

REPORT ON USE THE SPATIAL MONITORING AND REPORTING TOOL (SMART), ATEWA LANDSCAPE



IMPLEMENTOR:



DONOR:



PARTNERS:



INTRODUCTION

The Atewa Range Forest Reserve within the Upper Guinea Forests Hotspot covers a total land area of 263km², representing about 33.5% of the remaining closed forest in the Eastern Region of Ghana. The forest is the source of three important rivers – the Densu, Birim and Ayensu – and also supports the livelihoods of over 48 communities who live on the forest fringes. It is also known for its high biodiversity being home to a large diversity of plants and animals some of which are endemic to the site. Atewa's wealth of biodiversity comprises over 1100 plant species, accounting for 26% of Ghana's plant richness, and at least 700 species of butterflies accounting for about 77% of Ghana's butterfly richness. Over 30% of Ghana's bird species are recorded in Atewa and over 100 of these are threatened or near threatened with extinction (Lindsell et al, 2019).

The Atewa Forest is, however, challenged with threats to its key biodiversity and ecosystem services. This can be attributed to weak governance and management systems, notable amongst them being inadequate law enforcement and inadequate assessment and monitoring of the threats facing the Atewa Range Forest Reserve. Some of the key challenges, illegal gold mining (galamsey) and illegal logging have been ongoing for many years, and illegal mining in particular is very destructive of the forest and its water sources. The government's GALAMSTOP campaign to end galamsey mining had some benefits at first, but lost momentum when it felt the problem was under control.

Current efforts by regulatory bodies such as the Forestry Commission to monitor and manage protected areas such as Atewa Forest Reserve have largely been unsuccessful due to, among others, limitations of staff and logistics. This lack of capacity of mandated institutions can partly be overcome by engaging a wider scope of stakeholders in monitoring protected areas. The use of emerging technology such as the Spatial Monitoring and Reporting Tool (SMART) in the conservation space is one that the project applied to address the current challenges facing the Atewa Range Forest Reserve.

Spatial Monitoring and Reporting Tool (SMART) is an artificial intelligence tool developed around law enforcement and site-based conservation activities. It employs the use of spatial data to identify and map areas under pressure from illegal activities. With an android phone and a desktop computer, data can be collected and processed in real time to stimulate urgent responses to illegal activities within a site. The SMART adopts the flexibility of equipping citizen science data collection by integrating data from forest guard and community patrols with intelligence gathered from other sources such as community informants. It also provides the added benefit of tracking legal and administrative cases resulting from enforcement actions. It creates opportunities for community involvement in monitoring illegalities within critical ecosystems and for reporting threats in near real-time.

METHODOLOGY

Brainstorming session:

As part of the process for developing the SMART application, the project held a brainstorming session with relevant stakeholders notably community leaders, data collectors (hunters), protected area staff and NGO staff. The exercise was to enable the stakeholders decide on the key elements to monitor using the application and to prioritize the various interests of the stakeholders present. The brainstorming session was a useful exercise as it enabled the team agree mutually on setting priorities for the monitoring and also areas of coordination during the implementation of the SMART tool between the data collectors and the protected area staff in improving response time for arrests and prosecution of culprits for forest infractions. For instance, it was agreed that the system be set to send urgent alerts which cover active illegal logging, fire, farming and mining. For each of these urgent alerts, it was agreed that besides logging it onto the SMART application, a call should be immediately made to either the Forestry Commission focal person or A Rocha staff to ensure urgent action is taken. Other elements of interest included recording biodiversity, tourist attraction sites (e.g caves, waterfall, rocks, etc). It was also agreed that to make it easier for Forestry Commission to locate sites reported in the forest, the Atewa Compartment map should be used instead of the boundaries only.

Building the SMART application: The SMART application allows flexibility for building the application from scratch or using baseline information already set up by the originators of the application. For the Atewa Range Forest SMART app, the elements of focus were built from scratch based on the outcome of the brainstorming meeting. An account was created on the SMART portal with Atewa Range Forest as the Conservation Area of focus. The SMART application is a tripartite application (SMART app on the mobile phones to collect data, SMART Connect in the cloud to receive data and the SMART Desktop for downloading and analyzing data). The development of the application was supported by A Rocha International's Conservation Science Director, who has been providing the A Rocha Ghana staff with technical support in the form of training on how to use the administrative data analysis and reporting components of the application.

After setting up the account, a data model was developed based on the areas identified as priority for monitoring. The data model included information on the base map of the Atewa Range Forest Reserve, entry points from which community monitors will collect data represented by the various communities, names of community monitors, urgent alerts (agreed as illegal logging, illegal mining, farming and fire), biodiversity to monitor and other areas of interest such as illegal hunting records, non-timber forest products and ecotourism potential sites. Each of the major components outlined had sub indicators. For instance, in the case of an urgent alert for illegal logging, other indicators built into the data model include –active logging, people present, type of specie and number of logs. For others such as hunting incidents other indicators include type of hunting-gunshot, cartridges, wire snare, traps, carcass present, hunter present, number of people etc. The system set up also had name of community members undertaking the patrols and the communities built into it. This is to enable data monitoring of volunteers who go on patrols and to know where data is collected from. Once the data package was completed, the application was downloaded onto the android phones and ready for the training of patrollers.

Training Community Monitors: Community volunteers were selected from nine communities fringing the Atewa Range forest reserve. These communities were selected based on existing landscape knowledge as being hotspots for illegal activities. A two-day workshop was organized and facilitated by A Rocha Ghana. The aim of the workshop was to build the capacity of community members in biodiversity monitoring to bridge the gap in efforts between Forest Services Division in efficiently safeguarding biodiversity within the Atewa Range Forest Reserve Landscape. A total of 21 participants (Forest Services Division (3) and fringe community biodiversity Monitors (18)). Community members were drawn from Larbikrom, Saamang, Dompim, Potroase, Asikam, Obuoho, Akyeansa, Sagyimaase and Pameng. Volunteers were mainly hunters who are already being engaged by A Rocha Ghana in carrying out biodiversity monitoring in the Atewa landscape. The training took participants through the SMART application and how the system works, how to use the application to collect data during patrols and a practical session with participants collecting data in the field (refer to SMART Community Training). Participants were then tasked to practice by collecting data from their communities to show their knowledge and understanding of the application on day 2. Feedback was received and participants who had challenges operating the application had their challenges resolved. The training ended with the successful deployment of 12 phones among participants. Community monitors were tasked to collect data weekly and reach out for additional support if they faced any challenges in the course of using the application. Mr. Kofi Sarpong (Assistant District Manager - Kibi FSD) was pleased with the commitment demonstrated by community members to partner with the FSD in safeguarding biodiversity. He encouraged the community monitors to be diligent in the collection of data and to cover as much grounds as possible during the period.

Challenges with implementation of SMART

- ✓ Community monitors struggled with the use of the android phones as they were not used to such devices and the navigation of the device. Several refresher trainings had to be held for the data collectors to increase their efficiency both in the use of the device and the data collection process.
- ✓ The tool has proved to be useful in the detection of forest infractions in near real time but also it was identified that it presents certain challenges such as the use of internet which may not always be available especially in certain portions of the forest. Data is therefore sometimes held till there is internet reception before it can be transmitted. To address this challenge of internet access, the community forest monitors have been trained to make calls for urgent infractions (illegal logging, fire incidents, illegal farming and mining) to the protected area staff or the NGO contact so prompt action can be taken.
- ✓ The current SMART application requires that someone be present on the desktop or be connected to the cloud system to be able to detect alerts when they are sent. This is a limiting factor because within the setting of this project the use of SMART especially for protected area staff is an additional tool and may not always be possible to have a dedicated staff sitting with the computer to detect alert.
- ✓ Community monitors are not always able to export data directly to the SMART portal on the cloud and so data will have to be collected manually from the phones. This causes delay in data processes and reporting. To improve the data transmission process, community monitors are encouraged to keep an off-line record of incidents and report immediately any challenges are encountered.

SUMMARY REPORT OF SMART INCIDENTS MAY-JULY, 2022

No.	Name of Monitor	Community	Date	Compartment	Activity	Action	Remark
1.	Kwame Albert	Obuoho	25 th May, 2022	Compartment 173	Active Galamsey	Reported to FC	No arrest made
2.	Adu Aikins	Dompim Larbikrom	28 th May, 2022	Compartment 91	Active Illegal logging	Reported ARG & FC	3 persons Arrested. See Annex for Summary of Court fine
3.	Francies Zoe	Juaso	25 th June 2022	Compartment 16 and 19	Active Galamsey	Reported to FC	No arrest made
4.	Kwasi Opare	Larbikrom	30 th June 2022	Compartment 75	Active Chainsaw	Reported to FC	No arrest made
5.	Kwame Albert	Obuoho	1 st July 2022	Pillar 169	Galamsey camping site /Shelter	Reported to FC	No arrest made

Conclusion

The project through the use of Spatial Monitoring and Reporting Tool (SMART) is providing digital evidence-based information on forest infractions and improving response time to arresting and prosecuting offenders of forest infractions. Twenty-one selected community members and volunteers from nine communities have so far been trained and are collecting data using SMART. Through the project, three persons have so far been prosecuted for illegal logging in the Atewa Range Forest. Although the project originally set out to engage five communities, it had to engage an additional four communities during implementation of the project to expand the coverage of monitoring particularly with use of the SMART application. The use of the SMART application tool for collecting information on infractions and increasing the response time for arrests and prosecutions was another lesson learnt. The indicators for monitoring on the SMART tool had to be developed from stakeholders thereby enabling us prioritize what we would want to monitor.

To enhance the use of the SMART tool particularly with running queries and interpreting reports, A Rocha Ghana staff have received formal training in SMART through a Regional Training programme by WWF in Kenya.

ANNEX -SUMMARY OF ARREST FINE

- Accused persons were sent to Anyinam circuit court on 31/05/2022 and were remanded into police custody to reappear on 02/06/2022.
- On 02/06/2022 accused persons Micheal Kwasi Somuah, Yaw Attah, Naa Ofooley were all sentence to pay a fine of 150penalty units. (GHC1,800.00) each.
- By court: The chainsaw machine should be retained by police for accused Yaw Attah to obtain legal licence on the machine within two two weeks.
- The licence should be brought and shown to the court before the machine will be released. Failure to do so, the machine should be destroyed by police. Court presided by H/H Franklin Titus Glover.

PHOTO GALARY



Trainer, taking participants through SMART application



Mr. Adu Aikins (Dompim Community) sharing his expectations from the workshop



Mr. Francis Zor (Saaman Community) explaining to his colleagues how the SMART application functions



Mr. Afari (Asikam Community) Using the SMART application to capture information on a Tree (Milicia Excelsa) at the Atewa Forest Reserve