



5 RAPID POPULATION ESTIMATION METHODS

5.1 OVERVIEW AND FUNCTION

Timely, accurate and reliable information on the numbers and locations of people affected by a crisis is crucial for an effective and efficient humanitarian response. Population numbers or estimates, including a reflection of global numbers and an ethnic, gender and age breakdown, are clearly important for a range of humanitarian assistance activities including programme planning, protection, fundraising and advocacy.

5.2 HOW-TO GUIDE: PREPARATION

5.2.1 Conduct interviews (face-to-face or by phone, Internet, radio, SMS, etc.) with key informants

Estimates from district or village authorities and community leaders in the area, service providers, Red Cross/Red Crescent workers, NGOs, religious leaders, and education or health staff may be important sources of information on population figures, family composition, household size, settlement patterns, and arrival and departure rates. Any other credible first-hand information (e.g. aerial views or any sort of observation) may also be used.

5.2.2 Reconcile estimates: Secondary data and key field informants

In many cases, there will be little data available or time will be limited. Statistical methods may be inappropriate (they may be too costly, time consuming, require considerable expertise, or results may be difficult to interpret). In addition, differing perspectives, terminologies, frames of reference and working approaches exist, which may hinder effective comparison.

In such scenarios, a **Delphi exercise** may be considered. The Delphi method brings together a group of experts to reach a consensual opinion about a situation, such as the numbers and locations of people affected by a crisis. It is recommended to have about 15 to 20 experts on a Delphi panel with combined knowledge and expertise. Panellists should be well informed on the topic at hand, and should have experience with predicting population movement patterns and numbers. The panel may include decision-makers, demographers, behavioural scientists, emergency responders, nutritionists or people with knowledge of the affected area. It may also include researchers and key informants at the regional, national or provincial level who know the culture and behaviour of the affected people.

A prerequisite for a Delphi exercise is that an appropriate number of experts are available and that they all come with their data, which is to be discussed and finally agreed. The discussion focuses on agreeing on location specific figures for each site, after which such figures can be added up to arrive at a total.

5.2.3 Identify information gaps and next level of details, methods, techniques and resources required

Once the review has been completed and the data stored in a database, decisions may be taken on where, when and how to conduct a more comprehensive population estimation, focusing mainly on information gap areas. This will narrow the scope of further data collection and save time as well as financial and human resources.

New or more specific data collection exercises are generally conducted to gain access either to data that does not yet exist or to more detailed, accurate or updated figures. In a refugee emergency, this could mean moving towards an emergency registration. As a registration exercise may be impeded by factors such as access, time and resources available, the next section will elaborate on alternative methods to obtain population figures in an emergency situation.

5.3 POPULATION ESTIMATION METHODS

Every emergency situation is different, with varying factors that will influence the choice of a population estimation method. This could include, for example, the time frame available to conduct the estimation (hours, days or weeks), the location size (site or large area) or the characteristics of the population (stable or continuing to move). Combining several techniques will produce more reliable results, depending on the context, resources (number of staff, expertise, finances) or which population groups are being numerically estimated.

The population estimation methods described in the next section are recommended both for scenarios that do and do not require field and/or affected population access.

5.3.1 Methods and techniques requiring field and/or affected population access

Field access and few hours available

- For sites with available resources: flow monitoring, mobile crowd estimations;
- For sites with limited resources: visual habitation count, static crowd estimation method, drive through or walk through, transect walk, community estimates;
- For large areas with available resources: flow monitoring; and
- For large areas with limited resources: authorities estimates.

Field access and few days available

- For sites with available resources: flow monitoring, mobile crowd estimations, enumeration, stratified or random sampling, cluster sampling, two-stage cluster method, quadrat method, T-square method, spatial interpolation method, focus group discussion, counting the number of under fives;
- For camp setting with available resources: habitation count method, quadrat method, registration exercise;
- For sites with limited resources: community estimates, participatory mapping, drive through or walk through, transect walk and transect sampling, visual habitation count method; and
- For large areas with available resources: flow monitoring, key informants, initial reports/D-forms, Delphi method.

Field access and few weeks available

- For sites with available resources: flow monitoring, enumeration, registration, head counts, capture-recapture, network scale-up, household surveys, results of an immunization coverage survey, focus group discussions; and
- For large area with available resources: flow monitoring, stratified or random sample or a (modified) cluster sampling, two-stage cluster method, quadrat method, T-square method, spatial interpolation method, sample surveys, census, registration, enumeration.

5.3.2 Methods and techniques not requiring field and/or affected population access

No field access and few hours available

- For sites with available resources: I-level aerial photography and survey, mobile phone network data;
- For sites with limited resources: key informants, aerial survey, initial reports / D-forms;
- For large area with available resources: satellite imagery, low-level aerial survey, night-time lights, mobile phone network data; and
- For large area with limited resources: initial reports / D-forms, key informant interviews, Delphi exercise.

No field access and few days available

- For sites with available resources: low-level aerial surveys, mobile phone network data, satellite imagery;
- For sites with limited resources: key informants, first-hand information from aerial survey, initial reports / D-forms;
- For large area with available resources: satellite imagery, low-level aerial photography and mobile phone network data; satellite imagery, night-time lights or low-level aerial survey; aerial survey, initial reports / D-forms, satellite imagery); and
- For large area with limited resources: initial reports / D-forms, Delphi exercise.

No field access and few weeks available

- For sites and large areas with limited resources: Delphi method.

5.4 A REFERENCE DOCUMENTS AND LINKS

- See the *IASC Guidelines on the Humanitarian Profile Common Operational Dataset*, 2011, which may be assessed online at: <https://cod.humanitarianresponse.info/document/iasc-guidelines-humanitarian-profile-cod> (accessed 19 April 2014).
- The technical brief, *Rapid Estimation of Affected Population Figures* provides solution trees to support the choice of an appropriate method, providing practitioners a preliminary overview in choosing a suitable option depending on different operational parameters. This technical brief may be found at: <http://acaps.org/en/resources> (accessed 19 April 2014).
- A detailed explanation of each method is given in the *ACAPS Rapid Estimation of Affected Population Figures*, Desk Review, May 2012; available online at: http://www.parkdatabase.org/files/documents/2012_acaps_rapid_estimation_of_affected_population_figures.pdf; copy and paste this link into your browser (accessed 19 April 2014).