Strengthening Local Capacity through Geo-Enabling Technologies

October 26, 2023

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Speakers

Soukeyna Kane, Director of the Fragility, Conflict and Violence Group, World Bank

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Shraddhanand Shukla, Associate Researcher Climate Hazards Center, UCSB

Carrie Stokes, Chief Geographer and GeoCenter Director USAID

Bahar Salimova, Sr. Operations Officer/Program Manager at the Fragility, Conflict and Violence Group, World Bank

Dr. Abdou Ali, Senior Hydromet Specialist, Head of the Information and Research Department AGRHYMET Regional Center

Kyle Alden, GIS Specialist, REFS, Analysis and Learning Division USAID

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Geo-Enabling initiative for Monitoring & Supervision

Bahar Salimova, Sr. Operations Officer/Program Manager, World Bank

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Geo-Enabling initiative for Monitoring & Supervision

Building Capacity among Clients and Local Stakeholders

Offered by the World Bank's Fragility, Conflict and Violence (FCV) Group

Supported by the Korea Trust Fund for Economic and Peacebuilding Transitions and the WBG Partnership Fund for the Sustainable Development Goals

KOREA TRUST FUND for Economic and Peace-Building Transitions

WORLD BANK GROUP Fragility, Conflict & Violence

WORLD BANK GROUP SDG PARTNERSHIP FUND

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For more information and additional resources, see the GEMS website at: www.worldbank.org/gems

The “Rocket Science,” “Pocket Science,” and “Socket Science”

Remote Sensing Through Satellite Imagery

‘Plugging In’ Spatial Data From Various Sources

The GEMS Method: Systematic Real-Time Field Data Collection through Smartphones

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esa

fragility, conflict and security

See here for a summary video on the work with ESA

DATA LAB THE WORLD BANK

project 360

WORLD BANK GROUP

GEMS

KoBoToolbox

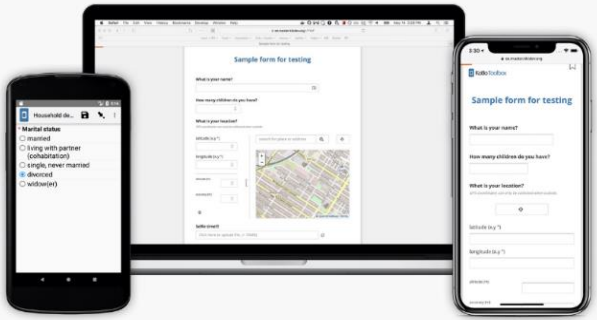
The GEMS Method

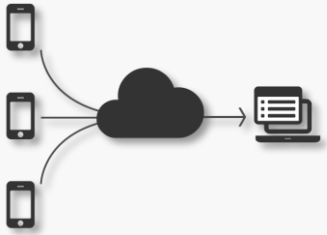
GEMS systematically builds client capacity in the creation of customized digital data collection and monitoring systems, to contribute to effective planning, real-time M&E and remote supervision of operations, and close data gaps along the project cycle.

- Focuses on local capacity-building and client ownership of stronger M&E practices and customized use of digital technology
- Utilizes cost-free open-source tools and hand-held devices (smartphones/tablets)
- Enables systematic collection of granular, geo-tagged data to create interactive dashboards and maps
- Contributes to projects' supervision and M&E goals and provides inputs to a variety of customized data and analytical products

GEMS' Guiding Principle: Technological inter-operability for data collection and analysis

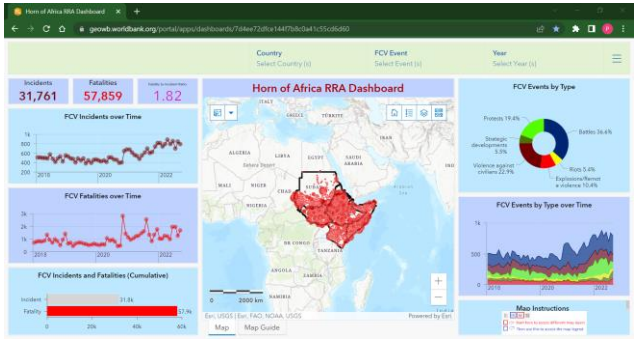
KoBoToolbox



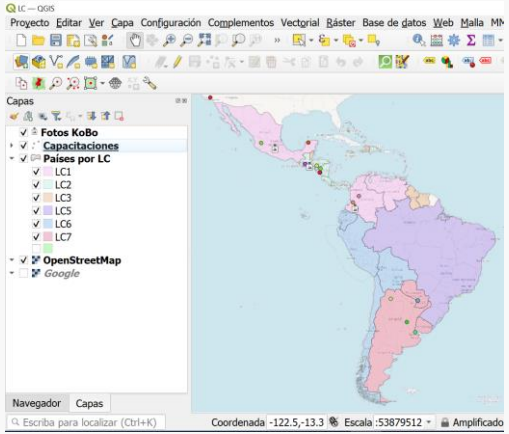


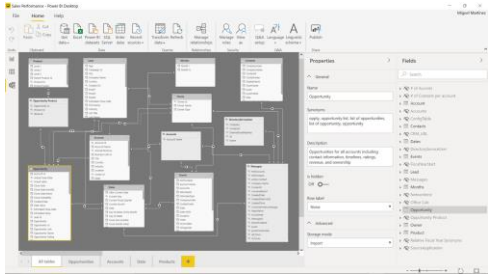
Power BI

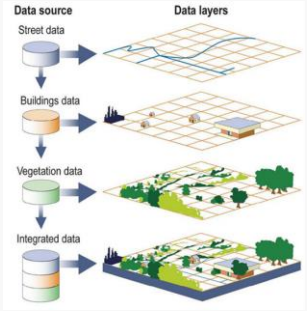
ArcGIS Online



QGIS







Fuente: GAO

OPEN SOURCE DEVELOPMENT SUPPORTED BY

BRIGHAM AND WOMEN'S HOSPITAL · HARVARD HUMANITARIAN INITIATIVE · KWEYO

WITH ADDITIONAL SUPPORT FROM

FIDELITY FOUNDATION · HOPE · HUMANITY UNITED · MacArthur · Save the Children · TIDES · UNDP · UNHCR · unicef · OCHA · USAID · WCS · World Food Programme · THE WORLD BANK · WORLD RESOURCES INSTITUTE

Microsoft

OSGeo

Examples of GEMS Use in the Field

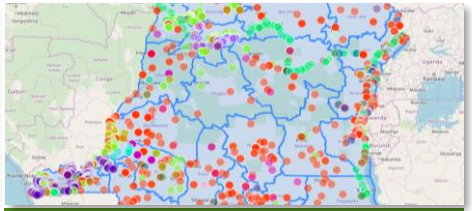
>750 supported projects in 90+ countries

See detailed examples by sector: here

Or scan QR code

Project Planning and Preparation

Kosovo, Niger, Tuvalu, etc.



Portfolio Targeting and Programming

Madagascar, DRC, Iraq, Somalia, etc.

Portfolio Mapping & Coordination

20 countries in AFR and growing

Remote SPN in Conflict Contexts

Afghanistan, Mali, Cameroon, etc.

Real-time Tracking of Service Delivery

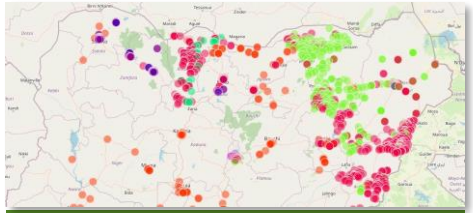
CAR, DRC, Haiti, Bangladesh, etc.

Project Progress Monitoring

Dozens of projects around the world

Real-Time Risk/ESF Management

Myanmar, Maldives, Brazil, etc.



Mapping of GBV Service Providers

Nigeria, Sahel, Pakistan, Mozambique

Citizen Engagement and GRM

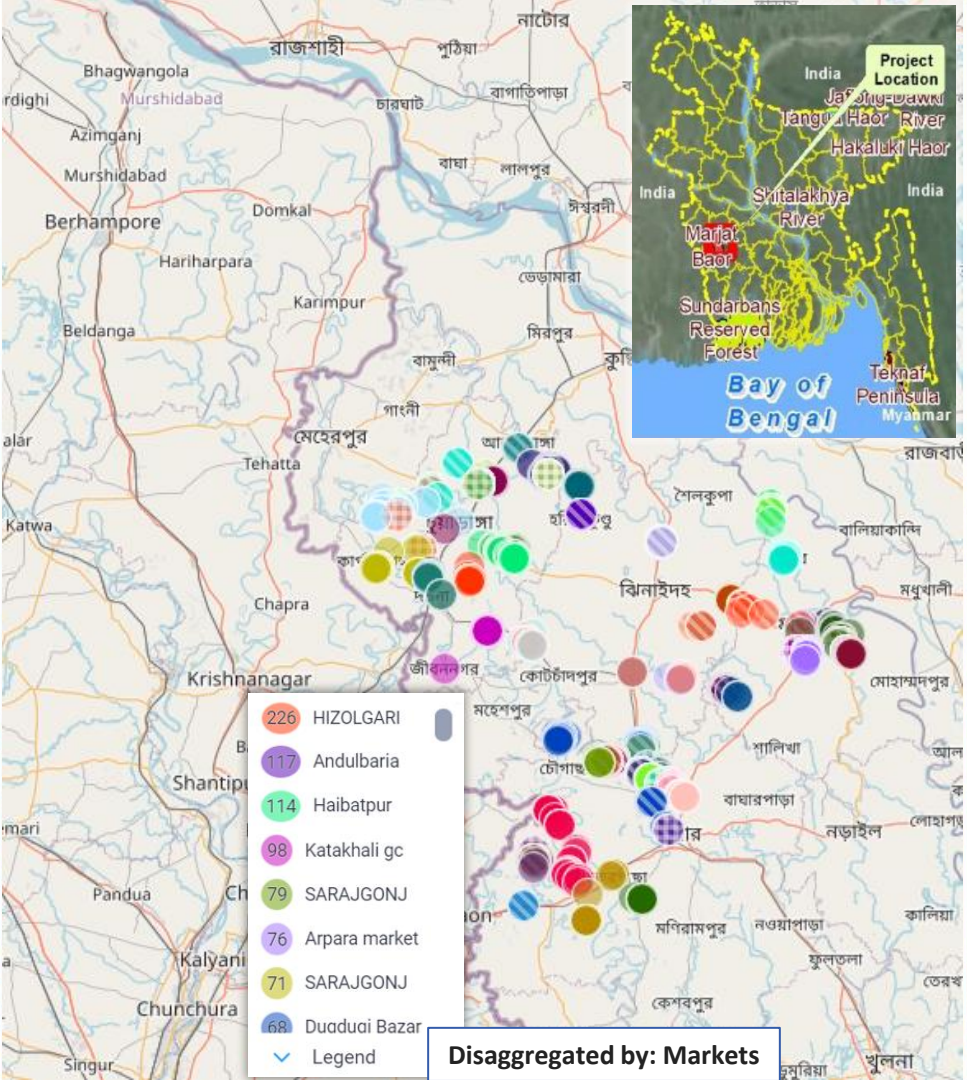
Azerbaijan, Burundi, Philippines

Stakeholder Engagement and Surveys

Afghanistan, Kenya, Haiti, etc.

Tailored Client Use beyond WBG Ops

Various Adoptions around the World



The Western Economic Corridor and Regional Enhancement Program (WeCARE) plans to transform a 260km national highway in Western Bangladesh into an 'economic corridor' to improve rural connectivity.

- WeCARE uses GEMS to digitize their M&E needs, collecting remote supervision data on:
  - Physical infrastructure
  - Market dynamics
  - Rural road conditions
  - Monitoring beneficiaries
  - Safeguards
- As a result, about 25,000 market sites were surveyed.

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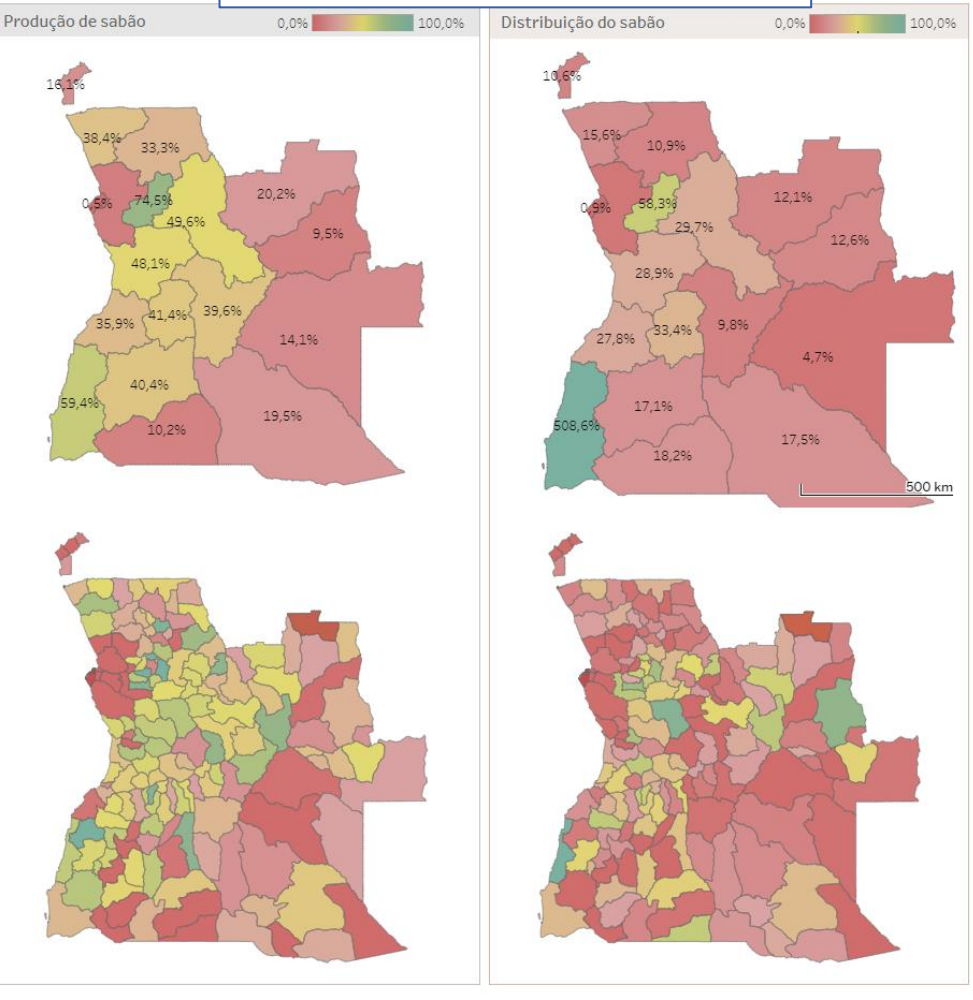
Soap distribution monitoring to schools: in all provinces, municipalities, and communes



The Angola's Learning for All (PAT) project aims to improve teachers' skills and knowledge; school management and systematic student assessment.

- With GEMS, the PAT team were able to monitor 19 activities in real-time and collect over 25,000 granular project data over the course of a year.
- Monitoring efforts include teacher trainings across 164 municipalities, soap and cleaning kit distribution to schools in all communes
- Implementation of TEACH, a holistic measuring tool to improve the quality of primary education.
- Due to real-time monitoring, project reduced reporting and communication complexity, and enhanced decision-making.

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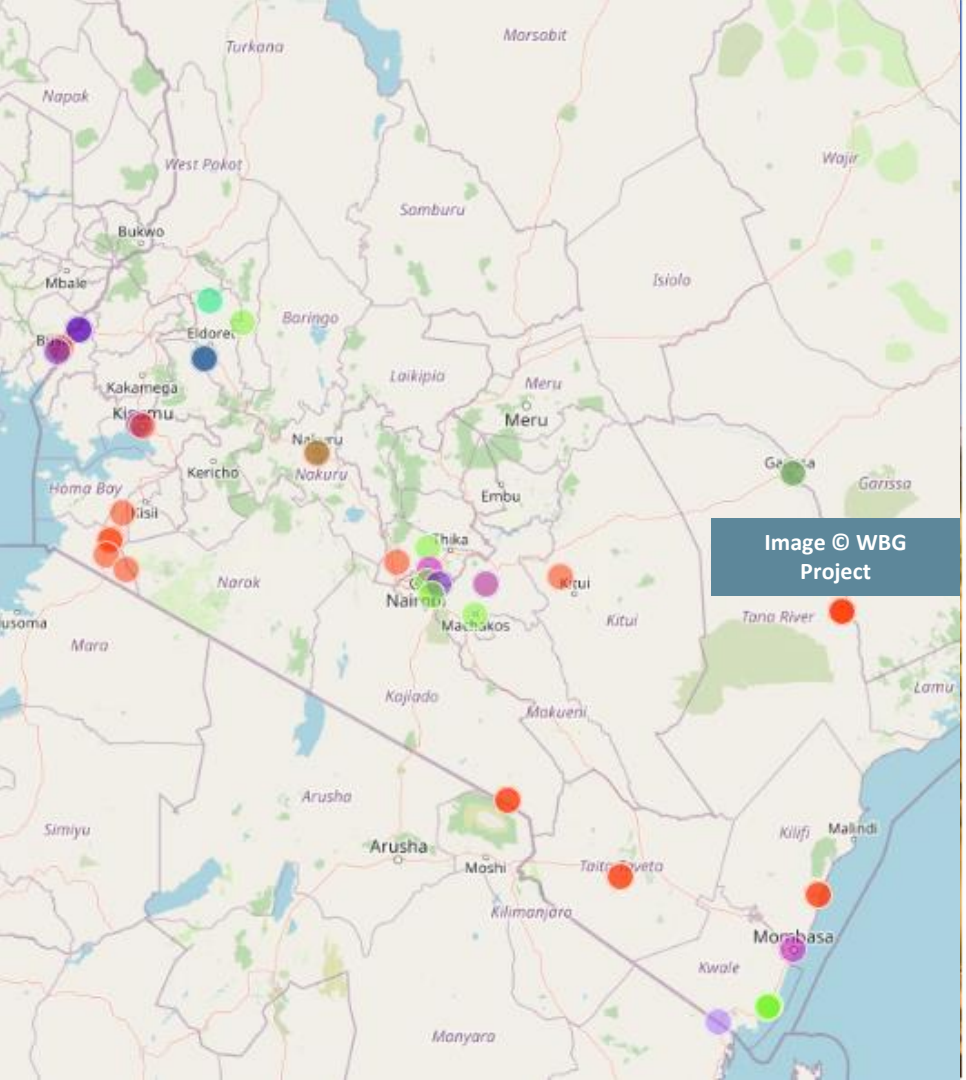

Image © WBG Project

The Kenya Ministry of Health and the COVID-19 Health Emergency Response use GEMS to monitor the quality of health services, patient feedback and Social Safeguards in various regions of the country.

- With Prior to using GEMS, the ministry relied on paper-based data collection, which led to inefficiencies, slow processing times and limited accountability.
- Systematically collected data via GEMS includes, e.g.:
  - Observations on the provided care from the clients' perspective and suggestions for improvement, for both, facility care and home-based patients
  - Reports on medical waste treatment at 130 facilities
  - Social safeguard issues, including related to GBV, social inclusion and various grievances
- As a next step, the project aims to develop advanced data dashboards based on GEMS, which promises to improve real-time insights

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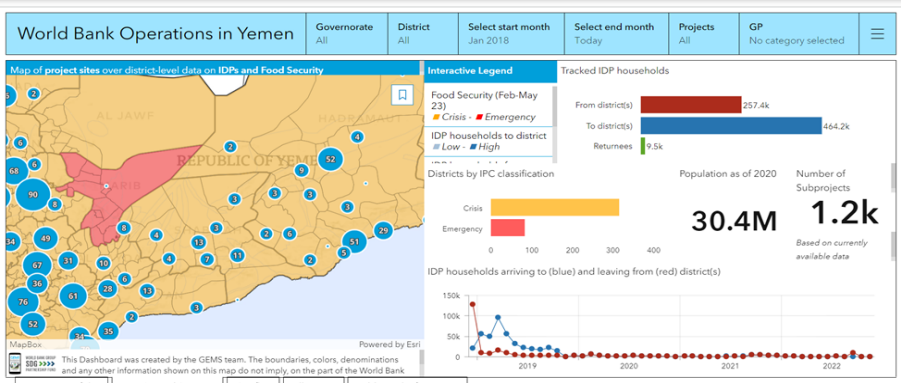
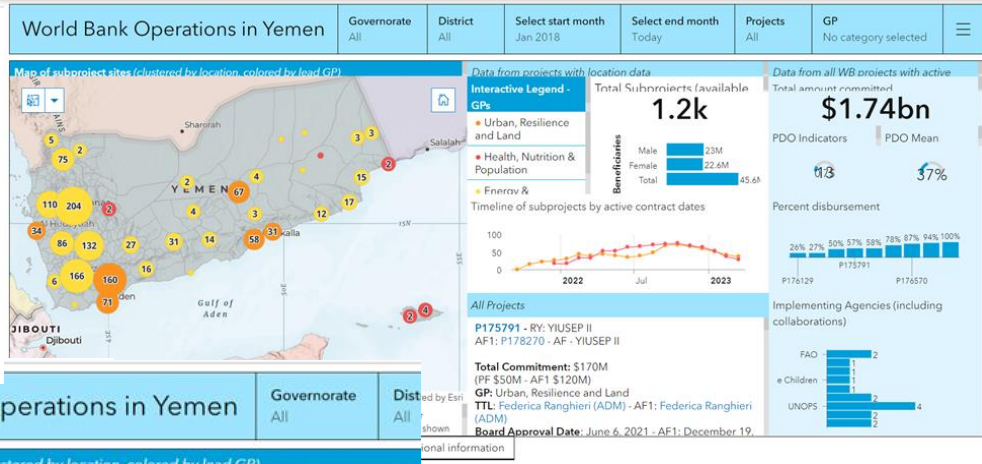
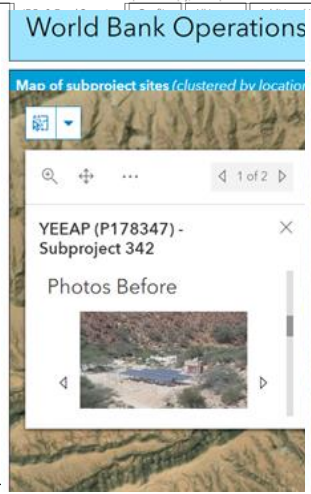
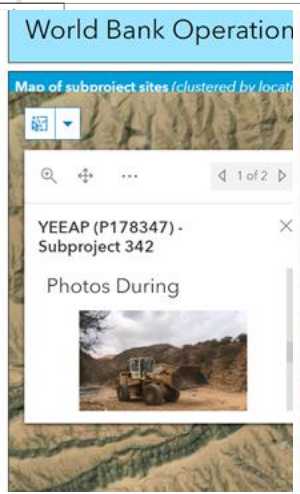
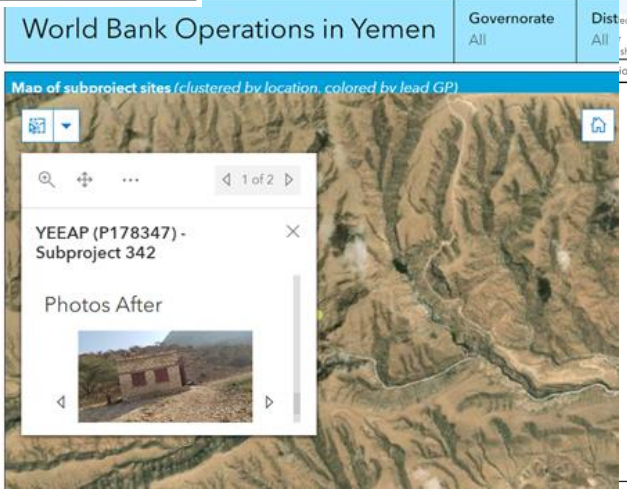
Remote Monitoring Platform in Yemen











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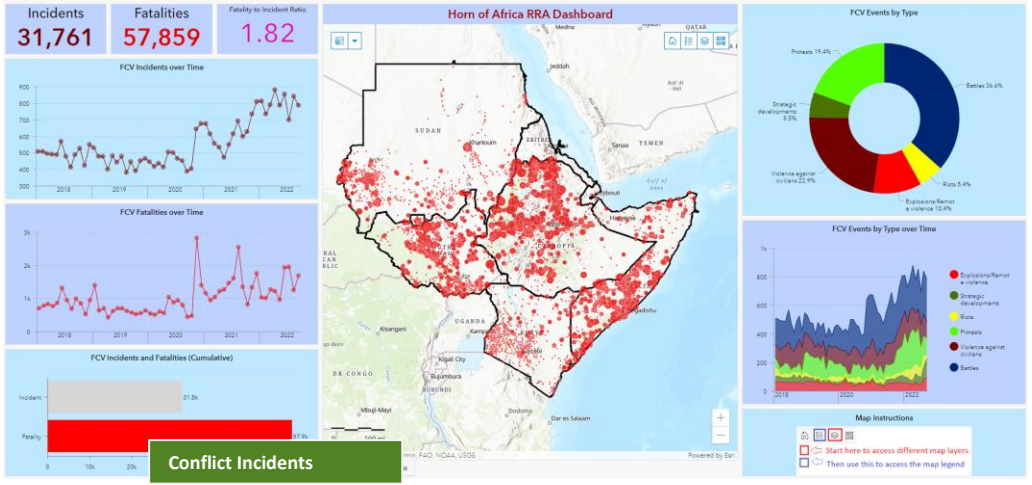
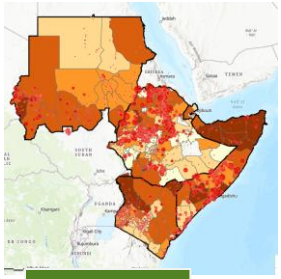
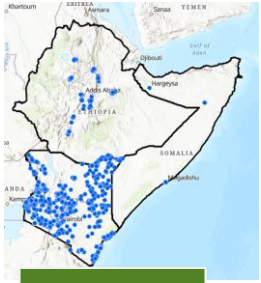
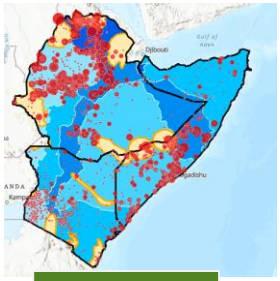
Applying GEMS in practice: regional monitoring in the Horn of Africa




Poverty

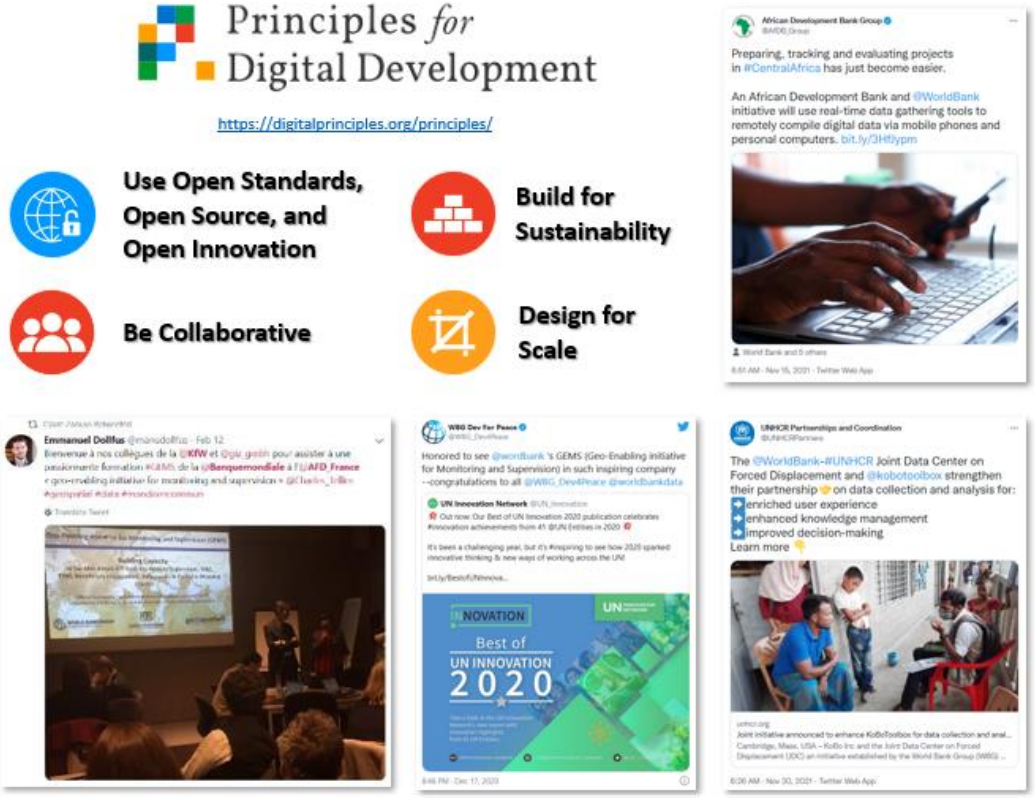

Project Mapping


Sector Mapping

- Deepens understanding **of spatial conflict dynamics and how they interact with other key indicators** (e.g. food insecurity, poverty, sectoral datasets, World Bank project locations)
- Allows for a more **strategic oversight and real-time risk monitoring** of the regional portfolio.
- Potentially serves as a practical **platform for strategic cooperation on development activities with development partners** to show who is doing what, where and when

Creating a Public Good: GEMS Training-of Trainers Workshops & Support for Partners

- GEMS Training-of-Trainers workshops
- Partnerships with other organizations/agencies
- Donor coordination platforms



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Thank you!

To learn more, please visit the GEMS website at www.worldbank.org/gems

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Geo Enabled Monitoring Systems (GEMS) FOR Environmental and Social Framework and Environmental and Social Safeguards Monitoring…..and beyond

The Island Experience- Maldives and Sri Lanka

Mokshana Wijeyeratne- Senior Environmental Specialist, The World Bank

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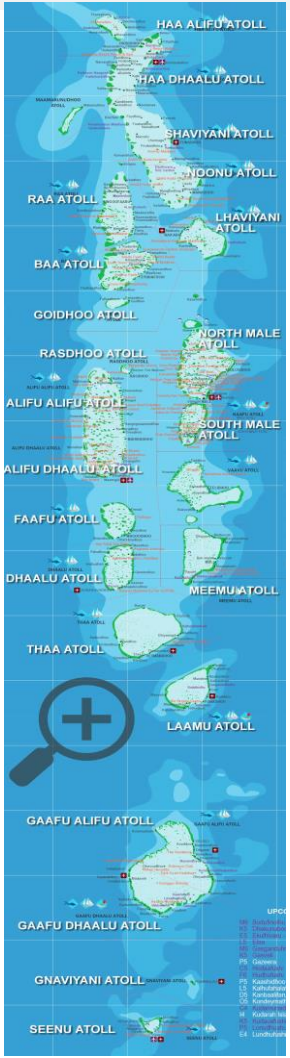


The GEMS Experience: Why Remote Monitoring

- **In the Maldives- Geographic Spread and Resource Deficiency**
  - The Maldives consists of 1,192 coral islands grouped in a double chain of 26 atolls.
  - 188 inhabited islands, Stretches along a length of 871 kilometers (541 miles) North to South.
  - Spread across a vast sea area of 90,000km2 in the Indian Ocean.
  - For Maldives Travel is possible only via air and sea
  - Shortest boat ride from Male the capital to islands in the project area is 2 hours on a day with good sea fairing conditions or a 30-minute domestic flight and then a 30-minute boat ride.
  - Dynamic weather often can inhibit travel and travel costs are high in the Maldives- US$ 300-500 for a domestic flight.
- **In Sri Lanka- project sites are often 30 minutes to even 5-8 hours or more from the center.**
  - Field offices often not well equipped to travel- vehicles or human capacity
  - some projects have 100s of project sites in over 9 Provinces.
  - Terrain changes from hilly difficult to access areas to flat terrain.
- **Typically, it takes time for those monitoring to write up paper-based reports and share it with the Project Management Unit (PMU) - 1-2 weeks and then the PMU takes at least a week to prepare summaries to report to the Bank**
- **PMU teams can not visit every site as often as they want and need verifiable data on how things are going- are people going to the sites to monitor or not?**

The Typical Steps to Getting Things Going

1. Create a KoBo Toolbox account
2. Create customized questionnaires/forms
3. Deploy forms on Global Positioning Systems-enabled devices
4. Establish protocol for data collection
5. Train field staff on collection procedure
6. Collect data in the field
7. (auto)-submit completed forms online
8. Access to data by M&E specialist

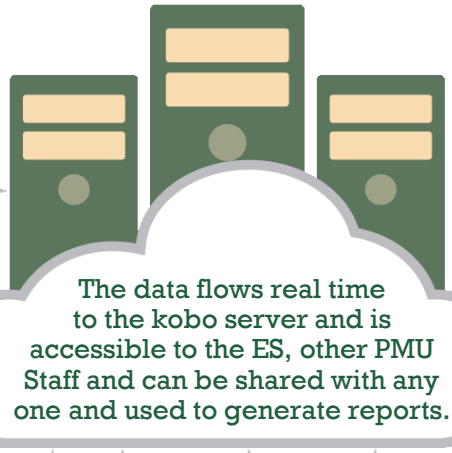
9. Analysis of data in KoBo & Outside
10. Regular monitoring & evaluation of data
11. Reporting of results/issues
12. Quick intervention based on findings

Our Data Collection Strategy

PMU Environmental Specialist (ES) Builds the Form and has the Bank Team Review and Authorize the Standard Form- It can be customized for site specific ESMPs via already preset questions in a library

ES Deploys Form to Island Councils (ICs)/Data Collectors

The data flows real time to the kobo server and is accessible to the ES, other PMU Staff and can be shared with any one and used to generate reports.



Island Council supervisors/Environmental Officers visit the site and fill the form based on their field observations on implementation

Data can be downloaded, used to communicate guidance back to ICs and Contractors and raise issues with the Bank via monitoring reports and used to analyze trends.

How we over came challenges?

- The initial form building took time as we were all new to it, we made errors, but we learned.
- The form builder can have minor system kinks, but these can be easily solved with the repository of online help and the GEMS team has always been an email away.
- Had to do some initial data clean up on the first rounds.
- Could not do face to face training for Island Councils and Implementing Agencies, but it was done remotely amidst the Pandemic, and it has worked- training does not need to always be face to face.
- Guidance from the GEMS team and regular check ins helped as the tool evolves too- Translations, email alerts, photos in instructions all came in late and we learned as we worked on it.
- HAVE AN OPEN MIND!

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What Helped Us

Leadership & Will

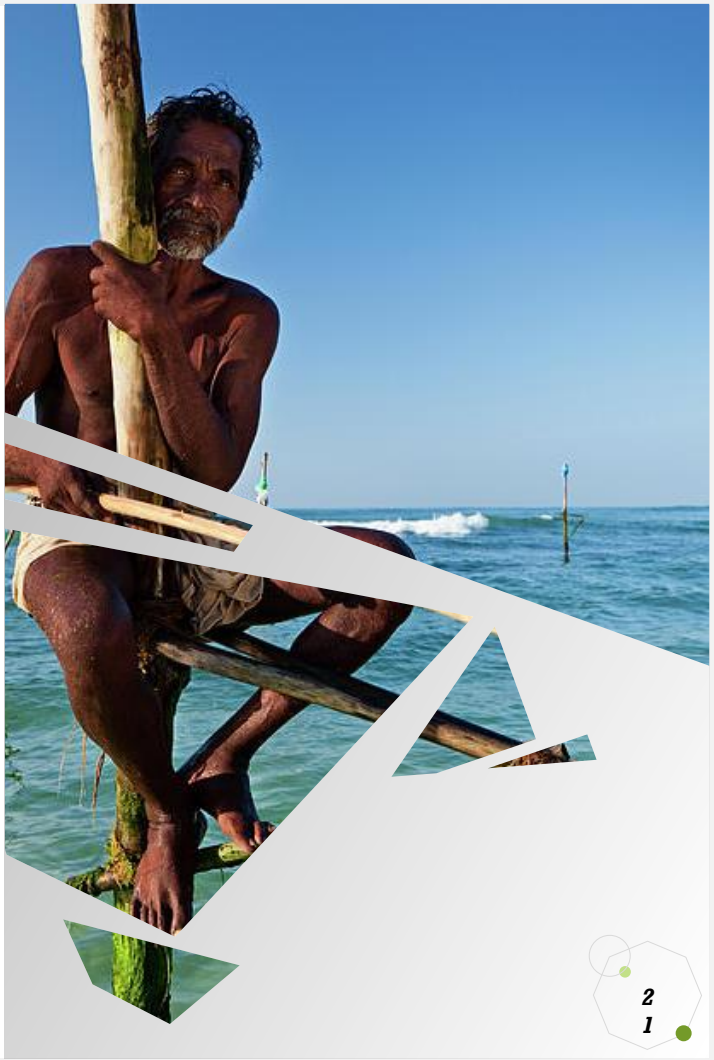
Champion, Support and push from the Task Team Leaders
Will from the PMU to use the training and deploy the program.
Support from the GEMS team .
The whole team was open to learn as no one was an IT expert. Until you try the software you will always be skeptical.

Training & Trialing

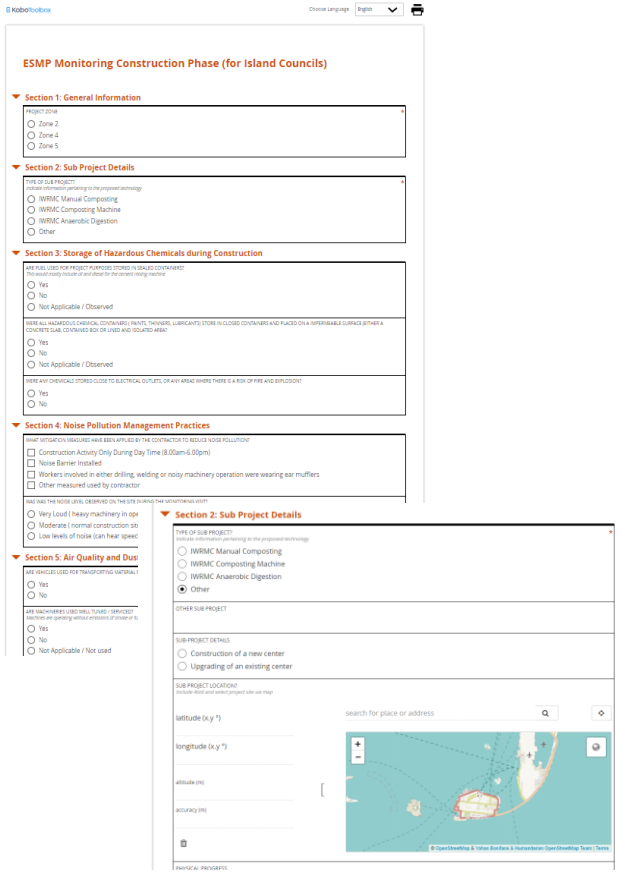
The 4-day training is very useful as you learn the HOW-TO vs WHY TO?
The Bank team being trained helps support and guide the client team and understand issues better and think of innovating ways of use together.
The GEMS team constantly supports even post the training

Learning by Doing

The more we used the tool to develop forms it helped us learn on troubleshooting.
Has helped to keep updating and improving the form from the field data collection experience
Have learned how it can be tailored for other data collection purposes- say for baseline data collection for a Environmental and Social Instruments and other studies, environmental auditing.



Developing a Standard Monitoring Form



- We have a standard form which presents all atypical Environmental and Social risks and related monitoring questions and questions relevant to a site-specific issues as well.
- A Standard Environmental and Social Compliance Auditing Form was developed in 2022.
- Example Link: https://ee.kobotoolbox.org/x/N61v74Bk
- Standard questions can be copied in via the software's question database.
- Forms can be cloned and edited process to develop new forms via one click.
- Additional site-specific questions and specific can be included to the same.
- Based on the case studies and the experience in both countries we created a generic form by including all typical environmental and social questions that need to be specifically looked at during field reviews.
- The form also provided instructions to enumerators via tips and examples
- Skip logic is used prevent the need to spend time filling all questions or lead to additional questions where needed.
- Specific questions can also be made mandatory as per the teams needs via the form development tool.
- The quality of the data you get will depend on how well you customize and use your form to get the monitoring data you need.
- The form can be edited even post deployment.

How Have We used the Tool

- In Sri Lanka- Slow but steady momentum

  The standard form developed for Environmental and Social monitoring (ESMPs) in the Maldives was used to develop a standard form for Sri Lanka-and now widely replicated.

  Used for Implementation Completion Reporting for the Climate Resilience Improvement Project (CRIP) in 2020 amidst Covid and to monitor closure of ESMPs for final set of physical works projects

  The Water Supply and Sanitation Improvement Project (WASSIP) in Sri Lanka has commenced use of the tool for E and S Compliance Monitoring.

  Local Government Development project-1000s of sites with accountability issues- A Audit was conducted to find non-compliance issues in a problem project- a Environmentall and Social Compliance Audit form was developed via this process.

  Emergency Response- in Sri Lanka in 2022- Tracking Environmental and Social Compliance and Grievance Redressal Recording in Fertilizer Distribution

  We also use the tool forr Monitoring of Environmental and Social Codes of Practice from 2022- as we have many projects with sporadically spread sites.

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How Have We used the Tool

- In the Maldives- A few examples of many

  Covid Project, the Ministry of Health used Kobo toolbox to collect data on Health care waste management at all Atoll Facilities as a baseline survey to support work on Health Care Waste Management Planning and understand needs.

  The Renewable Energy Projects (3 Projects) has developed a form of monitoring solar PV installation projects. They have also used it for Grievance Redressal and Stakeholder Feedback Collection and ESF Monitoring- Linked with QR Codes.

  Kobo being used for collecting implementation and compliance monitoring via supervision consultants, contractors, implementing agencies, for the current ongoing Island Waste Management Center Rehabilitation civil works in our Solid Waste Management Project.

  For the Vandhoo Regional Waste Management Facility for operational monitoring of the facility a specific form was developed and finalized in September 2020, which can be transferred to the Environmental Protection Agency for post project closure.

  Regional Waste Data Collection by the Ministry of Environment's Waste Management Department to set up a country wide solid waste management related database.

  In the Maldives Country Environmental Analysis- A Tourism Resort Survey on Environment and Climate Change

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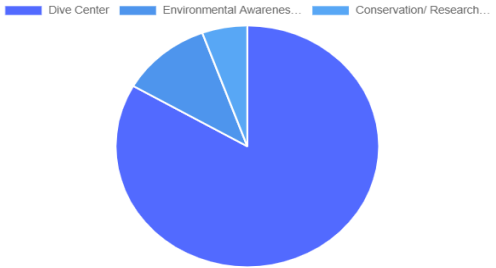
Survey Environment and Climate Related Context and Challenges in Resort Islands in the Maldives

6. Does your resort center have the following?

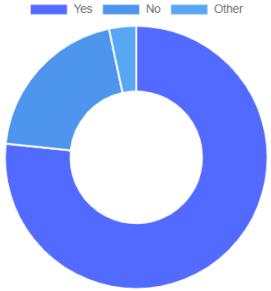
TYPE: "SELECT_MULTIPLE". 30 out of 39 respondents answered this question. (9 were without data.)



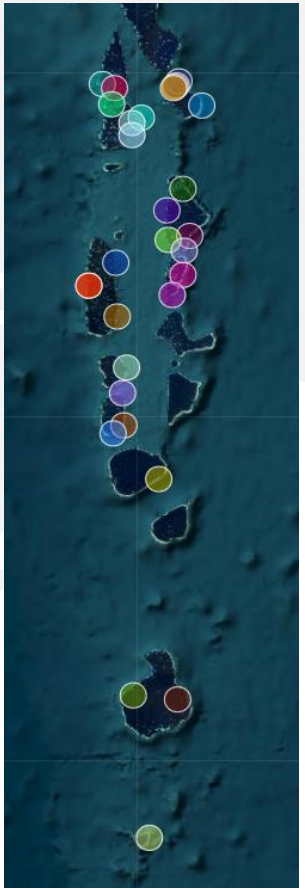
Value	Frequency	Percentage
Dive Center	30	76.92
Environmental Awareness Center	4	10.26
Conservation/ Research Center	2	5.13

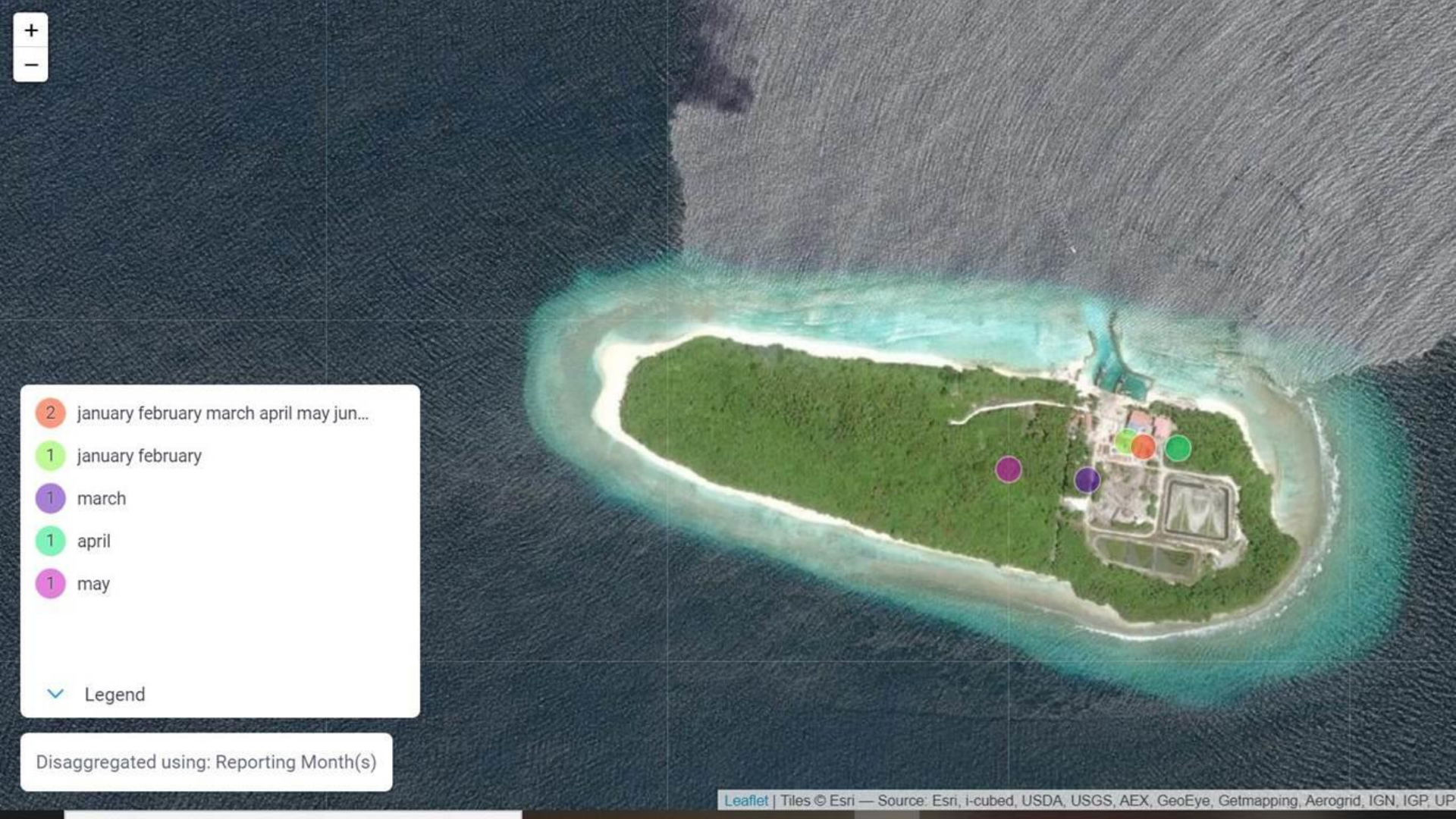
7. Have you noticed changes in the condition of your islands Environment due to Climate Change

TYPE: "SELECT_ONE". 30 out of 39 respondents answered this question. (9 were without data.)



Value	Frequency	Percentage
Yes	23	58.97
No	6	15.38
Other	1	2.56

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Disaggregated using: Reporting Month(s)
Leaflet | Tiles © Esri — Source: Esri, i-cubed, USDA, USGS, AEX, GeoEye, Getmapping, Aerogrid, IGN, IGP, UP

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LDSP Environmental and Social Compliance Audit Form 2022- JAN 9TH 2022- FULL DEPLOYMENT FOR AUDIT

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M

SUMMARY FORM DATA SETTINGS

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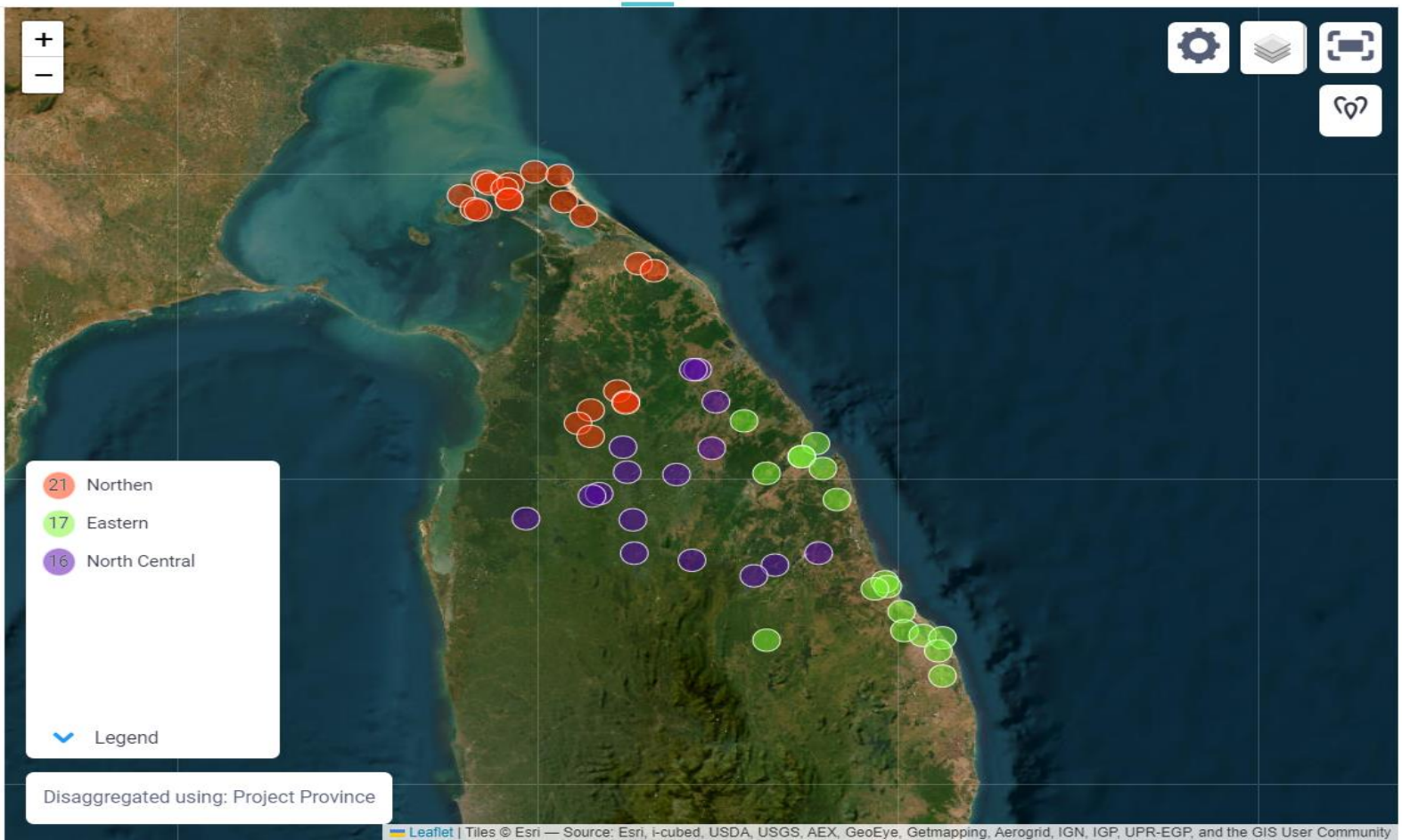


ASSESSMENT AND PREPARATION OF INTEGRATED WASTE MANAGEMENT AND REGIONAL TRANSFER SYSTEM

ZONE 2

FINAL REPORT

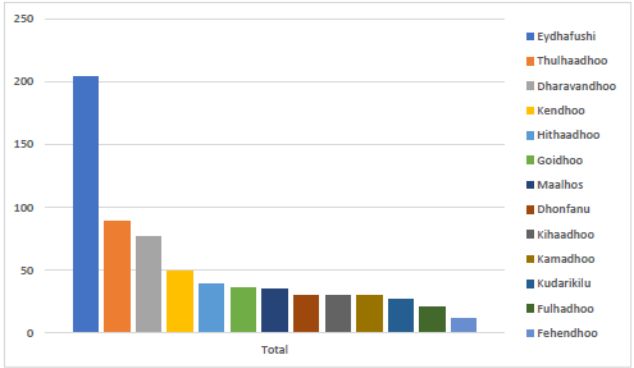
(Baa Atoll & Lhaviyani Atoll)

Plan for Assessment and Preparation of Integrated Waste Management and Regional Transfer System
ZONE 2

Table 54

OVERALL RANKING

Island	Regulatory Requirements	Centre Upgrade Requirements	Equipment Requirements	Vehicle Requirements	Human Resource Training etc	Community Engagement & Awareness	Island Priority & Vulnerability	OVERALL INDEX	RANK
Eydhafushi	5.84	6.06	5.5	1041.1	12.48	4.64	949.85	204	1
Thulhaadhoo	5.04	3.9	3.18	449.5	9.33	3.47	403.72	89	2
Dharavandhoo	4.92	5.22	5.7	450.8	14.96	6.18	264.40	77	3
Kendhoo	5.42	3.1	3.24	249.3	6.24	4.26	213.34	50	4
Hithaadhoo	3.82	3.48	2.8	208.4	5.04	3.92	150.70	39	5
Goidhoo	5.62	3.66	3.26	187.8	2.74	5.18	139.95	36	6
Maalhos	4.62	5.6	7.02	162.8	15.07	4.43	136.92	35	7
Kihaadhoo	4.36	5.1	4.88	135.2	8.73	5.77	123.16	30	8
Dhonfanu	5.98	3.88	5.84	144.8	10.28	7.28	107.75	30	9
Kamadhoo	4.78	3.96	3.96	150.8	9.14	6.48	106.29	30	10
Kudarikilu	5.4	3.94	4.06	136.4	6.53	6.05	96.08	27	11
Fulhadhoo	2.6	-0.88	-0.92	134.4	2.04	3.2	62.94	20	12
Fehendhoo	4.5	-1.26	-0.28	65.6	6.14	3.64	33.27	11	13
								52.25	



Installed and Operational

How Client Agencies can USE GEMS

Environment and Social Impact Assessment (ESIA)Submissions- a database of ESIAs conducted, by who, where and basic info to have a good set of country level environmental data

ESIA Screening forms can be digitized for more georeferenced data collection vs paper submissions

ESIA Monitoring- A standard Monitoring for proponents to submit data can be designed.

Pollution and Compliance- Audits and Surveys for environmental agencies

Technical Assessments and Needs Assessments

General Questionnaires

Consultations

Data and Equipment Inventories

Beneficiary Satisfaction surveys

Grievance Recording

Unlimited Versatility……..

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resiliencelinks

Thank You

mwijeyeratne@worldbank.org

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Food security early warning and disaster risk reduction by AGRHYMET, with the support of SERVIR -WA

Dr. Abdou Ali, senior hydro climatologist, head of the information and research department
AGRHYMET Regional Center, Niamey, Niger, Tel-WhatsApp: +227965612

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AGRHYMET = AGRrometeorology, HYdrology, METeorology

AGRHYMET is the regional climate centre for West-Africa and Sahel

Missions: Information, Training, Research services

- Collecting, processing data and disseminating information on climate, water, agriculture, food security, natural resources management at regional scale for decision markers and users

- Strengthen technical and scientific capacities of countries and stakeholders through degree and short training, the transfer of tools and methods adapted to the West-African and Sahelian region

- Strengthen inter-state cooperation by sharing knowledge and technology among member states

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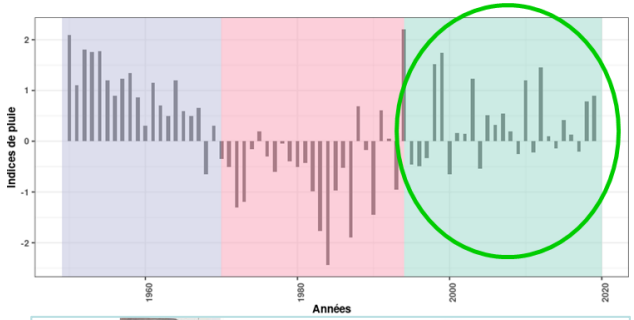
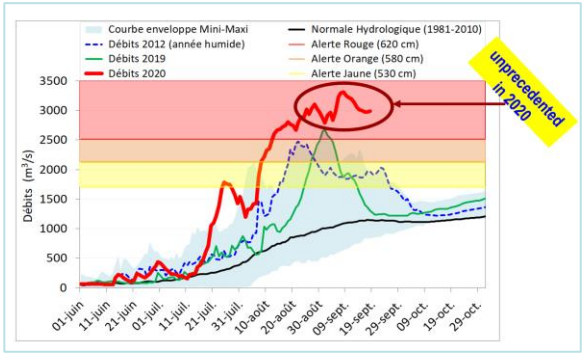
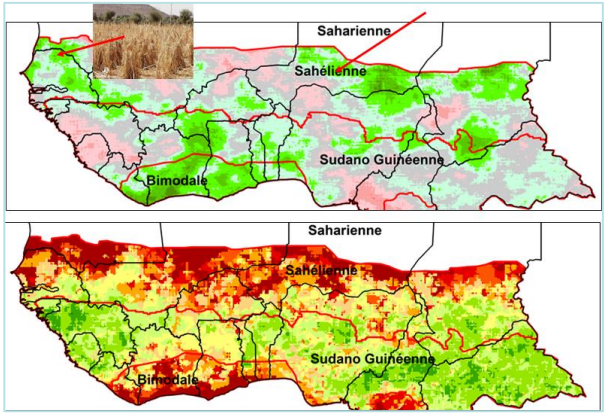
Continuous intensification of hydro-climatic extremes in West-Africa







What adaptation and risk management strategy should be adopted in the face of the new climate situation?

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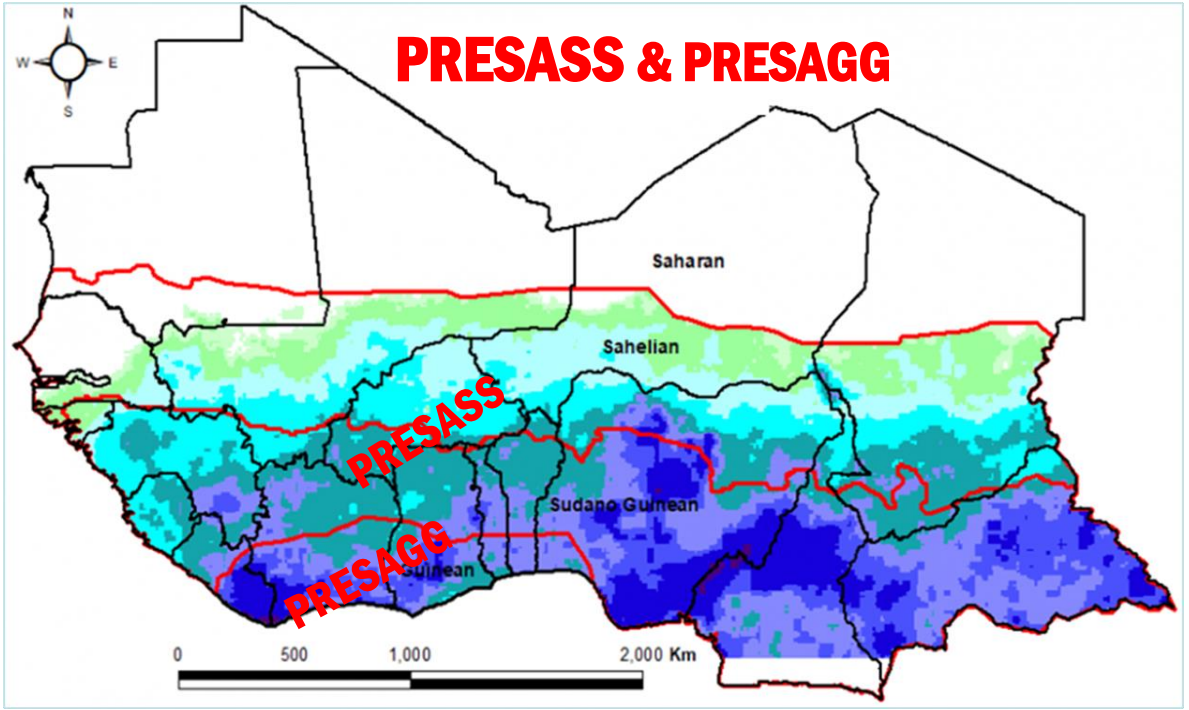
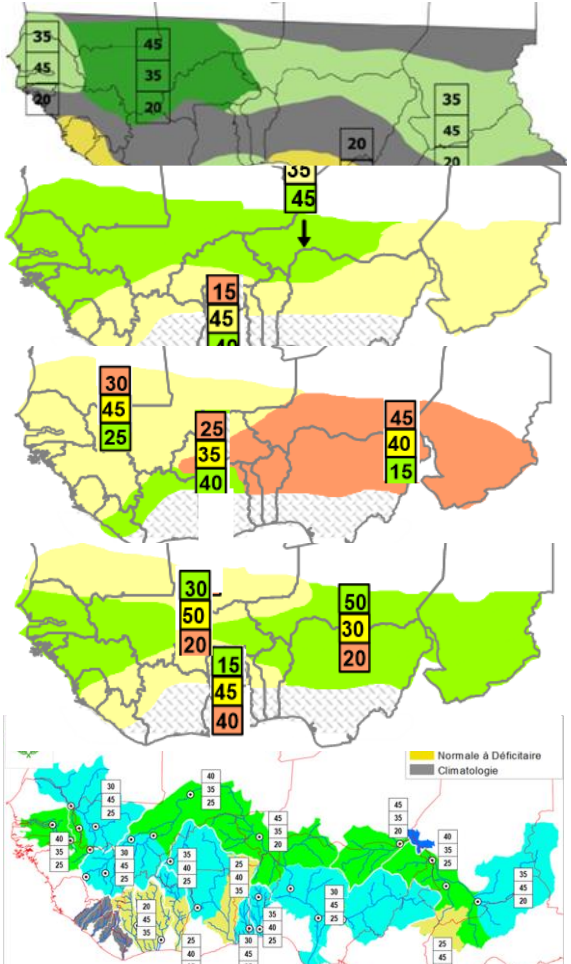
Seasonal and sub-seasonal forecast are one of the best climate services for strategic planning of rainy season activities in West-Africa where more than 80% crops are rainfed



SERVIR is collaborating with AGRHYMET to improve S2S in West-Africa

Satellite data, climate model inputs, in particular the NMME models, are used by the West-African institutions to develop regional tailored seasonal forecast products



- Choice of land for crop production (high, low, etc.)
- Choice of crop types varieties (adapted to short, long rainy, less rainy, etc.)
- Preparedness for risks, especially flooding, such as avoiding settling in flood-prone areas
- Preparing investments to take opportunities of the upcoming rainy season
- Whether or not lean seasons are extended (especially for pastoralism issues, etc.)
- The choice of whether or not to take out agricultural insurance
- Setting objective curves for dam management

On the beginning of each rainy season, all actors (farmers, disaster managers, etc.) impatiently await the seasonal forecast information that guide them for their activities for the upcoming season

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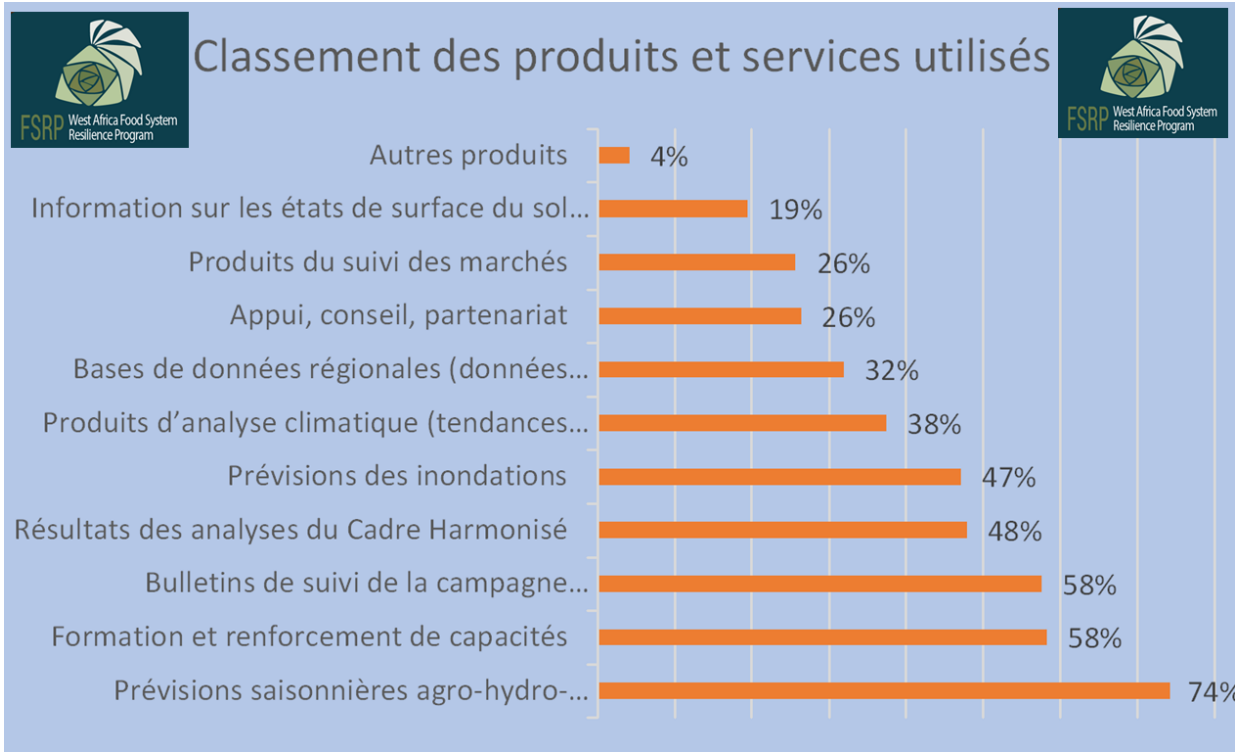
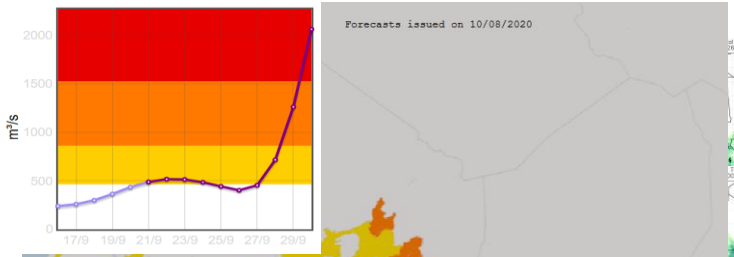
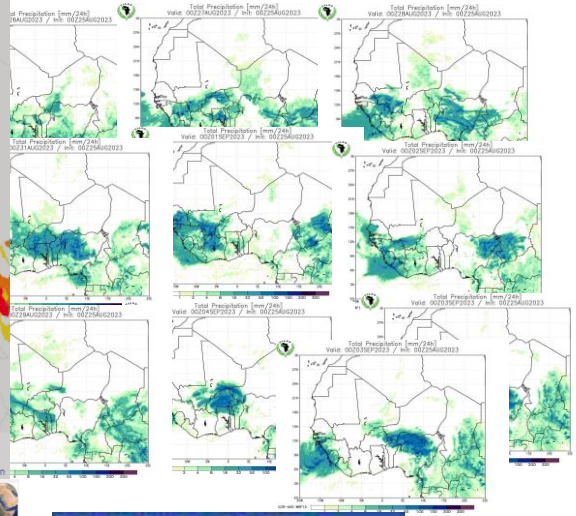
Recent survey from a World Bank funded project: FSRP



More than 74% of all users of AGRHYMET services use seasonal forecast services

Sub-seasonal forecasting: flood forecasting with the support of SERVIR



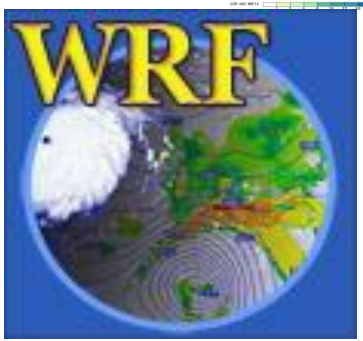


SERVIR WEST AFRICA

EF5

ENSEMBLE FRAMEWORK FOR FLASH FLOOD FORECASTING (EF5)

Machine Learning Based Flash Flood Forecasting in West Africa with Satellite Observations



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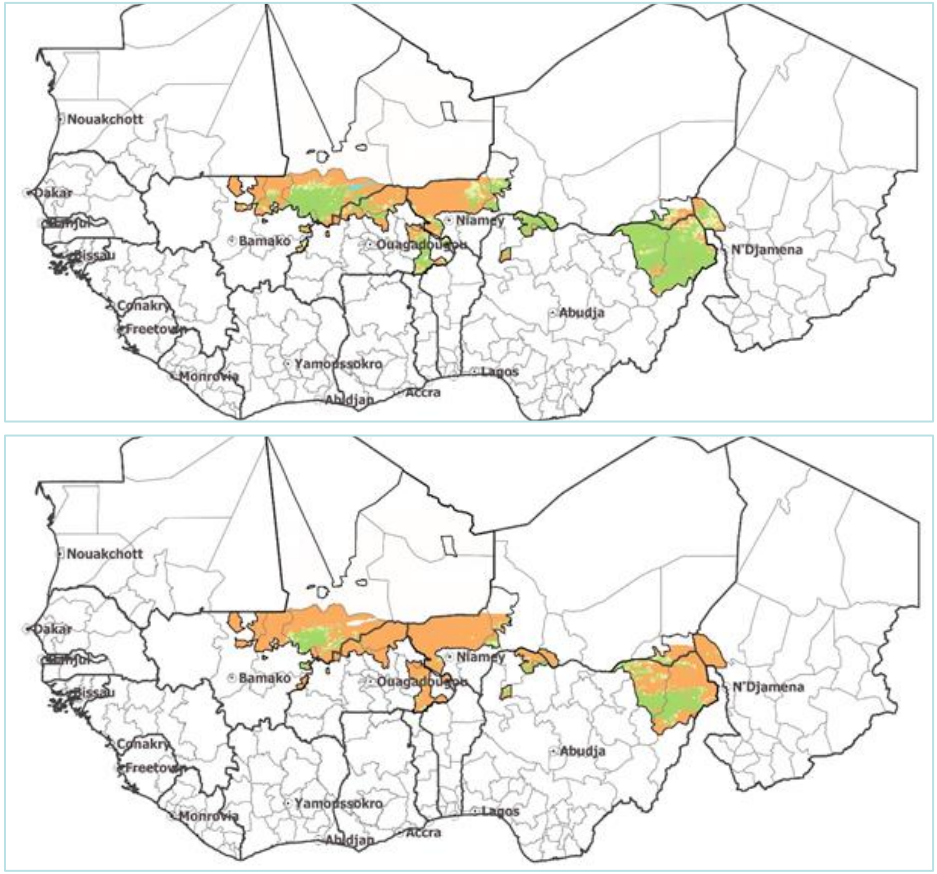
Also: satellite high resolution data, model outputs allow us rainy season monitoring in non-accessible areas



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Although sub-seasonal forecasts are very key for West-Africa (more than 70% of people consider them as extremely useful), these services are not fully operational and there is a strong need for collaboration and support in this area

Addressing subseasonal forecasting needs through a SERVIR AST supported project

Who is SERVIR?

SERVIR

USAID
FROM THE AMERICAN PEOPLE

- Poverty reduction & resilience
- Data-dependent issues in data-scarce places
- International field presence

NASA

- 30+ Earth observing satellite missions, free & open data
- Major research portfolio
- Societal benefit from space

Private sector collaborators:

Google mapbox development SEED planet. esri aws MAXAR TECHNOLOGIES

USG collaborators:

NOAA USGS science for a changing world

Intergovernmental, NGO collaborators:

Food and Agriculture Organization of the United Nations

WFP World Food Programme

MERCY CORPS

Regional Hub Host Institutions:

ALLIANCE Bioversity International CIAT

ICRISAT INTERNATIONAL CROPS RESEARCH INSTITUTE FOR THE SEMI-ARID TROPICS

ICIMOD

adpc

Research collaborators: 20+ US universities & research centers through the SERVIR Applied Sciences Team; ITC, in-region university networks

Hub Consortium Members:

Deltares

SEI Stockholm Environment Institute

Spatial Informatics Group

Conservación Amazónica ACCA

imaflora

eco ciencia

CILSS

AFRIGIST

CERSGIS

CSE Centre de Suivi Ecologique

AIMS

ISESTEL

COLUMBIA UNIVERSITY

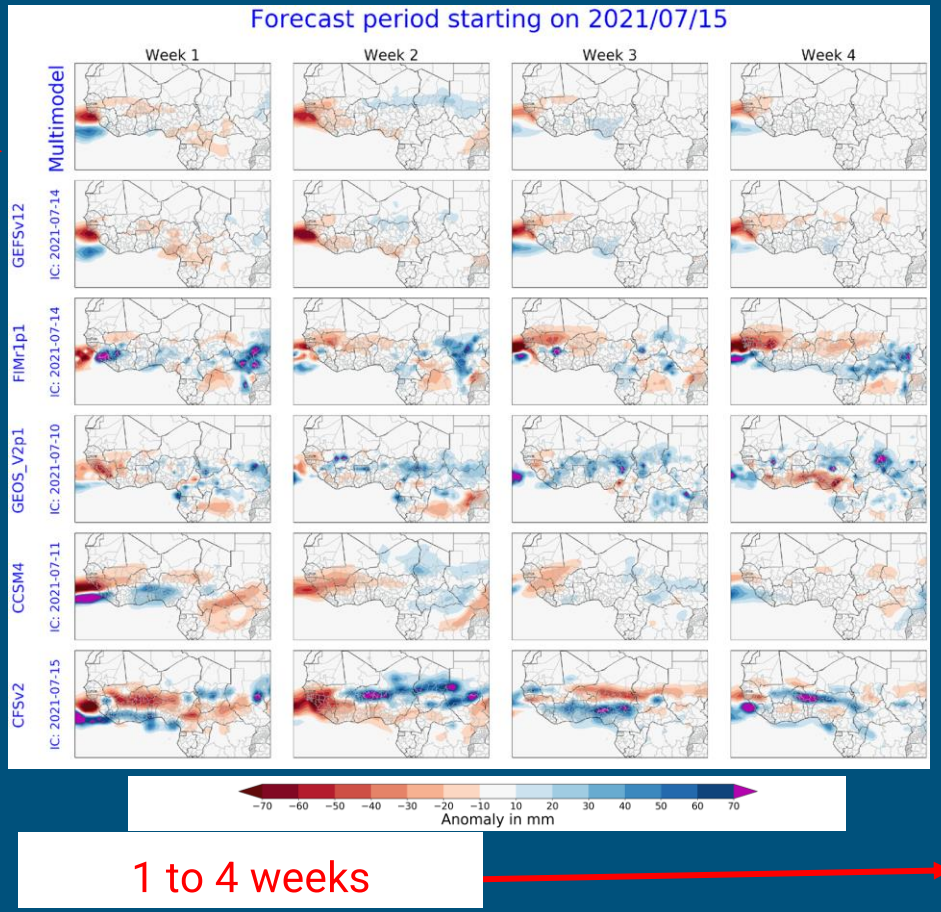
University of Arizona 1853

Subseasonal Climate Forecasts

- Source: North American Multimodel Ensemble SubX (NOAA funded)
- 5 to 6 models with total 73 ensemble members.
- Hindcasts available for 1999-2016.
- Real-time forecasts
  - Available weekly
  - Daily resolution
  - Extend to 30-45 days

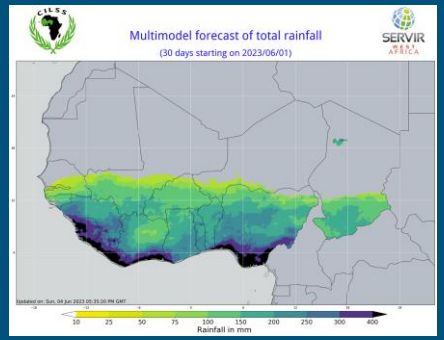
Multimodel

Individual models

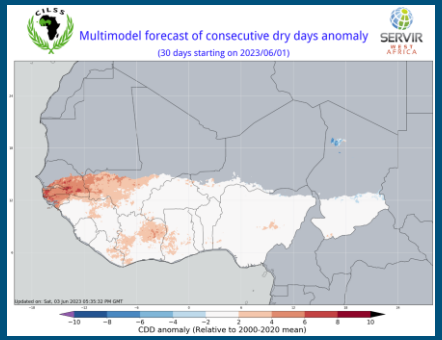


High resolution forecasting products (climate and impacts, level-3/-4 products)

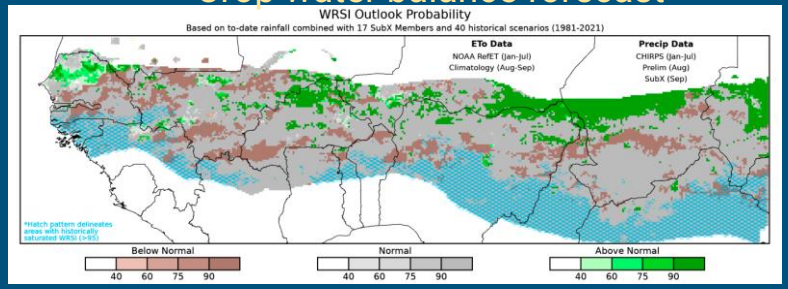
Rainfall forecast



CDD forecast

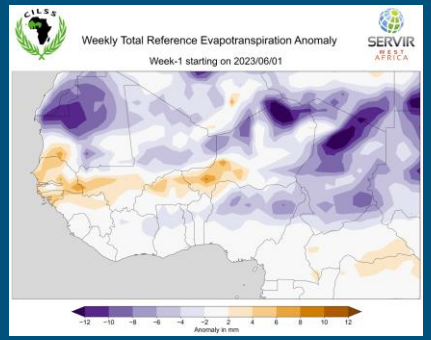


Crop water balance forecast

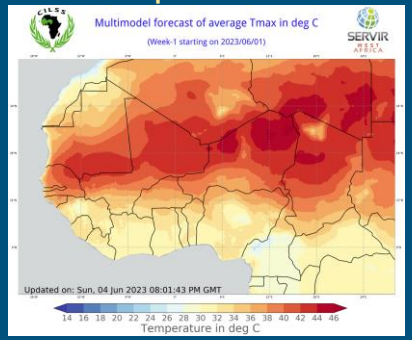


Source: Will Turner (CHC)

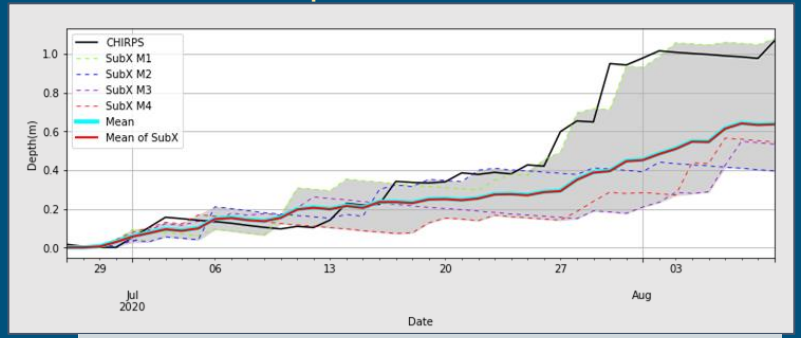
Ref ET forecast



Temp. forecast



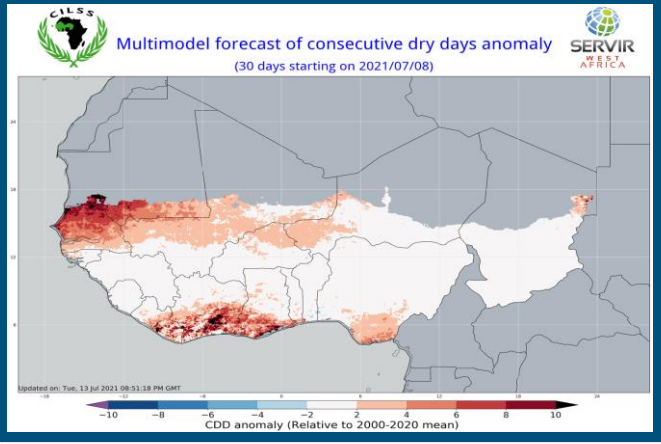
Water point level forecast

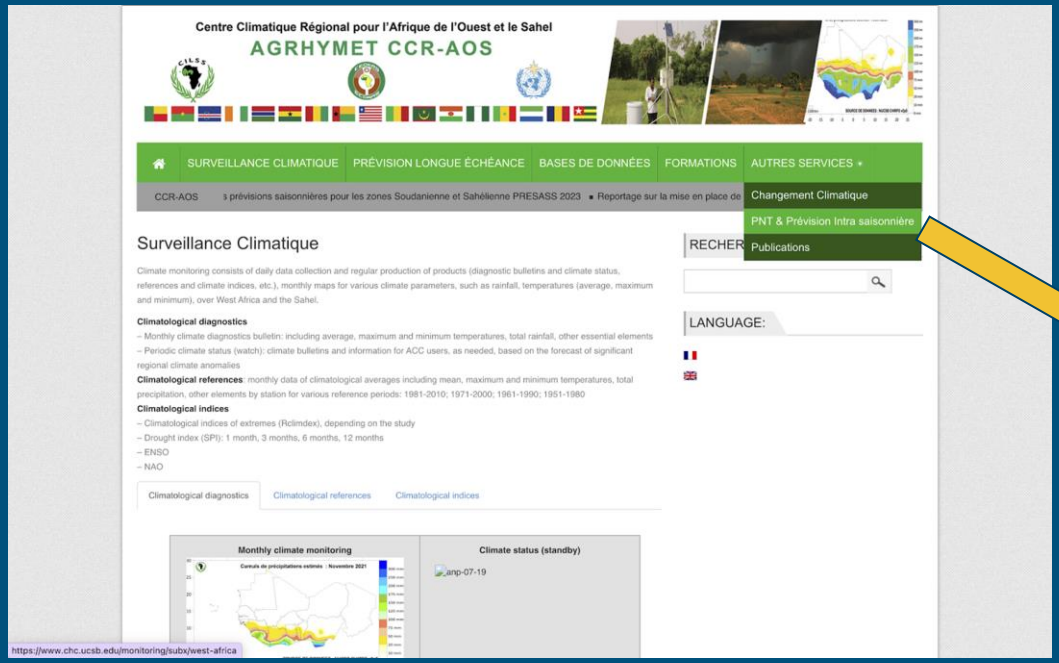


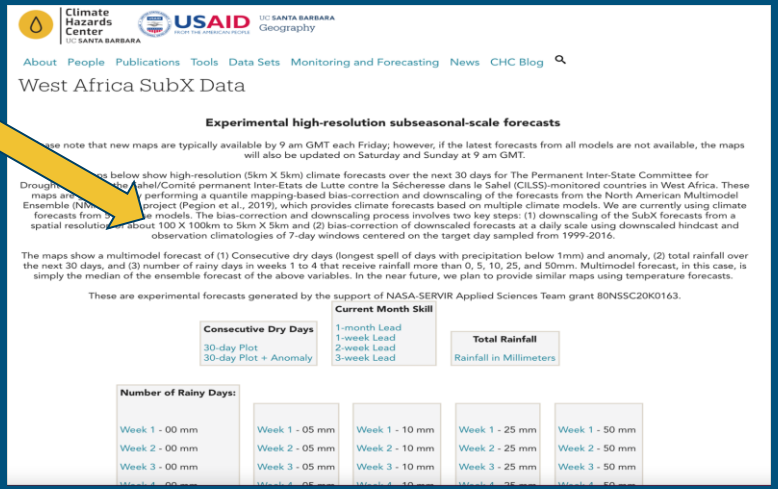
Source: Bruce and colleagues (EROS)

Use-case of high-res subseasonal climate forecasts through AGRHYMET

Reaching regional and national met agencies, NGOs, and other end users in the ECOWAS region though dekadal briefings

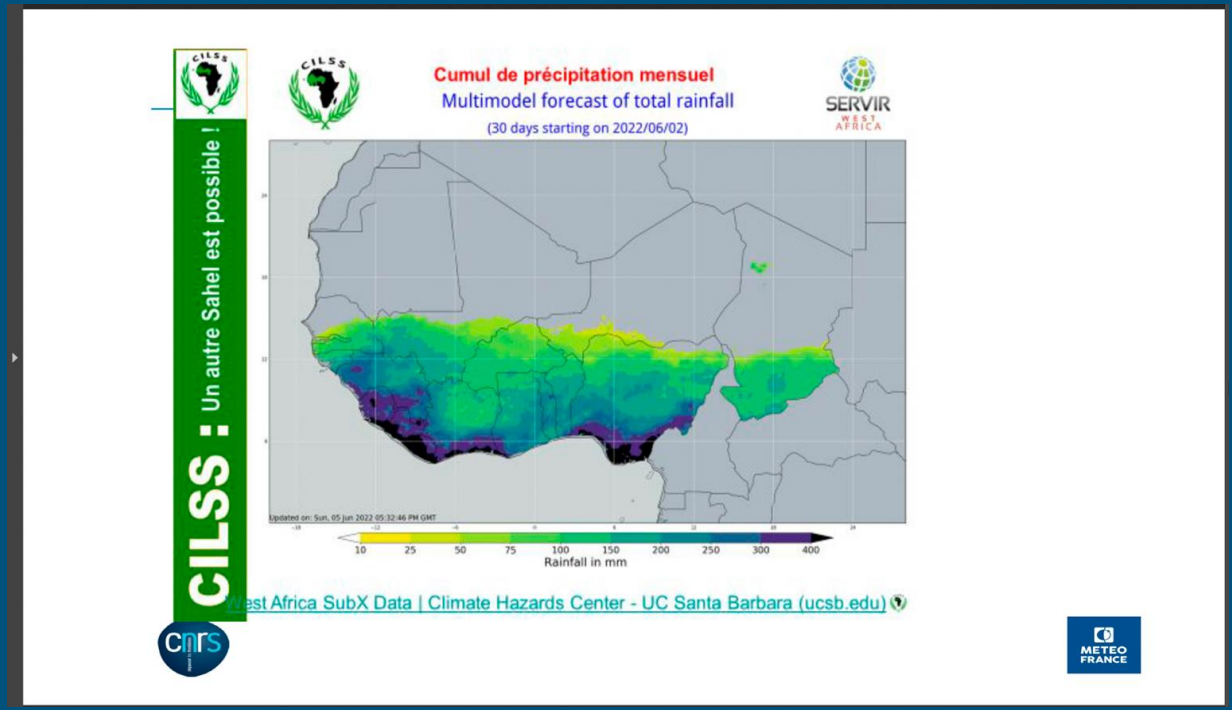






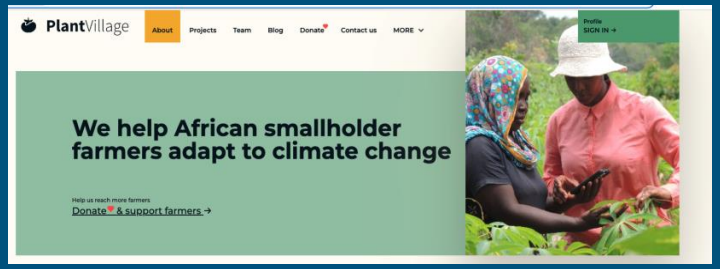
Use-case of high-res subseasonal climate forecasts through AGRHYMET

- AGRHYMET shares these forecasts with the Monitoring and forecast of IntraSeasonal Variability over Africa (MISVA) project.
- This is a joint research / operational collaborative action between Meteo-France and the West African weather forecasting services such as: ANACIM (Senegal), Mali Meteo, ANAM Burkina Faso , DMN Niger, ANAM Chad and DMN Togo.



Use-case of high-res subseasonal climate forecasts through PlantVillage

USAID's The Feed the Future Innovation Lab

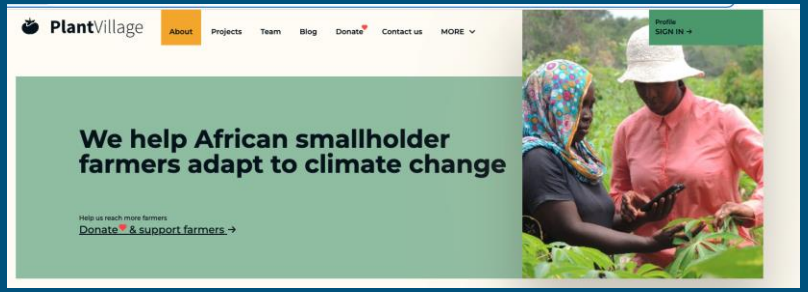


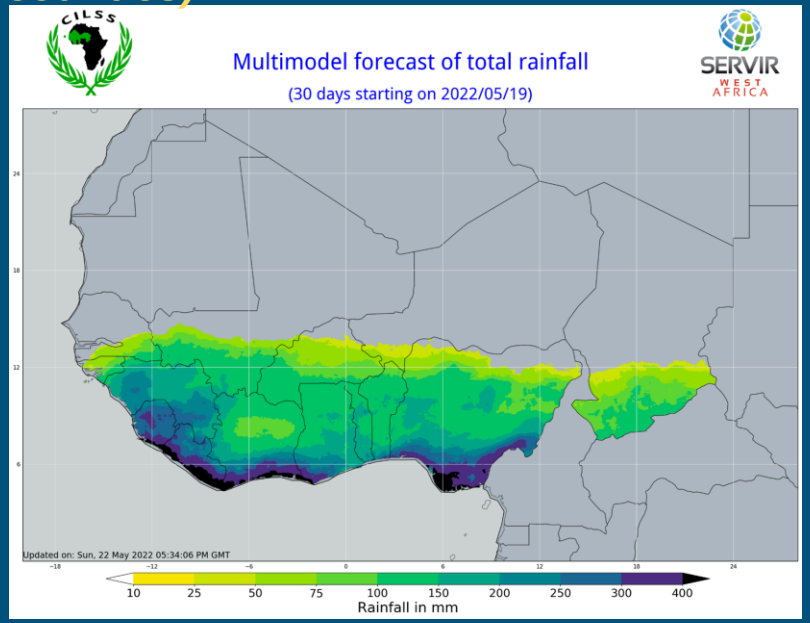
Objective: To increase the yield and profitability for millions of farmers with the ultimate goal to reach hundreds of millions in partnership with an ecosystem of farmer facing organizations and the farmers themselves.

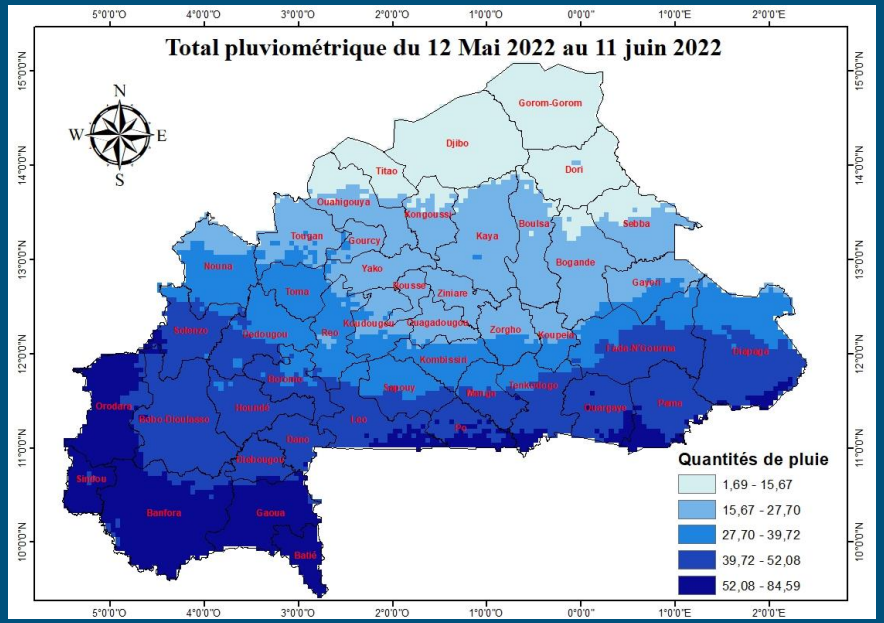
PlantVillage employs a triple A model Algorithmic, Agricultural, Advice that includes "weather forecast messaging", as a part of which high resolution subseasonal forecasts are being disseminated to farmers in (a) Burkina Faso and (b) Kenya (mainly ASAL counties)

Use-case of high-res subseasonal climate forecasts through PlantVillage

Reaching up to 12 million people in Burkina Faso, 8 to 9 million farmers in Kenya (ASAL counties)

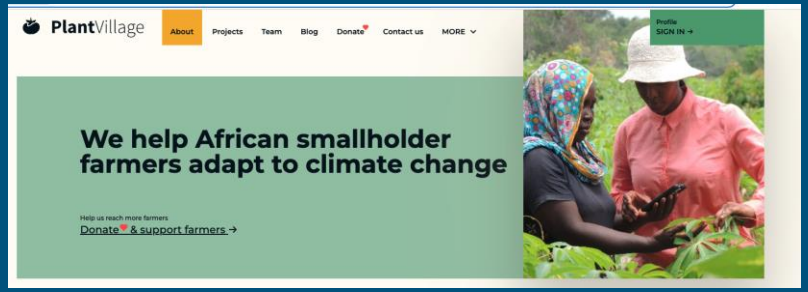






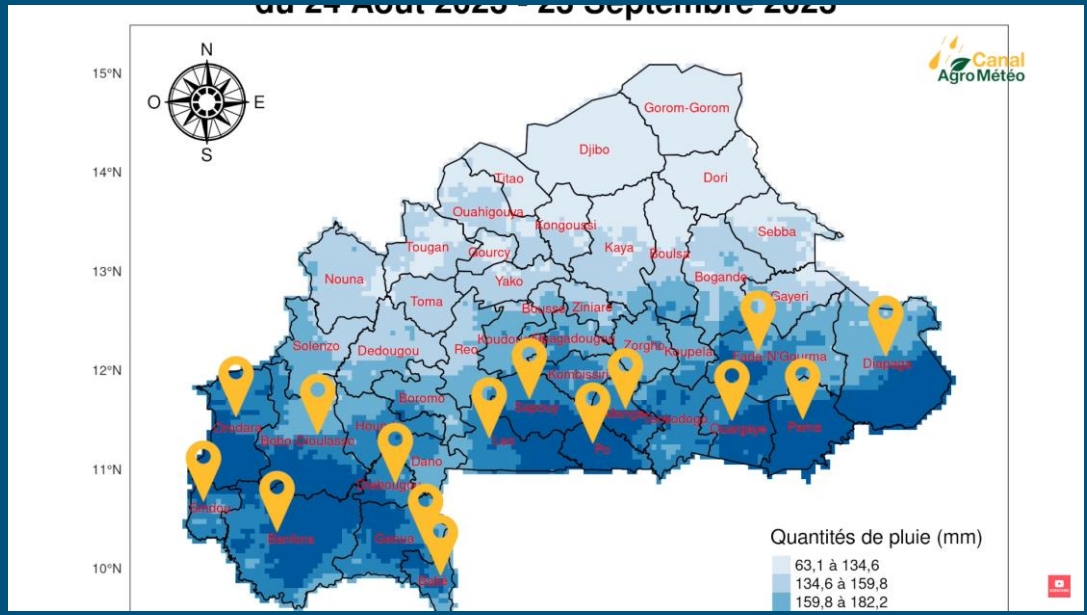
Use-case of high-res subseasonal climate forecasts through PlantVillage

Reaching up to 12 million people in Burkina Faso, 8 to 9 million farmers in Kenya (ASAL counties)



Medium of dissemination includes

- YouTube videos
- Radio and TV programs
- By “warriors” through individual visits or group discussions.



Use-case of high-res subseasonal climate forecasts through PlantVillage

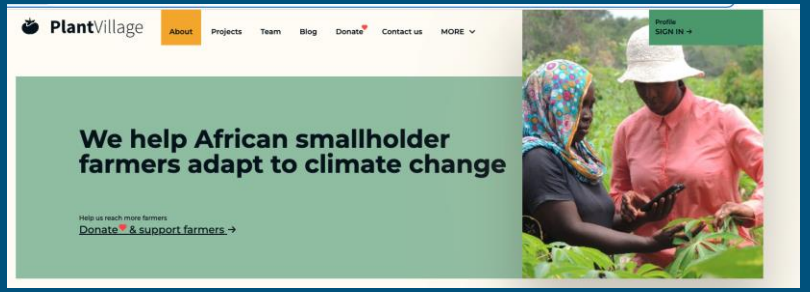
Type of supported decisions include:

- Migration decisions based on pastoral water availability.
- Vaccinations or other preventive measures for livestock pests and diseases.
- Implementation of adaptive measures, like diversifying livelihoods or investing in water-harvesting technologies.
- Management of resources more equitably and preventing potential conflicts.

Credit: Melodine Jeptoo (PlantVillage) and team

Use-case of high-res subseasonal climate forecasts through PlantVillage

Reaching up to 12 million people in Burkina Faso, 8 to 9 million farmers in Kenya (ASAL counties)



"30-day weather forecast will play a major role in our *Cassava SOS project here in Baringo*. We will be able to know the *right time to plant Cassava* to ensure that they'll have the best chance of thriving, and also, we will be able to advise farmers on the crops they'll need to plant, at what time and *if it will need irrigation* if the rains will be below normal."

"We are using them to help the community in decision making and planning for example the *pastoralist community* can be able to *approximate the amount of feeds* they need when they know when the rains will be coming, also to prepare on how to *harvest rain water* and also work on *preventing calamities* that can be caused by heavy rains on their animals"

Summary

1. Subseasonal forecasts can help address key climate services needs.
2. Through collaboration of AGRHYMET, UCSB and SERVIR AST program we are providing several high resolution climate and climate impact forecasting products using subseasonal forecasts (level-3/-4 products).
3. Partnership with AGRHYMET allows for dissemination of high resolution climate forecasts to NHMSs and other national scale end users (e.g. NGOs) in ECOWAS countries and regional projects, through dekadal briefings .
4. Partnership with PlantVillage allows for dissemination of high resolution climate forecasts to millions of users in Burkina Faso and Kenya supporting critical agropastoral decisions.
5. Continued improvement in subseasonal forecasting products and skill is needed.

Acknowledgements

- Partners: AGRHYMET/CILSS, SERVIR-WA Hub, SERVIR Program office, PlantVillage
- Support from USAID, NASA, SERVIR Applied Science Team Phase-3 and USAID
- Thanks to the NMME SubX team (Dr. Kathy Pegion and the team) and IRI data library

FEED THE FUTURE
The U.S. Government's Global Hunger & Food Security Initiative

Lessons Learned using a GIS-based Decision Support Tool to inform Feed the Future planning

Kyle Alden - Geospatial Specialist at USAID/Bureau For Resilience Environment and Food Security – FTF Analysis Data and Learning Division

Feed the Future Zone of Influence (ZOI) Concept

Two key facets that stem from the Global Food Security Strategy:

1. **The ZOI is where the Feed the Future country portfolio aims to have the largest impact on poverty, hunger, and malnutrition.**
2. **The ZOI is where the operating unit will measure progress at the population level.** FTF target countries will perform population-based surveys within the ZOI to measure progress towards reducing poverty, malnutrition, and hunger.

Goals and Functions of the ZOI Creation Support Tool

Goal 1: Streamline the ZOI selection and writing the targeting section of each FTF country plan.
Goal 2: Incorporate learning and evidence into ZOI selection.
Goal 3: Provide a framework to quickly validate whether a ZOI is aligned with the selection criteria.

Function 1: Identify where a ZOI could be located using on standard or USAID mission-provided quantitative data. [Process step 1]
Function 2: Interactively build ZOIs that incorporate both quantitative qualitative considerations. Validate whether a proposed ZOI aligns with the primary selection criteria. [Process step 2]

ZOI Selection - Part I - Primary Criteria

Criteria	Description *GFSS: "Our overarching Goal is still to sustainably reduce global poverty, hunger, and malnutrition across FTF's three Objectives"*
Opportunities for Sustainable Impact	The ZOI should exclude areas where there is limited opportunity for sustainable impact. This could be due to a lack of viable partners, due to significant implementation constraints, or due to other donor-funded programming making Feed the Future investments redundant.
Level of need	Areas with the highest levels of poverty, hunger and malnutrition, defined here as food insecurity, extreme poverty, and stunting.
Potential for agricultural- led growth	Areas where there is significant potential that investments in agriculture are viable and will accelerate economic growth. This includes rural opportunities as well as opportunities within the broader food system.
Right-size to budget and approach	The geographic size and population of the ZOI should be determined based on an assessment of 1) the size of likely FTF investments and 2) the cost of achieving measurable, sustainable improvements in hunger, malnutrition, and poverty at the population level.

ZOI Selection Criteria - Part 2 - Context Criteria

Criteria	Description *GFSS: "Our overarching Goal is still to sustainably reduce global poverty, hunger, and malnutrition across FTF's three Objectives"*	Illustrative Data Sources
U.S. gov resource availability	Consider the locations and flexibilities of existing and planned FTF programs and initiatives across all agencies. This could include consideration of overlap with existing ZOIs, RFZs, RFSAs, or other current FTF activities and other USG complementary investments that could contribute to results.	Recent and planned programming
Host gov, donor, and local partner commitment	Consider areas where both the national government and local governments are actively prioritizing or investing in food security and nutrition. Also consider areas where we can leverage complementary resources and expertise through partnerships and other significant donor funded programs.	Mission knowledge
Non-Contiguous Areas	The ZOI may be a single geographically contiguous area or may include a limited number of non-contiguous areas. Posts should carefully consider the potential inefficiencies associated with an ZOI composed of many small disconnected areas. It is preferable that programming across the ZOI reflect a unified results framework. The ZOI should not simply be defined as the location of current, disparate programming efforts.	Mission, initiative, experience with programming and results.
Align with admin units	Areas should be easy to communicate to partner governments and likely to align with existing sampling and survey approach	Administrative Boundaries

Process

At each Post, **identify key stakeholders**

- **Attend an overview session** of ZOI guidance, process, and tool
  - At post, **gather information:** expected budget, areas that should be excluded, higher quality primary datasets, and the locations of existing or planned investments.
    - **Convene stakeholders for a facilitated ZOI Selection session** using the tool, this will result in at least one mission-proposed ZOI.
      - Work with stakeholders to **refine the ZOI,** and ensure that each mission has all of the details and documentation they need to describe the ZOI.
        - Develop and **submit a ZOI proposal** based on the guidance.

At any point during the process, we can revisit a step or bring in additional stakeholders.

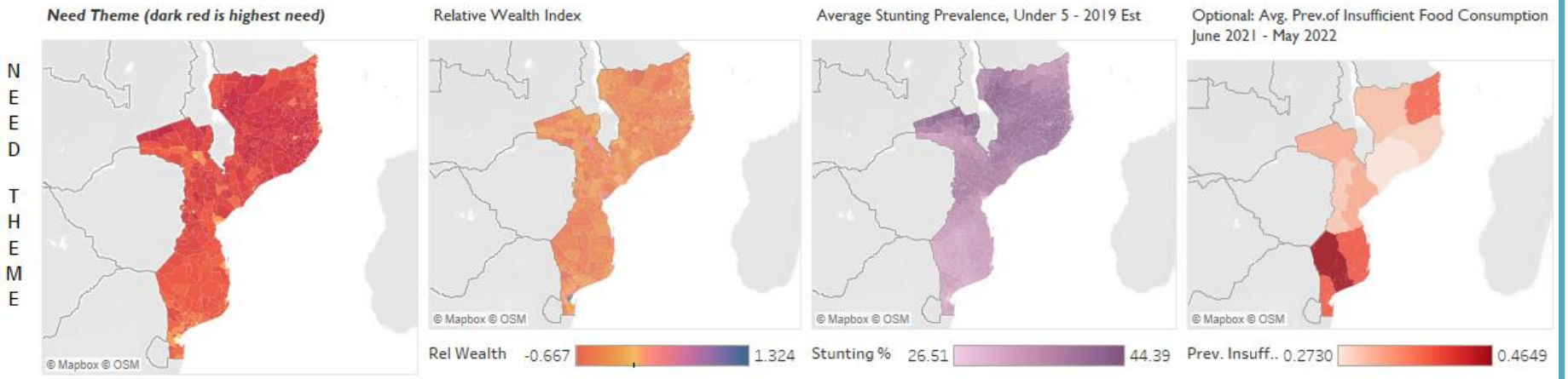
Part 1: Identify Potential ZOI Areas
Level of Need

Override Poverty: True

Override Maln.: True

Override Hunger: True

We use Poverty + Malnutrition + Hunger to calculate level of need.



Relative Wealth (DIDL, data at HDX):

Prevalence of Stunting (IHME):

Prevalence of Insufficient Food Consumption (WFP):

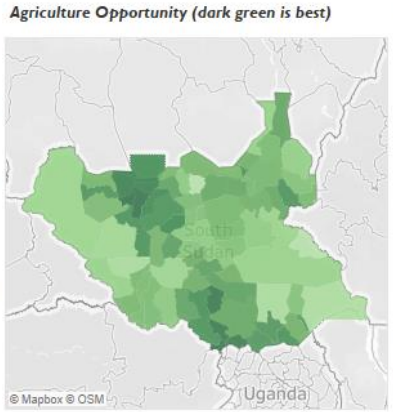
Mapping child growth failure across low- and middle-income countries (stunting)
Micro-Estimates of Wealth for all Low- and Middle-Income Countries (Relative Wealth Index)
HungerMap Live (prevalence of insufficient food consumption, survey data only, year leading up to tool use)

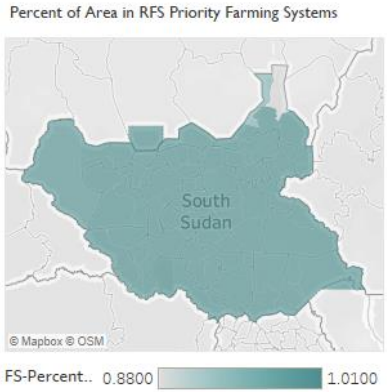
Part 1: Identify Potential ZOI Areas

Opportunity for Agriculture-Led Growth

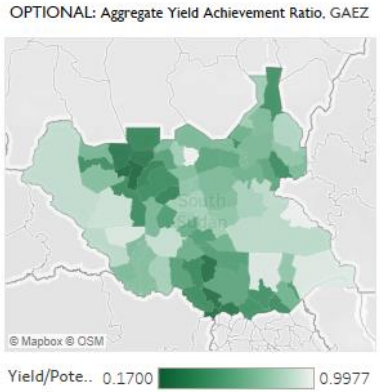
The primary factor for Ag-Led Growth Opportunity is being in an RFS-priority farming system, secondarily we can include a regions aggregate yield achievement ratio, specific crops or mission provided data.

AG OPPORTUNITY

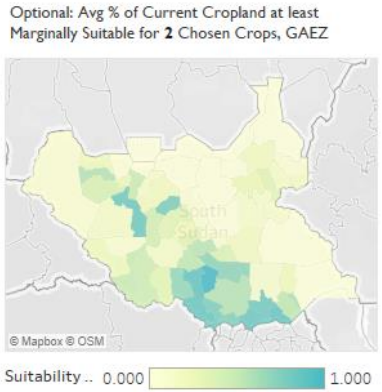




Percent of land in Priority Systems



Yield Achievement Ratio (FAO GAEZ)

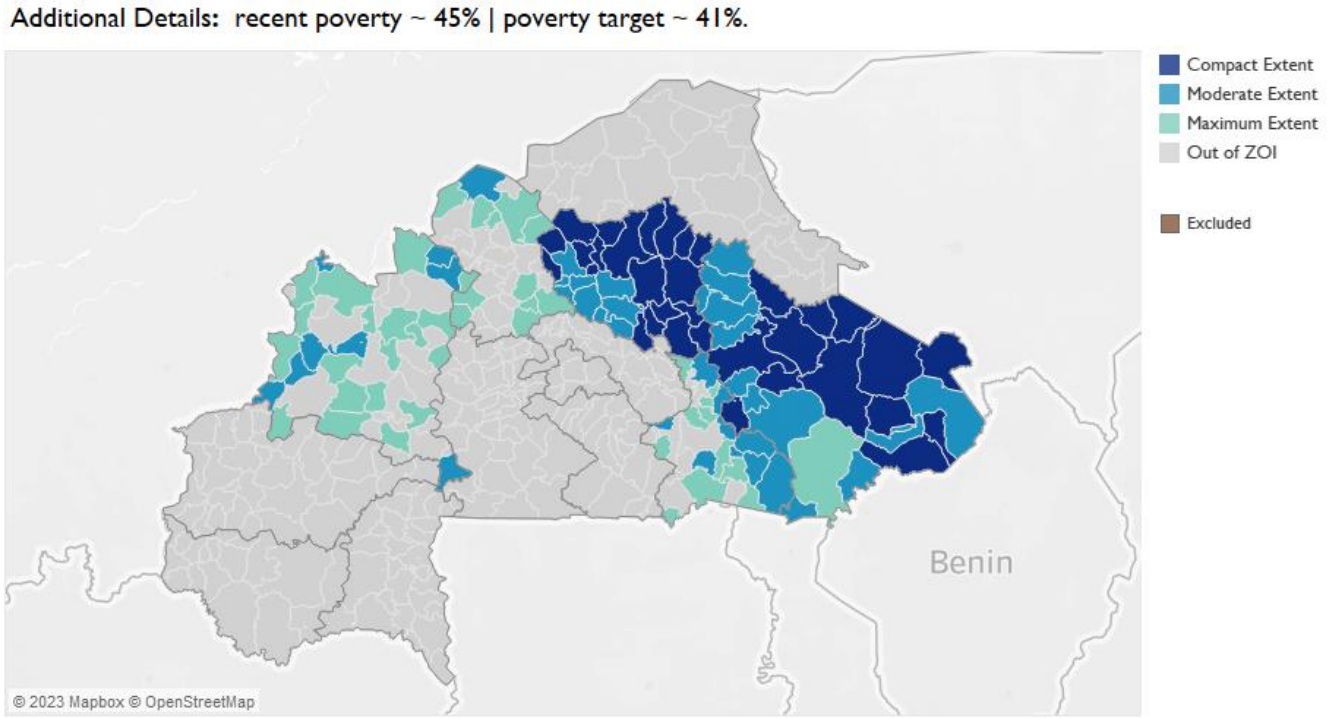


Crop Suitability (FAO GAEZ)

Partial prioritization/coordination framework for a focused research agenda (RFS Priority Farming Systems)
Farming Systems and Poverty, Farming Systems and Food Security in Africa (Farming Systems)
GAEZ Aggregate Yield Achievement Ratio and Crop Suitability, Documentation (Aggregate Yield Achievement Ratio)

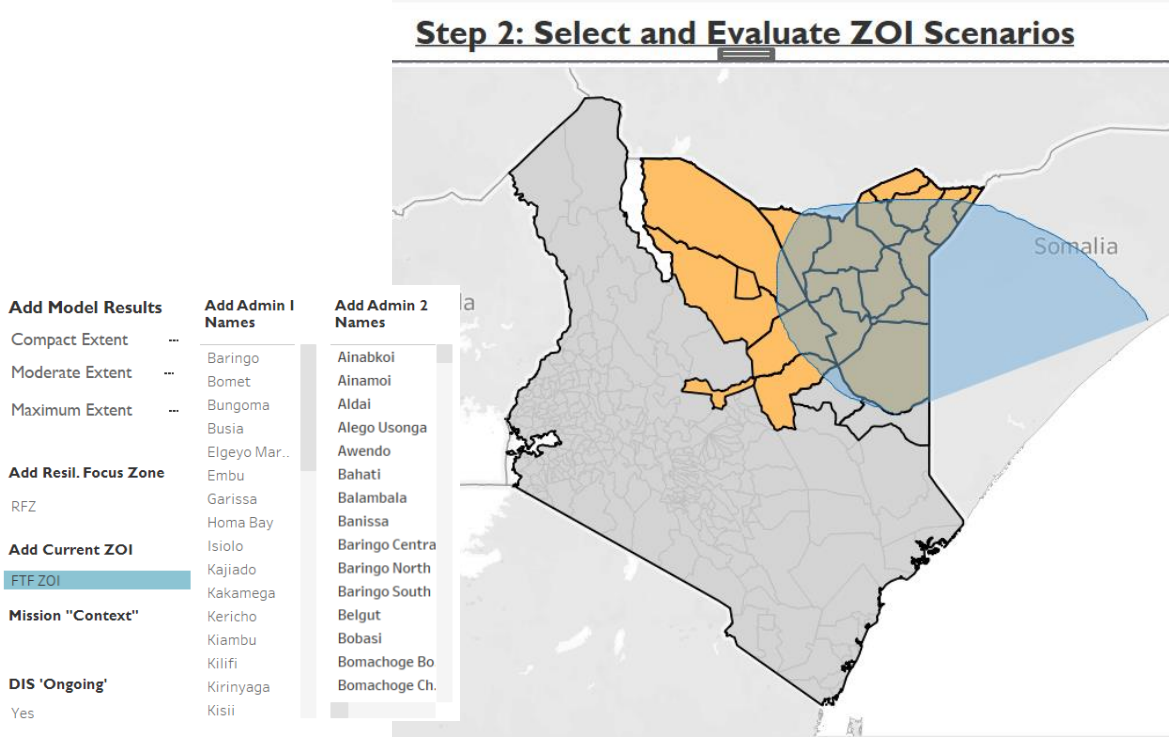
Part 1: Identify Potential ZOI Areas

Output *Example*



Part 2: Proposing Zone of Influence(s)

Selecting a Zone of Influence



Run Analysis on Selected ZOI | CLEAR ZOI CHOICES

In this selected zone, the estimated population in 2020 was about 6,100,000.

We estimate that it would cost at least **38%** of your projected spending to achieve FTF's ambition in this area.

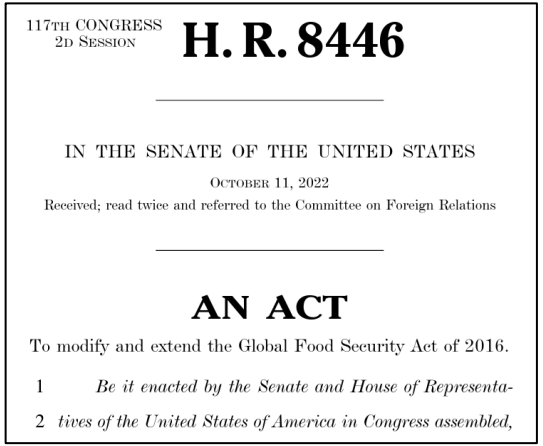
The estimated prevalence of poverty across the maximum area is approximately 19% while the estimate prevalence of poverty in this selected ZOI is 27%.

The estimated stunting rate across the maximum area is approximately 30%, in this selected ZOI it is 31%.

Lessons Learned pt 1

1. Clear documentation of the criteria and method are essential - **having a published strategy really helps!**

2. **Customization of input datasets are key to getting user buy-in**



117TH CONGRESS
2D SESSION

H. R. 8446

IN THE SENATE OF THE UNITED STATES

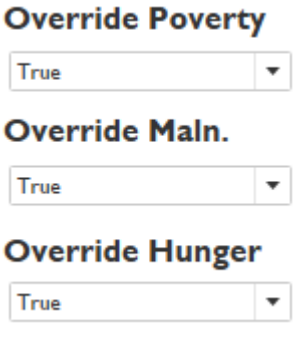
OCTOBER 11, 2022

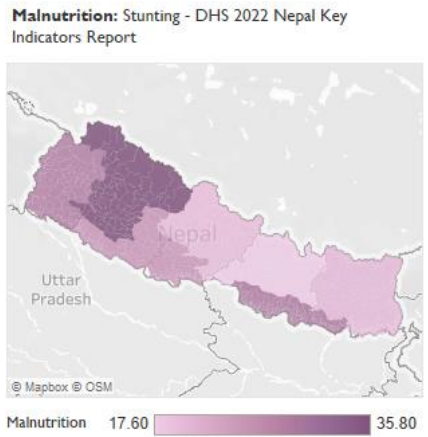
Received; read twice and referred to the Committee on Foreign Relations

AN ACT

To modify and extend the Global Food Security Act of 2016.

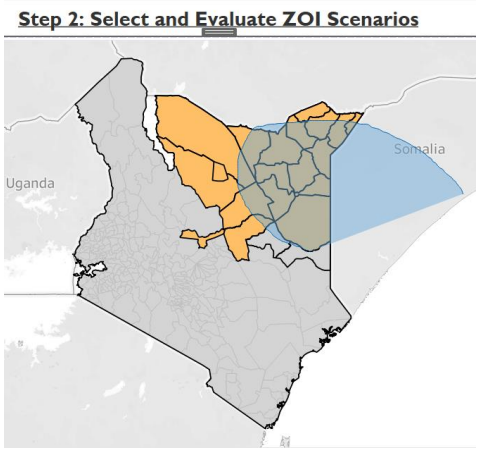
Be it enacted by the Senate and House of Representatives of the United States of America in Congress assembled,



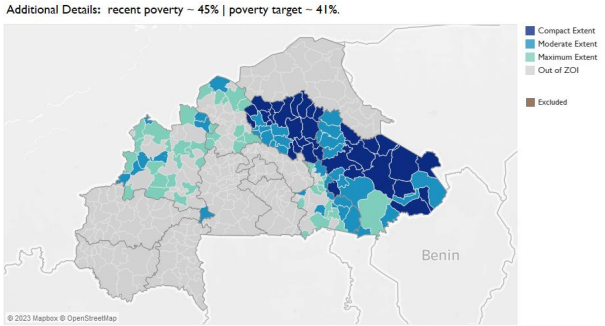


Lessons Learned pt 2

3. **Scenario building + Scenario Evaluation -** Decision's can't only be made with quantitative data!



4. **Users' opinions about the first output often impacted their opinion of the process and tool**



FEED THE FUTURE
The U.S. Government's Global Hunger & Food Security Initiative

Thank you for attending!

Contact Info: Kyle Alden - kalden@usaid.gov

Thank You

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Q&A

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