Geospatial Technologies and Human Rights Project

An evaluation of Ovadan-Depe Prison using high-resolution satellite imagery

September 2014
This report was produced by the Geospatial Technologies and Human Rights Project (http://www.aaas.org/geotech) as part of the Scientific Responsibility, Human Rights and Law Program (SRHRL, http://www.aaas.org/srhrl) of the American Association for the Advancement of Science (AAAS). As a program of AAAS--the world's largest multidisciplinary scientific membership organization--SRHRL engages individual scientists and scientific associations in human rights efforts; applies scientific tools and technologies to enhance human rights work; brings human rights standards to the conduct of science; and promotes the human right to enjoy the benefits of scientific progress.

This report was authored and edited by the staff of the Geospatial Technologies and Human Rights Project:

Susan Wolfinbarger, Project Director
Jonathan Drake, Senior Program Associate
Eric Ashcroft, Senior Project Coordinator

Acknowledgement
Primary support for this project was provided by Oak Foundation through grant number OUSA-12-011.

Disclaimer
The opinions, findings, and conclusions or recommendations expressed in this publication are those of the author(s) and do not necessarily reflect the views of the AAAS Board of Directors, its Council, or membership, or the Oak Foundation.

Contact
AAAS welcomes comments and questions regarding its work. Please send information, suggestions, and any comments to SRHRL at srhrl@aaas.org.

© Copyright 2014
American Association for the Advancement of Science
Scientific Responsibility, Human Rights, and Law Program
1200 New York Avenue, NW
Washington, DC 20005 USA
Background

In November 2013, Crude Accountability contacted the Geospatial Technologies Project of the American Association for the Advancement of Science (AAAS) to request assistance in establishing a timeline for the construction of the Ovadan-Depe prison, as well as evaluating, where possible, reports that its inmates are subjected to living conditions that violate their human rights. Located in the Garagum Desert some fifty kilometers northwest of Ashgabat (Figure 1), Ovadan-Depe was reportedly constructed by former president Saparmurat Niyazov to imprison high-level political dissidents, and others deemed “enemies of the state” such as former foreign minister Boris Shikhmuradov.\(^1\) Conditions at the prison have been described as unusually harsh,\(^2\) including allegations that inmates are denied all communication with the outside world, are subjected to extreme temperature fluctuations with no climate control, are forced to spend prolonged periods in “hunchback cells” with no room in which to stand, are exposed to attack by mosquitoes and other insects, and are supplied with inadequate water.\(^3\) These reports have led to suspicions that dozens of the prison’s long-term detainees have died while incarcerated, a charge that the Turkmen government has thus far failed to acknowledge.

Figure 1: Ovadan-Depe prison location

---

1 http://www.eurasianet.org/node/67583
2 http://www.neweurasia.net/politics-and-society/bibi-attempts-to-kick-buckets/
3 http://enews.fergananews.com/articles/1803
In response to this alleged mistreatment, the Turkmenistan Civic Solidarity Group, a platform of 54 human rights groups including Crude Accountability, launched a campaign called “Prove They are Alive,” which seeks to determine the fate of the detainees. In partnership with this initiative, AAAS has sought to verify these concerns using high-resolution satellite imagery. The primary issues this analysis seeks to address are: 1) when the prison was built and whether any parts of it have undergone significant change; and 2) whether individuals living nearby were forcibly re-located from the area, as some reports have claimed. Other questions focus on the conditions in which the inmates are held, for example, whether anything can be determined about the presence of climate control in the facilities, or the presence of areas conducive to mosquito breeding. Finally, the investigation searched for signs of burials at the prison complex; any evidence of such interments would be extremely useful to those attempting to determine the fate of the missing long-term detainees.

Data and Methods

Google Earth, a free software program distributed by Google, Inc., offers users the opportunity to view thousands of high-resolution satellite images at near-native resolution. Although the spatial extent and temporal resolution afforded by the Google Earth platform varies widely and unpredictably, initial research indicated that the coordinates associated with the alleged location of Ovadan-Depe prison were covered by three images. While Google Earth does not publish the details of exactly which image identifiers were used to complete their mosaic, they do provide dates and copyright information, which was sufficient, when combined with DigitalGlobe’s online imagery archive, to reconstruct those details with high confidence. The details of this imagery are shown in Table 1. Each of these images was ordered directly from DigitalGlobe at full resolution, which permitted analysis of the images in their original multispectral format, without the JPEG compression applied to imagery delivered through the Google Earth platform. The images were then examined visually for evidence that could corroborate or discredit the reports described above.

Table 1: Imagery available through Google Earth

<table>
<thead>
<tr>
<th>Image ID*</th>
<th>Sensor</th>
<th>Date</th>
</tr>
</thead>
<tbody>
<tr>
<td>10100100011A5400</td>
<td>QuickBird-2</td>
<td>1 September 2002</td>
</tr>
<tr>
<td>10504100020F3300</td>
<td>GeoEye-1</td>
<td>14 September 2009</td>
</tr>
<tr>
<td>1030010006957700</td>
<td>WorldView-2</td>
<td>9 July 2010</td>
</tr>
</tbody>
</table>

*Probable ID determined from information provided by Google Earth and DigitalGlobe

Results

2002

Analysis of the imagery confirms the presence of a substantial compound at the reported coordinates, many attributes of which are consistent with a high-security prison. The first image of the site available on Google Earth, was taken in the late summer of 2002, and clearly shows the complex as it was being built (Figure 2). The road to the site, completed in the later images, is unpaved, the roof of the largest building in the complex is only partially complete, and construction appears to have just begun on what will become the second of the two primary structures in the finished compound. In contrast to later imagery, in 2002 many dirt paths crisscross the area, as do the tracks left by heavy equipment, which is visible in abundance, alongside numerous temporary structures and piles of construction materials (Figure 3).

Figure 2: Complex under construction

In the summer of 2002, the complex at Ovadan-Depe is still under construction, with many elements of the final compound, such as the southeast complex, either incomplete or entirely absent. Coordinates: 38.383 N, 58.271 E. Image DigitalGlobe | Analysis AAAS.

One consequence of being able to view the prison buildings during construction was the ability to measure the interior dimensions of rooms before they were covered by roofing. As illustrated in Figure 4, four wings of the structure were uncovered in 2002. Two of these, occupying the building’s easternmost face, were divided into 16 smaller chambers, each of which measures approximately 5 meters by 6 meters. A second pair of wings, located between the westernmost and easternmost faces, each contained ten visible chambers of slightly larger
size, with each one measuring roughly 6.5 by 6 meters. The total number of divisions in the second pair of wings could not be directly observed, as roofing over these areas had already been partially installed; if the dimensions of the chambers are the same as those visible, however, then the middle wings would each contain approximately 18 units.

*Figure 3: Complex under construction (detail)*

*Construction vehicles and equipment are scattered throughout the site, which is crisscrossed by heavy vehicle tracks. Coordinates: 38.383 N, 58.271 E. Image DigitalGlobe | Analysis AAAS.*
By 14 September 2009, the complex appears mostly complete, although some construction equipment is still present at the south end of the site. Unlike in 2002, the site in 2009 exhibits many of the elements that would be expected of an operating prison, including an outer perimeter trench with a checkpoint where it is crossed by the access road, a fenced, double-walled inner perimeter flanked by guard towers surrounding two detention facilities, a possible administration building, and possible barracks for guards and support personnel (Figures 5-7). The nature of these latter buildings is conjectural, but appears consistent with their placement with respect to the main prison complex. Contrary to reports received by Crude Accountability, the facility exhibits no signs of having been partially demolished following the death of Saparmurat Niyazov in 2006. Detailed examination of the chambers – possible cells – that were observed in 2002 revealed that they had only partially been covered by roofing during the remainder of the construction phase. The majority of the rooms that were observed remained open to the sky, although those in the easternmost wing appear to have been subdivided into smaller chambers of two different sizes: one group measuring roughly 6 meters by 3 meters, and a second group of smaller cells measuring 3 meters by 3 meters. The exact purpose of these open-air rooms is unclear, but one possibility may be that they exist to provide detainees with periods of “outdoor” exercise. Because the 2009 image was not taken from directly above the prison, there was a horizontal component to the imagery, which revealed detail of the side of the building. On this face, three distinct rows of windows could be counted, suggesting an above-ground height three stories tall.
On 14 September 2009, the prison complex, composed of two isolated facilities and associated support structures, appears largely complete; no sign of any demolition, partial or otherwise, is present. Coordinates: 38.383 N, 58.271 E. Image DigitalGlobe | Analysis AAAS.
Unlike in 2002, the cells making up the east wings of the prison have been subdivided into even smaller chambers measuring 6m by 3m; the dimensions of those in the central wings are unchanged. The windows of three stories of height are visible in the lower left (blue arrow); a fence (yellow arrow), two walls (purple arrow), a guard tower (red arrow), and a possible administration building (orange arrow) are also present. Coordinates: 38.383 N, 58.271 E.

Image DigitalGlobe | Analysis AAAS.
Entirely absent in 2002, by 2009 a checkpoint and serpentine roadblocks have been established along the access road linking the prison to the main highway. To the north and south, a trench has been dug along the outer perimeter. Coordinates: 38.383 N, 58.271 E. Image DigitalGlobe | Analysis AAAS.

2010

Between September 2009 and July 2010, the complex had expanded further, although the development appears to have been confined to areas outside the maximum-security perimeter that surrounds the two main prison buildings, as shown in Figure 8. This new construction may, therefore, be related to additional facilities for guards or other prison staff. Nevertheless, the expansion shows that the Turkmen government continues to pay active attention to upgrading and modernizing the facility, over a decade after it was first constructed. Little additional change was apparent at the prison itself; the chambers that were unroofed in 2009 remained so, suggesting that this aspect of their construction was intentional. However, unlike the image acquired in 2009, whose upper bound terminated just north of the prison, the 2010 image extended further into the desert north of the site, allowing the investigation to determine the status of a small village that was observed five kilometers northwest of the Ovadan-Depe construction site in 2002. Analysis of the imagery revealed that what had once been a settlement of 107 structures had, by 2010, been completely abandoned (Figure 9). While the imagery alone cannot determine whether the village’s former residents were forced to leave or did so voluntarily, when the settlement’s proximity to the prison is considered in conjunction with reports that such displacements have taken place, the former option appears likely.
Figure 8: Expansion of facilities at Ovadan-Depe between 2009 and 2010

Between September 2009 (left) and July 2010 (right), Ovadan-Depe has expanded further (outlined in red), with most of the construction occurring outside the inner security perimeter. Coordinates: 38.383 N, 58.271 E. Image DigitalGlobe | Analysis AAAS.

Figure 9: Abandonment of settlement northwest of prison complex

In September 2002 (left), this village located northwest of Ovadan-Depe is fully intact. Between that date and the summer of 2010, however, nearly all traces of it have disappeared. Coordinates: 38.429 N, 58.255 E. Image DigitalGlobe courtesy Google Earth | Analysis AAAS.
Conclusions

Analysis of high-resolution satellite imagery confirms the presence of a large complex of buildings at the coordinates alleged to be the location of Ovadan-Depe prison. The physical characteristics of the compound, including multiple walls, fences, guard towers, and perimeter trenches strongly suggest that the facility functions as a penitentiary. Construction at the site appears to have begun shortly prior to the summer of 2002, and in the following years the facility appears to have been continuously enhanced and upgraded. Contrary to reports from Crude Accountability, no sign of demolition, partial or otherwise, appears to have occurred at the site following the death of former Turkmen president Saparmurat Niyazov. Aside from establishing the dimensions of a number of open-air cells on the upper floors of the facility, satellite imagery can say little about the conditions to which prisoners are subjected. Cells in which prisoners are unable to stand may exist, but satellite imagery cannot confirm this.

No sign of heating or air conditioning was apparent at the prison buildings, however this was also the case for other, non-detention structures at the facility, such as potential barracks and administration buildings. Because of this ambiguity, no conclusions can be drawn regarding climate control. An irrigation canal was observed feeding into the site from the south, but the quality of the water cannot be determined. Likewise, while low-lying, vegetated areas were observed adjacent to the prison facilities, whether such areas are indeed a breeding ground for mosquitoes – and if so, whether the detainees are exposed to them – cannot be established. No clear evidence of burials was apparent, however this could be explained by a number of factors, including the quality of the imagery, the dates of image acquisition, vegetation growth, and aeolian deposition or scouring. As such, whether burials have taken place at the Ovadan-Depe remains an open question. Reports of forced displacement, however, are consistent with the observations of this investigation. Northwest of the prison facility, a village that once contained over 100 structures has been completely demolished; only the ruins of a few scattered foundations remain.