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While We Watched: Assessing the Impact of the Satellite Sentinel Project

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When mass atrocities occur in conflict zones, corroborated, publicly available information about events happening in near-real time is often in short supply, if available at all. The difficulty of obtaining credible information during mass atrocities may impede international response to these complex events and, as a result, can increase the vulnerability of at risk populations. The recent, public deployment of remote sensing and data collection technologies during the alleged mass atrocities in Sudan provides insight into what potential impact and challenges these platforms may have in these scenarios.

The experience of the Satellite Sentinel Project (SSP) suggests that attempting to enhance the situational awareness of policymakers and the public does not appear by itself, at least in the case of Sudan, to directly affect whether, and to what degree, governments respond to mass atrocities as they occur. This article offers an overview of the relationship between the SSP reports published by the Harvard Humanitarian Initiative (HHI)[1] and international policy makers. It also explores SSP's use of technology and the development

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of its methodology, identifying possible lessons to guide future mass atrocity response operations.

A Radical Proposition. When SSP publicly launched in December 2010,[2] the ensuing headlines ostensibly focused on two things: the application of technology (satellites), and its co-founder and patron, actor George Clooney. SSP's stated mission was to help prevent a return to full-scale war between Sudan and then-southern Sudan through satellite monitoring of threats to civilians along the contested border.[3] Implicit in the ambitious objective of preventing the civil war was the aspiration that the surveillance would affect the policies of the international community in ways that benefited vulnerable populations.

For SSP to become operational, two obstacles had to first be overcome: Regular access to the necessary volume of satellite imagery over the right locations and the means to immediately analyze relevant imagery and non-imagery data. The necessary imagery access and analysis support was provided by DigitalGlobe, a high-resolution satellite imagery provider. However, HHI, initially with the support of UN satellite imagery analysts, was responsible for solving the second challenge: collecting and interpreting high volumes of satellite and non-satellite data in twenty-four hour cycles.

SSP's radical proposition was that persistent near-real time remote surveillance could prevent or curtail the risks to vulnerable populations in Sudan and southern Sudan from gross human rights abuses.[4] SSP thought that achieving this effect could provide a blueprint for scaling this approach to other, future mass atrocity scenarios. If SSP did not have that effect, at the very least, evidence of alleged atrocities would be captured and documented to a degree previously impossible. No civilian platform similar to SSP had been built before due to high costs of satellite imagery and the absence of the methodology required for managing vast streams of relevant data.

Satellites, traditionally used by governments, provide otherwise unattainable, contemporaneous information about events occurring in non-permissive environments. Orbiting hundreds of miles above the Earth, their sensors collect unique data about certain observable objects (i.e. tanks, planes, burned buildings, etc.) from places not easily accessible from the ground.

At the time SSP was launched, approximately two weeks before the January 2011 referendum deciding southern Sudan's secession from Sudan, credible data about events on-the-ground were scant. Violence was escalating. Specific ethnic groups in Abyei, Blue Nile, and South Kordofan were seen by analysts as potential targets for atrocities by the government of Sudan. The information available about the events in these areas was often second-hand and largely impossible to confirm. The international community had minimal capacities for collecting impartial information and freely assisting civilians inside critical areas of Sudan due to restrictions on their freedom of movement.

United Nations Mission in Sudan (UNMIS) peacekeepers operated in Abyei and South Kordofan only until their mandate expired on 9 July 2011. Some international humanitarian

groups were allowed by the Government of Sudan to stay in parts of the region until August that year, though heavy restrictions were placed on their activities. Because of these limitations, satellite monitoring was, at the time, SSP's most optimal option for collecting better corroborated information.

A New Methodology for a Costly Technology. SSP represents a substantial paradigm shift from traditional, often retrospective, collection of evidence corroborating alleged human rights violations. Instead, unprecedented access to recently captured imagery allowed SSP analysts to proactively anticipate some of these events. Evidence of enhanced fortifications or the presence of heavy equipment necessary to transport armored vehicles, for example, became harbingers of potential threats to specific civilian populations.

Unlike government geospatial analysts, HHI researchers began their work with limited precedents and pedagogy for guiding this tempo and volume of analysis in a humanitarian setting. A new methodology was needed for SSP's operations. The resulting approach is a hybrid of tactics for assessing military movements, humanitarian indicators, and melding together different streams of data into a more fused view of crisis events.

DigitalGlobe's constellation of satellites travels each day around the Earth in a geosynchronous trajectory, passing over the north and south poles as they orbit. The amount of images collected by SSP in such short periods of time allowed for a level and tempo of "refresh" (i.e. collection of new imagery) over key locations that made the observa-

tion of micro-changes in a village or a military base possible. HHI also had to collect, geo-code and sometimes translate non-imagery data. This data is essential for making sense of imagery. To address this issue, HHI staff geo-coded all relevant data in English, Arabic, and other languages by time stamps and geographic coordinates.

HHI researchers then fused together these two independent streams of data. The result is a previously unavailable, non-classified tool for situational awareness during alleged atrocity events. However, HHI analysts faced numerous challenges employing this new capacity.

The most important issue was the inherent limitations on analyzing remote sensing data without reliable ground confirmation. Satellites could offer a rare glimpse into the highly non-permissive Sudan-South Sudan border areas. However, imagery still represents only a single source of data about alleged events within a dynamic conflict zone. Though the HHI team strove to draw definitive conclusions about the conflict, remote sensing analysis alone could not result in conclusive knowledge of a situation, only interpretations.

HHI researchers recognized that remotely monitoring the conflict meant that reaching a consistent threshold of certainty about events on the ground was impossible. Reflecting this reality, HHI wrote all SSP reports in caveated language. For example, an image of a main battle tank was never simply reported as "a tank." That "tank" was always reported as an object "consistent" with a specific type of tank. Each specific type of tank had to be identified by measuring the object and comparing it

to public databases about what vehicles or weapons are reportedly in the armed actors' arsenal.

As a result, HHI developed its own standards for what constituted appropriate levels of certainty to first reach and then release analytic conclusions. These standards enabled the HHI team to produce an experimental body of work that was both rich with retrospective data and of potential value to policymakers and the public. As the scope of reports collected and the archive of relevant imagery grew, HHI improved these systems for identifying and assessing intersections between imagery and geo-coded data.

Soon, HHI analysts were able to detect and corroborate evidence of abuses in a highly non-permissive environment. This approach allowed HHI to identify repeating patterns of behavior derived from public reports. Overlaid on recent imagery, these intersecting clusters of interrelated, digital information were critical in deciding where satellites should collect imagery.

This approach enabled SSP to become increasingly predictive. SSP moved from a traditional "documentation posture" into a more predictive "detection posture." Analysts were thus able to better target their collection of imagery to be more relevant to the real time security of vulnerable populations. This move towards prediction forced HHI researchers to weigh the unintended consequences of publicizing information and images about vulnerable populations when the audience included the parties to the conflict themselves. This task was especially difficult given SSP's access to near-real time satellite imagery and the ability to rapidly share those images globally through the international and Sudanese domestic media.

As SSP worked to minimize the risk associated with these near-real time products, the challenge for the project was neither an absence of reports presenting compelling evidence of apparent mass atrocities, nor media exposure for its findings. Instead, the primary challenge was leveraging SSP's unique information to motivate international response to the alleged abuses in Sudan.

Barriers to Impact. Analysis of SSP's eighteen month pilot phase identifies multiple factors that may have limited the impact of SSP's reports in affecting the policy response of the U.S. government and others towards the crisis. One key factor that may have significantly limited SSP's ability to bring about policy changes was the perception of the project as being biased against the Government of Sudan and sympathetic towards South Sudan. Arguments concerning bias or the equal coverage of armed actors in SSP's reports are not without merit. They are actually critical to take into account when assessing the SSP model.

The SSP partner responsible for the project's communications and advocacy strategy, the Enough Project, and its funding source, Not On Our Watch, both had clearly stated positions against the Bashir regime. While HHI produced SSP's reports, SSP's founders, George Clooney and John Prendergast, a co-founder of the Enough Project, engaged in a high-profile advocacy campaign against the policies and leadership of the Government of Sudan. This included a March 2012 trip to Sudan's

Nuba Mountains region, as well as the subsequent arrest of George Clooney and other public figures, including Members of Congress, at the Sudanese Embassy in Washington, DC. Looking back on the first eighteen months of SSP, the public attention primarily centered either on the SSP's technological uniqueness or the involvement of its famous founder, George Clooney. SSP's novelty and its association with a celebrity often received more focus than the ramifications of its analysis for foreign policy.

Although all SSP reports during the pilot phase were independently produced by HHI, they were published under the SSP brand. The Enough Project acted as the delivery mechanism for SSP research products while simultaneously advocating its own policy recommendations on Sudan. Despite efforts to differentiate roles within the consortium, this structural reality reinforced the perception that SSP was an advocacy non-governmental organization (NGO) targeting President Bashir and the Sudanese leadership. For the high profile nature of the project, public questions or criticism concerning these core operational dynamics were rare.

Another factor that may have hindered the ability of SSP products to influence policy decisions was that policymakers possessed independent sources of information about events in Sudan. This information includes intelligence analysis and more advanced, routine satellite access to the region. If this information provided more comprehensive conclusions different to those reached by SSP, it could cast doubt on the SSP's findings.

Due to the classified nature of government intelligence, SSP analysts were not able to compare the outcomes of their analysis with the totality of information available to policymakers. Compounding this issue, even if SSP's reporting was timely and accurate, the true calculus of what was necessary at the policy level for any type of intervention in Sudan was and remains unknown. These extremely significant blind spots made it impossible for SSP to know what credibility or relevance their reports would have when they reached those in a decisive position to act.

SSP's Contribution. SSP confronted the reality that regardless of the publicity resulting from its reports, it was unable to catalyze timely or robust action within policy communities. As a consequence, the impact of SSP was an indirect but critical one: it generated public attention and made it necessary for policymakers to pay attention.

The project's published reports became recognized as an otherwise unavailable, contemporaneous source of information about the conflict in Sudan. SSP's ability to collect, analyze and release information in near-real time about potential threats to civilians, as much as the findings themselves, made its reporting more relevant and timely than other available information. To enhance this effect, SSP initially publicized each report through international news bureaus in East Africa, releasing them around 7am East Africa Time, in an attempt to better inform populations in danger. SSP's reports became a widely cited resource on the evolving situation in Sudan by a range of policy actors, including the International

Criminal Court,[7] the U.S. Congress, UN agencies, and others.

The project represents a critical step towards ascertaining what is required to transform the remote surveillance act into a means of better protecting civilians inside atrocity producing settings. For example, in the case of Kadugli, South Kordofan, during the summer of 2011, SSP conducted the first ever non-governmental, remote collection of alleged evidence of mass grave sites in a non-permissive environment. This occurred while reported systematic killings were ongoing.[8] SSP also visually confirmed the looting of the World Food Program facility in Abyei[9] and detected SAF forces moving to attack civilian areas in Blue Nile.[10] These successes resulted from unique insights that only remote-sensing technologies could deliver; improving the speed, agility and tempo with which evidence could be collected and presented for the benefit of vulnerable populations.

Through the use of a robust methodology and advanced technology, SSP hoped to change the balance of consequences for both armed actors in Sudan and policymakers around the world. So far, the evidence does not show that SSP met that objective. However, by advancing the practice of near-real time monitoring and documentation of alleged mass atrocities, SSP did help ensure that when policymakers and the public will not serve as rescuers, they will at least become witnesses.

<u>NOTES</u>

1 HHI led SSP's data collection, analysis, and report production during SSP's eighteen months pilot phase from December 2010 until June 2012. HHI withdrew from SSP to found the Signal Program on Human Security and Technology to conduct research on the emerging operational and ethical issues related to the use of information communication technologies during complex humanitarian disasters.

2 Mark Benjamin, "Clooney's 'Antigenocide Paparazzi': Watching Sudan," *Time Magazine*, December 28, 2010, Internet, http://www.time.com/time/magazine/article/0%2C9171%2C2040211%2C00.html

3 *Satellite Sentinel Project,* "Our Story", n.d., http://satsentinel.org/our-story.

4 Patrick Meier, "Will Using 'Live' Satellite Imagery to Prevent War in the Sudan Actually Work?" *iRevolution*, 20 December 2010, Internet, http://irevolution.net/2010/12/30/sat-sentinel-project/.

5 Larisa Epatko, "George Clooney on Sudan: 'It Gets in Your Bloodstream." *PBS Newshour*, 14 March 2012, Internet, http://www.pbs.org/newshour/rundown/2012/03/george-clooney-on-sudan.html.

6 Dana Hughes, "George Clooney Arrested at Sudanese Embassy," *ABC News*, 16 March 2012, Internet, "http://abcnews.go.com/Politics/OTUS/george-clooney-arrested-sudan-embassy-washington-dc/story?id=15936415#.UW2YYyuG0bo.

7 Mark Benjamin, "George Clooney's Satellites Build a War Crimes Case Against an Alleged War Criminal," *Time Magazine*, 3 December 2011, Internet, http://www.time.com/time/world/article/0,8599,2101425,00.html.

8 Satellite Sentinel Project, *Crime Scene: Evidence of Mass Graves in Kadugli*, July 14, 2011, Internet, http://satsentinel.org/sites/default/files/SSP%2016%20Final%20Smaller.pdf.

9 *Satellite Sentinel Project*, Burned to the Ground, May 28, 2011, Internet, http://hhi.harvard.edu/sites/default/files/publications/burned to the ground.pdf.

10 *Satellite Sentinel Project, State of Emergency: Threat of Imminent SAF Attack on Kurmuk, Blue Nile*, September 23, 2011, Internet, http://www.satsentinel.org/sites/default/files/Satellite Sentinel Project report 092311.pdf.