

# Geospatial Technologies and Human Rights Project

Satellite imagery assessment of forced  
relocations near the Luiswishi Mine

November 2014



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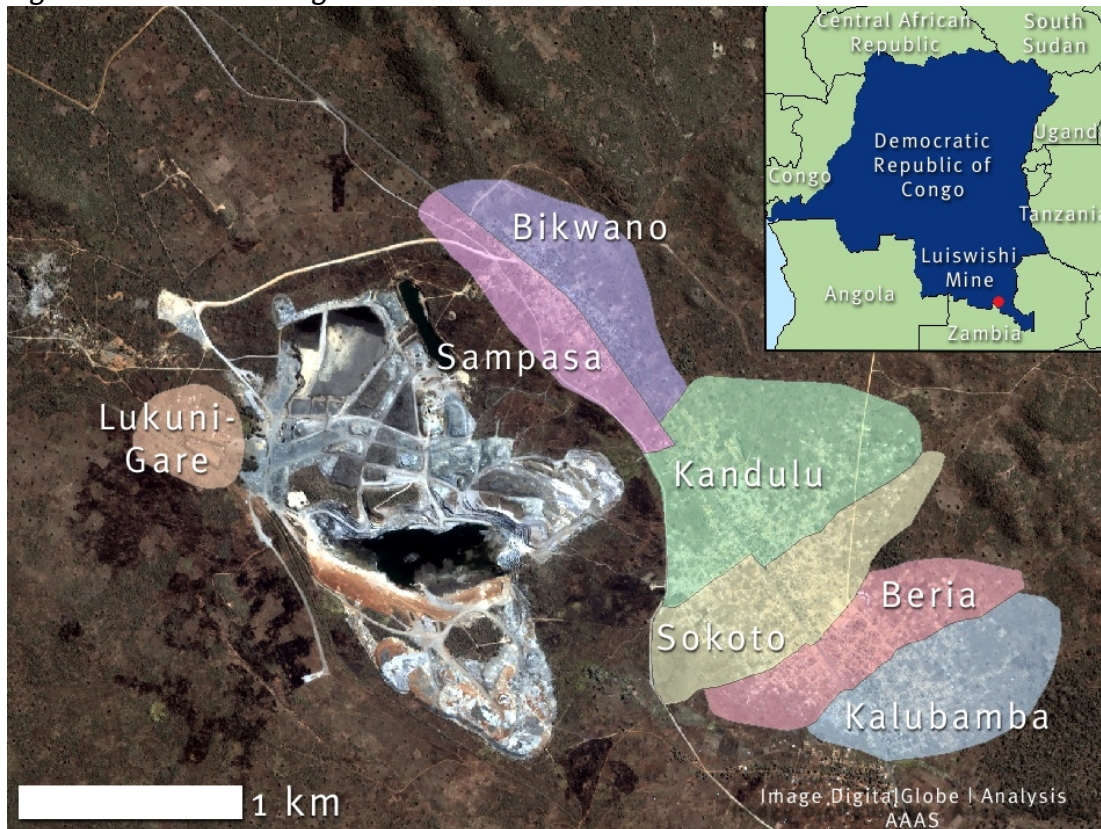
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## Executive Summary

At the request of Amnesty International's Business and Human Rights Programme, the Geospatial Technologies and Human Rights Project of the American Association for the Advancement of Science (AAAS) investigated reports of forced evictions near the Luiswishi Mine in the Katanga Province of the Democratic Republic of Congo (DRC) (Figure 1). The Luiswishi cobalt mine is situated 20 km north of Lubumbashi, the second largest city in the DRC. The mine covers an area of approximately 2 km<sup>2</sup> and is operated by the Compagnie Minière du Sud Katanga (CMSK). Reports indicated that residents of the village of Kawama were evicted on 24 November 2009, ostensibly to prevent artisanal miners from stealing CMSK minerals.<sup>1</sup> According to Amnesty International's researchers, residents of Kawama divide the village into seven neighborhoods: Lukuni-Gare, Sampasa, Bikwano, Kandulu, Sokoto, Beria, and Kalubamba. Using GPS points collected by Amnesty International and a hand drawn map, AAAS was able to create a map of the approximate neighborhood boundaries for use in the analysis.

Figure 1: The seven neighborhoods of Kawama



Lukuni-Gare is situated west of the mine, while the other 6 neighborhoods are situated to the east, along the N1 road which connects Kawama to Lubumbashi in the south. Analysis revealed that, between 31 May 2009 and 15 May 2010, a large percentage of structures were removed from Lukuni-Gare, Bikwano, and Sampasa. During the same time period, a much lower proportion of structures were removed from the other four neighborhoods (Table 2).

<sup>1</sup>OECD Watch. 4 April 2012. Issue: Human rights violations at CMSK mine in the DRC. <http://goo.gl/JT0v2Y>

## Data and Methods

AAAS acquired two images of the Luiswishi Mine and its surroundings (Table 1). An Ikonos image from 31 May 2009 was used to perform a census of the structures present before the reported forced evictions. A Worldview-1 image from 15 May 2010 was used to determine the number of removed structures. Though the images were captured six months before and after the reported evictions, they represent the closest available images to the target date of 24 November 2009. The analysis involved identifying individual structures present on 31 May 2009 and determining whether the structure was also present on 15 May 2010. Structures observed in 2010 that were not present in 2009 were also counted.

*Table 1: Imagery acquired*

Date	Sensor	Image ID
31 May 2009	Ikonos	2009053108445590000011626895
15 May 2010	Worldview-1	102001000D367600

## Results

Imagery analysis documented the removal of 76.4% of structures from Lukuni-Gare, 69.1% of structures from Sampasa, and 39.5% from Bikwano between 21 May 2009 and 15 May 2010. Between 3% and 7% of structures were removed from the other four neighborhoods during the same time period. Reports from Amnesty International indicated that the structures had been removed using bulldozers, however, no rubble or heavy vehicle tracks were observed in the areas near the removed structures. This could be the result of the six-month delay between the alleged forced eviction date and the 15 May 2010 image. A summary of the damage assessment can be found in Table 2.

*Table 2: Structures added and removed*

Neighborhood	2009 Structures	Structures Removed	Structures Added	Percent of Structures Removed
Lukuni-Gare	212	162	76	76.4
Sampasa	220	152	128	69.1
Bikwano	185	73	173	39.5
Beria	438	28	103	6.4*
Kalubamba	454	28	93	6.2
Kandulu	586	32	175	5.5*
Sokoto	572	17	117	3.0*

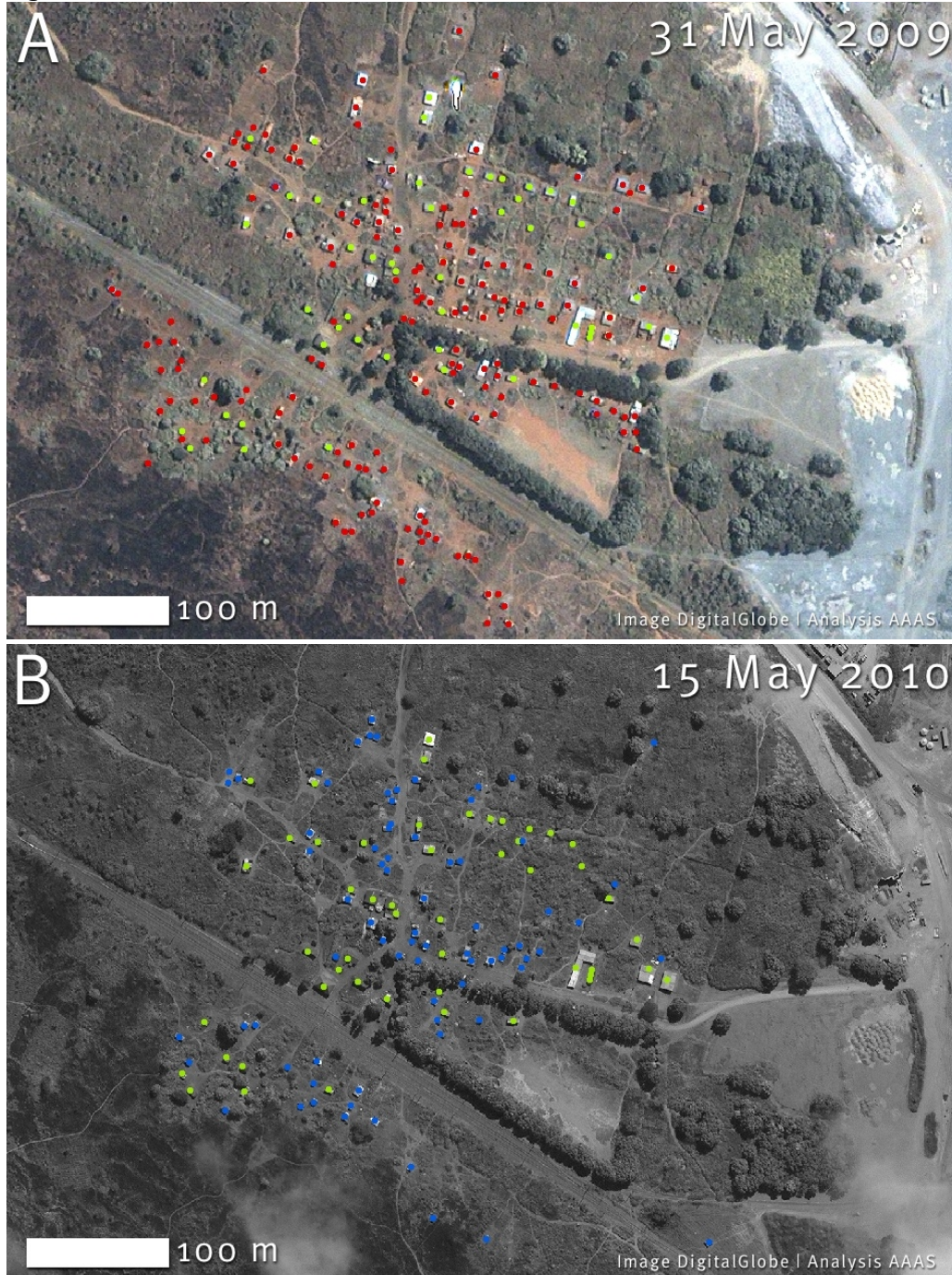
*\*Due to cloud cover, the status of 17 structures in Beria, 9 structures in Kandulu, and 11 structures in Sokoto could not be determined.*

### *Lukuni-Gare*

The Lukuni-Gare neighborhood is located west of the Luiswishi Mine, separate from the rest of Kawama. On 30 May 2009, 212 structures were counted in the neighborhood. On 15 May 2010, only 50 of these structures were present, representing a loss of 76.42% of the original structures. However, an additional 76 structures had been constructed during the same time period (Figure 2).

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Figure 2: Structures removed from the Lukuni-Gare



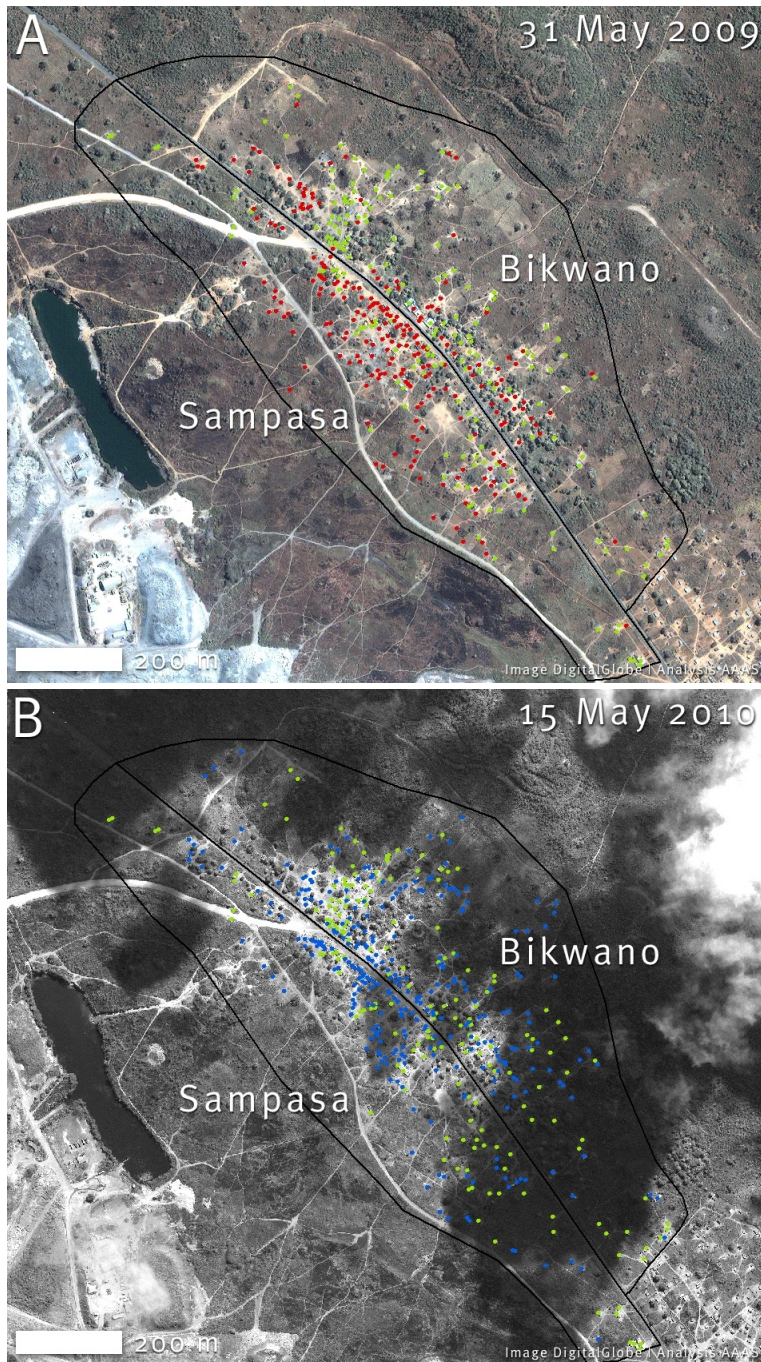
Between 31 May 2009 (A) and 15 May 2010 (B), 162 structures were removed (red dots) and 76 structures were added (blue dots), while 50 structures appear in both images (green dots). Coordinates 27.431 E, 11.511 S. Images DigitalGlobe | Analysis AAAS.

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## *Sampasa and Bikwano*

The Bikwano and Sampasa neighborhoods are located in northern Kawama, east of the mine, and are across the N1 road from each other.

*Figure 3: Structures removed from the Sampasa and Bikwano*



Between 31 May 2009 (A) and 15 May 2010 (B), 152 structures were removed (red dots) and 128 structures were added (blue dots) to Sampasa. During the same time, 73 structures were removed and 173 structures were added to Bikwano. Green dots represent structures present on both dates. Images DigitalGlobe | Analysis AAAS. Coordinates 27.445 E, 11.505 S.

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On 30 May 2009, 220 structures were observed in Sampasa and 185 were observed in Bikwano. By 15 May 2010, 69.1% (152) of the Sampasa structures and 39.5% (73) of structures in Bikwano had been removed. However, 128 new structures were built in Sampasa and 173 were built in Bikwano during the same time period (Figure 3).

#### *Beria, Kalubamba, Kandulu, and Sokoto*

Beria, Kalubamba, Kandulu, and Sokoto are located east of the Luiswishi mine and south of Sampasa and Bikwano. In these four neighborhoods, a total of 2,050 structures were present on 31 May 2009. Only total 105 structures, were removed by 15 May 2010; 28 from Beria (6.4%), 28 from Kalubamba (6.2%), 32 from Kandulu (5.5%), and 17 from Sokoto (3.0%). During this time period, a total of 488 structures were added to these neighborhoods. The new structures were similar in size and construction type to those that were removed. It should be noted that the presence or absence of 37 structures observed in these four neighborhoods in 2009 could not be determined due to cloud cover in the 2010 image.

#### **Conclusions**

Imagery acquired and analyzed by AAAS confirms that large numbers of structures were removed from three neighborhoods of Kawama between 30 May 2009 and 15 May 2010. At Lukuni-Gare, 76.42% of structures present in 2009 were not present in 2010. At Sampasa, 69.1% of structures present in 2009 had been removed by 2010, while 39.5% of structures were removed from Bikwano during the same time period. This is in contrast to the removal of between 3% and 7% of structures from Beria, Kalubamba, Kandulu, and Sokoto. The construction of new structures, similar in size and type to the removed structures, was observed in all seven neighborhoods. No signs of bulldozers or other heavy vehicles (e.g., rubble or tracks) were observed at any of the settlements. This is possibly due to the fact that almost six months had passed between the reported date of the evictions and the collection of the 15 May 2010 image. However, the contrast between the low percentage of structures removed at the Beria, Kalubamba, Kandulu, and Sokoto and the high percentage removed from Lukuni-Gare, Sampasa, and Bikwano suggests that the removals in these three neighborhoods were the result of a planned policy, which is consistent with reports of forced relocations.