 - 1.8 | 15 - 64 | 2008 | ESPAD | SS | d, e |
| Montenegro | 0.5 | 0.1 - 1.5 | 15 - 64 | 2008 | ESPAD | SS | d, e |
| Romania | 0.1 | | 15 - 64 | 2007 | ARQ | HHS | |
| Serbia | 0.6 | 0.4 - 0.9 | 15 - 64 | 2008 | Government sources | HHS | a, e |
| Turkey | 0.3 | | 15 - 64 | 2003 | UNODC Estimate | | |
| **West & Central Europe** | | | | | | | |
| Andorra | | | | | No recent, reliable estimate located | | |
| Austria | 0.5 | | 15 - 64 | 2008 | Govt. | HHS | a |
| Belgium | 0.9 | | 15 - 64 | 2008 | ARQ | HHS | |
| *Channel Islands* | | | | | No recent, reliable estimate located | | |
| Cyprus | 0.6 | | 15 - 64 | 2009 | ARQ | HHS | |
| Czech Republic | 3.6 | | 15 - 64 | 2008 | Government | HHS | |
| Denmark | 0.4 | | 16 - 64 | 2008 | ARQ | HHS | |
| Estonia | 1.2 | | 15 - 64 | 2008 | Government | HHS | |
| *Faeroe Islands* | 0.2 | 0.1 - 0.6 | 15 - 64 | 2007 | ARQ | SS | d, e |
| Finland | 0.5 | | 15 - 64 | 2004 | ARQ | | |
| France | 0.5 | | 15 - 64 | 2005 | ARQ | | |
| Germany | 0.4 | | 18 - 64 | 2009 | ARQ | HHS | |
| *Gibraltar* | | | | | No recent, reliable estimate located | | |
| Greece | 0.2 | | 15 - 64 | 2004 | ARQ | | |
| *Greenland* | | | | | No recent, reliable estimate located | | |
| Hungary | 0.5 | 0.2 - 0.8 | 18 - 64 | 2007 | ARQ | HHS | |
| Iceland | 0.5 | | 15 - 64 | 2007 | ESPAD | SS | d, e |
| Ireland | 1.2 | | 15 - 64 | 2007 | Government source | | |
| *Isle of Man* | 1.5 | 0.9 - 2.2 | 15 - 64 | 2007 | ARQ | SS | d, e |
| Italy | 0.7 | | 15 - 64 | 2008 | ARQ | HHS | |
| Latvia | 1.5 | | 15 - 64 | 2007 | ARQ | | |
| Liechtenstein | 0.5 | | 15 - 64 | 2005 | UNODC Estimate | | |
| Lithuania | 1.0 | | 15 - 64 | 2008 | ARQ | HHS | |
| Luxembourg | | | | | No recent, reliable estimate located | | |
| Malta | 0.9 | | 15 - 64 | 2007 | ESPAD | SS | d, e |
| Monaco | 0.9 | | 15 - 64 | 2007 | ESPAD | SS | d, e |
| Netherlands | 1.2 | | 15 - 64 | 2005 | ARQ | | |
| Norway | 0.5 | | 15 - 64 | 2004 | ARQ | | |
| Poland | 0.3 | | 15 - 64 | 2006 | ARQ | | |
| Portugal | 0.4 | | 15 - 64 | 2007 | ARQ | | |
| San Marino | | | | | No recent, reliable estimate located | | |
| Slovakia | 1.6 | | 15 - 64 | 2006 | EMCDDA | HHS | |
| Slovenia | 0.7 | | 15 - 64 | 2007 | ESPAD | SS | d, e |
| Spain | 0.8 | | 15 - 64 | 2010 | Government source | HHS | |
| Sweden | 0.1 | | 15 - 64 | 2008 | ARQ | HHS | |
| Switzerland | 0.3 | 0.1 - 0.5 | 15 - 64 | 2007 | ARQ | HHS, SS | d, e |
| United Kingdom | | | | | No recent, reliable estimate located | | |
| United Kingdom (England and Wales) | 1.6 | | 16 - 59 | 2010 | Government source | HHS | |

Method: HHS=Household survey, SS=School survey, A=Adjusted from other sources, I=Indirect estimates, R=Registry. * approximate estimates

UNODC Adjustments: a=adjusted for age (15-64), b=population-based/household-type study/survey, c=adjusted from a limited geographic population-based study/survey, d=adjusted from school/youth survey, e=adjusted from lifetime/monthly prevalence adjusted to annual prevalence, f=adjusted from specialized population surveys (including Rapid Assessments), g=adjusted from treatment data, h=adjusted from drug registries, i=adjusted from HIV, problematic drug users (only for heroin), j=lifetime prevalence reported,
x=figure may include non-medical use of prescription opioids, z=figures may also include other non-ATS stimulants

The 'Method' and 'UNODC Adj.' columns have been completed only for more recent data included in previous and present issues of the World Drug Report.

**ECSTASY**

**Annual Prevalence of Use as a percentage of the population aged 15-64 (unless otherwise indicated)**

| Country or Territory | UNODC Best Estimate | Uncertainty Range | Ages | Year | Source (original) | Method | UNODC Adjusted |
|---|---|---|---|---|---|---|---|
| United Kingdom (Northern Ireland) | 1.5 | | 16 - 59 | 2008 | Government source | HHS | |
| United Kingdom (Scotland) | 2.5 | | 16 - 64 | 2009 | Government source | HHS | |
| **OCEANIA** | | | | | | | |
| **Oceania** | | | | | | | |
| *American Samoa* | | | | | No recent, reliable estimate located | | |
| Australia | 4.2 | | 15 - 64 | 2007 | Government source/ NGO/Academic | HHS | |
| *Christmas Islands* | | | | | No recent, reliable estimate located | | |
| *Cocos (Keeling) Islands* | | | | | No recent, reliable estimate located | | |
| *Cook Islands* | | | | | No recent, reliable estimate located | | |
| Fiji | | | | | No recent, reliable estimate located | | |
| *French Polynesia* | | | | | No recent, reliable estimate located | | |
| Kiribati | | | | | No recent, reliable estimate located | | |
| Marshall Islands | | | | | No recent, reliable estimate located | | |
| Micronesia (Federated States of) | | | | | No recent, reliable estimate located | | |
| Nauru | | | | | No recent, reliable estimate located | | |
| *New Caledonia* | | | | | No recent, reliable estimate located | | |
| New Zealand | 2.6 | | 16 - 64 | 2008 | Government source | HHS | |
| *Norfolk Island* | | | | | No recent, reliable estimate located | | |
| *Northern Mariana Islands* | | | | | No recent, reliable estimate located | | |
| Palau | | | | | No recent, reliable estimate located | | |
| Papua New Guinea | | | | | No recent, reliable estimate located | | |
| Pitcairn | | | | | No recent, reliable estimate located | | |
| Samoa | | | | | No recent, reliable estimate located | | |
| Solomon Islands | | | | | No recent, reliable estimate located | | |
| Tonga | | | | | No recent, reliable estimate located | | |
| Tuvalu | | | | | No recent, reliable estimate located | | |
| Vanuatu | | | | | No recent, reliable estimate located | | |
| *Wallis and Futuna Islands* | | | | | No recent, reliable estimate located | | |

Method: HHS=Household survey, SS=School survey, A=Adjusted from other sources, I=Indirect estimates, R=Registry. * approximate estimates

UNODC Adjustments: a=adjusted for age (15-64), b=population-based/household-type study/survey, c=adjusted from a limited geographic population-based study/survey, d=adjusted from school/youth survey, e=adjusted from lifetime/monthly prevalence adjusted to annual prevalence, f=adjusted from specialized population surveys (including Rapid Assessments), g=adjusted from treatment data, h=adjusted from drug registries, i=adjusted from HIV, problematic drug users (only for heroin), j=lifetime prevalence reported,
x=figure may include non-medical use of prescription opioids, z=figures may also include other non-ATS stimulants

The 'Method' and 'UNODC Adj.' columns have been completed only for more recent data included in previous and present issues of the World Drug Report.

## 6.1.2 Treatment demand

### 6.1.2.1 Primary drugs of abuse among persons treated for drug problems in Africa

| Country / Territory | Source | Treatment Year | Distribution of main drugs in percentages* | | | | | | | | Treatment Provided ** | Data Primarily Reflect |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | | Cannabis | Opioids | Cocaine | Amphetamine - type Stimulants | Methaqualone | Sedatives and Tranquilisers | Solvents and Inhalants | Khat | | |
| Algeria | ARQ | 1999/ 2009*** | 81.3% | 6.6% | 0.2% | - | - | - | 2.1% | - | 1,086 | |
| Botswana | SENDU/ ARQ | 2003/ 2006*** | 100.0% | | | | | | | | 311 | |
| Burkina Faso | ARQ | 2008 | 58.8% | - | 20.6% | 20.6% | - | - | - | - | 65 | a, d |
| Cape Verde | ARQ | 2006 | | | | | | | | | 57 | |
| Central African Republic | ARQ | 2006 | 100.0% | | | | | | | | 58 | |
| Egypt | ARQ | 2007 | 50.1% | 42.7% | - | 7.2% | - | - | - | - | 129,850 | a |
| Eritrea | ARQ | 2006 | 38.5% | 11.5% | 7.7% | - | - | - | 42.3% | - | 26 | a |
| Ethiopia | ARQ | 2006/ 2009*** | 18.8% | 18.8% | - | - | - | - | - | 62.5% | 781 | |
| Ghana | ARQ | 2008 | 99.1% | 0.1% | 0.8% | - | - | - | - | - | 1,066 | a, d |
| Kenya | University [1] | 2005 | 36.3% | 37.8% | 9.7% | 0.5% | - | 0.5% | 1.2% | 11.4% | 402 | |
| Lesotho | SENDU | 2004 | 100.0% | | | | | | | | 54 | d |
| Madagascar | ARQ | 2007 | 60.8% | - | - | - | - | 39.2% | - | - | 148 | a |
| Malawi | SENDU | 2004 | 100.0% | | | | | | | | 796 | |
| Mauritius | ARQ | 2009 | 19.4% | 80.6% | - | - | - | - | - | - | 1,015 | |
| Mozambique | SENDU | 2004 | 33.3% | 54.7% | 11.4% | - | - | - | - | - | 150 | a |
| Namibia | ARQ | 2005/ 2006*** | 2.4% | 2.4% | 24.4% | 9.8% | 61.0% | - | - | - | 238 | |
| Niger | ARQ | 2006 | 69.2% | - | - | 30.8% | - | - | - | - | 168 | |
| Nigeria | Govt. | 2004 | 89.7% | 1.2% | 0.7% | 2.0% | - | 3.9% | 3.7% | - | 925 | |
| Senegal | GAP | 2005 | 78.0% | 1.0% | 2.0% | 1.0% | - | - | 11.0% | - | 202 | a |
| Seychelles | ARQ | 2007 | 55.0% | 45.0% | - | - | - | - | - | - | 149 | a, d |
| South Africa | ARQ | 2009 | 39.0% | 19.1% | 8.2% | 25.6% | 4.1% | - | - | - | 11,178 | |
| Swaziland | SENDU | 2004 | 92.2% | 0.9% | 0.9% | - | 4.7% | 0.9% | - | - | 128 | |
| Tanzania | SENDU | 2004 | 62.7% | 32.7% | - | - | - | - | - | - | 340 | |
| Togo | ARQ | 2009 | 88.1% | 4.0% | 7.9% | - | - | - | - | - | 151 | d |
| Tunisia | ARQ | 2009 | | | | | | | | | 828 | |
| Zambia | ARQ | 2005 | | | | | | | | | 233 | |
| Total | | | | | | | | | | | 150,405 | |
| Average (unweighted) | | | 64.0% | 18.9% | 5.0% | 5.1% | 3.7% | 2.3% | 3.2% | 3.9% | | |

* Note that treatment definitions and reporting differ from country to country; totals which exceed 100% represent poly-drug use reporting.
** Figures may reflect number of persons or treatment episodes depending on Member State; figures exclude alcohol and nicotine.
*** The second year specified is for the number of people treated (second to last column).

Sources:
UNODC, Annual Reports Questionnaires (ARQ)
Community Epidemiology Network on Drug Use (SENDU)
UNODC Global Assessment Programme on Drug Abuse (GAP)
[1] Proxy: cohort of abusers identified from rehabilitation centres, treatment centres, hospitals, streets, and drug dens within 5 urban areas.

Data primarily reflect (codes)
a Geographically limited reporting (eg the Capital city)
b Publicly funded treatment
c NGO/ privately funded treatment
d Inpatient/ hospitalization modality
e Outpatient modality
f Limited subpopulation (eg prison, youth, etc)
g Opioid substitution treatment (eg methadone)
h First-time treatment entrants (not returning clients)
i Treatment admissions (not persons)

## 6.1.2.2 Primary drugs of abuse among persons treated for drug problems in the Americas

| Country / Territory | Sources | Treatment Year | Distribution of main drugs in percentages* | | | | | | | | | | Treatment Provided ** | Data Primarily Reflect |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | | Cannabis | Opioids | Cocaine Group | | | | Amphetamine-type stimulants | | Solvents and Inhalants | Sedatives and Tranquilisers | | |
| | | | | | Sum of all Cocaine | Cocaine | Basuco | Crack | Amphetamines-Group | Ecstasy-Group | | | | |
| Argentina | ARQ | 2008-09 | 37.0% | 0.7% | 45.4% | 34.7% | 10.7% | | 0.3% | 0.4% | 7.6% | 8.7% | 2,125 | a |
| Bahamas | ARQ | 2006-07 | 72.0% | 0.5% | 27.5% | 27.5% | | | - | - | - | - | 629 | a,b |
| Barbados | ARQ | 2006 | | | | | | | | | | | 111 | |
| Bolivia (Plurinational State of) | ARQ | 2005 | | | | | | | | | | | 14,396 | |
| Brazil | ARQ | 2005 | | | | | | | | | | | 850,000 | |
| Canada | CAMH/ DATIS [1] | 2009-10 | 32.5% | 22.0% | 33.4% | 17.0% | | 16.4% | 3.1% | 2.4% | 0.6% | 3.9% | 58,147 i | (Ontario |
| Chile | ARQ | 2009 | 18.6% | - | 76.0% | 76.0% | | | 0.3% | 0.01% | 0.3% | 4.5% | 8,712 | a |
| Costa Rica | ARQ | 2008 | 30.5% | 0.5% | 64.1% | | | | - | - | - | - | 3,059 | |
| Dominican Republic | ARQ | 2009 | 20.3% | 9.0% | 69.8% | 69.8% | | | 0.3% | 0.6% | - | - | 6,137 | h |
| Ecuador | ARQ | 2008 | 39.9% | 4.2% | 55.5% | 55.5% | | | 0.4% | - | - | - | 3,550 | d, e |
| El Salvador | ARQ | 2004/ 2009*** | 13.8% | - | 63.8% | 17.2% | | 46.6% | - | - | - | - | 6,001 | d, e |
| Grenada | ARQ | 2009 | 71.4% | - | 27.0% | 27.0% | | | - | - | - | - | 252 | |
| Guatemala | ARQ | 2009 | 24.4% | - | 68.0% | 68.0% | | | 2.2% | 2.2% | 3.1% | - | 244 | a,e |
| Haiti | ARQ/ Govt. | 2002/ 2007*** | 35.4% | 2.1% | 37.5% | 37.5% | | | - | - | - | 6.3% | 27 | |
| Honduras | ARQ | 2006 | | | | | | | | | | | 7,500 | |
| Jamaica | ARQ | 2008 | 52.7% | - | 47.3% | 47.3% | | | - | - | - | - | 283 | d |
| Mexico | ARQ | 2009 | 21.2% | 18.2% | 26.9% | | | | 17.9% | - | 11.4% | 2.3% | 38,802 | c |
| Nicaragua | Govt. | 2004 | | | | | | | | | | | 1,502 | d, e |
| Panama | Govt. | 2006 | | | | | | | | | | | 992 | d, e |
| Paraguay | Govt. | 2005 | 39.0% | 1.4% | 33.0% | 22.0% | 2.6% | 8.4% | 1.6% | 0.2% | 9.7% | 15.1% | 804 | |
| Peru | Govt. | 2009 | 13.6% | 6.3% | 41.8% | | | | - | - | 5.4% | 4.4% | 3,376 | |
| *Puerto Rico* | Govt. (TEDS) | 2009 | 20.8% | 62.6% | 12.6% | 12.6% | | | - | - | - | 0.8% | 1,331 | |
| Saint Kitts and Nevis | ARQ | 2009 | 86.1% | - | 13.9% | 13.9% | | | - | - | - | - | 44 | f |
| Saint Lucia | ARQ | 2005 | 17.5% | - | 82.5% | 82.5% | | | - | - | - | - | 40 | d |
| Saint Vincent and the Grenadines | ARQ/ Govt. | 2004/ 2005*** | 75.3% | - | 24.7% | 24.7% | | | - | - | - | - | 196 | d |
| Trinidad and Tobago | ARQ | 2006/ 2009*** | 48.8% | - | 51.1% | 51.1% | | | - | - | - | - | 3,405 | |
| Uruguay | ARQ | 2009 | | | 43.6% | | 43.6% | | | | | | 4,396 | |
| United States of America | Govt. (TEDS) | 2008 | 29.3% | 34.1% | 19.5% | 19.5% | | | 10.9% | | 0.1% | 1.5% | 1,546,103 | b |
| Venezuela (Bolivarian Republic of) | ARQ | 2009 | 16.8% | 8.6% | 73.6% | 38.8% | 4.1% | 30.7% | 0.1% | 0.2% | | 0.7% | 5,097 | a, b, c |
| Total | | | | | | | | | | | | | 2,565,930 | |
| North America | | | 27.7% | 24.8% | 26.6% | | | | 10.6% | 1.2% | 4.0% | 2.6% | 1,643,052 | |
| South America (incl. the Caribbean and Central America) | | | 39.6% | 1.9% | 49.8% | | | | 0.3% | 0.2% | 1.5% | 2.2% | 922,878 | |
| Average (unweighted) | | | 37.9% | 5.1% | 46.6% | | | | 1.8% | 0.3% | 1.9% | 2.3% | | |

* Note that treatment definitions and reporting differ from country to country; totals which exceed 100% represent poly-drug use reporting
** Figures may reflect number of persons or treatment episodes depending on Member State; figures exclude alcohol and nicotine.
*** The second year specified is for the number of people treated (second to last column).

Sources:
UNODC Annual Reports Questionnaires data (ARQ)
Substance Abuse and Mental Health Services Administration (SAMHSA), Treatment Episode Dataset TEDS, USA
Centre for Addiction and Mental Health (CAMH), Drug and Alcohol Treatment Information System (DATIS), Canada
[1] Number for treatment provided estimated by UNODC

Data primarily reflect (codes)
a Geographically limited reporting (eg the Capital city)
b Publicly funded treatment
c NGO/ privately funded treatment
d Inpatient/ hospitalization modality
e Outpatient modality
f Limited subpopulation (eg prison, youth, etc)
g Opioid substitution treatment (eg methadone)
h First-time treatment entrants (not returning clients)
i Treatment admissions (not persons)

## 6.1.2.3 Primary drugs of abuse among persons treated for drug problems in Asia

| Country / Territory | Source | Treatment Year | Distribution of main drugs in percentages* | | | | | | | | Treatment Provided ** | Data Primarily Reflect |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | | Cannabis | Opioids | Cocaine | Amphetamine-type stimulants | | Solvents and Inhalants | Sedatives and Tranquilisers | Other † | | |
| | | | | | | Amphetamines-Group | Ecstasy-Group | | | | | |
| Afghanistan | ARQ | 2009 | | | | | | | | | 8,424 | a |
| Armenia | ARQ | 2009 | - | 70.0% | - | - | - | - | - | 30.0% | 257 | |
| Azerbaijan | ARQ / UNODC Estimate | 2003 | 20.0% | 75.0% | - | - | - | 5.0% | - | | | |
| Bangladesh | DAINAP | 2007/ 2009*** | 15.0% | 76.9% | - | - | - | - | - | | 3,800 | a |
| Brunei Darussalam | DAINAP | 2009 | - | - | - | 99.0% | - | 1.0% | - | | 103 | b |
| China | Govt. / DAINAP | 2008/ 2009*** | - | 79.7% | - | 19.1% | - | - | - | | 173,000 | f |
| Cambodia | DAINAP | 2009 | 0.3% | 4.3% | - | 90.0% | 0.3% | - | - | | 1,305 | f |
| Georgia | ARQ | 2009 | 0.9% | 88.1% | - | 8.4% | - | - | 2.6% | | 255 | a |
| *China, Hong Kong SAR* | Govt / ARQ | 2008/ 2009*** | 6.0% | 57.9% | - | 8.7% | - | - | - | 27.4% | 12,557 | f / i |
| India | ARQ | 2009 | 18.6% | 65.8% | 0.3% | 0.3% | - | 2.4% | 12.2% | | 7,430 | b |
| Indonesia | DAINAP | 2009 | 11.9% | 72.5% | 0.6% | 8.9% | 3.3% | 0.7% | 2.2% | | 14,852 | |
| Iran (Islamic Republic of) | Govt./ ARQ | 2008/ 2009*** | 1.7% | 83.4% | 0.2% | 2.6% | 0.1% | - | - | | 660,000 | |
| Israel | ARQ | 2009 | | | | | | | | | 15,000 | b |
| Japan | Govt. / DAINAP | 2005/ 2008*** | 2.3% | - | - | 55.1% | - | 14.5% | - | 28.2% | 11,130 | |
| Jordan | ARQ | 1999 | - | 21.4% | - | 45.2% | - | 6.0% | - | | 85 | |
| Kazakhstan | ARQ | 2009 | 3.4% | 95.8% | - | 0.1% | - | 0.7% | - | | 4,973 | d |
| Kuwait | ARQ | 2009 | 28.4% | 31.2% | 0.5% | 21.8% | 0.5% | 1.5% | 16.1% | | 197 | d, f |
| Kyrgyzstan | ARQ | 2009 | 2.5% | 96.6% | - | - | - | - | - | | 322 | |
| Lao People's Democratic Republic | DAINAP | 2009 | - | - | - | 95.0% | - | - | - | | 1,964 | a |
| Lebanon | ARQ / UNODC Estimate | 2004/ 2009*** | 32.0% | 57.0% | 4.0% | 0.5% | - | - | 6.0% | | 1,022 | f |
| *China, Macao SAR* | ARQ | 2009 | 0.5% | 81.0% | - | 1.9% | - | - | | 16.6% | 416 | |
| Malaysia | DAINAP | 2008/ 2009*** | 14.6% | 73.2% | - | 12.2% | - | - | - | | 15,645 | |
| Maldives | ARQ | 2003 | 13.0% | 87.0% | - | - | - | - | - | | 126 | d, e |
| Mongolia | ARQ | 2001 | 28.6% | 71.4% | - | - | - | - | - | | 7 | |
| Myanmar | ARQ | 2009 | 1.1% | 96.7% | - | 2.2% | - | - | - | | 1,066 | a, b |
| Nepal | ARQ | 2006 | | | | | | | | | 900 | a |
| Oman | ARQ | 2002 | - | 100.0% | - | - | - | - | - | | 7 | f |
| Pakistan | ARQ | 2006-07 | 40.7% | 44.0% | - | - | - | - | - | 15.4% | 3,640 | a |
| Philippines | DAINAP | 2009 | 37.9% | - | 1.5% | 58.6% | 1.6% | - | - | | 2,863 | |
| Qatar | ARQ | 2008 | | | | | | | | | 150 | a, d |
| Korea (Republic of) | DAINAP | 2009 | 2.2% | - | - | 97.8% | - | - | - | | 324 | |
| Saudi Arabia | Govt./ University | 2005-06 | 55.8% | 7.5% | - | 72.8% | - | 0.7% | 5.5% | | 1,059 | a, d |
| Singapore | ARQ | 2009 | 5.0% | 50.1% | - | 26.7% | 1.3% | - | 9.0% | 7.9% | 535 | |
| Syrian Arab Republic | ARQ | 2006 | 0.2% | 94.9% | 0.9% | - | - | - | 4.1% | | 674 | |
| Sri Lanka | DAINAP | 2009 | 23.0% | 50.0% | - | - | - | - | - | 27.0% | 2,975 | f |
| *Taiwan, Province of China* | NBCD DOH | 2009 | 0.1% | 73.1% | 0.01% | 22.1% | 0.2% | | 4.2% | | 19,125 | d |
| Tajikistan | Govt. | 2008 | 0.1% | 88.3% | - | - | - | - | - | 11.6% | 1,152 | d |
| Thailand | DAINAP | 2009 | 7.4% | 3.1% | 0.02% | 82.4% | 0.3% | 5.4% | - | | 106,408 | |
| Turkmenistan | ARQ | 2007 | 3.3% | 96.7% | - | - | - | - | - | | 28,720 | d, e |
| United Arab Emirates | ARQ | 2008/ 2009*** | 35.7% | 64.3% | - | - | - | - | - | | 55 | |
| Uzbekistan | ARQ | 2009 | 7.9% | 92.1% | - | - | - | - | - | | 5,497 | b |
| Viet Nam | DAINAP | 2008/ 2009*** | 0.8% | 98.0% | - | 0.4% | - | - | - | | 64,809 | |
| Total | | | | | | | | | | | 1,172,829 | |
| Average (unweighted) | | | 11.1% | 59.1% | 0.2% | 21.9% | 0.2% | 1.0% | 1.7% | | | |

* Note that treatment definitions and reporting differ from country to country; totals which exceed 100% represent poly-drug use reporting.
** Figures may reflect number of persons or treatment episodes depending on Member State; figures exclude alcohol and nicotine.
*** The second year specified is for the number of people treated (second to last column).

† Other drug category refers to Tianeptine (Armenia), Ketamine (China, Macao SAR and Singapore), or otherwise unspecified.

Sources:
UNODC, Annual Reports Questionnaire (ARQ) and Field Office (FO) data
UNODC Drug Abuse Information Network for Asia and the Pacific (DAINAP).
National Bureau of Controlled Drugs (NBCD), Department of Health (DOH), Taiwan

Data primarily reflect (codes)
a Geographically limited reporting (eg the Capital city)
b Publicly funded treatment
c NGO/ privately funded treatment
d Inpatient/ hospitalization modality
e Outpatient modality
f Limited subpopulation (eg prison, youth, etc)
g Opioid substitution treatment (eg methadone)
h First-time treatment entrants (not returning clients)
i Treatment admissions (not persons)

## 6.1.2.4 Primary drugs of abuse among persons treated for drug problems in Europe

| Country / Territory | Source | Treatment Year | Distribution of main drugs in percentages* | | | | | | | | Treatment Provided ** | Data Primarily Reflect |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | | Cannabis | Opioids | Cocaine | Amphetamine-type stimulants | | Hallucinogens | Sedatives and Tranquilisers | Solvents and Inhalants | Other † | |
| | | | | | | Amphetamines-group | Ecstasy-group | | | | | |
| Albania | EMCDDA | 2007 | 5.6% | 89.0% | 2.2% | - | - | - | 0.2% | - | 2,070 | b |
| Andorra | ARQ | 2008 | | 8.3% | | | | | | | 91.7% 252 | a, d |
| Austria | EMCDDA | 2008 | 18.5% | 69.0% | 7.1% | 1.6% | 0.6% | 0.3% | - | - | 5,311 | |
| Belarus | ARQ | 2004/ 2008*** | 15.2% | 63.2% | 0.1% | 3.6% | - | 1.2% | 3.0% | 12.3% | 4,843 | d/ a, d, e |
| Belgium | ARQ | 2006 | 34.0% | 36.2% | 18.9% | 10.1% | 0.8% | - | - | - | 7,261 | |
| Bosnia and Herzegovina | ARQ | 2007/ 2008*** | 48.3% | 48.3% | 0.7% | 1.7% | 1.0% | - | - | - | 563 | a |
| Bulgaria | ARQ | 2008 | 0.9% | 97.1% | 0.1% | 1.6% | - | - | 0.2% | - | 2,009 | a, d, e |
| Croatia | ARQ | 2009 | 10.5% | 82.7% | 1.9% | 1.8% | 0.7% | - | 2.4% | - | 7,733 | d, e |
| Cyprus | ARQ | 2009 | 32.2% | 50.4% | 14.0% | 0.4% | 0.5% | - | 1.1% | - | 852 | b |
| Czech Republic | ARQ | 2009 | 13.1% | 24.0% | 0.4% | 60.9% | 0.1% | 0.1% | - | 0.5% | 8,763 | |
| Denmark | ARQ | 2008 | 38.9% | 41.4% | 6.7% | 9.9% | 0.9% | 0.02% | 2.2% | 0.1% | 4,232 | d, e |
| Estonia | EMCDDA | 2008 | 1.3% | 96.6% | - | 1.8% | - | - | - | - | 625 | |
| Finland | ARQ | 2008 | 11.0% | 61.0% | - | 19.5% | - | - | 8.5% | - | 3,369 | |
| France | ARQ | 2008 | 35.3% | 51.0% | 7.5% | 0.3% | 0.7% | 0.3% | 2.8% | - | 90,757 | e |
| Germany | ARQ | 2008 | 31.8% | 35.5% | 14.7% | 9.5% | 4.9% | 3.3% | - | 0.3% | 43,058 | e |
| *Gibraltar* | ARQ | 2008 | 23.8% | 4.8% | 66.7% | - | - | - | 4.8% | - | 41 | d |
| Greece | EMCDDA | 2008 | 8.7% | 85.3% | 4.0% | - | 0.1% | - | - | - | 4,682 | |
| Macedonia (TFYR) | ARQ | 2009 | 6.8% | 92.0% | 1.3% | - | - | - | - | - | 1,212 | |
| Hungary | ARQ | 2009 | 71.2% | 10.6% | 2.4% | 10.2% | 1.0% | 0.5% | 3.4% | 0.7% | 4,317 | |
| Iceland | ARQ | 2007 | 33.3% | 2.8% | 16.7% | 38.9% | 11.1% | - | - | - | 1,800 | a |
| Ireland | EMCDDA | 2008 | 18.3% | 64.2% | 11.7% | 0.6% | 1.6% | 0.1% | - | - | 6,387 | |
| *Isle of Man* | Govt. | 2009 | 39.4% | 17.7% | 17.1% | 4.6% | 4.6% | 2.9% | 13.7% | - | 196 | |
| Italy | ARQ | 2009 | 9.3% | 69.9% | 16.2% | 0.1% | 0.3% | - | 0.5% | - | 166,386 | |
| Latvia | ARQ | 2009 | 19.1% | 36.9% | 0.7% | 28.2% | 0.2% | - | 6.7% | 3.3% | 5.0% 466 | b, e |
| Liechtenstein | ARQ | 2006 | 81.3% | - | 15.6% | 3.1% | - | - | - | - | 32 | |
| Lithuania | ARQ | 2009 | 0.8% | 91.9% | 0.2% | 3.1% | - | - | 1.5% | 2.6% | 5,954 | |
| Luxembourg | EMCDDA | 2008 | 0.6% | 82.0% | 13.5% | 0.3% | 2.8% | 0.6% | - | - | 327 | |
| Malta | ARQ | 2009 | 6.3% | 83.8% | 9.4% | - | 0.5% | - | - | - | 1,682 | |
| Moldova (Republic of) | ARQ | 2009 | 17.4% | 82.6% | - | - | - | - | - | - | 2,160 | |
| Monaco | ARQ | 2009 | | | | | | | | | 175 | |
| Netherlands | ARQ | 2008 | 25.9% | 39.2% | 29.9% | 4.5% | 0.6% | - | - | - | 32,444 | |
| Norway | Govt. | 2008 | 16.9% | 50.4% | 1.6% | 18.5% | - | - | - | - | 12.5% 9,657 | d, e, i |
| Poland | Govt./ ARQ | 2006/ 2007*** | 2.9% | 17.1% | 0.3% | 7.8% | - | 0.4% | 10.2% | 1.3% | 60.1% 12,582 | d |
| Portugal | ARQ | 2009 | 3.5% | 49.8% | 4.3% | 0.02% | 0.1% | - | 0.1% | - | 42.2% 36,668 | |
| Romania | ARQ | 2009 | 6.3% | 74.0% | 0.8% | 0.2% | 0.2% | - | - | - | 18.6% 1,703 | |
| Russian Federation | ARQ | 2009 | 0.8% | 95.2% | 0.03% | 0.3% | - | - | - | - | 91,229 | b |
| Slovakia | ARQ | 2009 | 19.0% | 42.6% | 0.6% | 30.1% | 0.1% | - | 3.1% | 4.4% | 1,909 | |
| Slovenia | ARQ | 2008 | 6.5% | 86.5% | 3.6% | 0.1% | 0.1% | - | 3.2% | - | 3,169 | e |
| Spain | ARQ | 2007 | 10.9% | 39.9% | 45.6% | 0.8% | 0.4% | 0.1% | 1.6% | - | 50,555 | |
| Sweden | ARQ | 2008 | 19.9% | 31.8% | 1.6% | 33.4% | 0.3% | - | 11.6% | - | 4,298 | d, e |
| Switzerland | ARQ | 2007/ 2009*** | 26.0% | 59.6% | 13.7% | 0.4% | 0.4% | - | - | - | 30,000 | |
| Turkey | ARQ | 2008 | 29.8% | 53.0% | 3.4% | 0.1% | 2.3% | - | 2.3% | 9.2% | 2,145 | d |
| Ukraine | ARQ | 2009 | 12.0% | 58.0% | 0.2% | 25.7% | - | 0.1% | - | - | 5,930 | |
| United Kingdom | EMCDDA | 2007-08 | 16.4% | 61.9% | 13.9% | 3.5% | 0.7% | 0.3% | - | - | 3.4% 132,003 | d, e |
| Total Europe | | | | | | | | | | | 791,807 | |
| Total East & Southeast Europe | | | | | | | | | | | 121,597 | |
| Total West & Central Europe | | | | | | | | | | | 670,210 | |
| Average (unweighted) Europe | | | 19.8% | 54.4% | 8.8% | 8.0% | 0.9% | 0.2% | 2.0% | 0.8% | | |
| Average (unweighted) East & Southeast Europe | | | 14.0% | 75.9% | 1.0% | 3.2% | 0.4% | 0.1% | 0.7% | 2.0% | | |
| Average (unweighted) West & Central Europe | | | 21.8% | 46.9% | 11.6% | 9.7% | 1.1% | 0.3% | 2.4% | 0.4% | | |

* Note that treatment definitions and reporting differ from country to country; totals which exceed 100% represent poly-drug use reporting.

** Figures may reflect number of persons or treatment episodes depending on Member State; figures exclude alcohol and nicotine.

*** The second year specified is for the number of people treated (second to last column).

† Other drug category represents Ketamine and other sedatives and hypnotics (Romania), ICD10-F19 "Mental and behavioural disorders due to multiple drug use and use of other psychoactive substances" (Poland), or otherwise unspecified.

Sources:
UNODC, Annual Reports Questionnaires (ARQ)
European Monitoring Centre for Drugs and Drug Addiction (EMCDDA)

Data primarily reflect (codes)

a Geographically limited reporting (eg the Capital city)
b Publicly funded treatment
c NGO/ privately funded treatment
d Inpatient/ hospitalization modality
e Outpatient modality
f Limited subpopulation (eg prison, youth, etc)
g Opioid substitution treatment (eg methadone)
h First-time treatment entrants (not returning clients)
i Treatment admissions (not persons)

## 6.1.2.5 Primary drugs of abuse among persons treated for drug problems in Oceania

| Country / Territory | Source | Treatment Year | Distribution of main drugs in percentages* | | | | | | | Treatment Provided ** | Data Primarily Reflect |
|---|---|---|---|---|---|---|---|---|---|---|---|
| | | | Cannabis | Opioids | Cocaine | Amphetamine-type stimulants | | Hallucinogens | Sedatives and Tranquilisers | | |
| | | | | | | Amphetamines-group | Ecstasy-group | | | | |
| Australia | ARQ | 2007-08 | 38.8% | 23.3% | 0.6% | 20.2% | 1.6% | - | - | 82,019 | b, i |
| New Zealand | DAINAP | 2009 | 43.4% | 41.3% | 0.4% | 13.7% | - | 1.2% | - | 5,038 | b, d |
| Fiji | DAINAP | 2006 | 87.2% | - | - | - | - | - | 12.8% | 312 | f |
| Total | | | | | | | | | | 87,369 | |
| Average (unweighted) † | | | 41.1% | 32.3% | 0.5% | 17.0% | 0.8% | 0.6% | - | | |

* Note that treatment definitions and reporting differ from country to country; totals which exceed 100% represent poly-drug use reporting.

** Figures may reflect number of persons or treatment episodes depending on Member State; figures exclude alcohol and nicotine.

*** The second year specified is for the number of people treated (second to last column).

† Fiji is excluded because of the disproportionate affect that the small number in treatment has on the unweighted mean

Sources:
UNODC Drug Abuse Information Network for Asia and the Pacific (DAINAP)

Data primarily reflect (codes)

a Geographically limited reporting (eg the Capital city)
b Publicly funded treatment
c NGO/ privately funded treatment
d Inpatient/ hospitalization modality
e Outpatient modality
f Limited subpopulation (eg prison, youth, etc)
g Opioid substitution treatment (eg methadone)
h First-time treatment entrants (not returning clients)
i Treatment admissions (not persons)

## 6.1.3 Health consequences

### 6.1.3.1 Drug-related death

| Region / Country | Year of estimate | National estimate | Number of deaths | Reference population * | Rate per million (aged 15-64) | Ranking of drugs as primary cause of death | | | | | | | | Fatal drug overdoses (%) |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | | | | | Cannabis | Opioids | Cocaine | ATS | Ecstasy | Sedatives | Inhalents | Other | |
| **AMERICAS** | | | | | | | | | | | | | | |
| **North America** | | | | | | | | | | | | | | |
| Canada | 2005 | ✓ | 2,182 | 23,377,266 | 93.3 | | | | | | | | | |
| Mexico | 2009 | ✓ | 4,562 | 71,376,666 | 63.9 | 2 | 4 | 1 | 5 | | 3 | | | |
| United States of America | 2006 | ✓ | 38,396 | 210,501,532 | 182.4 | | | | | | | | | |
| **North America†** | | | **45,100** | | **147.9** | | | | | | | | | |
| **Caribbean** | | | | | | | | | | | | | | |
| Bahamas | 2007 | ✓ | 2 | 231,328 | 8.6 | | | | | | | | 1 | 0% |
| Dominican Republic | 2008 | × | 135 | | | 2 | | 1 | | 3 | | | | |
| Trinidad and Tobago | 2009 | ✓ | 3 | 971,480 | 3.1 | | | 1 | | | | | | |
| **Central America** | | | | | | | | | | | | | | |
| Costa Rica | 2006 | × | 204 | | | 2 | 3 | 1 | | | 5 | | 4 | |
| El Salvador | 2009 | × | 145 | 3,731,556 | 38.9 | | | | | | | | | |
| **South America** | | | | | | | | | | | | | | |
| Argentina | 2006 | ✓ | 315 | 25,890,285 | 12.2 | | | 1 | 2 | | | | | |
| Brazil | 2007 | ✓ | 158 | 130,461,732 | 1.2 | 2 | 4 | 1 | 6 | | 5 | 3 | | |
| Colombia | 2000 | ✓ | 1,225 | 29,848,575 | 41.0 | | 3 | 1 | | | | | 2 | |
| Uruguay | 2004 | × | 14 | | | | | | | | | | | 100% |
| Venezuela (Bolivarian Republic of) | 2008 | ✓ | 48 | 5,822,473 | 8.2 | 2 | | 1 | | | | | | |
| **South America, Central America, Caribbean†** | | | **range: 2,200 - 6,300** | | **7.0 - 20.5** | **2** | **3** | **1** | **4** | **6** | **4** | **6** | | |
| **AFRICA** | | | | | | | | | | | | | | |
| **East Africa** | | | | | | | | | | | | | | |
| Seychelles | 2007 | ✓ | 5 | 59,058 | 84.7 | | 1 | | | | | | | 80% |
| **Southern Africa** | | | | | | | | | | | | | | |
| Namibia | 2001 | × | 3 | | | | 1 | | | | | | | 100% |
| South Africa | 2009 | | | | | | 1 | | 2 | | | | | |
| Zambia | 2001? | | 7 | | | | 1 | | | | | | | 29% |
| **ASIA** | | | | | | | | | | | | | | |
| **East and South-East Asia** | | | | | | | | | | | | | | |
| China | 2002 | ✓ | 1,737 | 965,401,696 | 1.8 | | | | | | | | | |
| *China, Hong Kong SAR* | 2008 | ✓ | 155 | 5,289,006 | 29.3 | | 1 | | | | | | 2 | |
| Japan | 2009 | | | | | | | | 1 | | | | | |
| Myanmar | 2009 | | | | | | 1 | | | | | | | |
| Viet Nam | 2009 | ✓ | 2,184 | 59,827,591 | 36.5 | | 1 | | | | | | | |
| **Near and Middle East /South-West Asia** | | | | | | | | | | | | | | |
| Afghanistan | 2009 | × | 16 | 1,857,939 | 8.6 | | 1 | | | | | | | 100% |
| Bahrain | 2009 | ✓ | 25 | 564,893 | 44.3 | | 1 | | | | | | | 100% |
| Iran (Islamic Republic of) | 2008 | ✓ | 4,800 | 52,747,616 | 91.0 | | 1 | | | | | | | |
| Israel | 2009 | | | | | | 1 | | 2 | | | | | |

**Drug-related mortality with ranking of drugs as primary cause of death (2009 or latest year available)**

| Region / Country | Year of estimate | National estimate? | Number of deaths | Reference population * | Rate per million (aged 15-64) | Ranking of drugs as primary cause of death | | | | | | | | Fatal drug overdoses (%) |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | | | | | Cannabis | Opioids | Cocaine | ATS | Ecstasy | Sedatives | Inhalents | Other | |
| Jordan | 2003 | ✓ | 52 | 3,908,966 | 13.3 | | | | | | | | | |
| Kuwait | 2009 | ✓ | 44 | 2,221,503 | 19.8 | | | | | | | | | 100% |
| Oman | 2002 | ✓ | 5 | 1,865,299 | 2.7 | | 1 | | | | | | | |
| Pakistan | 2009 | | | | | | 1 | | 2 | | | | | |
| Qatar | 2009 | | | | | | 1 | | | | | | | |
| United Arab Emirates | 2009 | ✓ | 17 | 3,671,794 | 4.6 | | 1 | | | | | | 2 | |
| **Central Asia and Transcaucasian countries** | | | | | | | | | | | | | | |
| Azerbaijan | 2007 | ✓ | 41 | 6,104,384 | 6.7 | | 2 | | | | 1 | | | |
| Georgia | 2008 | | | | | | 1 | | 2 | | | | | |
| Kazakhstan | 2008/ 2009** | ✓ | 1,244 | 10,814,002 | 115.0 | | 1 | | | | | | | 7% |
| Kyrgyzstan | 2009 | | | | | | 1 | | | | | | | |
| Uzbekistan | 2007/ 2009** | ✓ | 129 | 18,202,649 | 7.1 | | 1 | | | | | | | 42% |
| **South Asia** | | | | | | | | | | | | | | |
| India | 2008 | | | | | | 1 | | | | | | | |
| **Asia†** | | **range: 15,300 - 140,200** | | | **5.6 - 51.5** | | **1** | | **2** | | **3** | | | |
| | | | | | **OCEANIA** | | | | | | | | | |
| Australia | Various | ✓ | 1,705 | 14,338,523 | 118.9 | | 1 | 3 | 2 | | | | | 22% |
| **Oceania†** | | | **2,800** | | **118.9** | | | | | | | | | |
| | | | | | **EUROPE** | | | | | | | | | |
| **West & Central Europe** | | | | | | | | | | | | | | |
| Austria | 2007 | ✓ | 195 | 5,667,083 | 34.4 | | 1 | 2 | | | | | | 90% |
| Belgium | 2004 | × | 44 | | | | 1 | 2 | | | | | | |
| Cyprus | 2009 | × | 15 | 558,995 | 26.8 | 3 | 1 | 2 | | | | | | 80% |
| Czech Republic | 2008 | ✓ | 447 | 7,361,630 | 60.7 | | 3 | | 2 | | | 4 | 1 | 53% |
| Denmark | 2008 | ✓ | 239 | 3,582,571 | 66.7 | | 1 | 2 | 2 | | | | | 82% |
| Estonia | 2002 | ✓ | 86 | 909,613 | 94.5 | | | | | | | | | |
| Finland | 2008 | ✓ | 244 | 3,542,832 | 68.9 | 2 | 1 | | 3 | | | | | |
| France | 2007 | ✓ | 287 | 40,432,713 | 7.1 | | 1 | 2 | 3 | 4 | | | | 100% |
| Germany | 2008 | ✓ | 1,449 | 54,427,876 | 26.6 | | 1 | 2 | 3 | 4 | | | | |
| *Gibraltar* | 2008 | ✓ | 1 | 20,614 | 48.5 | | | | | 1 | | | | 0% |
| Greece | 2004 | ✓ | 226 | 7,540,475 | 30.0 | | 1 | | | | | | | 100% |
| Hungary | 2009 | ✓ | 50 | 6,890,948 | 7.3 | 2 | 1 | 3 | 3 | | | | | 62% |
| Iceland | 2007 | ✓ | 37 | 218,545 | 169.3 | | 1 | | 2 | | 3 | | | 100% |
| Ireland | 2005 | ✓ | 326 | 3,076,027 | 106.0 | | 1 | 2 | | 3 | | 4 | | 49% |
| Italy | 2009 | ✓ | 484 | 39,261,602 | 12.3 | | 1 | 3 | 4 | | 4 | | 2 | 100% |
| Latvia | 2009 | ✓ | 43 | 1,549,789 | 27.7 | | 1 | 4 | 2 | 3 | | | | 42% |
| Liechtenstein | 2008 | ✓ | 1 | 24,922 | 40.1 | | 1 | | | | | | | 0% |
| Lithuania | 2009 | ✓ | 68 | 2,264,376 | 30.0 | | 2 | | | | | | 1 | 81% |
| Luxembourg | 2002 | ✓ | 35 | 331,468 | 105.6 | | 1 | 2 | | | | | | 100% |
| Malta | 2009 | ✓ | 6 | 286,264 | 21.0 | | 1 | | | | | | | 100% |

**Drug-related mortality with ranking of drugs as primary cause of death (2009 or latest year available)**

| Region / Country | Year of estimate | National estimate? | Number of deaths | Reference population * | Rate per million (aged 15-64) | Ranking of drugs as primary cause of death | | | | | | | | Fatal drug overdoses (%) |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | | | | | Cannabis | Opioids | Cocaine | ATS | Ecstasy | Sedatives | Inhalents | Other | |
| Monaco | 2009 | ✓ | 0 | 20,475 | 0.0 | | | | | | | | | |
| Netherlands | 2008 | ✓ | 129 | 11,151,671 | 11.6 | | 1 | 2 | | | | | 3 | 100% |
| Norway | 2008 | ✓ | 179 | 3,187,637 | 56.2 | | 1 | | | | | | | |
| Poland | 2007 | ✓ | 214 | 27,287,709 | 7.8 | | 2 | 3 | | | | | 1 | |
| Portugal | 2006 | ✓ | 8 | 7,180,097 | 1.1 | | | | | | | | | 100% |
| Slovakia | 2007 | ✓ | 102 | 3,920,448 | 26.0 | | | | | | | | | 31% |
| Slovenia | 2005 | ✓ | 44 | 1,413,528 | 31.1 | | 1 | 3 | | | | | 2 | 16% |
| Spain | 2006 | ✓ | 1,638 | 32,950,551 | 49.7 | 4 | 1 | 2 | 5 | 6 | 3 | | | 50% |
| Sweden | 2008 | ✓ | 419 | 6,052,357 | 69.2 | | 1 | 3 | 2 | | | | | 51% |
| Switzerland | 2008 | × | 129 | 5,124,258 | 25.2 | | | | | | | | | |
| United Kingdom | 2008 | ✓ | 2,278 | 40,716,118 | 55.9 | | 1 | 3 | 4 | 5 | 2 | | | |
| **Southeast Europe** | | | | | | | | | | | | | | |
| Albania | 2004 | ✓ | 8 | 2,111,663 | 3.8 | | | | | | | | | 100% |
| Bosnia and Herzegovina | 2009 | ✓ | 1 | 2,664,722 | 0.4 | | 1 | | | | | | | 100% |
| Bulgaria | 2008 | ✓ | 74 | 5,215,908 | 14.2 | | | | | | | | | |
| Croatia | 2009 | ✓ | 90 | 2,987,872 | 30.1 | 2 | 1 | 4 | | | 2 | 5 | | 69% |
| Macedonia (TFYR) | 2009 | ✓ | 23 | 1,434,979 | 16.0 | | 1 | 5 | 4 | | 2 | | 3 | 39% |
| Romania | 2009 | × | 32 | 2,975,142 | 10.8 | | 1 | | | | 2 | | 3 | 53% |
| Serbia | 2008 | ✓ | 138 | 6,686,525 | 20.6 | | 1 | 2 | | | | | | |
| Turkey | 2007 | ✓ | 153 | 50,350,280 | 3.0 | | 1 | | | | | | | |
| **East Europe** | | | | | | | | | | | | | | |
| Belarus | 2008 | ✓ | 109 | 6,907,225 | 15.8 | 3 | 1 | | 5 | | | 2 | 3 | 12% |
| Moldova (Republic of) | 2009 | ✓ | 45 | 2,595,820 | 17.3 | | | | | | | | | 24% |
| Russian Federation | 2008 | ✓ | 7,464 | 101,615,465 | 73.5 | | | | | | | | | 17% |
| Ukraine | 2009 | ✓ | 7,597 | 32,169,000 | 236.2 | | | 1 | | | | | | 100% |
| **Europe†** | | **range: 25,200 - 26,700** | | | **45.6 - 48.4** | **5** | **1** | **2** | **3** | **6** | **4** | **7** | | |

Source: UNODC Annual Reports Questionnaire (ARQ)

Notes
† Regional total deaths and rates are estimates corrected for non-reporting countries. Number of deaths are rounded to nearest 100.
* Reference population refers to the population aged 15-64 for national estimates or the reference population as specified in the ARQ for partial country estimates or sub-populations
** All drug-related deaths refer to the first year stated, deaths from drug overdose to the second year. The percentage of fatal overdoses therefore reflects data from different years

Switzerland: Total drug-related deaths reported excludes two Cantons - estimated to be 10 cases in the calculation of the mortality rate
Romania: Includes only counties reporting with conclusive toxicological tests (representing under 20% of the population)
Belarus: Deaths among drug users registered on the Narcological Register
Russian Federation: Deaths among persons registered with the State Service for Drug Abuse Treatment

### 6.1.3.2 Hepatitis C among injecting drug users

| Region | Country | Year Of Estimate | Prevalence (%) |
|---|---|---|---|
| Africa | Egypt | 2007 | 55 |
| | Kenya | 2004 | 70 |
| | Mauritius | 2009 | 97 |
| Americas | Argentina | 2009 | 2 |
| | Canada | 2008 | 69 |
| | Mexico | 2005 | 96 |
| | Uruguay | 2004 | 22 |
| Asia | Azerbaijan | 2007 | 30 |
| | Bangladesh | 2004 | 54 |
| | China, Hong Kong SAR | 2009 | 50 |
| | China, Macao SAR | 2009 | 89 |
| | Indonesia | 2004 | 82 |
| | Israel | 2008 | 55 |
| | Japan | 2004 | 37 |
| | Kazakhstan | 2009 | 60 |
| | Korea (Republic of) | 2004 | 80 |
| | Kuwait | 2008 | 40 |
| | Lebanon | 2009 | 2 |
| | Myanmar | 2007 | 79 |
| | Oman | 2007 | 27 |
| | Pakistan | 2007 | 20 |
| Europe | Albania | 2006 | 22 |
| | Austria | 2007 | 42 |
| | Belgium | 2008 | 49 |
| | Bosnia and Herzegovina | 2006 | 67 |
| | Bulgaria | 2009 | 61 |
| | Croatia | 2009 | 42 |
| | Czech Republic | 2009 | 30 |
| | Finland | 2008 | 1 |
| | France | 2008 | 40 |
| | Germany | 2008 | 36 |
| | Greece | 2004 | 61 |
| | Hungary | 2009 | 24 |
| | Iceland | 2007 | 70 |
| | Italy | 2009 | 59 |
| | Latvia | 2007 | 74 |
| | Lithuania | 2008 | 95 |
| | Luxembourg | 2005 | 81 |
| | Macedonia (TFYR) | 2009 | 18 |
| | Malta | 2010 | 39 |
| | Netherlands | 2008 | 76 |
| | Poland | 2009 | 48 |
| | Portugal | 2009 | 29 |
| | Romania | 2009 | 57 |
| | Russian Federation | 2009 | 48 |
| | Slovakia | 2007 | 14 |
| | Slovenia | 2008 | 22 |
| | Switzerland | 2007 | 14 |
| | Turkey | 2003 | 15 |
| | United Kingdom | 2008 | 40 |
| Oceania | Australia | 2008 | 63 |
| | New Zealand | 2007 | 70 |

# 6.2 PRODUCTION

## 6.2.1 Afghanistan

### Fact Sheet – *Afghanistan Opium and Cannabis Surveys 2010*[1]

| | 2009 | Change on 2009 | 2010 |
|---|---|---|---|
| Net opium cultivation (after eradication)[2] | 123,000 ha (102,000-137,000) | 0% | 123,000 ha (104,000-145,000) |
| Cannabis cultivation[3] | 10,000-24,000 ha | * | 9,000-29,000 ha |
| No. of poppy-free provinces[4]<br>No. of provinces affected by opium cultivation | 20<br>14 | No change<br>No change | 20<br>14 |
| No. of provinces affected by cannabis cultivation[5] | 17 | +2 | 19 |
| Opium poppy eradication | 5,351 | -57% | 2,316 ha |
| Weighted average opium yield | 56.1 kg/ha | -48% | 29.2 kg/ha |
| Average cannabis resin (garda) yield | 143 kg/ha | -12% | 128 kg/ha |
| Potential production of opium<br>in % of global potential opium production | 6,900 mt<br>88% | -48% | 3,600 mt<br>74% |
| Potential production of cannabis resin (garda)[6] | 1,500-3,500 mt | * | 1,200-3,700 mt |
| No. of household involved in opium cultivation[7]<br>in % of total population | 245,200<br>6% | +1% | 248,700<br>6% |
| No. of households involved in cannabis cultivation | 40,000 (25,000-60,000) | +18% | 47,000 (27,000-88,000) |
| Average farm-gate price (weighted by production) of dry opium at harvest time | US$ 64/kg | +164% | US$ 169/kg |
| Average farm-gate price of cannabis resin (best quality, weighted by production) at the time of resin processing | US$ 35/kg | +146% | US$ 86/kg |
| Total farm-gate value of opium production<br>in % of GDP[8] | US$ 438 million<br>4% | +38% | US$ 605 million<br>5% |
| Total farm-gate value of cannabis resin (garda) production | US$ 39-94 million | * | US$ 85-263 million |
| Potential gross export value of opiates<br>in % of GDP | US$ 2.8 billion<br>26% | -50% | US$ 1.4 billion<br>11% |
| Potential net export value of opiates<br>in % of GDP[8] | US$ 2.3 billion<br>21% | -48% | US$ 1.2 billion<br>9% |
| Average yearly gross income from opium of opium growing households | US$ 1,786 | +36% | US$ 2,433 |
| Average yearly gross income from cannabis of cannabis growing households | US$ 1,553 | +93% | US$ 3,000 |
| Income from opium per ha (gross/net) | US$ 3,600 / 2,005 | +36% / +45% | US$ 4,900 / 2,900 |
| Income from cannabis per ha (gross/net) | US$ 3,900 / 3,341 | +131% / +150% | US$ 9,000 / 8,341 |

* Due to the uncertainty associated with the estimate, a change rate could not be calculated.

1 The information in this section comes from the Afghanistan Opium Survey 2010 (UNODC/Ministry of Counter Narcotics) and can also be found at http://www.unodc.org/unodc/en/crop-monitoring/index.html, and the preliminary Afghanistan Cannabis Survey 2010. Source unless otherwise indicated: National Monitoring System supported by UNODC.

2 Figures in brackets represent the upper and lower bounds of the estimation range.

3 Cannabis cultivation was defined as mono-crop cannabis cultivated in fields. Small-scale and mixed cultivation could not be considered.

4 Out of 34 provinces of Afghanistan. Poppy-free provinces are those which are estimated to have less than 100 ha of opium cultivation.

5 Cannabis cultivation was defined as mono-crop cannabis cultivated in fields. Small-scale and mixed cultivation could not be considered.

6 Garda is the local term used in Afghanistan for the powder obtained by threshing and sieving the harvested and dried cannabis plants. This process is repeated several times and results in different quality of garda (first, second, …) with varying proportions of resin and other plant matter. Garda is further processed into hashish.

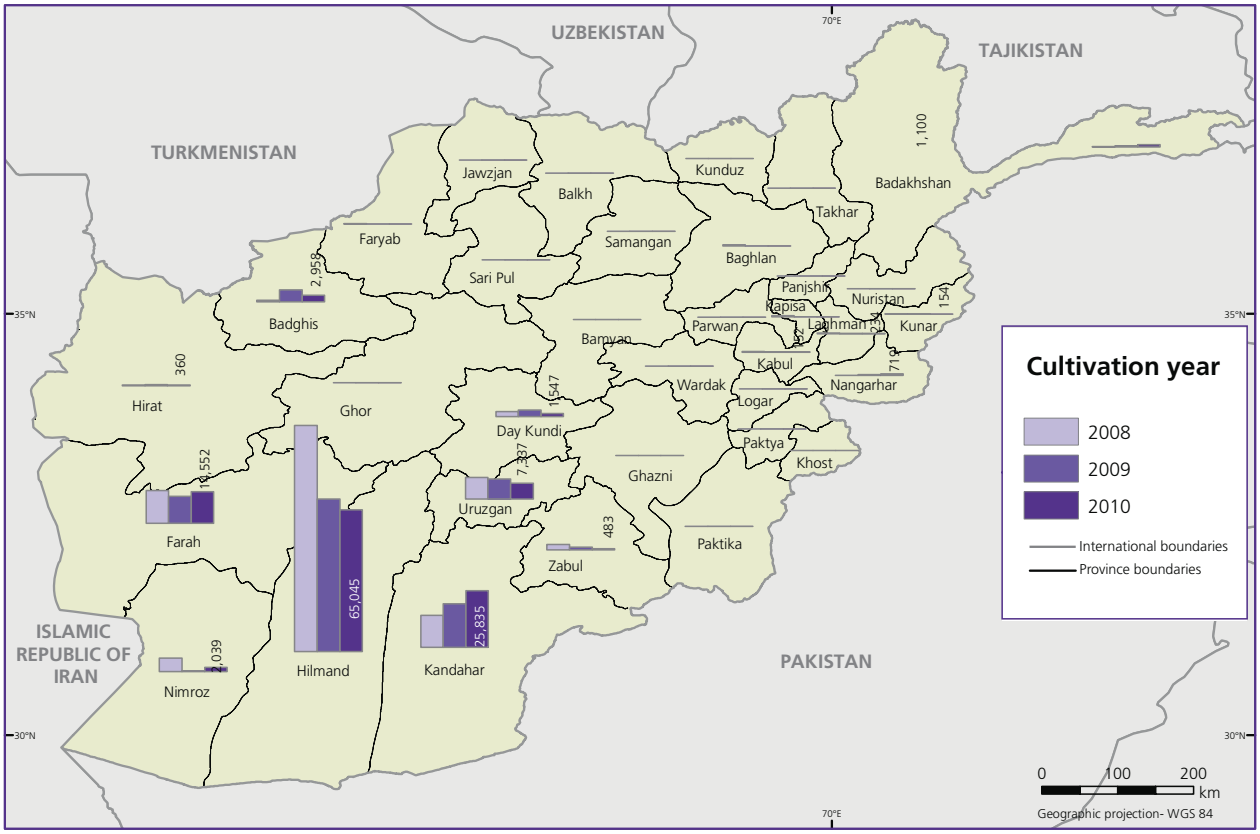
7 Estimates are based on a population of 24.0 million a for 2009 and a population of 24.5 million for 2010 and an average household size of 6.2 persons. Source: Gov. of Afghanistan, Central Statistical Office.

8 Nominal GDP of the respective year. Source: Gov. of Afghanistan, Central Statistical Office.

## Afghanistan, regional distribution of opium poppy cultivation (ha), 2009 to 2010

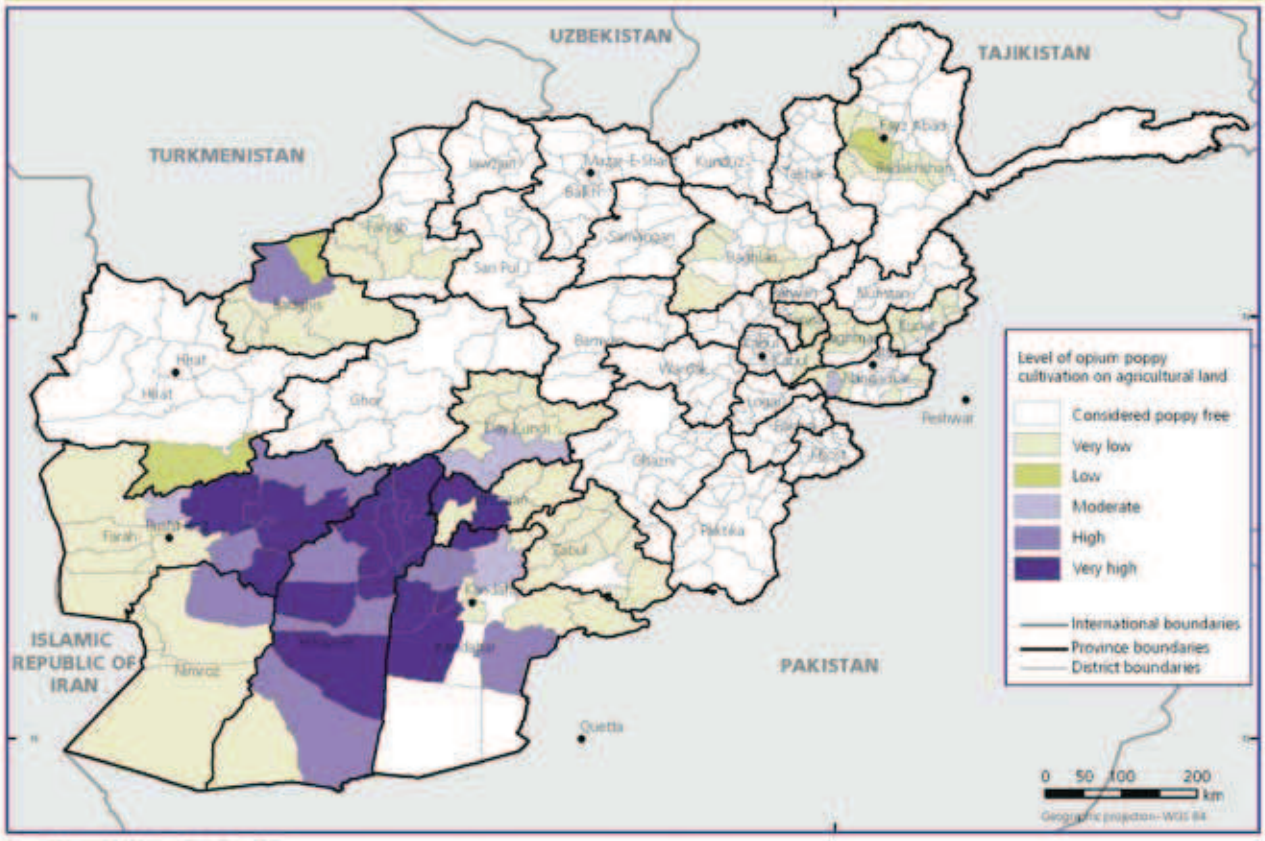
| Region | 2009 (ha) | 2010 (ha) | Change on 2009 | 2010 (ha) as % of total |
|---|---|---|---|---|
| Southern | 103,014 | 100,247 | -3% | 82% |
| Western | 18,800 | 19,909 | 6% | 16% |
| Eastern | 593 | 1,100 | 97% | 1% |
| North-eastern | 557 | 1,107 | 87% | 1% |
| Central | 132 | 152 | 15% | 0.1% |
| Northern | Poppy-free | Poppy-free | NA | NA |
| **Rounded Total** | **123,000** | **123,000** | **0%** | **100%** |

## Afghanistan, opium poppy cultivation at provincial level, 2008-2010




Source: MCN - UNODC Afghanistan Opium Survey 2010
Note: The boundaries and names shown and the designations used on this map do not imply official endorsement or acceptance by the United Nations.

## Afghanistan, opium poppy cultivation at district level, 2010




Source: MCN - UNODC Afghanistan Opium Survey 2010
Note: The boundaries and names shown and the designations used on this map do not imply official endorsement or acceptance by the United Nations.

## 6.2.2 Bolivia (Plurinational State of)

### Fact Sheet – *Bolivia Coca Survey 2010*[9]

**The figures from the 2010 report on coca cultivation were not yet available at the time of printing of this report.**

| | 2009 | Change on 2009 | 2010 |
|---|---|---|---|
| Coca cultivation | 30,900 ha | | |
| *Of which in the Yungas of La Paz* | *20,900 ha* | | |
| *in Chapare* | *9,700 ha* | | |
| *in Apolo* | *300 ha* | | |
| *Of which permitted by Bolivian law 1008* | *12,000 ha* | | *12,000 ha* |
| Production of sun-dried coca leaf | 54,800 mt | | |
| Potential production of cocaine HCl | n.a. | | |
| National weighted average farm-gate price of coca leaf (outside state market) | US$ 4.9/kg | | |
| Total farm-gate value of coca leaf production | US$ 265 million | | |
| GDP[10] | US$ 13.0 billion | | |
| Farm-gate value of coca leaf production in per cent of GDP | 2% | | |
| Farm-gate value of coca leaf production in per cent of GDP of agricultural sector | 14% | | |
| Reported eradication of coca bush* | 6,341 ha | +29% | 8,200 ha |
| Reported seizure of sun-dried coca leaves* | 1,624 mt | -37% | 1,016 mt |
| Reported seizure of cocaine base* | 21,970 kg | +17% | 25,714 kg |
| Reported seizure of cocaine HCl* | 4,922 kg | -31% | 3,390 kg |
| Reported destruction of coca laboratories[11]* | 4,888 | +21% | 5,922 |

* As reported by the Government of the Plurinational State of Bolivia. Eradication: includes voluntary and forced eradication.

9 The information in this section comes from the report on Coca Cultivation in Bolivia (UNODC/Government of Bolivia, June 2010), and can also be found on the internet ( http://www.unodc.org/unodc/en/crop-monitoring/index.html). Source unless otherwise indicated: National Monitoring System supported by UNODC.

10 Source: Instituto Nacional de Estadística de Bolivia (INE).

11 Including installations producing cocaine base, HCl or "recycling" precursors. Excluding coca leaf maceration pits.

## 6.2.3 Colombia

### Fact Sheet - Colombia Coca Survey 2010[12]

| | 2009 | Change on 2009 | 2010 |
|---|---|---|---|
| Net coca cultivation (on 31 Dec, rounded) | | | |
| Without adjustmenfor small fields | 68,000 ha | -16% | 57,000 ha |
| *With adjustment for small fields*[13] | *73,000 ha* | *-15%* | *62,000 ha* |
| *Of which*[14] *Pacific region* | *27,020 ha* | *-5%* | *25,680 ha* |
| *Central region* | *18,050 ha* | *-15%* | *15,310 ha* |
| *Putumayo-Caquetá region* | *9,620 ha* | *-23%* | *7,360 ha* |
| *Meta-Guaviare region* | *13,130 ha* | *-34%* | *8,710 ha* |
| *elsewhere* | *5,320 ha* | *-11%* | *4,750 ha* |
| Potential production of cocaine (100% purity) | | | |
| Based on area without adjustment for small fields | 410 mt | n.a. | n.a. |
| *Based on area with adjustment for small fields* | n.a. | n.a. | 350 ml (350-400) |
| Average farm-gate price of coca paste | US$956/kg | -6% | US$1,015/kg |
| | COP2,047,970/kg | -6% | COP1,923,000/kg |
| Average wholesale price of cocaine* (of unknown purity in major cities) | US$2,147/kg | +14% | US$2,439/kg |
| | COP 4,587,000/kg | +1% | COP4,623,000/kg |
| Total farm-gate value of the production of coca leaf and its derivatives | US$496 million | | n.a. |
| *in per cent of GDP*[15] | 0.2% | | n.a. |
| *in per cent of agricultural sector* | 3% | | n.a. |
| Reported aerial spraying of coca bush* | 104,771 ha | -3% | 101,939 ha |
| Reported manual eradication of coca bush* | 60,544 ha | -28% | 43,792 ha |
| Reported seizure of cocaine* | 203 mt | | 215 mt |
| Reported destruction of coca processing laboratories* | 2,888 | -9% | 2,623 |
| *Of which cocaine HCl processing lab.* | 278 | -9% | 254 |
| Reported opium poppy cultivation* | 356 ha | -3% | 346 ha |
| Potential opium latex production** | 26 mt | | |
| Potential heroin production (rounded) ** | 1.1 mt | | |
| Average farm-gate price of opium latex* | US$358/kg | +37% | US$489/kg*** |
| Average wholesale heroin price* | US$9,993/kg | +7% | US$10,667/kg*** |
| Reported seizure of heroin* | 732 kg | -54% | 337 kg |

Note: Due to the introduction of an adjustment factor for small fields, 2009 figures are being revised.
* As reported by the Government of Colombia.
** Own calculations based on regional yield figures and conversion ratios from US Government/DEA scientific studies.
*** Preliminary, refers to January to October 2010, only.

12 The information in this section comes from the report on Coca Cultivation in Colombia (UNODC/Government of Colombia, June 2011), and can also be found on the internet (http://www.unodc.org/unodc/en/crop-monitoring/index.html). Source unless otherwise indicated: National monitoring system supported by UNODC.

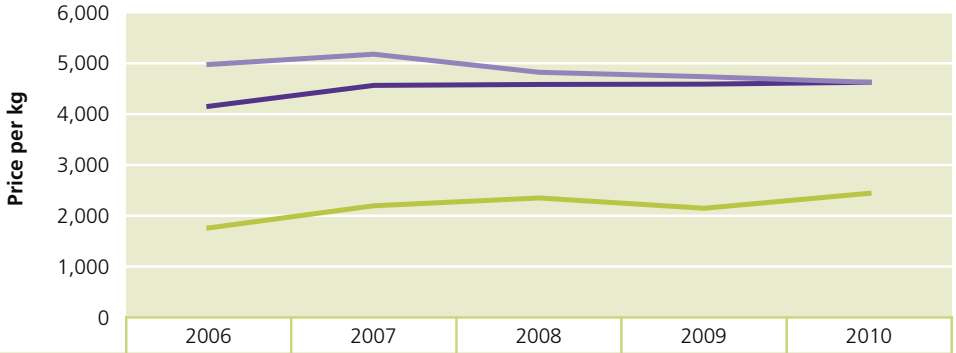
13 The spatial resolution of the satellite images ("pixel size") used for coca monitoring limits the detection of small fields below 0.25 ha. Based on studies with very high resolution imagery, a correction factor was calculated to minimize this effect and improve the accuracy of the estimate.

14 Regional area figures refer to area adjusted for small fields.

15 GDP of the respective year as reported by the Government.

## Colombia, nominal and constant annual wholesale prices for cocaine HCl* (US$/kg and '000 COP/kg), 2006 to 2010

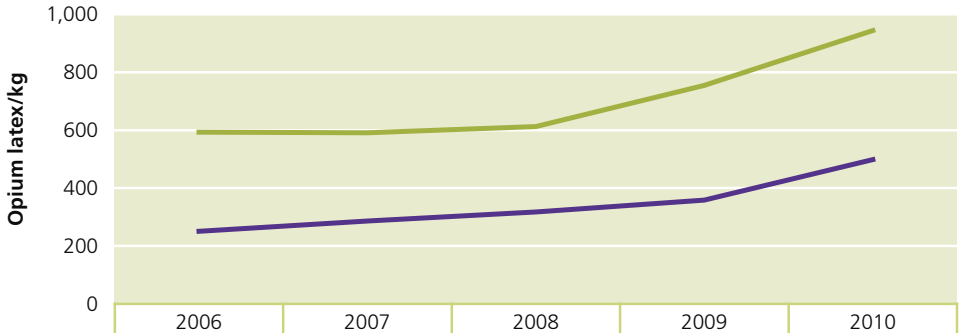
*Cocaine of unknown purity.
Source: DIRAN.




| | 2006 | 2007 | 2008 | 2009 | 2010 |
|---|---|---|---|---|---|
| '000 COP/kg (nominal) | 4,155 | 4,567 | 4,580 | 4,587 | 4,623 |
| '000 COP/kg (constant, 2010=100) | 4,976 | 5,175 | 4,819 | 4,733 | 4,623 |
| US$/kg (nominal) | 1,762 | 2,198 | 2,348 | 2,146 | 2,439 |

## Colombia, annual farm-gate prices* for opium latex, 2006 to 2010

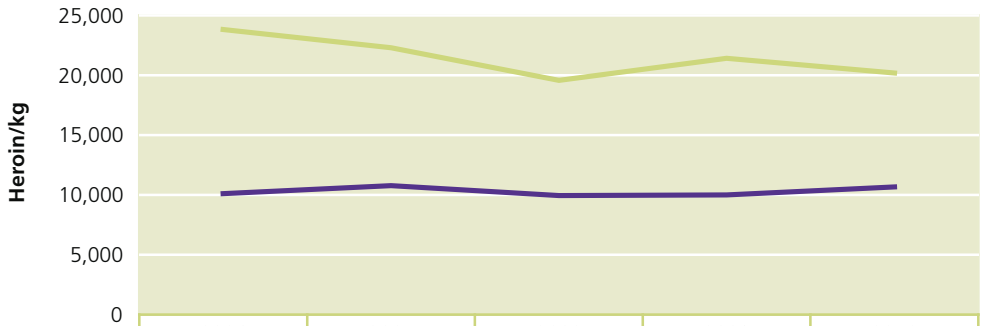
*Nominal prices. Source: DIRAN.




| | 2006 | 2007 | 2008 | 2009 | 2010 |
|---|---|---|---|---|---|
| Opium latex (farm-gate), '000 COP/kg | 593 | 591 | 612 | 754 | 944 |
| Opium latex (farm-gate), US$/kg | 251 | 286 | 318 | 358 | 498 |

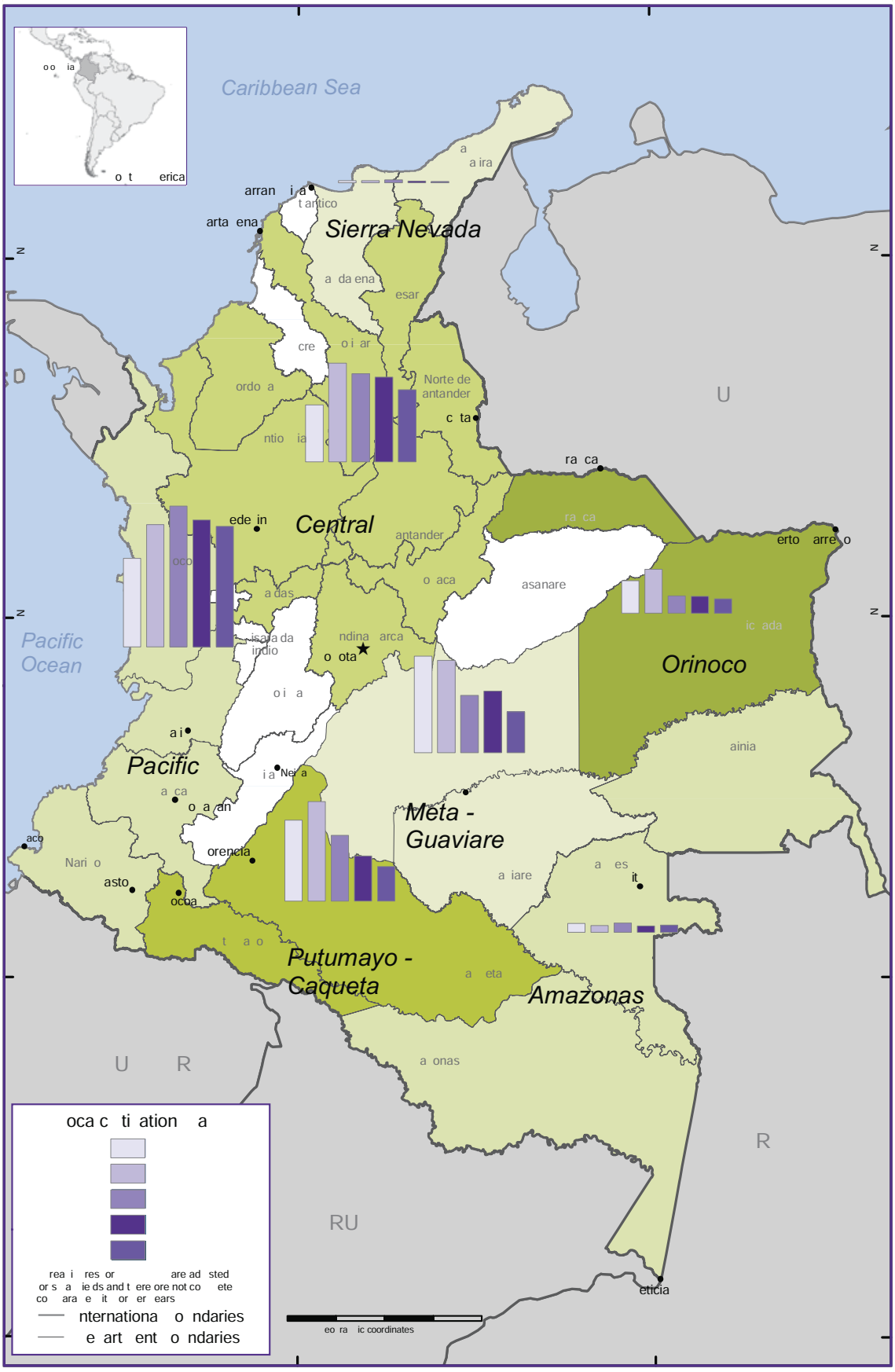
## Colombia, annual wholesale price of heroin,* 2006 to 2010

*Nominal prices for heroin of unknown purity. Source: DIRAN.




| | 2006 | 2007 | 2008 | 2009 | 2010 |
|---|---|---|---|---|---|
| Heroin (wholesale), '000 COP/kg | 23,822 | 22,294 | 19,560 | 21,422 | 20,187 |
| Heroin (wholesale), US$/kg | 10,103 | 10,780 | 9,950 | 9,993 | 10,667 |

## Colombia, coca cultivation by region (ha), 2006-2010




o rce o ern ent o oo ia Nationa onitorin s ste s orted N
e o ndaries and na es s o n and t e desi nations sed in t is a do not i o icia endorse ent or acce tance t e nited Nations

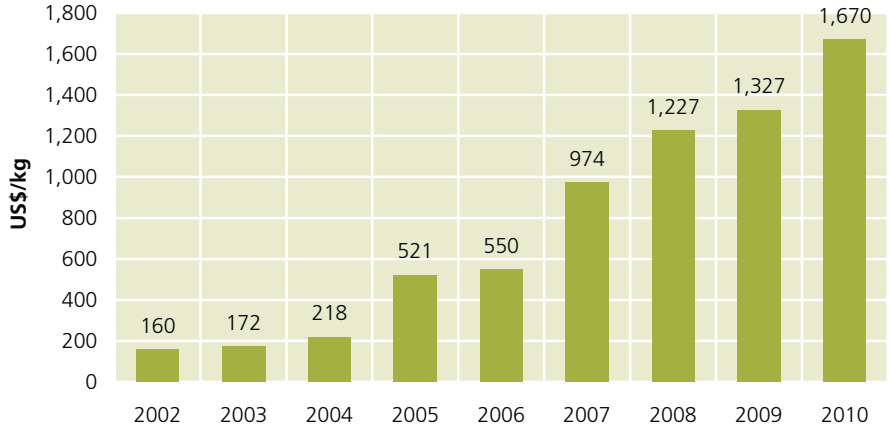
## 6.2.4 Lao People's Democratic Republic

### Fact Sheet – Lao People's Democratic Republic Opium Survey 2010[16]

| | 2009 | Change on 2009 | 2010 |
|---|---|---|---|
| Opium poppy cultivation | 1,900 ha (900-3,000) | +58% | 3,000 ha (1,900-4,000) |
| Average dry opium yield[17] | 6 kg/ha | na | 6 kg/ha |
| Potential production of dry opium | 11 mt (5.4-18) | +58% | 18 mt (11.4-24.0) |
| Average retail/wholesale price of opium[18] | US$ 1,327 (350-2,440) | +26% | US$ 1,670 (580-2,700) |
| Eradication[19] | 651 ha | -11% | 579 ha |

**Lao People's Democratic Republic, annual opium prices (US$/kg), 2002 to 2010**

Source: LCDC, Provincial authorities survey.




16 The information in this section comes from the report on Opium Poppy Cultivation in South-East Asia (UNODC/Governments of Lao PDR and Myanmar), and can also be found on the internet (http://www.unodc.org/unodc/en/crop-monitoring/index.html). Source unless otherwise indicated: National monitoring system supported by UNODC. Figures in brackets represent the upper and lower bounds of the 90% confidence interval unless otherwise indicated.

17 In the absence of a recent yield survey, the yield per hectare estimated in 2007 was used.

18 Source: LCDC, Provincial authorities survey. Due to the limited market for opium, a clear distinction between farm gate, wholesale and retail prices could not be established. The range refers to the lowest and highest provincial price observed.

19 Source: LCDC. Eradication campaigns were conducted during and after the survey.

## 6.2.5 Myanmar

### Fact Sheet - Myanmar Opium Survey 2010[20]

| | 2009 | Change on 2009 | 2010 |
|---|---|---|---|
| Opium poppy cultivation in Myanmar | 31,700 ha (24,000 - 42,900) | +20% | 38,100 ha (23,200 - 53,900) |
| Of which in Shan State | 30,000 ha (24,000 - 40,000) | +17% | 35,000 ha (22,700 - 50,100) |
| Average opium yield (weighted by area) | 10.4 kg/ha | +46% | 15.2 kg/ha |
| Potential production of dry opium | 330 mt (214 - 447) | +76% | 580 (350 - 820) |
| Opium poppy eradication[21] | 4,087 ha | +102% | 8,268 ha |
| Average farm-gate price of opium at harvest time | US$ 317/kg | -4% | US$ 305/kg |
| Total potential farm-gate value of opium production[22] | US$ 105 million (68 - 142) | +68% | US$ 177 million (107 - 250) |
| Estimated number of households involved in opium poppy cultivation | 192,000 (160,000 - 225,000) | +17% | 224,000 (102,000 - 342,000) |
| Of which in the Shan State | 176,500 (141,200 - 235,300) | +17% | 206,000 (134,000 - 295,000) |
| Opium-producing households in Shan State: | | | |
| Average yearly household income | US$ 700 | +19%[23] | US$ 830 |
| Income from opium sales | US$ 160 | +125% | US$ 360 |
| Per capita income | US$ 125 | +19% | US$ 155 |
| Non-opium poppy producing households in Shan State | | | |
| Household average yearly income | US$ 750 | +13%[24] | US$ 850 |
| Per capita income | US$ 133 | +17% | US$ 155 |

Numbers in brackets refer to the lower and upper bound of the 95% confidence interval.

20 The information in this section comes from the report on Opium Poppy Cultivation in South East Asia (UNODC/Governments of Lao PDR and Myanmar, December 2010), and can also be found on the internet (http://www.unodc.org/unodc/en/crop-monitoring/index.html).

21 Source: CCDAC.

22 The farm-gate value should calculated with the price of dry opium. However, the price of dry opium is difficult to establish in Myanmar because of the selling and storing practices of the farmers. The farm-gate value here is calculated with the price of fresh opium. This result in a lower estimate.

23 This is equivalent to a 10% increase in constant 2009 Kyats.

24 This is equivalent to a 5% increase in constant 2009 Kyats.

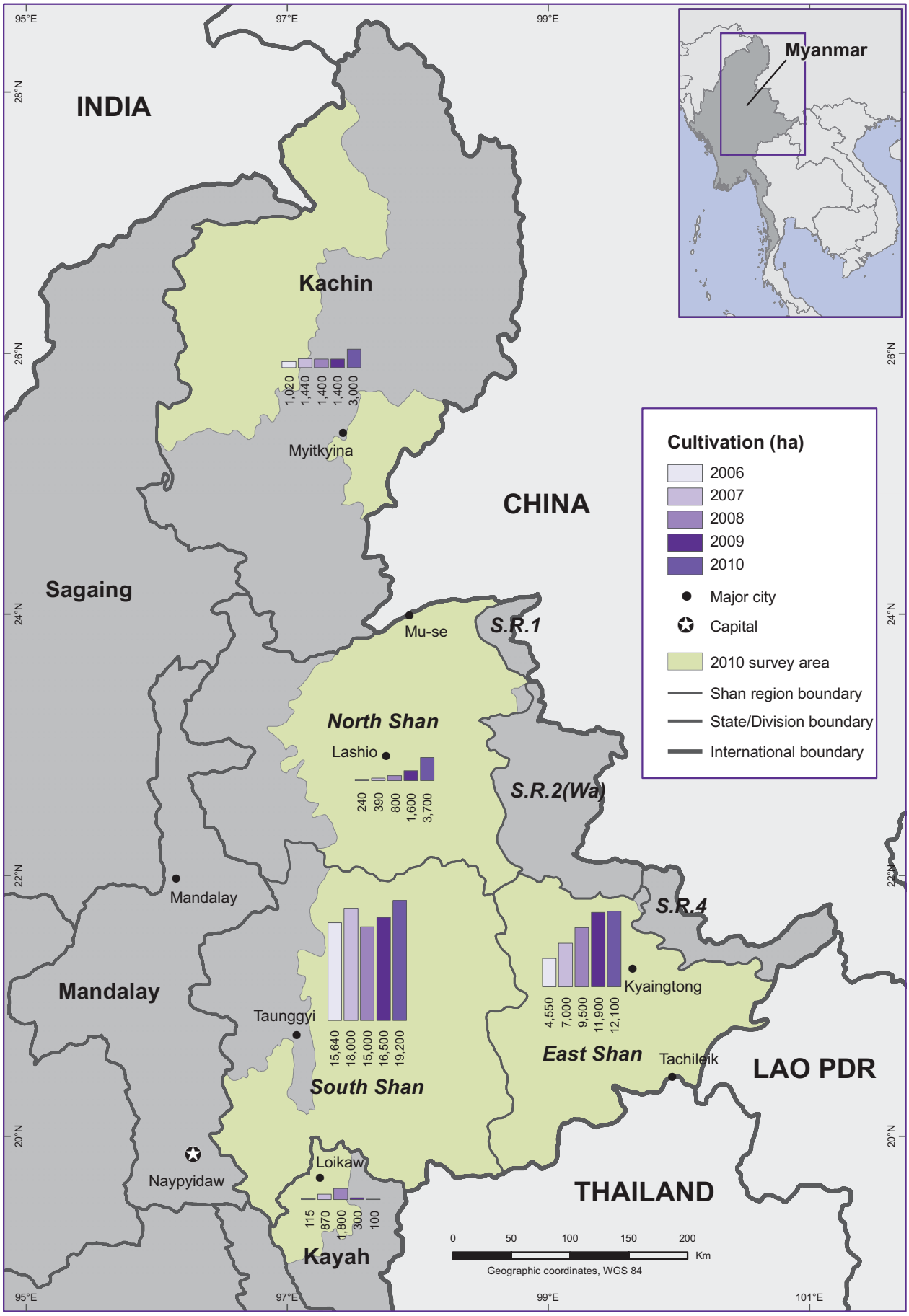
| Myanmar, opium poppy cultivation by region (ha), 2008-2010 | | | | |
|---|---|---|---|---|
| **Region** | **2008** | **2009** | **2010** | **% of total area of opium poppy cultivation** |
| East Shan | 9,300 (6,800 to 11,800) | 11,900 (8,100 to 15,000) | 12,100 (6,200 to 19,000) | 32% |
| North Shan | 800 (400 to 1,200) | 1,600 (390 to 2,900) | 3,700 (1,500 to 6,700) | 10% |
| South Shan | 15,500 (9,500 to 21,500) | 16,500 (10,900 to 22,600) | 19,200 (9,400 to 31,500) | 50% |
| **Shan State total** | **25,300** | **30,000 (24,000 to 40,000)** | **35,000 (22,700 to 50,100)** | **92%** |
| Kachin | 1,500 (1,100 to 1,900) | 1,400 (1,100 to 1,700) | 3,000 (500 to 3,800) | 8% |
| Kayah | 1,800 (1,800 to 2,500) | 300[25] (60 to 700) | 100 | 0.3% |
| **National total (rounded)** | **28,500 (17,900 to 37,000)** | **31,700 (20,500 to 42,800)** | **38,100 (23,200 to 53,900)** | **100%** |

Numbers in brackets refer to the lower and upper bound of the 95% confidence interval.

| Myanmar, reported eradication of opium poppy by region (ha), 2006-2010 | | | | | |
|---|---|---|---|---|---|
| **Region** | **2006** | **2007** | **2008** | **2009** | **2010** |
| East Shan | 32 | 1,101 | 1,249 | 702 | 868 |
| North Shan | 76 | 916 | 932 | 546 | 1,309 |
| South Shan | 3,175 | 1,316 | 1,748 | 1,466 | 3,138 |
| **Shan State total** | **3,283** | **3,333** | **3,929** | **2,714** | **5,316** |
| Kachin | 678 | 189 | 790 | 1,350 | 2,936 |
| Kayah | 0 | 12 | 12 | 14 | 13 |
| **Total within the surveyed area** | **3,961** | **3,534** | **4,731** | **4,078** | **8,265** |
| Magwe | 0 | 45 | 0 | 1 | 1 |
| Chin | 0 | 10 | 86 | 5 | 2 |
| Mandalay | 9 | 0 | 3 | 2 | 0 |
| Sagaing | 0 | 9 | 0 | 1 | 0 |
| Other states | 9 | 64 | 0 | 0 | 0 |
| **Total (national)** | **3,970** | **3,598** | **4,820** | **4,087** | **8,268** |

25 The estimates in Kayah for 2008 and 2009 are not directly comparable due to a change in methodology.

## Myanmar, opium poppy cultivation (ha), 2006-2010




Source: Government of Myanmar - National Monitoring System supported by UNODC
The boundaries and names shown and the designations used on this map do not imply official endorsement or acceptance by the United Nations.

## 6.2.6 Peru

### Fact Sheet - Peru Coca Survey 2010[26]

| | 2009 | Change on 2009 | 2010 |
|---|---|---|---|
| Coca cultivation | 59,900 ha | +2% | 61,200 ha |
| *Of which in Alto Huallaga* | *17,500 ha* | *-26%* | *13,000 ha* |
| *Apurímac-Ene* | *17,500 ha* | *+13%* | *19,700 ha* |
| *La Convención-Lares* | *13,200 ha* | *+1%* | *13,300 ha* |
| *Elsewhere* | *11,700 ha* | *+29%* | *15,200 ha* |
| Weighted average sun-dried coca leaf yield | 2,200 kg/ha | -5% | 2,100 kg/ha |
| Potential production of sun-dried coca leaf[27] | 128,000 mt | +1% | 129,500 mt |
| Potential production of sun-dried coca leaf available for cocaine production | 119,000 mt (102,400-134,200) | +1% | 120,500 mt (103,000-136,300) |
| Average farm-gate price of sun-dried coca leaf | US$ 3.2/kg | -3% | US $ 3.1/Kg |
| Average farm-gate price of sun-dried coca leaf (weighted by production)[28] | US$ 3.0/kg | -7% | US $ 3.1/Kg |
| Average farm-gate price of coca paste | US$ 778/kg | -1% | US $ 784/Kg |
| Average price of cocaine HCl in coca cultivating regions | US$ 1,021/kg | -7% | US $ 947/Kg |
| Potential farm-gate value of sun-dried coca leaf[29] | US$ 384 million | | |
| Reported eradication of coca cultivation* | 10,025 ha | +2% | 12,239 ha |
| Reported seizure of sun-dried coca leaves* | 1,031 mt | | |
| Reported seizure of coca paste* | 9,914 kg | +34% | 13,238 kg |
| Reported seizure of cocaine HCl* | 10,744 kg | +63% | 17,544 kg |
| Reported destruction of coca laboratories[30]* | 1,242 | +6% | 1,317 |
| *Of which cocaine HCl processing laboratories* | *25* | | *21* |

* As reported by the Government of Peru.

26 The information in this section comes from the report on Coca Cultivation in Peru (UNODC/Government of Peru, June 2011), and can also be found on the Internet (http://www.unodc.org/unodc/en/crop-monitoring/index.html). Source unless otherwise indicated: National monitoring system supported by UNODC.

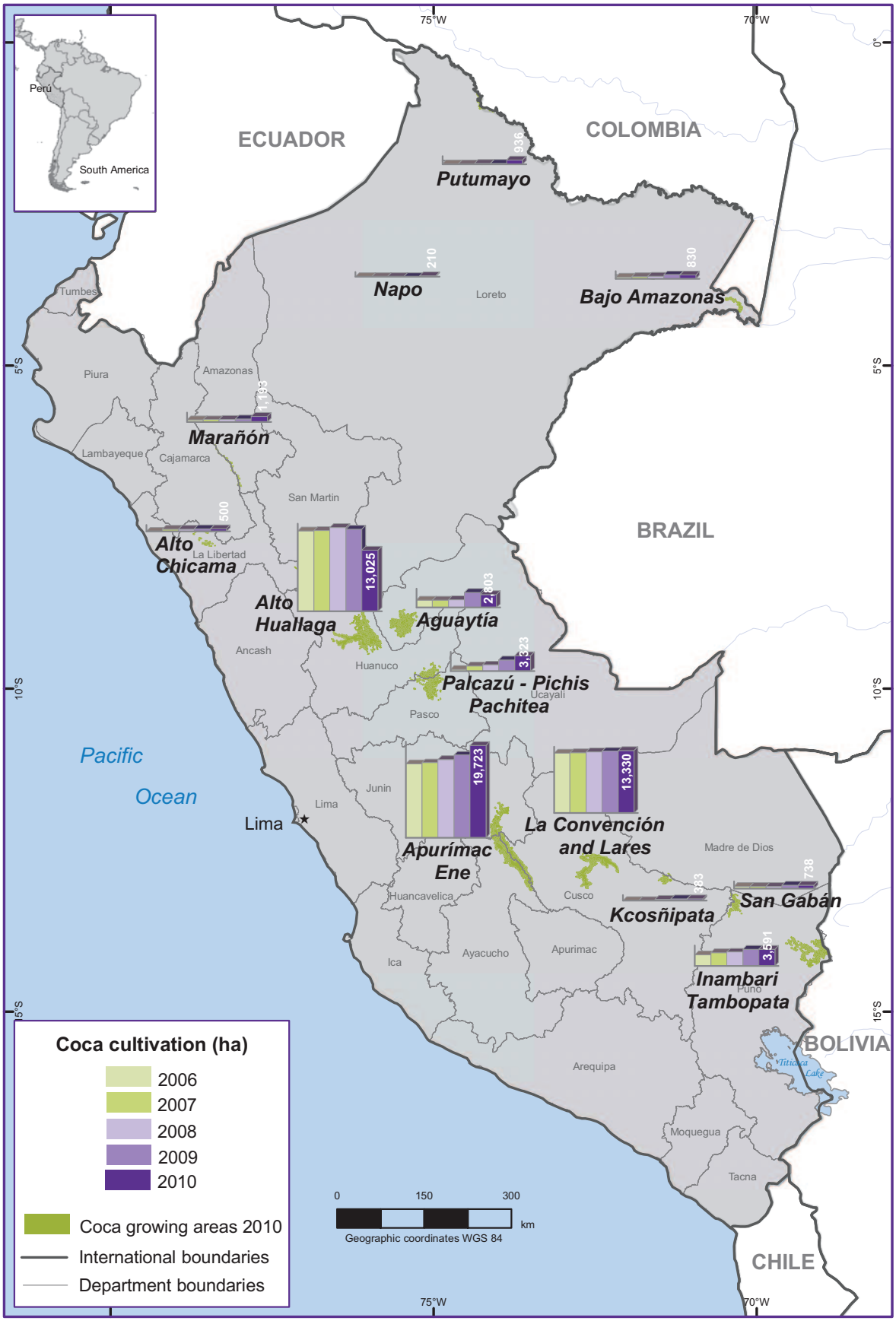
27 Includes all coca leaf potentially produced. For the calculation of coca leaf available for cocaine production, 9,000 mt of sun-dried coca leaf were deducted from this figure, which, according to Government sources, is the amount used for traditional purposes.

28 The weighted average price takes into account that different amounts of coca leaf are sold in different regions at different price levels.

29 Takes into account all coca leaf produced, irrespective of its use. For the calculation, the weighted average coca leaf price was used.

30 Excluding coca leaf macerations pits.

## Peru, Coca cultivation by region, 2006-2010




Source: Government of Peru - National monitoring system supported by UNODC.
The boundaries and names shown and the designations used on this map do not imply official endorsement or acceptance by United Nations.

# Methodology

Considerable efforts have been made over the years to improve the estimates presented in the *World Drug Report,* which rely, to a large extent, on information submitted by Member States through the Annual Report Questionnaire (ARQ). Nonetheless, challenges remain in making such estimates because of data gaps and the varying quality of the available data. One major problem is the irregularity and incompleteness in ARQ reporting by Member States. Irregular reporting may result in absence of data for some years, and may influence the reported trend in a given year. Secondly, submitted questionnaires are not always complete or comprehensive, and thirdly, much of the data collected are subject to limitations and biases. These issues affect the reliability, quality and comparability of the information received.

## Sources of information

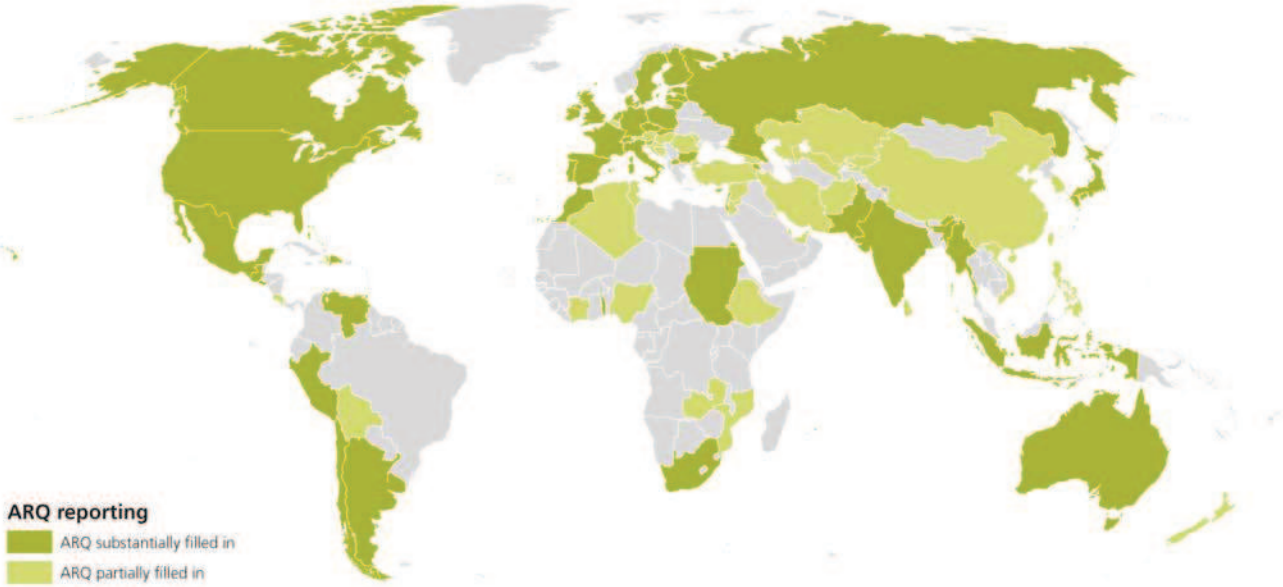
Under the International Drug Conventions, Member States are formally required to provide national drug control-related information annually to the 'Secretary-General' of the United Nations (that is, to UNODC). The Commission on Narcotic Drugs, the UNODC governing body on illicit drug issues, developed the Annual Reports Questionnaire (ARQ) to collect this information. The 2011 *World Drug Report* is based primarily on data obtained from the ARQs submitted by Governments over the period March 2010 to December 2010. The data collected during this period normally refer to the drug situation in 2009. UNODC distributed the questionnaire to 194 countries, as well as 15 territories, and received 107 replies to its questionnaire on Drug Abuse (Part II) and 106 replies to its questionnaire on Illicit Supply of Drugs (Part III). The best coverage was from countries in Europe (80% of countries filled in Part II and 88% filled in Part III), Asia (64% of countries filled in Part II and 62% Part III) and the Americas (59% of countries filled in Part II and 53% Part III). In the case of Africa, 27% of countries submitted Part II and 25% Part III, and for Oceania, 12% of countries submitted Part II and Part III.

In general, the quantity of information provided on illicit drug supply is significantly better than data provided on drug use. While 90% of the responses to Part III of the ARQ were 'substantially' completed, this was true for just 53% of the Part II. (ARQs which were more than 50% completed were classified as having been 'substantially filled in'; less than 50% completion was classified as 'partially filled in'). In order to analyse the extent to which Member States provided information, a number of key questions in the ARQs were identified:

- For Part II, Drug Abuse, the key questions referred to: trends in drug use (78% of the countries returning the ARQ), lifetime prevalence among the general population (54%), youth prevalence (54%), treatment (68%), prevalence of Hepatitis C (47%), HIV (48%) and Hepatitis B (41%) among injecting drug users, and drug-related mortality (34%).
- For Part III, the Supply of Drugs, this included the questions on: quantities of illicit drugs seized (95% of the countries returning the ARQ), trafficking (origin, routes and destination) (80%), prices and purity (85%), and drug-related arrests (91%).

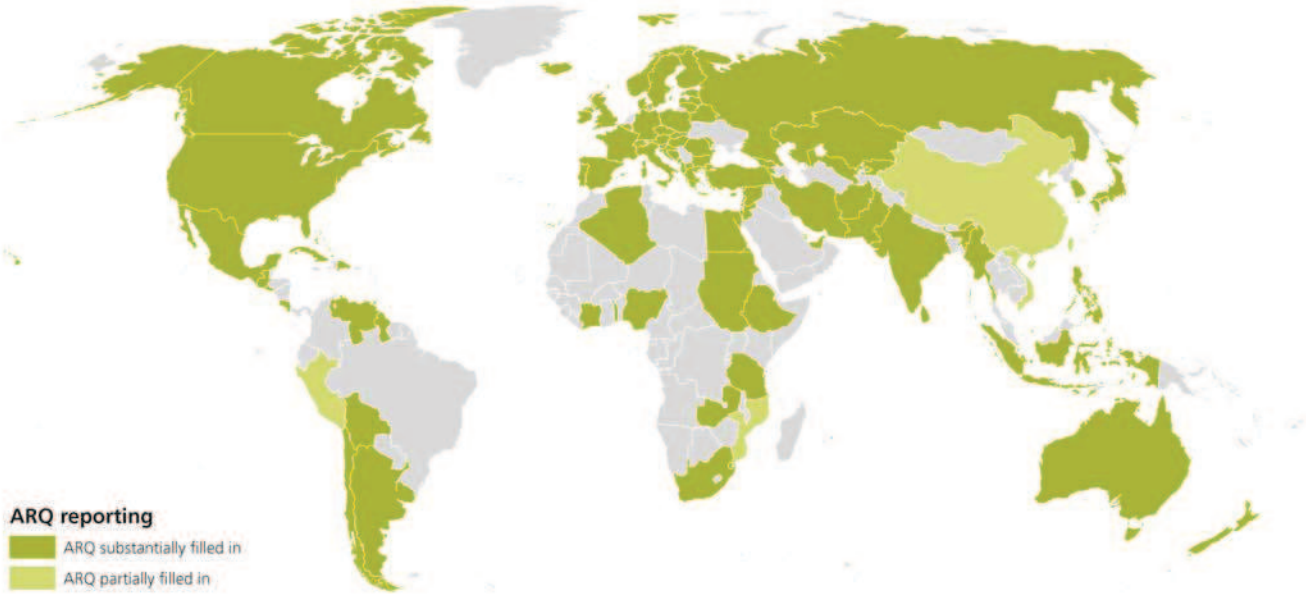
While the ARQ information forms the basis for the estimates and trend analysis provided in the *World Drug Report*, often, this is not sufficient to provide a comprehensive picture of the world's illicit drug markets. When necessary and where available, ARQ data are supplemented with data from other sources. As in previous years, seizure data was complemented primarily with data and reports from international organizations such as INTERPOL, the World Customs Organization, Europol, the Organization of American States /Inter-American Drug Abuse Control Commission (CICAD) as well as data provided by the Heads of National Law Enforcement Agencies at their regional meetings, and UNODC's 'Drug Use Information Network for Asia and the Pacific' (DAINAP). In addition, Government reports and online resources were used. Other sources included data published by the United States Department of State's Bureau for International Narcotics and Law Enforcement Affairs in its International Narcotics Control Strategy Report. Price and purity data for Europe was complemented with data from the European Monitoring Centre for Drugs and Drug Addiction (EMCDDA) and Europol, whereas precursor data are from the International Narcotics Control Board. Demand-related information was obtained through a number of additional sources, including the drug control agencies participating in the DAINAP network, as well as various national and regional epidemiological

## Member states that provided annual reports questionnaire drug demand data for 2009




Note: The boundaries and names shown and the designations used on this map do not imply official endorsement or acceptance by the United Nations.
Dotted line represents approximately the Line of Controlin Jammu and Kashmir agreed upon by India and Pakistan.The final status of Jammu and Kashmir has not yet beenagreed upon by the parties.

## Member states that provided annual reports questionnaire drug supply data for 2009




Note: The boundaries and names shown and the designations used on this map do not imply official endorsement or acceptance by the United Nations.

networks such as EMCDDA and CICAD. National government reports and scientific literature were also used.

## Data on drug consumption

### Overview

UNODC estimates of the extent of illicit drug use in the world have been published periodically since 1997. Assessing the extent of drug use (the number of drug users) is a particularly difficult undertaking because it involves measuring the size of a 'hidden' population. Margins of error are considerable, and tend to increase as the scale of estimation is raised, from local to national, regional and global levels. Regional and global estimates are reported as ranges to reflect the information gaps. The level of confidence expressed in the estimates varies across regions and drug types.

A global estimate of the level of use of a specific drug involves the following steps:

1. Identification and analysis of appropriate sources (starting from the ARQ);
2. Identification of key benchmark figures for the level of drug use in all countries where data are available (annual prevalence of drug use among the general population aged 15-64) which then serve as 'anchor points' for subsequent calculations;
3. 'Standardization' of existing data if reported with a different reference population than the one used for the *World Drug Report* (for example, from age group 12 and above to a standard age group of 15-64) ;
4. Adjustments of national indicators to estimate an annual prevalence rate if such a rate is not available (for example, by using the lifetime prevalence or current use rates; or lifetime or annual prevalence rates among the student population). This includes the identification of adjustment factors based on information from neighbouring countries with similar cultural, social and economic situations where applicable;
5. Imputation for countries where data is not available, based on data from countries in the same subregion. Ranges are calculated by considering the 10th and 90th percentile of the subregional distribution;
6. Extrapolation of available results for a subregion were calculated only for subregions where prevalence estimates for at least two countries covering at least 20% of the population were available. If, due to a lack of data, subregional estimates were not extrapolated, a regional calculation was extrapolated based on the 10th and 90th percentile of the distribution of the data available from countries in the region.
7. Aggregation of subregional estimates rolled-up into regional results to arrive at global estimates.

For countries that did not submit information through the ARQ, or in cases where the data were older than 10 years, other sources were identified, where available. In nearly all cases, these were government sources. Many estimates needed to be adjusted to improve comparability (see below).

In cases of estimates referring to previous years, the prevalence rates were left unchanged and applied to new population estimates for the year 2009. Currently, only two countries measure drug prevalence among the general population on an annual basis. The remaining countries that regularly measure it - typically the more economically developed - do so usually every three to five years. Therefore, caution should be used when interpreting any change in global prevalence figures, as changes may in part reflect newer reports from countries or the exclusion of older reports, rather than actual changes in use at the global level.

Detailed information is available from countries in North America, a large number of countries in Europe, a number of countries in South America, the two large countries in Oceania and a limited number of countries in Asia and Africa. One key problem in national data is the level of accuracy, which varies strongly from country to country. Not all estimates are based on sound epidemiological surveys. In some cases, the estimates simply reflect the aggregate number of drug users found in drug registries, which cover only a fraction of the total drug using population in a country. Even in cases where detailed information is available, there is often considerable divergence in definitions used, such as chronic or regular users; registry data (people in contact with the treatment system or the judicial system) versus survey data (usually extrapolation of results obtained through interviews of a selected sample); general population versus specific surveys of groups in terms of age (such as school surveys), special settings (such as hospitals or prisons), et cetera.

To reduce the error margins that arise from simply aggregating such diverse estimates, an attempt has been made to standardize - as a far as possible - the heterogeneous data set. All available estimates were transformed into one single indicator – annual prevalence among the general population aged 15 to 64 - using transformation ratios derived from analysis of the situation in neighbouring countries, and if such data were not available, using global average estimates. The basic assumption is that though the level of drug use differs between countries, there are general patterns (for example, lifetime prevalence is higher than annual prevalence; young people consume more drugs than older people; males consume more drugs than females; people in contact

with the criminal justice system show higher prevalence rates than the general population, et cetera) which apply to most countries. It is also assumed that the difference between lifetime prevalence and annual prevalence among the general population or between lifetime prevalence among young people and annual prevalence among the general population, except for emerging drug trends, do not vary greatly among countries with similar social, cultural and economic situations.

**Indicators used**

The most widely used indicator at the global level is the annual prevalence rate: the number of people who have consumed an illicit drug at least once in the last twelve months prior to the study. Annual prevalence has been adopted by UNODC as one of key indicators to measure the extent of drug use. It is also part of the Lisbon Consensus on core epidemiological demand indicators which has been endorsed by the Commission on Narcotic Drugs. The key indicators are:

1. Drug consumption among the general population (prevalence and incidence);
2. Drug consumption among the youth population (prevalence and incidence);
3. High-risk drug use (number of injecting drug users and the proportion engaged in high-risk behaviour, number of daily drug users);
4. Utilization of services for drug problems;
5. Drug-related morbidity (prevalence of HIV, hepatitis B virus and hepatitis C virus among illicit drug consumers);
6. Drug-related mortality (deaths directly attributable to drug consumption).

Efforts have been made to present the drug situation from countries and regions based on these key epidemiological indicators.

The use of annual prevalence is a compromise between lifetime prevalence data (drug use at least once in a lifetime) and data on current use (drug use at least once over the past month). The annual prevalence rate is usually shown as a percentage of the youth and adult population. The definitions of the age groups vary, however, from country to country. Given a highly skewed distribution of drug use among the different age cohorts in most countries, differences in the age groups can lead to substantially diverging results.

Applying different methodologies may also yield diverging results for the same country. In such cases, the sources were analysed in-depth and priority was given to the most recent data and to the methodological approaches that are considered to produce the best results. For example, it is generally accepted that nationally representative household surveys are reasonably good approaches to estimating cannabis, ATS or cocaine use among the general population, at least in countries where there are no adverse consequences for admitting illicit drug use. Thus, household survey results were usually given priority over other sources of prevalence estimates.

When it comes to heroin use (or drug injecting), or problematic use of cocaine and ATS, annual prevalence data derived from national household surveys tend to grossly under-estimate such use, because heroin or other problem drug users often belong to marginalized or less socially integrated groups, and may not be identified as living in a 'typical' household (they may be on the streets, homeless or institutionalized). Therefore, a number of 'indirect' methods have been developed to provide estimates for this group of drug users, including benchmark and multiplier methods (benchmark data may include treatment demand, police registration or arrest data, data on HIV infections, other services utilization by problem drug users or mortality data), capture-recapture methods and multivariate indicators. In countries where there was evidence that the primary 'problem drug' was opiates, and an indirect estimate existed for 'problem drug use' or injecting drug use, this was preferred over household survey estimates of heroin use.

For other drug types, priority was given to annual prevalence data found by means of household surveys. In order to generate comparable results for all countries, wherever needed, the reported data was extrapolated to annual prevalence rates and/or adjusted for the preferred age group of 15-64 for the general population.

**Extrapolation methods used**

*Adjustment for differences in age groups*

Member States are increasingly using the 15-64 age group, though other groups are used as well. Where the age groups reported by Member States did not differ significantly from 15-64, they were presented as reported, and the age group specified. Where studies were based on significantly different age groups, results were typically adjusted. A number of countries reported prevalence rates for the age groups 15+ or 18+. In these cases, it was generally assumed that there was no significant drug use above the age of 64. The number of drug users based on the population age 15+ (or age 18+) was thus shown as a proportion of the population aged 15-64.

**Extrapolation of results from lifetime prevalence to annual prevalence**

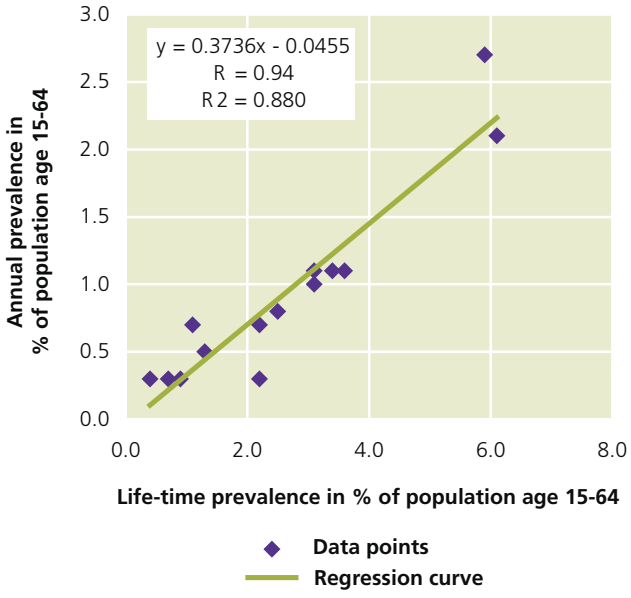
Some countries have conducted surveys in recent years without asking the question whether drug consumption

took place over the last year. In such cases, results were extrapolated to reach annual prevalence estimates. For example, country X in West and Central Europe reported a lifetime prevalence of cocaine use of 2%. Taking data for lifetime and annual prevalence of cocaine use in countries of West and Central Europe, it can be shown that there is a strong positive correlation between the two measures (correlation coefficient R = 0.94); that is, the higher the lifetime prevalence, the higher the annual prevalence and vice versa. Based on the resulting regression curve (y = annual prevalence and x = lifetime prevalence) it can be estimated that a country in West and Central European with a lifetime prevalence of 2% is likely to have an annual prevalence of around 0.7% (see figure). Almost the same result is obtained by calculating the ratio of the unweighted annual prevalence rates of the West and Central European countries and the unweighted lifetime prevalence rate (0.93/2.61 = 0.356) and multiplying this ratio with the lifetime prevalence of the country concerned (2% * 0.356 = 0.7%).

A similar approach was used to calculate the overall ratio by averaging the annual/lifetime ratios, calculated for each country. Multiplying the resulting average ratio (0.334) with the lifetime prevalence of the country concerned provides the estimate for the annual prevalence (0.387 * 2% = 0.8%). There is a close correlation observed between lifetime and annual prevalence (and an even stronger correlation between annual prevalence and monthly prevalence). Solid results (showing small potential errors) can only be expected from extrapolations done for a country in the same region. If instead of using the West and Central European average (0.387), the ratio found in the USA was used (0.17), the estimate for a country with a lifetime prevalence of cocaine use of 2% would decline to 0.3% (2% * 0.17). Such an estimate is likely to be correct for a country with a drug history similar to the USA, which has had a cocaine problem for more than two decades, as opposed to West and Central Europe, where the cocaine problem is largely a phenomenon of the last decade. Therefore, data from countries in the same subregion with similar patterns in drug use were used, wherever possible, for extrapolation purposes.

**Annual and lifetime prevalence rates of cocaine use in West and Central Europe**

Sources: UNODC, Annual Reports Questionnaire Data / EMCDDA, Annual Report.




Both approaches—the regression model and the ratio model—were used to determine upper and lower uncertainty range estimates calculated at a 90% confidence interval among those aged 15-64 years in the given country. The greater the range, the larger the level of uncertainty around the estimates. The range for each country is reported in the statistical annex, where available.

### Extrapolations based on school surveys

Analysis of countries which have conducted both school surveys and national household surveys shows that there is, in general, a positive correlation between the two variables, particularly for cannabis, ATS and cocaine. The correlation, however, is weaker than that of lifetime and annual prevalence or current use and annual prevalence among the general population. But it is stronger than the correlation between opiate use and injecting drug use-related HIV cases, and between treatment and drug use.

These extrapolations were conducted by using the ratios between school surveys and household surveys of countries in the same region or with similar social structure where applicable. As was the case with extrapolation of results from lifetime prevalence to annual prevalence, two approaches were taken: a) the unweighted average of the ratios between school and household surveys in the comparison countries with an upper and lower uncertainty range estimate calculated at a 90% confidence interval; and b) a regression-based extrapolation, using the relationships between estimates from the other countries to predict the estimate in the country concerned, with an upper and lower uncertainty range estimate calculated at a 90% confidence interval. The final uncertainty range and best estimate are calculated using both models, where applicable.

### Extrapolations based on treatment data

For a number of developing countries, the only drug use-related data available was treatment demand. In such cases, other countries in the region with a similar socio-economic structure were identified, which reported annual prevalence and treatment data. A ratio of people treated per 1,000 drug users was calculated for each country. The results from different countries were then

averaged and the resulting ratio was used to extrapolate the likely number of drug users from the number of people in treatment.

## Making regional and global estimates of the number of people who use drugs and the health consequences

For this purpose, the estimated prevalence rates of countries were applied to the population aged 15-64, as provided by the United Nations Population Division for the year 2009.

Ranges have been produced to reflect the considerable uncertainty that arises when data are either extrapolated or imputed. Ranges (not absolutes) are provided for estimated numbers and prevalence rates in the Report. Larger ranges are reported for subregions and regions with less certainty about the likely levels of drug use – in other words, those regions for which fewer direct estimates are available, for a comparatively smaller proportion of the region's population.

Countries with one published estimate (typically those countries with a representative household survey, or an indirect prevalence estimate that did not report ranges) did not have uncertainty estimated. This estimate is reported as the 'best estimate'.

To account for populations in countries with no published estimate, the 10th and 90th percentile in the range of direct estimates was used to produce a lower and upper estimate. For example, there are three countries in the North Africa subregion with past year prevalence estimates for cannabis use: Algeria (a range from 5.2 – 6.4), Egypt (2.9 – 9.6) and Morocco (4.2, a point estimate). These are extrapolated to the population of the remaining three countries without prevalence data, namely the Libyan Arab Jamahiriya, Sudan and Tunisia. The 10th percentile of the lower bound of the uncertainty range (5,2, 2.9, and 4.2) is 3.2 and the 90th percentile of the upper bound (6.4, 9.6, and 4.2) is 8.9. The 3.2 and 8.9 figures are applied to the population of the remaining three countries without prevalence data for a subregional total lower and upper estimate.

In some cases, not all of a region's subregions had estimates due to a lack of country level data. For example, past year amphetamines-group prevalence was calculated for East and South-East Asia and the Near and Middle East/South West Asia, however the remaining subregions – South Asia and Central Asia – had no estimates. To calculate an overall Asia lower and upper estimate for populations in subregions with no published estimate, all of the countries throughout the region were considered using the 10th and 90th percentile of the regional distribution. These results were then combined with those subregions where an estimate was possible. One exception was South Asia's subregional opiate and cannabis estimates. In this case, India's population accounts for 85% of the six countries in the subregion, but reliable estimates of drug use for India were not available. Instead of using all prevalence estimates for Asia (that is, estimates from the Near and Middle East to East Asia) to determine India's contribution to the subregional uncertainty, it was determined that India's contribution was best reflected by its neighboring countries.

This produces conservative (wide) intervals for subregions where there is geographic variation and/or variance in existing country-level estimates; but it also reduces the likelihood that skewed estimates will have a dramatic effect on regional and global figures (since these would most likely fall outside the 10th and 90th percentile).

**Estimates of the total number of people who used illicit drugs at least once in the past year**

This year's Report used the same approach as last year. Two ranges were produced, and the lowest and highest estimate of each the approaches were taken to estimate the lower and upper ranges, respectively, of the total illicit drug using population. This estimate is obviously tentative given the limited number of countries upon which the data informing the two approaches were based. The two approaches were as follows:

*Approach 1.*

The global estimates of the number of people using each of the five drug groups in the past year were added up. Taking into account that people use more than one drug type and that these five populations overlap, the total was adjusted downward. The size of this adjustment was made based upon household surveys conducted in the USA, Canada, Australia, the United Kingdom, Italy, Brazil, Mexico, Germany, Spain, Argentina, Chile, the Plurinational State of Bolivia, Peru, Indonesia and the Philippines, which assessed all five drug types, and reported an estimate of total illicit drug use. Across these studies, the extent to which adding each population of users overestimated the total population was a median value of 126%. The summed total was therefore divided by 1.26.

*Approach 2.*

This approach was based on the average proportion of the total drug using population that comprises cannabis users. The average proportion was obtained from household surveys conducted in the same countries as for Approach 1 Across all of these studies, the median proportion of total drug users that comprised cannabis users was 75%. The range of cannabis users at the global level was therefore divided by 0.75.

| Relative risk coefficient | | | | | |
|---|---|---|---|---|---|
| | Treatment index | IDU | Toxicity | Deaths index | Relative risk coefficient |
| | | Index | Index | | (average treatment, IDU, toxicity, death) |
| Opiates | 100 | 100 | 100 | 100 | 100 |
| Cocaine | 85.3 | 47.8 | 88 | 18.5 | 59.9 |
| Amphetamines | 20.1 | 59.5 | 32 | 6.8 | 29.6 |
| Ecstasy | 3.8 | 6.1 | 20.7 | 1 | 7.9 |
| Cannabis | 9 | 0 | 1.5 | 0.6 | 2.8 |

**Estimates of the number of 'problem drug users'**

It is useful to make estimates of the number of drug users whose use is particularly problematic as this subgroup of drug users is most likely to come to the attention of health and law enforcement. Moreover, this subgroup's drug use has been estimated to cause the main public health and public order burden.

The number of problem drug users is typically estimated with the number of dependent drug users. Sometimes, an alternative approach is used. The EMCDDA uses 'injecting or long duration use of opioids, amphetamines or cocaine' to guide country-level indirect prevalence estimation studies of problem drug use.

In this Report, as in previous years, each of the five range estimates of the number of people using each of the five drug groups was converted into a 'heroin user equivalent'. This was calculated through the use of 'relative risk coefficients' (see table) derived from the UNODC Harm Index. This method enables the aggregation of results from different drugs into one reference drug

A lower range was calculated by summing each of the five lower range estimates; the upper end of the range was calculated by summing the upper range of the five estimates.

To obtain an estimate of the number of 'problem drug users', these totals were multiplied by the proportion of past year heroin users in the United States National Survey on Drug Use and Health (range 53-68% over the past six years of this survey). Hence, The LOW estimate of is the lower proportion (53%) multiplied by the lower estimated size of the heroin use equivalent population (28.6 million heroin user equivalents). The HIGH estimate is the higher proportion (68%) multiplied by the higher estimated size of the heroin use equivalent population (57.5 million heroin user equivalents). This gives a range of 15 to 39 million problem drug users globally.

**Estimates of the prevalence of hepatitis C virus among injecting drug users**

The prevalence of hepatitis C among injecting drug users is reported directly by Member States. The number of injecting drug users is obtained from the Reference Group to the UN on HIV and Injecting Drug Use[1] (preferred source), or otherwise as reported via the ARQ. To obtain an estimate of the prevalence at the regional and global level, country-level rates were weighted by the number of injecting drug users.

**Estimates of the number of drug-related deaths**

Drug-related deaths include those directly or indirectly caused by the intake of illicit drugs, but it may also include deaths where the use of illicit drugs was a contributory cause, including cases where drug use was involved in the circumstances of the deaths (for example, violence and traffic accidents). Member States report on drug-related deaths according to their own definitions and therefore care should be taken in making country comparisons.

The total number of drug-related deaths reported by Member States were aggregated at the regional level. To account for non-responding countries, an upper and lower estimate of the number of deaths was made using the 10th and 90th percentiles of the mortality rates for countries that did report within the same region. In North America, all countries reported and therefore, no range was given. In Oceania, only Australia reported on the number of deaths, and therefore, no variation in mortality rates across the region could be determined. Because of the lack of reported information on drug-related deaths in Africa, an alternative source was used.[2] The global estimate of the number of drug-related deaths is the sum of the regional estimates. The overall estimated number of deaths for a region was presented as a range to account for uncertainty, and also presented as a rate per 1 million population aged 15-64 to allow for some degree of comparison across regions.

1 Mathers BM, Degenhardt L, Phillips B, *et al.* (November 2008). "Global epidemiology of injecting drug use and HIV among people who inject drugs: a systematic review". *Lancet* 372 (9651): 1733–45

2 Degenhardt L, Hall W, Warner-Smith M, Lynskey M. Chapter 13: Illicit drug use. In: Ezzati M, Lopez A, Rodgers A, Murray CJL, eds. Comparative quantification of health risks: global and regional burden of disease attributable to selected major risk factors. Geneva, World Health Organization, 2003.

## Drug cultivation, production and manufacture

Data on cultivation of opium poppy and coca bush and production of opium and coca leaf for the main producing countries (Afghanistan, Myanmar and the Lao People's Democratic Republic for opium and Colombia, Peru and the Plurinational State of Bolivia for coca) are mainly derived from national monitoring systems supported by UNODC in the framework of its Global Illicit Crop Monitoring Programme (ICMP). Estimates of cannabis cultivation in 2009 and 2010 in Afghanistan, as well as cannabis cultivation in 2003, 2004 and 2005 in Morocco, have also been produced by the ICMP-supported national monitoring systems. Estimates for other countries have been drawn from ARQ replies and various other sources, including reports from Governments, UNODC field offices and the United States Department of State's Bureau for International Narcotics and Law Enforcement Affairs.

A full technical description of the methods used by UNODC-supported national monitoring systems can be found in the respective national survey reports available at http://www.unodc.org/unodc/en/crop-monitoring/index.html .

*Net cultivation*

Not all the fields on which illicit crops are planted are actually harvested and contribute to drug production.

For Afghanistan, a system of monitoring opium poppy eradication is in place which provides all necessary information to calculate the net cultivation area. In Myanmar and the Lao People's Democratic Republic, the eradicated area of opium poppy is partly taken into account for the estimation of the net cultivation area. Not enough information is available to consider eradication carried out after the time of the annual opium survey.

A major difference between coca and other narcotic plants such as opium poppy and cannabis is that the coca bush is a perennial plant which can be harvested several times per year. This longevity of the coca plant should, in principle, make it easier to measure the area under coca cultivation. In reality, the area under coca cultivation is dynamic, changes all the time and it is difficult to determine the exact amount of land under coca cultivation at any specific point in time or within a given year. There are several reasons why coca cultivation is dynamic, including new plantation, reactivation of previously abandoned fields, abandonment, manual eradication and aerial spraying.[3]

Depending on the purpose, different concepts of area under coca cultivation can by useful, taking into account some or all of the factors described above. From a government's perspective, it may be interesting to monitor illicit cultivation attempts in a given year, by trying to capture all coca fields irrespective of whether they existed the whole year or only part of it (**gross cultivation area**). For estimating potential coca leaf and cocaine production, it would be necessary to measure the productive area and how long the fields were productive in the course of a year (**net productive area**). For other reasons, the area under cultivation at a specific cut-off date may be chosen, for example, to monitor the effect of law enforcement activities implemented in the preceding period (**area under cultivation at date x**). By definition, the net productive area and the area under cultivation at point x will be smaller than the gross cultivation area.

The area affected by coca cultivation in a given year, or **gross coca cultivation**, can be defined as the totality of all coca fields existing in that year, irrespective of whether they were newly planted, reactivated, abandoned, eradicated or sprayed during the course of that year.

For the calculation of the **net productive area**, two dimensions should be considered: the duration over which the field was in existence and productivity. The area of fields which did not exist over the full 12 months of a year should be subtracted from the gross cultivation figure, by a factor expressing their reduced productive time. In addition to the time factor, the reduced productivity of certain field types and the effects of eradication and spraying need to be taken into account.

- Young plants in new coca fields are not as productive as mature coca bushes.
- Eradicated coca fields may be replanted but have a lower yields as plants are not mature
- Coca bushes in a field sprayed with herbicide may either die (all or some) or have a reduced yield for some months.
- A reactivated field with mature coca bushes may reach full productivity faster than a newly planted field but still be less productive than a well maintained field

The effect on productivity could be added to the effect of time. For example, 20 ha which were eradicated after six months would only count as 10 productive hectares. Similarly, a factor can be introduced to reflect the reduced productivity as a result of aerial spraying. Efforts are being made to improve the estimation of the net productive area in the context of improving the accuracy of the cocaine production estimate.

In 2010, for the first time, the net productive area was estimated in addition to the net cultivation on 31 December, using information on manual eradication

3 Plant disease and pests are not considered here as their impact is likely to be captured in the coca leaf yield estimates.

**Colombia, area concepts used for coca cultivation and production estimates, 2010**

* All rounded and adjusted for small fields

| | Net area (31 Dec 2010)* | Average area 2009/2010 | Net productive area 2010 |
|---|---|---|---|
| Area under coca cultivation (ha)* | 62,000 | 67,500 | 77,500 |
| Application | Used for area trend analysis | Used for coca leaf/cocaine estimate (lower bound of range) | Used for coca leaf/cocaine estimate (upper bound of range) |

and spraying of coca bush and other sources to model the permanence (that is, the productive time span) of coca fields. Permanence factors for abandoned, sprayed and eradicated coca fields were established and applied. The resulting area was considerably larger than the net area on 31 December. In addition, the previous approach of using the average net area on 31 December of the two last surveys was used to calculate coca leaf production to maintain comparability with previous years. More research is needed on the permanence of coca fields and the consequences for coca leaf yield to improve the net productive area estimate.

In Colombia, an adjustment factor was introduced to include small coca fields into the area estimate, which could not be captured due to technical limitations. This was necessary as studies showed that the proportion of undetectable small fields below 0.25 ha has been increasing in recent years. The adjustment for small fields leads to a higher area estimate and is considered more accurate. Area figures for 2009 and 2010 were calculated with and without adjustment for small fields for comparability reasons. The adjustment varies from year to year, depending on the proportion of small fields present in each cultivation region, and the contribution of each region to the total in a specific year. Thus, the adjustment factor has to be calculated for each year separately. Efforts are under way to recalculate the time series for Colombia with the adjustment factor. As of now, the adjusted figures are only available for 2009 and 2010.

In the Plurinational State of Bolivia and Peru, the coca area as estimated from satellite imagery in the second half of the year was used as a proxy for the net productive area. Thus, eradication of coca bush is partly taken into account for the estimation of the net cultivation area. Not enough information is available to also consider eradication carried out after the time of the annual survey.

For countries not covered by UNODC's Illicit Crop Monitoring Programme, the reported net cultivation figure is used.

## Yield[4] and production

To estimate potential production of opium, coca leaf and cannabis (herb and resin), the number of harvests per year and the total yield of primary plant material has to be established. The UNODC-supported national surveys take measurements in the field and conduct interviews with farmers, using results from both to produce the final data on yield.

Opium yield surveys are complex. Harvesting opium with the traditional lancing method can take up to two weeks as the opium latex that oozes out of the poppy capsule has to dry before harvesters can scrape it off and several lancings take place until the plant has dried. To avoid this lengthy process, yield surveyors measure the number of poppy capsules and their size in sample plots. Using a scientifically developed formula, the measured poppy capsule volume indicates how much opium gum each plant potentially yields. Thus, the per hectare opium yield can be estimated. Different formulas were developed for South-East and South-West Asia. In Afghanistan and Myanmar, yield surveys are carried out annually.

For coca bush, the number of harvests varies, as does the yield per harvest. In the Plurinational State of Bolivia and Peru, UNODC supports monitoring systems that conduct coca leaf yield surveys in several regions, by

**Colombia, adjustment of coca area for small fields, 2009-2010 (ha)**

| | 2009 | 2010 | Change on 2009 |
|---|---|---|---|
| Area without adjustment | 68,000 | 57,000 | -16% |
| Adjustment for small fields | 5,000 | 5,000 | 0% |
| Area with adjustment | 73,000 | 62,000 | -15% |

4 Further information on the methodology of opium and coca leaf yield surveys conducted by UNODC can be found in United Nations (2001): *Guidelines for Yield Assessment of Opium Gum and Coca Leaf from Brief Field Visits*, New York (ST/NAR/33).

harvesting sample plots of coca fields over the course of a year, at points in time indicated by the coca farmer. In Colombia, where the security situation does not allow for surveyors to return to the sample fields, only one harvest was measured, and the others were estimated based on information from the farmer. In all three coca cultivating countries, yield surveys are carried out only occasionally, due to the difficult security situation in many coca regions, and because of funding constraints.

*Conversion factors*

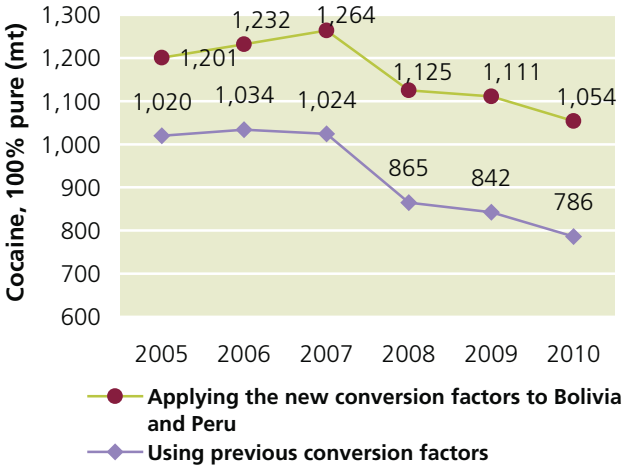
The primary plant material harvested - opium in the form of gum or latex from opium poppy, coca leaves from coca bush, and the cannabis plant - undergo a sequence of extraction and transformation processes, some of which are done by farmers onsite, others by traffickers in clandestine laboratories. Some of these processes involve precursor chemicals and may be done by different people in different places under a variety of conditions, which are not always known. In the case of opium gum, for example, traffickers extract the morphine contained in the gum in one process, transform the morphine into heroin base in a second process, and finally produce heroin hydrochloride. In the case of cocaine, coca paste is produced from either sun-dried (in the Plurinational State of Bolivia and Peru) or fresh coca leaves (in Colombia), which is later transformed into cocaine base, from where cocaine hydrochloride is produced.

The results of each step, for example, from coca leaf to coca paste, can be estimated with a conversion factor. Such conversion factors are based on interviews with the people involved in the process, such as farmers in Colombia, who report how much coca leaf they need to produce 1 kg of coca paste or cocaine base. Tests have also been conducted where so-called 'cooks' or 'chemists' demonstrate how they do the processing under local conditions. A number of studies conducted by enforcement agencies in the main drug-producing countries have provided the orders of magnitude for the transformation from the raw material to the end product. This information is usually based on just a few case studies, however, which are not necessarily representative of the entire production process. Farmer interviews are not always possible due to the sensitivity of the topic, especially if the processing is done by specialists and not by the farmers themselves. Establishing conversion ratios is complicated by the fact that traffickers may not know the quality of the raw material and chemicals they use, which may vary considerably; they may have to use a range of chemicals for the same purpose depending, on their availability and costs; and the conditions under which the processing takes place (temperature, humidity, et cetera) differ.

It is important to take into account the fact that the margins of error of these conversion ratios – used to calculate the potential cocaine production from coca leaf or the heroin production from opium - are not known. To be precise, these calculations would require detailed information on the morphine content of opium or the cocaine content of the coca leaf, as well as detailed information on the efficiency of clandestine laboratories. Such information is limited. This also applies to the question of the psychoactive content of the narcotic plants.

UNODC, in cooperation with Member States, is currently reviewing coca leaf to cocaine conversion ratios as well as coca leaf yields and net productive area estimates.[5] More research is needed to establish comparable data for all components of the cocaine production estimate.

**Impact of conversion factors on global estimates of potential cocaine HCl production (mt)**




Many cannabis farmers in Afghanistan and Morocco conduct the first processing steps themselves, either by removing the upper leaves and flowers of the plant to produce cannabis herb or by threshing and sieving the plant material to extract the cannabis resin. The herb and resin yield per hectare can be obtained by multiplying the plant material yield with an extraction factor. The complex area of cannabis resin yield in Afghanistan was investigated in 2009 and 2010. The yield study included observation of the actual production of resin, which is a process of threshing and sieving the dried cannabis plants. In Morocco, this factor was established by using information from farmers on the methods used and on results from scientific laboratories. Information on the yield was obtained from interviews with cannabis farmers.[6] The estimate of global cannabis herb and resin

5 More detailed information on the ongoing review of conversion factors was presented in the 2010 *World Drug Report*, p.251 ff.

6 For greater detail on studies with cannabis farmers, see: UNODC, *Enquête sur le cannabis au Maroc 2005*, Vienna, 2007.

production was not updated in 2010, given the high level of uncertainty and the continuing lack of information in many cannabis-cultivating countries.

*Potential production*

'Potential' heroin or cocaine production shows the total production of heroin or cocaine if all the cultivated opium or coca leaf were transformed into the end products in the respective producer country in the same year. However, part of the opium or coca leaf is directly consumed in the producing countries or in neighbouring countries, prior to the transformation into heroin or cocaine. In addition, significant quantities of the intermediate products, coca paste or morphine, are also consumed in the producing countries. Some products such as opium can be stored for extended periods of time and be converted into intermediate or final products long after the harvest year. These factors are partly taken into account: for example, consumption of coca leaf considered licit in the Plurinational State of Bolivia and Peru is not taken into account for the transformation into cocaine. Other factors, such as the actual amount of illicit coca paste or opium consumption and storage, are difficult to estimate and were not taken into account.

For cocaine, potential production of 100% pure cocaine is estimated. In reality, clandestine laboratories do not produce 100% pure cocaine but cocaine of lower purity which is often referred to as 'export quality'. For heroin, not enough information is available to estimate the production of heroin of 100% purity. Instead, potential production of export quality heroin is estimated, whose exact purity is not known and may vary.

Although it is based on current knowledge on the alkaloid content of narcotic plants and the efficiency of clandestine laboratories, 'potential production' is a hypothetical concept and is not an estimate of actual heroin or cocaine production at the country or global level. The concept of potential production is different from the theoretical maximum amount of drug that could be produced if all alkaloids were extracted from opium and coca leaf. The difference between the theoretical maximum and the potential production is expressed by the so-called laboratory efficiency, which describes which proportion of alkaloids present in plant material clandestine laboratories are actually able to extract.

*Colombia*

In 2010, for the first time, the net productive area was estimated, in addition to the previous approach of using the average area under coca cultivation of the reporting year and the previous year. For reasons of comparability, the latter was presented as the point estimate. A range was calculated whereby the estimate based on the previous methodology forms the lower bound, and the cocaine estimate based on the net productive area the upper bound. For years before 2010, the net productive area had not yet been calculated at the time of printing.[7]

*Peru*

Potential cocaine production in Peru is estimated from potential coca leaf production after deducting the amount of coca leaf estimated to be used for traditional purposes according to Government sources (9,000 mt of sun-dry coca leaf).

*The Plurinational State of Bolivia*

Potential cocaine production in the Plurinational State of Bolivia is estimated from potential coca leaf production after deducting the amount of coca leaf produced on 12,000 ha in the Yungas of La Paz where coca cultivation is authorized under national law.

## Drug trafficking

**Seizures**

The analysis presented in this report is mainly derived from the ARQ responses covering the March 2010–December 2010 period. Including information from other sources, UNODC was able to obtain seizure data from 143 countries and territories for 2009. Seizures are thus the most comprehensive indicator of the drug situation and its evolution at the global level. Although seizures may not always reflect trafficking trends correctly at the national level, they tend to show reasonable representations of trends at the regional and global levels.

Countries may report seizures of drugs using a variety of units, primarily by weight (kg) but also in litres, tablets, doses, blotters, capsules, ampoules, et cetera. When reporting about individual countries in individual years UNODC endeavours to be as faithful as possible to the reports received, but often it is necessary to aggregate data of different types for the purposes of comparison. For the purposes of aggregation, conversion factors are used to convert the quantities into 'kilogram equivalents' (or 'ton equivalents').

The conversion factors affect seizure totals of amphetamine-type stimulants in particular, as a significant share of seizures of these drug types is reported in number of tablets. In previous editions of the *World Drug Report*, the factors used for ATS ranged between 30 mg and 100 mg per tablet, and were intended to reflect the amount of controlled substance in the tablet; these factors depended on the drug type but not on the reporting country.

7 More information on the results of the two approaches and the methodology used can be found in the report on coca cultivation in Colombia (UNODC/ Government of Colombia, June 2011) available on the internet at http://www.unodc.org/unodc/en/crop-monitoring/index.html.

Apart from seizures of ATS tablets, drug seizures are mainly reported to UNODC by weight. This includes seizures of ATS which are not seized in tablet form (for example, crystalline methamphetamine, ATS in powder form) as well as seizures of other drug types, such as heroin and cocaine. Moreover, ATS seizures made in tablet form are also sometimes reported by weight, and in some cases, the reported total weight possibly includes ATS seized in different forms. Reports of seizures by weight usually refer to the bulk weight of seizures, including adulterants and diluents, rather than the amount of controlled substance. Moreover, given the availability of data, accurate purity adjustments for bulk seizure totals in individual countries are feasible in a small minority of cases, as they would require information on purity on a case by case basis or statistically calibrated data, such as a weighted average or a distribution. The bulk weight of tablets is easier to obtain and less variable.

To improve the comparability of seizure totals across different years and countries, UNODC has revised the conversion factors used for ATS tablets to reflect the bulk weight of the tablets rather than the amount of controlled substance. The factors used in this edition of the *World Drug Report* are based on available forensic studies and range between 90 mg and 300 mg, depending on the region and drug type. The change has been implemented for all years up to and including 2009 (see table). The conversion factors remain subject to revision as the information available to UNODC improves.

All other conversion ratios remained unchanged from previous editions. Seizures quantified by volume (litres) are aggregated using a conversion ratio of 1 kilogram per liter, which applies to all drug types. Cannabis plants are assumed to have a weight of 100 grams.

Moreover, at various points in the analysis, purity adjustments are made where relevant and where the availability of data allows.

UNODC continues to record and report the disaggregated raw data, which are available in the seizure listings published online.[8] In these tables, seizure quantities are reproduced as reported. In the rest of the Report, seizure data are often aggregated and transformed into a unique measurement: seizures in 'kilogram equivalents'. For the purposes of the calculations a 'typical consumption unit' was assumed to be for cannabis herb, 0.5 g; for cannabis resin, 0.135 g; cocaine and morphine, 0.1 g; heroin, 0.03 g; LSD, 0.00005 g (50 micrograms); and opium, 0.3 g. For opiate seizures (unless specified differently in the text), it was assumed that 10 kg of opium were equivalent to 1 kg of morphine or heroin. Though these transformation ratios can be disputed, they provide a means of combining the different seizure reports into one comprehensive measure. The transformation ratios have been derived from those normally used by law enforcement agencies, in the scientific literature and by the International Narcotics Control Board, and were established in consultation with UNODC's Laboratory and Scientific Section.

### Trafficking routes and volumes

Information of trafficking routes was mainly obtained from analyses of individual drug seizures reported to UNODC, as well as analyses of trafficking routes reported by Member States.

To calculate the volumes of drugs trafficked, the retail market size of each country was established by multiplying the number of drug users with best estimates on per capita drug consumption, derived from local studies. There is, however, still a lack of scientific studies on per

| Weight of tablets in mg | | | | |
|---|---|---|---|---|
| | Ecstasy (MDMA or analogue) | Amphetamine | Methamphetamine | Non-specified amphetamines |
| Africa | 271 | 250 | 250 | 250 |
| Asia (excluding Near and Middle East/ South-West Asia) | 300 | 250 | 90 | 250 |
| Europe | 271 | 253 | 225 | 250 |
| Central and South America and the Caribbean | 271 | 250 | 250 | 250 |
| Near and Middle East/ South-West Asia | 237 | 170 | 250 | 250 |
| North America | 250 | 250 | 250 | 250 |
| Oceania | 276 | 250 | 250 | 250 |

8 See http://www.unodc.org/unodc/en/data-and-analysis/WDR.html

capita consumption and results must be treated as preliminary. Based on the estimates of the volumes consumed and knowing the main origins of the drugs and the seizures made, the volumes of the main drug flows were established

## Market analysis

### Drug price and purity data

Price and purity data, if properly collected and reported, can be powerful indicators of market trends. Trends in supply can change over a shorter period of time when compared with changes in demand and shifts in prices and purities are good indicators for increases or declines of market supply. Research has shown that short-term changes in the consumer markets are first reflected in purity changes while prices tend to be rather stable over longer periods of time. UNODC collects its price data from the ARQ, and supplements this data with other sources such as DAINAP, EMCDDA and Government reports. Prices are collected at farm-gate level, wholesale level ('kilogram prices') and at retail level ('gram prices'). Countries are asked to provide minimum, maximum and typical prices and purities. When countries do not provide typical prices/purities, for the purposes of certain estimates, the mid-point of these estimates is calculated as a proxy for the 'typical' prices/purities (unless scientific studies are available which provide better estimates). What is generally not known is how data were collected and how reliable it is. Although improvements have been made in some countries over the years, a number of law enforcement bodies have not yet established a regular system for collecting purity and price data.

### Size and value of the market

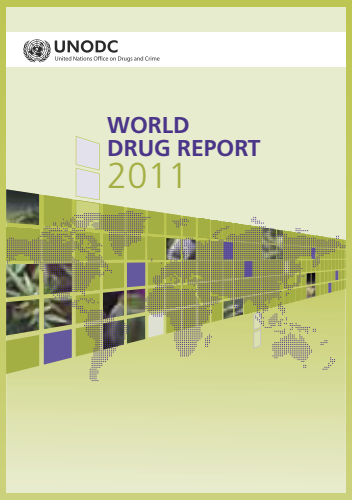
Multiplying the volumes of drugs consumed in a country with the purity-adjusted retail prices gives the value of the market. In case no country-specific per capita use rates were available, regional estimates were used. Similarly, in case no country-specific prices were available, average subregional prices were used as a proxy. The same principle was applied to purities. Average subregional purities were used for countries that were not in a position to assess the purities of the drugs seized. Given the large number of assumptions in deriving the various country estimates from subregional or regional averages, all sizes of the market estimates must be treated with caution.

Printed in Malta
June 2011–1,800

United Nations publication
Sales No. E.11.XI.10
ISBN: 978-92-1-148262-1

UNODC
United Nations Office on Drugs and Crime

**Vienna International Centre, PO Box 500, 1400 Vienna, Austria**
**Tel: +(43) (1) 26060-0, Fax: +(43) (1) 26060-5866, www.unodc.org**




Many illicit drug markets have reached global dimensions and require control strategies on a comparable scale. In that context, there is a need to better understand these transnational markets and the manner in which they operate. The yearly *World Drug Report* is a contribution towards that objective. This year's edition starts with an overview of the illicit drug situation worldwide and regionally, followed by more comprehensive discussions and statistical trends for the key transnational drug markets, namely opium/heroin, coca/cocaine, amphetamine-type stimulants and cannabis.

USD 70
ISBN 978-92-1-148262-1

United Nations publication printed in Malta
Sales No. E.11.XI.10 – June 2011 – 1,800