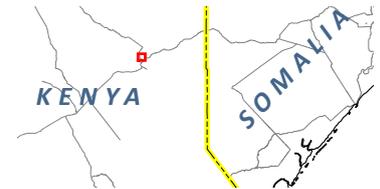


# UPDATE 1: EMERGENCY ASSESSMENT OF IFO REFUGEE CAMPS, GARISSA, N.EASTERN, KENYA

**Drought**

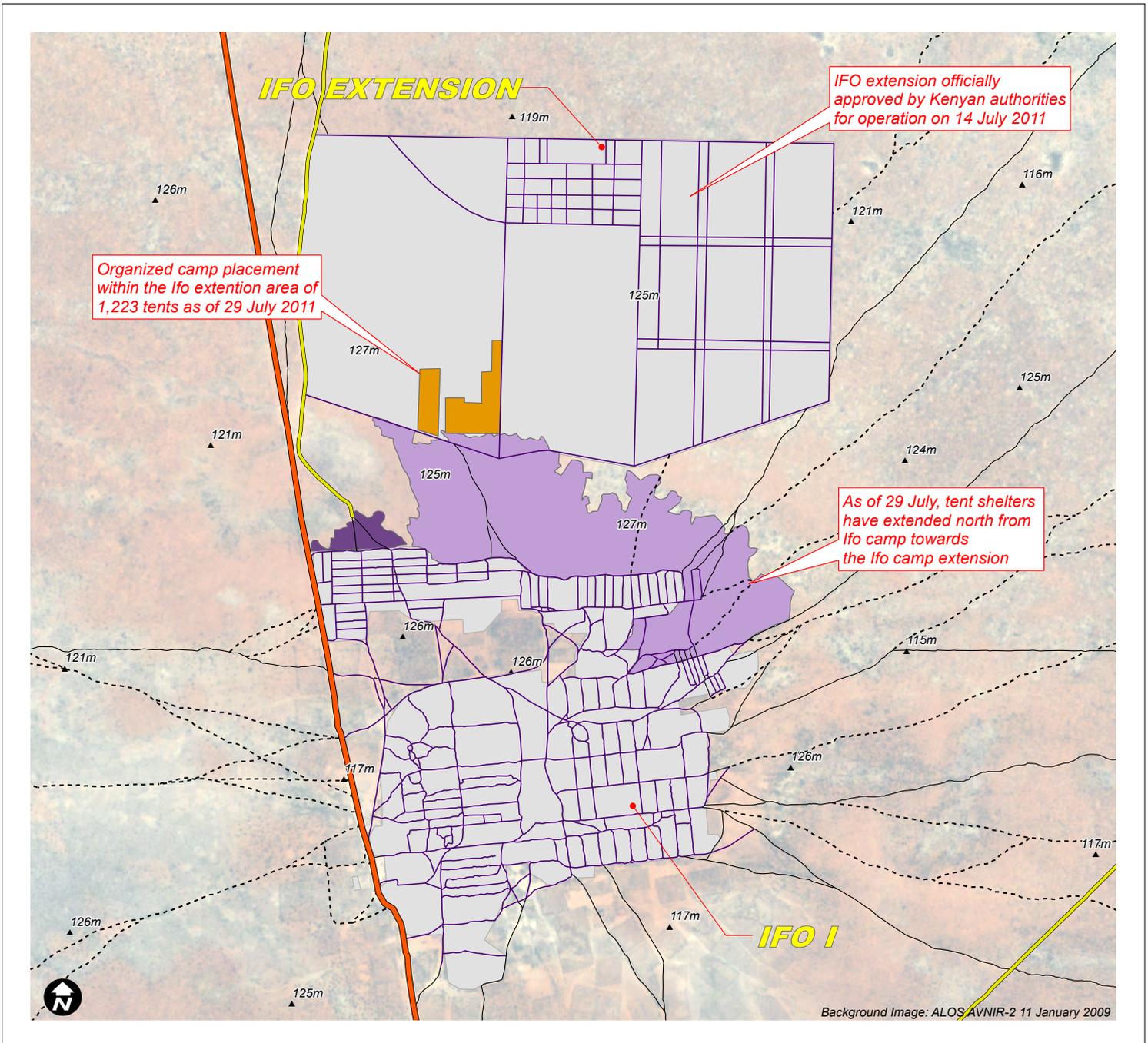
Production Date:  
09/08/2011

Version 2.0  
UNOSAT Activation:  
DR20110714HOA



This map presents satellite-derived information on the current extent and location of the Ifo camp and Ifo extension (approved by Kenyan authorities for operation on 14 July 2011) within the Dadaab area. There is clear tent expansion of Ifo camp and the beginnings of organized tent placement in the southern

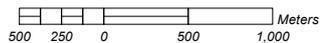
edge of the Ifo extension. This is a preliminary assessment and has not yet been validated in the field. Please send feedback to UNITAR/UNOSAT at the contact information below. Additional reports will be produced as new imagery becomes available.



## Map Legend

- ▲ Spot Height (m)
- Refugee Camp Extent
- Ifo Primary Tent Expansion
- Ifo Secondary Tent Expansion
- Ifo Extension Tent Location
- Primary Road
- Secondary Rd
- Local / Camp Rd
- Tertiary Rd
- Track / Trail
- Sublocation Boundary

## Map Scale for A4: 1:45,000



Satellite Data (1): IKONOS  
Imagery Dates: 29 July 2011  
Resolution: 1 m  
Copyright: GeoEye 2011  
Source: Google 2011

Satellite Data (2): WV02  
Imagery Dates: 16 July 2011  
Resolution: 50 cm  
Copyright: DigitalGlobe 2011  
Source: U.S Dept. of State (HIU)

Satellite Data (3): ALOS AVNIR  
Imagery Dates: 11 Jan. 2009  
Resolution: 10 m  
Copyright: JAXA 2011  
Source: Astrium

Road Data: UNITAR/UNOSAT  
Analysis: UNITAR / UNOSAT  
Analysis conducted with ArcGIS v10  
Map projection: UTM Zone 37N-WGS84

The depiction and use of boundaries, geographic names and related data shown here are not warranted to be error-free nor do they imply official endorsement or acceptance by the United Nations. UNOSAT is a program of the United Nations Institute for Training and Research (UNITAR), providing satellite imagery and related geographic information, research and analysis to UN humanitarian & development agencies & their implementing partners.



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United Nations Institute for Training and Research

UNOSAT

9 August 2011 - Version 2.0

UNOSAT Activation: DR20110714HOA

Camp Center: lat: 0.121427N Long: 40.315060E

## Updated Ifo Refugee Camp Analysis

By UNITAR/UNOSAT – 9 August 2011

*This assessment of the Ifo refugee camps near the Kenyan border town of Dadaab was done at the request of UNHCR in support of emergency humanitarian planning in the area following the recent influx of Somali refugees. Satellite images acquired on 16 July and 29 July 2011 over the area were analyzed to determine recent areas of extension at Ifo camp and the extension. This is a preliminary assessment and has not yet been validated in the field. Please send feedback to UNITAR/UNOSAT at the contact information below. Additional reports will be produced as new imagery becomes available. Vector data produced in this assessment and additional UNOSAT Horn of Africa products are available at: <http://www.unitar.org/unosat/horn-africa-data>*

### Analysis Summary:

Areas of recent extension at Ifo camp and the extension were identified using a combination of satellite images acquired 16 July and 29 July 2011, assessed in conjunction due to partial cloud cover over camps of interest. These images were compared against a series of archival images dating to 9 March 2009 to determine recent areas of extension in the camps. Three distinct areas of temporary refugee shelters were identified both along the borders of the Ifo camp and within the newly opened extension. Shelters along the borders of Ifo were definitely not present in November 2009 and analysis of lower resolution imagery indicates they most likely began appearing after 7 October 2010. New shelters in the extension appeared between 16 July and 29 July 2011. Notably, the new structures at Ifo are similar to traditional housing compounds in the region and include apparent corrals for livestock (see Figure 1). Conversely, the new structures in the extension are obviously tents laid out in an organized grid similar to other UNHCR refugee camps (see Figure 2).



Figure 1 – Area of recently added housing along the northern border of Ifo, including likely livestock corrals circled in red. Both shelters (left) and corrals most likely began appearing after 7 October 2010 (Lat 0.1272N, Lon 40.3324E; UTM: 37N 648282 0014067). Image copyright 2011 DigitalGlobe.

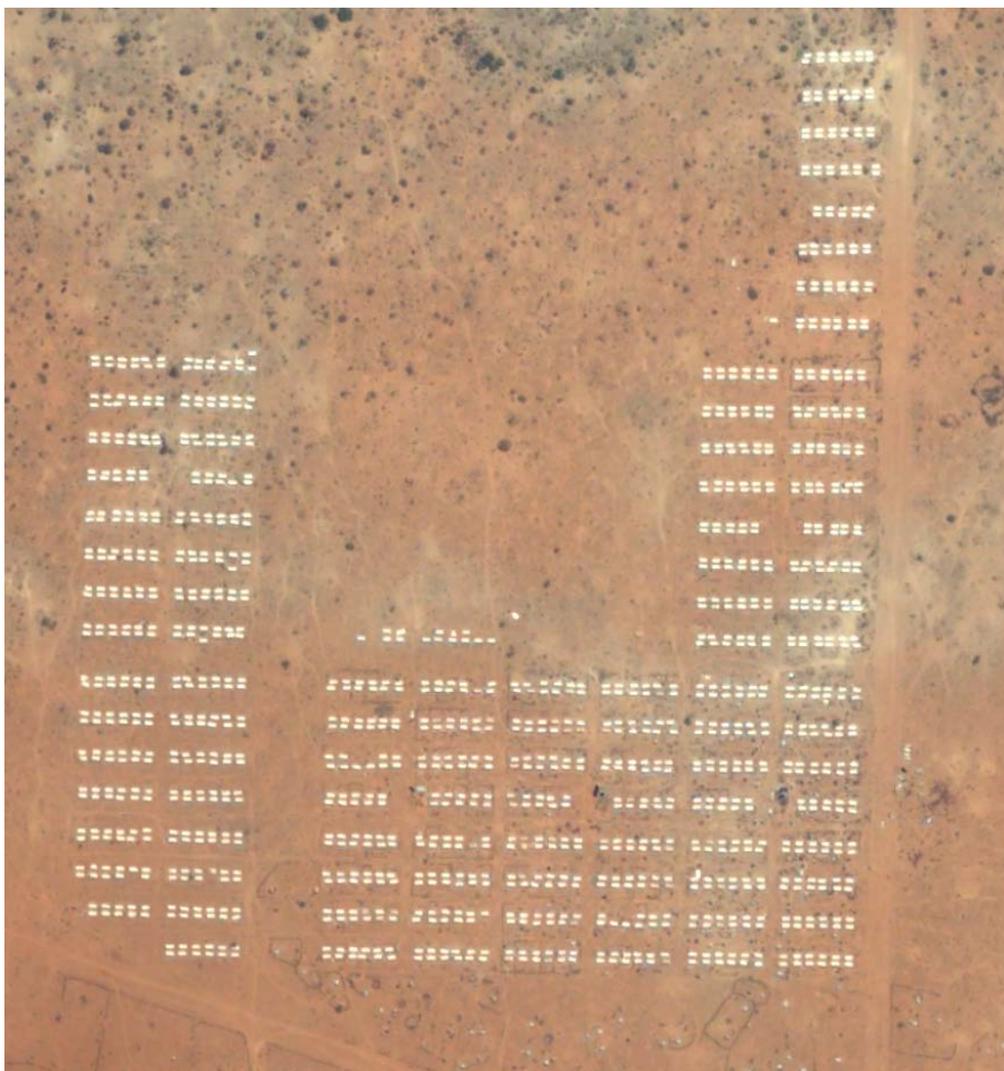


Figure 2 Tents in the southern portion of the Ifo extension added between 16 and 29 July 2011 (Lat: 4.1692N Long: 42.0633; UTM: 38N 173933 461448). Image copyright 2011 GeoEye. Provided by Google.

### **Tent Shelter Count Analysis Results:**

A semi-automated shelter detection analysis was conducted using satellite imagery recorded on 29 July 2011<sup>1</sup>. A total of approximately 1,223 tents and building structures were identified with a high degree of confidence within the southern portion of the Ifo extension area. This new tent extension has an approximate area of 26ha and was likely erected to address the increased levels of displaced people entering Ifo camp. The tent identified measure approximately 3X6m in size respectively. Based on official UNHCR recommended standards<sup>2</sup> this would allow for a camp population capacity in the Ifo extension of a little over 4,000 people. This is a preliminary analysis and has not yet been validated in the field. Please send feedback to UNITAR/UNOSAT at the contact information below.

### **Contact Information:**

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<sup>1</sup> The Ikonos satellite contains a very high resolution optical sensor with a spatial resolution of 100cm. Imagery provided by Google

<sup>2</sup> UNHCR Handbook for Emergencies 3<sup>rd</sup> ED (2007)