



VITAL SIGNS

Tanzania Workshop Report on Presentation of Vital Signs' Exploratory and Decision Support Tools for Sustainable Agricultural Development

Protea Hotel Courtyard, Dar Es Salaam
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TABLE OF CONTENTS

Objective	3
Workshop Commencement.....	3
Introduction to Vital Signs.....	3
Vital Signs Exploratory Tool.....	4
Feedback: Exploratory Tool	4
Decision Support Tool: Ushahidi.....	5
Feedback: Decision Support Tool.....	5
Review of Vital Signs’ Indices and Metrics in Breakout Groups	5
Vital Signs’ Tools in Practice	8
Questions About Agriculture	8
Questions About Water	8
Questions About Environment	9
Questions About Livelihoods	9
Suggestions for Next Steps	9
Conclusion.....	9
Annex I: Daily News-Tanzania clip on the workshop.....	11
Annex II: List of Participants	12

Objective

This workshop was organized jointly by the Ministry of Agriculture Food and Cooperatives (MAFC), through the Environment Management Unit and Vital Signs with the following objectives:

- To present the user interface, atlases and decision support tools developed by Vital Signs
- As well as to gather feedback on utility, visualization and intuitiveness of resources presented
- In order to better understand how these tools can support specific policies in Tanzania concerning biodiversity, human well being and ecosystem services

In total, thirty-four stakeholders attended the workshop including government officials (19), academics (1), media representatives (5), and NGOs (9). For a full list of participants, please see Annex II.

Workshop Commencement

Eng. Raphael Daluti, the Deputy Permanent Secretary of the Ministry of Agriculture, Food Security and Cooperatives (MAFC), opened the workshop by extending a warm welcome and expressing his support of the organizing bodies. He noted that Vital Signs' aim of providing data that can contribute to sustainable agriculture is a particularly poignant venture, given that agriculture is a main source of GDP, employment, and food security in Tanzania. He further stated that the sustainability of agricultural development relies strongly on the ability to effectively monitor environmental and societal influences as well as assess tradeoffs between them. To maximize agricultural productivity, it is critical that better data, analytical tools, and risk management approaches guide investments. In his final remarks, Eng. Raphael Daluti's bid the workshop success and declared the commencement of the event.

Introduction to Vital Signs

The Executive Director of Vital Signs, Sandy Andelman, began with a brief description of Vital Signs, explaining it to be a standardized system of protocols used to collect integrated data on biodiversity, ecosystem services and human well being. This data is available as an online interface in almost real time, at multiple scales, and can be analyzed and used for decision-making and crafting policy. She applauded Tanzania, recounting that the inception of the interface was in reaction to the feedback from the 2010 Tanzania workshop, where stakeholders expressed a need for access to their own data. Through the Vital Signs interface, anyone will be able to access the different types of information available on one platform.

Sandy then welcomed the Ushahidi team, inviting them to present the features of the Vital Signs exploratory tool.

Vital Signs' Exploratory Tool

Africa Field Director, Patrick Mutuo, guided the participants through Vital Signs' exploratory tool. He explained that the data was aggregated from public sources in addition to those metrics collected by the Vital Signs field teams. He demonstrated how to download the data from the online atlas and how to overlay different data sets to satisfy different queries.

Feedback: Exploratory Tool

Some of the questions/comments raised on the presentation of Vital Signs' exploratory tool include:

- C: There should be an option showing the extension of wetlands.

MAFC Climate Resilience Agriculture Plan

The MAFC Head of Environment Management Unit Ms. Shakwaanande Natai presented the Agriculture Climate Resilience Plan 2014-2019. This was the agricultural sector's response to Tanzania's National Climate Strategy of 2013. The plan takes a risk-based approach to mitigate climate change by identifying climate trends and monitoring priority risks, such as increased water stress, declining crop yields, and the climbing vulnerability of farmers. The plan will mobilize agricultural land and water management, incorporating Climate Smart Agriculture with the aim of lessening the impacts of shock from climate change. The plan is also slated to disseminate knowledge about climate resilience through the work of partner institutions and key stakeholders. They will be expected to collaborate in drafting a financing strategy, vetting available monitoring systems and providing support for the first year launch of the program. Vital Signs provides the breadth of data necessary to enhance resiliency and ameliorate the negative effects of climate change on agriculture. Ms. Natai stated that Vital Signs data can be used to inform the Climate Resilience Plan especially in the preparation of Climate Smart Agriculture guideline which is now in the development process. Data can be used to identify impacts of climate change and conduct risk based analysis, monitoring things like the level of precipitation in low and highland areas, pests and diseases, or regions in need of improved water and land management.

Decision Support Tool: Ushahidi

The Ushahidi team guided the participants through the preliminary versions of the decision support tool. It was noted that this tool is not yet online, and for the purposes of this demonstration, not all of the data was real.

Vital Signs collects data on agriculture, ecosystems, and human well-being at scales relevant to decision makers: household, plot, and landscape. Through collaboration with their partners, data collected by Vital Signs teams as well as existing banks of data are integrated into metrics and indices. Among these is included a resilience index, which can be directly used by MAFC in order to satisfy their resilience monitoring needs.

Feedback: Decision Support Tool

Some of the questions/comments raised on the presentations of Vital Signs' decision support tool include:

- C: It would be good to have information on future projections for farmers in rainfall and drought years.
- Q: What is the potential for sharing data? For example, the Nature Conservancy together with The International Center for Tropical Agriculture (CIAT) as well as the African Wildlife Foundation has data on the Ithemi cluster and the protected areas respectively. A: The participants were encouraged to incorporate their data with that of Vital Signs.
- Q: How often data is the data updated? A: Continuously, but the frequency depends on the variable.

Review of Vital Signs' Indices and Metrics in Breakout Groups

The participants in three groups reviewed the existing metrics and indicated which were most important and what was missing. None of the groups suggested the removal of any of the metrics, however they did suggest the following additions:

	MISSING			
Metrics	Group 1	Group 2	Group 3	Comments
Pollution	Air, water, soils and noise	Pollution (air, water and soils)		Additional indicator under environment measurement that

				recurred in the two groups
Landscape Structure & Composition				No additions were suggested
Water Availability			<ul style="list-style-type: none"> • Rain onset and season end • Environmental Flow 	
Water Quality		<ul style="list-style-type: none"> • Presence of agrochemicals • Presence of heavy metals 	<ul style="list-style-type: none"> • Water source type for irrigation • Heavy metal and agrochemicals 	<ul style="list-style-type: none"> • Group 3 suggested that, the water quality measurement should be in relation to raw and treated water for domestic use as it involves analysis of different parameters for each. • Water pollution analysis should be in relation to point and non-point sources. • Presence of agrochemicals, turbidity and heavy metals recurred in the two groups.
Soil Health	<ul style="list-style-type: none"> • Soil type • Soil water • The soil elevation effect 	<ul style="list-style-type: none"> • Balance of Micronutrients • Potential toxic elements (Al,Mn and Fe) • Soil Microorganisms. 	<ul style="list-style-type: none"> • Balance of micronutrient. • Soil microorganisms 	<ul style="list-style-type: none"> • Existing Indices only have balance of nutrients hence need to add micronutrients. • Soil microorganisms were recurring in two of the groups.

Agriculture	<ul style="list-style-type: none"> Nutritional security Crop diseases and pests 	<ul style="list-style-type: none"> Market access and infrastructure Storage and processing facilities 	<ul style="list-style-type: none"> Quantity of fertilizer (in relation to the type of soils) Post-harvest losses Presence of alien species Husbandry practices Access to agricultural inputs 	In regards to fertilizers, it was suggested that what should be measured is the quantity and not quality as the quality is already measured by the Tanzania Fertilizers Organization.
Livestock & Rangeland			<ul style="list-style-type: none"> Commercial Offtake rates Conflict of livestock keepers and farmers Access to extension services Access to livestock input Land tenure for livestock 	
Fuel Wood Sufficiency			<ul style="list-style-type: none"> Village forest reserves for sustainable use Land under agro forest 	
Carbon Stocks Above & Below Ground				No additions were suggested
Climate & Climate Forcing				No additions were suggested
Biodiversity			<ul style="list-style-type: none"> Number and type of wildlife Conserved area 	
Wild Food Source Availability				No additions were suggested
Food Security		<ul style="list-style-type: none"> Arable land size 	<ul style="list-style-type: none"> Food storage facilities 	
Poverty				No additions were suggested

Nutrition				No additions were suggested
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Vital Signs’ Tools in Practice

To get participants thinking about when one might use Vital Signs’ tools, they were asked to generate a list of investigative questions one might consider under assumed occupational positions.

Questions About Agriculture

Is the country food secure?

Do I have enough post harvest storage facilities in the country?

What is the status of food production this year at the farmers’ level? Particularly for maize and rice being a staple food in Tanzania.

As the government is emphasizing irrigation, it is important to analyze whether water sources are suitable for agriculture.

How much land is available for sustainable agriculture for various types of crops?

What is the potential yield for each crop, and is there potential for increasing this yield?

What is the status of post-harvest losses for various food crops in country, and what are the efforts to reduce these losses?

What is the weather forecast for the next few years and how can we prepare for the conditions?

What is the range of land uses in the SAGCOT, for example mining, wildlife corridors, or protected areas.

What is the status of land degradation and how is it affecting crop yield, water quality, and aquatic species?

What is the relationship between crop inputs and yields?

Where are people receiving support services?

Questions About Water

What is the variance in water demand between different types of irrigation in agriculture?

What are the different water source conservation alternatives to promote efficient water use for climate resilience?

What is the rainfall distribution of an area?

What is the status of water catchment areas?

What is the status of encroachment on water sources, especially by agricultural activities?

What is the status of water pollution affecting aquatic species?

What is the current level of water storage infrastructure?

What are the main water sources?

Are there water ownership conflicts in an area?

Who is managing the water?

What are the projections for water availability in a given range of years?

Questions About Environment

What is more appropriate for a given area of land: sustainable agricultural development or environmental conservation?

What is the status of climate change and the impact on farmers?

How can Tanzania mitigate climate change?

What is the relationship between agricultural activity and surrounding ecosystems?

What changes can be adapted at the community level?

Questions About Livelihoods

What is the present standard of living?

What are the potential crop markets for farmers, for example rice and maize production and value addition?

How accessible is education in a community?

Suggestions for Next Steps

- There should have been at least one hour for the participants to practice what has been shown here.

- There is need for a tutorial or demonstrative tool to help users understand the data, thus a follow up workshop would be constructive. This is especially important following the tool is fully operational and users have had some time to experiment with it.
- It was recommended that the information be made laterally digestible, available in a format accessible to technical and non-technical entities. Ideally, Vital Signs should make this tool relevant and work for the broadest audience possible.
- Vital Signs should pull in a wider diversity of stakeholder including farming cooperative officials and agricultural academics.

Conclusion

The Ministry of Agriculture Food and Cooperatives and Vital Signs found the workshop to be successful across all three of their objectives. Not only was there increased understanding and strong interest in the tools presented, but the Vital Signs team received detailed information on what stakeholders needed in terms of additional specific indicators as well as for further didactic features and workshops. Most notably, the seamless compatibility of implementing Vital Signs as a countrywide system to realize the goals of Tanzania's Climate Resilience Plan generated much excitement. Based on the feedback from the workshop it was notable that the Vital Signs monitoring system is already collecting data that is considered critical to the various Tanzania stakeholders, and it will indeed aid in answering agricultural, environmental, and livelihood questions that are faced by decisions makers and stakeholders.

Annex I: Daily News-Tanzania clip on the workshop

“Government moots digital environment monitoring tool”

Published on Wednesday, 29 April 2015 01:35

Written by LAWRENCE RAPHAELY

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Hits: 287



The Deputy Permanent Secretary in the Ministry of Agriculture, Food Security and Cooperatives, Eng Raphael Daluti.

THE government in collaboration with environmental stakeholders is planning to develop an online environmental change monitoring tool that will help achieve long term food security in uncertain climate.

Speaking in Dar es Salaam, the Deputy Permanent Secretary in the Ministry of Agriculture, Food Security and Cooperatives, Eng Raphael Daluti, said that in order to achieve long-term food security in an uncertain climate, farmers need to increase agricultural productivity while avoiding unintended consequences for soil quality, water availability, and other benefits from healthy ecosystems.

He, therefore, said there is an urgent need for better data and risk management tools to guide agricultural development decisions, ensuring that they protect both people and nature.

He also said that it was due to that reason that the Ministry decided to meet and share with Vital Signs a US-based organization the preliminary version of new online maps and tools for environmental monitoring system.

He added that agricultural development strongly depend on environmental resources, such as land, forest, air, water and other resources thus sustainable utilization and monitoring of resources is vital for growth and sustainability of the sector.

“A key question that underpins sustainable agricultural development is how to maximize benefits derived from a given area both agricultural products and ecosystems services provided by all parts of the landscape for now and in the future,” he said.

He went on to explain that with the use of developed maps and tools systems, it will be easier in getting more timely information that will be used in addressing various agricultural challenges.

The Executive Director of Vital Signs, Ms Sandy Andelman, said the tools were designed to address environmental challenges by providing integrated, near real-time measurements of agriculture, ecosystem services, and human well-being.

“These measurements are made at all of the scales relevant to agricultural decision making -- from a household to a farm, a landscape, and at the scale of a nation,” she said.

She added that in order to achieve food security in the continent, smallholder farmers need to increase productivity while sustaining the ecosystems which provide healthy soils, clean water and other benefits.

Website link <http://dailynews.co.tz/index.php/local-news/44298-government-moots-digital-environment-monitoring-tool>

Annex II: List of Participants

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