NITAL SIGNS

Draft: Vital Signs Rwanda Stakeholders Workshop Report

Umubano Hotel, Kigali
28th July 2015 9:00A.M-2:00P.M.

WILDLIFE
CONSERVATION
SOCIETY

Vital Signs Rwanda is partnered with the Wildlife Conservation Society in Rwanda.

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Acronyms

NISR   National Institute of Statistics Rwanda

NOAA   National Oceanic and Atmospheric Administration

SAGCOT   Southern Agricultural Growth Corridor of Tanzania

TEAM   Tropical Ecology Assessment and Monitoring Network

VS   Vital Signs

WCS   Wildlife Conservation Society

Introduction

Vital Signs is an integrated monitoring system for agriculture, nature and human well-being. Vital Signs generates data that enables managers and farmers to make decisions in support of sustainable agricultural development. The Vital Signs (VS) monitoring system was first established in Tanzania, expanding to Ghana and Uganda, and most recently, to Rwanda. The Wildlife Conservation Society (WCS) Rwanda, a non-governmental science-based conservation organization, is the initial implementing agency for VS Rwanda. WCS Rwanda will pass ownership to a local Rwandan agency after two years of operation. With funding from the John D. and Catherine T. MacArthur Foundation, Vital Signs Rwanda began with a stakeholder's workshop on 28th July 2015 held in Kigali.

In total, 27 stakeholders attended the workshop representing the relevant governmental agencies (12), academia (3) and non-governmental organizations (11). For a full list of participants, please refer to Appendix I.

Workshop Objectives

The objectives of the workshop were to:

- Introduce Vital Signs to the stakeholders;
- Obtain stakeholder input on agricultural development decision support needs, including which data are currently used for decision making in the public and private sectors and which data are needed but are currently unavailable;
- Gain an understanding of existing agriculture, livelihood and ecosystems monitoring activities in Rwanda, including which data

are being collected and which agencies are responsible;

- Explain VS criteria for selecting landscapes for intensive monitoring and get input from stakeholders on where to locate the landscapes in Rwanda.

Opening Remarks

The workshop was officially opened by the Senior Principal Research Fellow in charge of Soil Conservation and Watershed Management from the Rwanda Agriculture Board, Dr.Desire Kagabo. He expressed that Vital Signs is a welcome venture that will contribute to the country's data and information capacity, especially in the agricultural sector. He noted that the Rwanda Green Growth and Climate Resilience Strategy requires agriculture, climate and climate projections data, which Vital Signs will hopefully address. Dr. Kagabo encouraged Vital Signs to offer real and viable solutions to the agricultural challenges faced in Rwanda, utilizing the data and information it collects. Finally, he called on the workshop participants to provide foundational input that would lead to the success of the project in Rwanda.

Introduction to the Vital Signs Program

The introduction to Vital Signs was given by the Vital Signs Africa Field Director, Dr. Patrick Mutuo. Dr. Mutuo explained that sustainable agricultural intensification is needed to support a growing population in Africa and the world. Vital Signs is evidence based, and helps inform agricultural development decisions by collecting data at every relevant scale: at household, plot, landscape, region and national levels. This information is analyzed and presented in a simplified set of indices and decision support tools.

Dr. Mutuo first presented the VS sampling frame and protocols to illustrate where and how Vital Signs data is collected. He explained that

approximately six landscapes, 10 by 10 km in size, are placed throughout a country based on vegetation and climatic conditions. Other factors considered for landscape placement include areas with intensive land use patterns or areas targeted for national large-scale land use investments, such as agricultural intensification. The e-plots are one-hectare plots, randomly placed throughout the country to measure spatial and temporal dynamics of agriculture and ecosystems. Dr.Mutuo then showed the Rwanda sampling frame map to highlight where landscapes and e-plots for VS Rwanda data collection were located.

Dr. Mutuo also presented the Vital Signs Dashboard, demonstrating how Vital Signs metrics are transformed into key indicators, and those metrics and indicators are presented in an interactive, online data visualization application. Stakeholders were invited to visualize the environmental, agricultural and livelihood data interactions.

Next, the Vital Signs Technical Operations Manager, Tabby Njung'e, presented the Vital Signs online Tanzania atlas. Ms. Njung'e explained that the country atlases showcase, in one place, baseline information about each country's environment, demography and agricultural production. The atlases enable stakeholders to quickly use the information in planning, decision making and in understanding where information gaps exist. Three atlases, Tanzania, Uganda and Ghana have been produced, with the Rwanda atlas currently in production. Like previous country atlases, the Rwanda atlas will be available in soft and hard copy, as well as in an interactive format through the Vital Signs Rwanda website.

Following the Vital Signs Introduction presentation, the Vital Signs Rwanda Country Director, Madeleine Nyiratuza, presented the Tropical

Ecology Assessment and Monitoring Network (TEAM) pilot project, a precursor to the Vital Signs project, to provide background on the related program. TEAM collected near real-time, quantitative data in Rwanda on biodiversity and livelihoods. Using examples from the Nyungwe and Muhanga Kamonyi landscapes, where TEAM worked, Ms. Nyiratuza presented some of the data that had been gathered on fertilizer use, overall soil nutrient balance, and soil organic carbon, among others.

Stakeholder questions about the Vital Signs Program introduction content:

- Q: How does Vital Signs determine landscape and e-plot locations? A: The landscapes are areas targeted by the national government for intensive land use and development projects, or areas with diverse vegetation cover and climatic conditions. In addition, smaller e-plots measuring 100m by 100m are placed randomly throughout the country to ensure that a representative sample is achieved. Each landscape extent is determined in collaboration with stakeholders, such as the participants of this workshop. For instance, in Tanzania, landscapes were concentrated in the Southern Agricultural Growth Corridor of Tanzania (SAGCOT). SAGCOT is a 300,000 square km corridor which was targeted by stakeholders (e.g., the government of Tanzania) for investments for promoting food security and reducing poverty.
- Q: Does Vital Signs focusing solely on the impacts of agricultural activities, or does it consider the impacts of other sectors, such as

energy, which is a growing area of focus in Rwanda?

A: Currently, Vital Signs only collects data to show the interaction between ecosystems, agriculture and livelihoods; however, this data includes fuelwood sources and consumption, for example.

- Q: Is the Vital Signs online dashboard automatically updated with new data? If not, who will do this in the future?

  A: The online VS online dashboard will continue to be updated by staff as data is collected by Vital Signs during the first two years. If stakeholders find the monitoring system and the VS tools useful, Vital Signs Rwanda will transition ownership of the program to a local implementing agency who will then continue to update the dashboard.

- Q: Did Vital Signs obtain permission to use the national meteorological data from local meteorological organizations in VS countries?

  A: Yes, when necessary, Vital Signs collaborates with other agencies and organizations to procure data.

- Q: How sustainable is the Vital Signs monitoring system program model?

  A: As mentioned, Vital Signs will endeavor to transition operations a local Rwandan institution. The program is currently building the research capacity of local staff to undertake data collection in a standardized and systematic way.

- Q: How did TEAM utilize the findings from Nyungwe and Muhanga-Kamonyi?

  A: The data collected through the TEAM project was shared with the Rwanda Natural Resources Authority.

Stakeholder input on the Rwanda sampling frame map, VS Rwanda data and decision support tools:

- Input: The stakeholders suggested that Vital Signs should use a map that includes secondary roads when assigning the e-plots on the Rwanda sampling frame map.
  A: Secondary roads will be incorporated to the map. Additionally, it was agreed to move the Mukura landscape from the Congo-Nile divide to the Central-South of the country, because it has particular soil types and crops. Also, it was suggested to move the Akagera landscape toward the Southwest which represents a unique agro-ecological zone and prone to challenges in food security.
- Input: The VS dashboard and atlases should define critical areas for biodiversity, as Rwanda has 13 Key Biodiversity Areas and Important Bird Areas.
  A: VS does not collect data on biodiversity, but the country atlases do reflect baseline information on existing biodiversity data in each country.
- Input: Before making the information public, VS should compare their data with that of government offices that study similar metrics and geographic areas.
  Response: All VS data are open access and free to everyone, with the exception of personally identifiable information from socioeconomic surveys. However, VS continuously collaborates with government offices to ensure efforts are not duplicated.
- Input: There are a lot of sources of information for meteorological data, so how does VS ensure that they do not duplicate efforts in Rwanda?
  Response: Vital Signs uses the local meteorological data as well as

National Oceanic and Atmospheric Administration (NOAA) data.

Existing monitoring efforts in Rwanda:

Stakeholders then shared which VS relevant data were currently available in Rwanda.

Water
The Ministry of Water monitors major rivers; each catchment has at least one gauging station, collecting hydrometric data, including water flow trends. The Ministry plans to install 16 additional automated river gauging systems in the near future.

Data gaps and/or challenges include:

- Data on wetlands: The wetlands in Rwanda are quickly shrinking. Therefore, information is needed that clearly demonstrates the expected benefits and value of conserving wetlands.

Meteorological Data

Data and information on water and meteorology in Rwanda are being collected by the Rwanda Natural Resources Authority and the Rwanda Meteorology Agency respectively.
These agencies are using state-of-the-art equipment, some similar to that used by Vital Signs. The Rwanda meteorological agency has approximately 140 monitoring stations across the country, and the data is received continuously.

Data gaps and/or challenges include:

- Similarly, the interaction of meteorological and livelihoods information is not shown. For example, if there is a drought, how did

it impact the economy and livelihoods from the national level down to the district level?

Conservation

Various conservation organizations and the Ministry of Natural Resources collect data, mostly within national parks, on plant and animal diversity, illegal activities and encroachment. The data are collected through surveys and are used in the management of parks by the local government.

Data gaps and/or challenges include:

- Rwanda needs a system of natural capital accounting in order to portray the value of biodiversity to the economic and livelihood sectors. An accounting system would answer questions like: what is the equivalent economic benefit a community receives by conserving wetlands and forests?

Moreover, there is no system for integrating information. For example, the community relies on the ecosystem and economic services derived from parks. Jobs are provided by park tourism, and natural resources from the park are available to the community for consumption, such as fuel wood collected from downed trees.

- Evidence-based advocacy on services provided by nature.
- Data that will help pinpoint the cause of agricultural landscape degradation and identify the most effective approaches for restoration.
- Analysis that highlights the interaction between natural resources and reducing poverty to help make decisions in conservation.

Agriculture

The Ministry of Agriculture collects various forms of data on livestock health and agricultural production, but the data is not linked to other areas of research, such as land degradation.

Data gaps and/or challenges include:

- Currently, there is no data that demonstrates how biodiversity, agriculture and livelihoods interact in Rwanda.
  There is a need for data analysis that demonstrates how agriculture can be sustainably intensified. For example, if there is a need for increased application of pesticides and fertilizers, how can this be done in an environmentally sustainable way? What are the benefits of using natural soil fertility restoration measures as compared to use of fertilizers?

Recommendations

The following recommendations were made to ensure the successful and long-term implementation of Vital Signs in Rwanda:

The Vital Signs team was encouraged by participants to think about the program's sustainability and local capacity building. The stakeholders were reassured that building the scientific and technical capacity in Rwanda and transitioning VS Rwanda to a local agency is central to the VS business model.

It was recommended that Vital Signs Rwanda establish working groups with government representatives and other workshop participants who will champion the program within their institutions. Following the workshop, this will require the nomination of Focal

Points from each of the non-governmental and governmental institutions attending the workshop.

VS should ensure that the data download portal is hosted on a government institution's website. VS will work with the Rwanda Natural Resources Authority to add the link to Rwanda GEO portal.

Similarly, because Vital Signs is working in several countries in Africa, a comparison of the impacts of agricultural intensification across the different countries would be useful.

Lastly, since the conclusion of the workshop, Vital Signs Rwanda began the process of obtaining a visa from NISR and is submitting the household and agriculture questionnaires to the NSIR as per the stakeholder's recommendation. In addition, the realignment of the landscapes and e-plots as suggested by the stakeholders has been incorporated into the updated Rwanda sampling frame map and available for reference in Annex II.

Conclusion

The stakeholders were very enthusiastic about VS's ability to integrate different data sets and expressed that there was much opportunity to work with VS. Stakeholders and partners also welcomed Vital Signs' decision-making tools with enthusiasm. The participants were pleased that the VS program utilizes the most up to date technology, which makes information easily accessible

Annex I: Workshop Participants

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Annex II: Revised Rwanda Sampling Frame Map
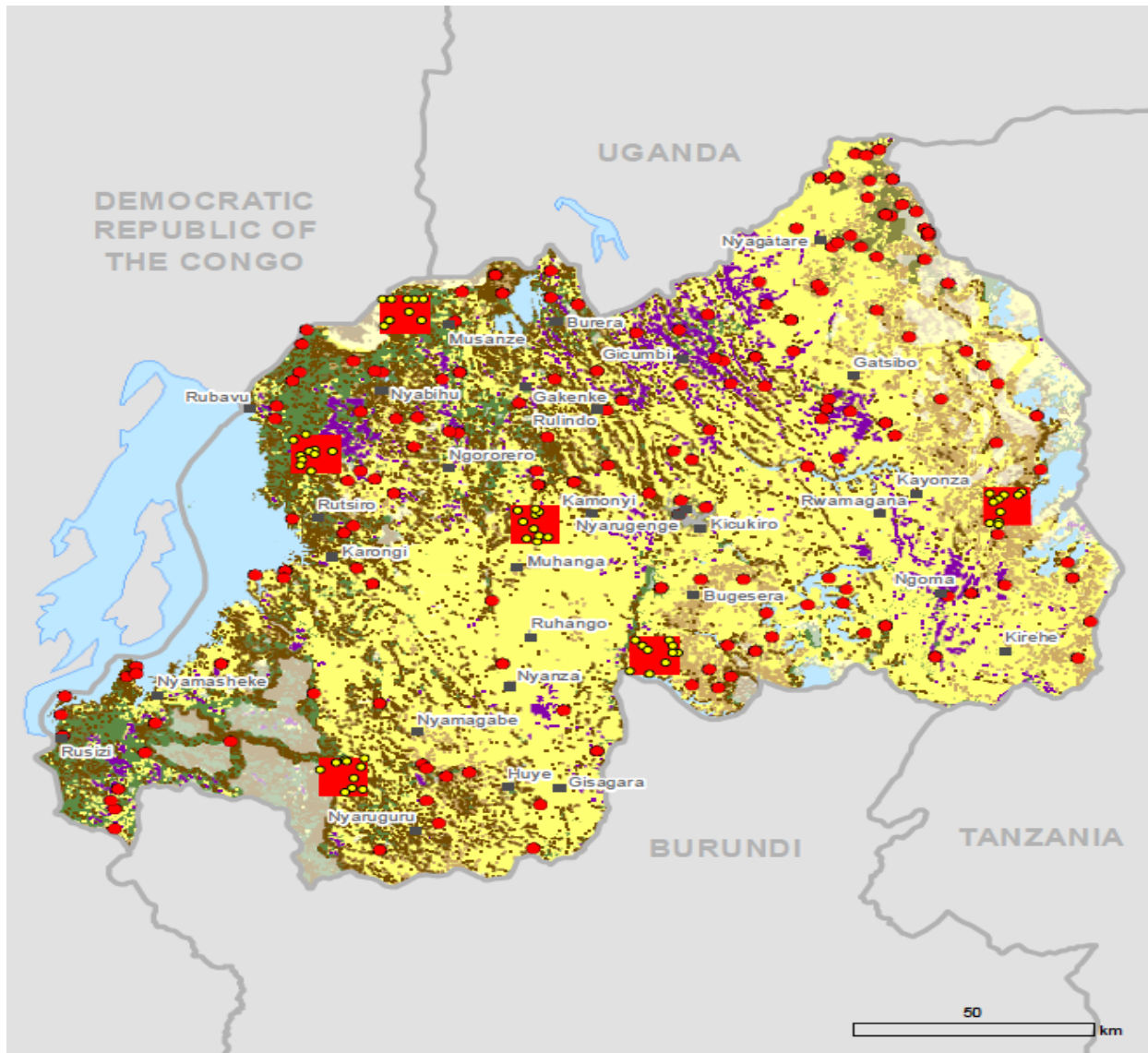
Tier 4 Landscape   **Tier 2a plot inside Tier 4**   **Tier 2a plot outside Tier 4**

landcover (number of Tier 2a plots outside Tier 4 landscapes per type)

- Mosaic vegetation / cropland *(25)*
- Short-duration crops *(24)*
- Forest *(24)*
- Woodland *(24)*
- Riparian or mangrove forest *(0)*
- Mosaic forest or shrubland / grassland *(20)*

- Grassland *(24)*
- Shrubland *(24)*
- Deep open inland water *(0)*
- Bare *(0)*
- Artificial covers *(0)*