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Geo-Enabling initiative for Monitoring & Supervision

Building Capacity among Clients and Local Stakeholders

to harness simple Technology for Real-Time Monitoring and Evaluation, Remote Supervision & Third-Party Monitoring, Beneficiary Engagement, Risk Management, & Portfolio Mapping

Offered by the World Bank's Fragility, Conflict and Violence (FCV) Group in cooperation with the Global Evaluation Initiative (GEI)

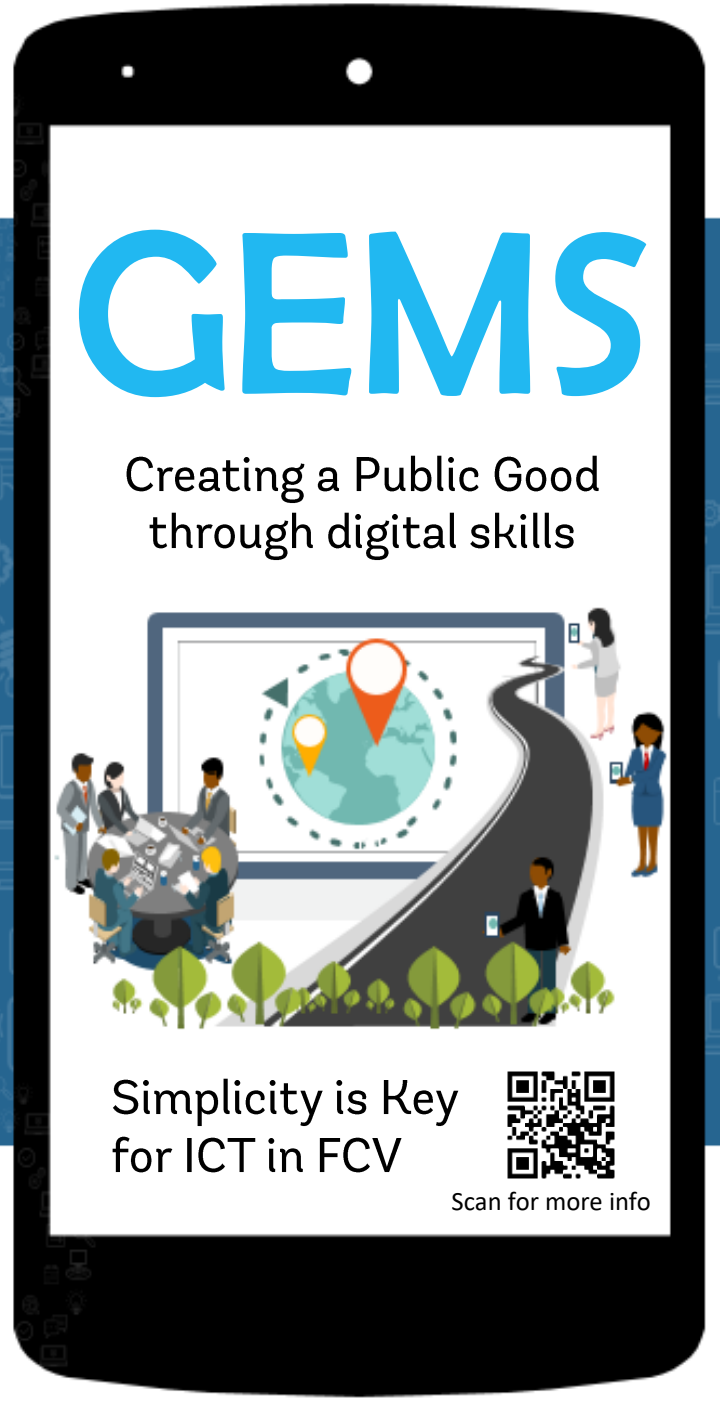
Supported by the Korea Trust Fund for Economic and Peacebuilding Transitions and the WBG Partnership Fund for the Sustainable Development Goals

KOREA TRUST FUND for Economic and Peace-Building Transitions

WORLD BANK GROUP Fragility, Conflict & Violence

GEI Global Evaluation Initiative

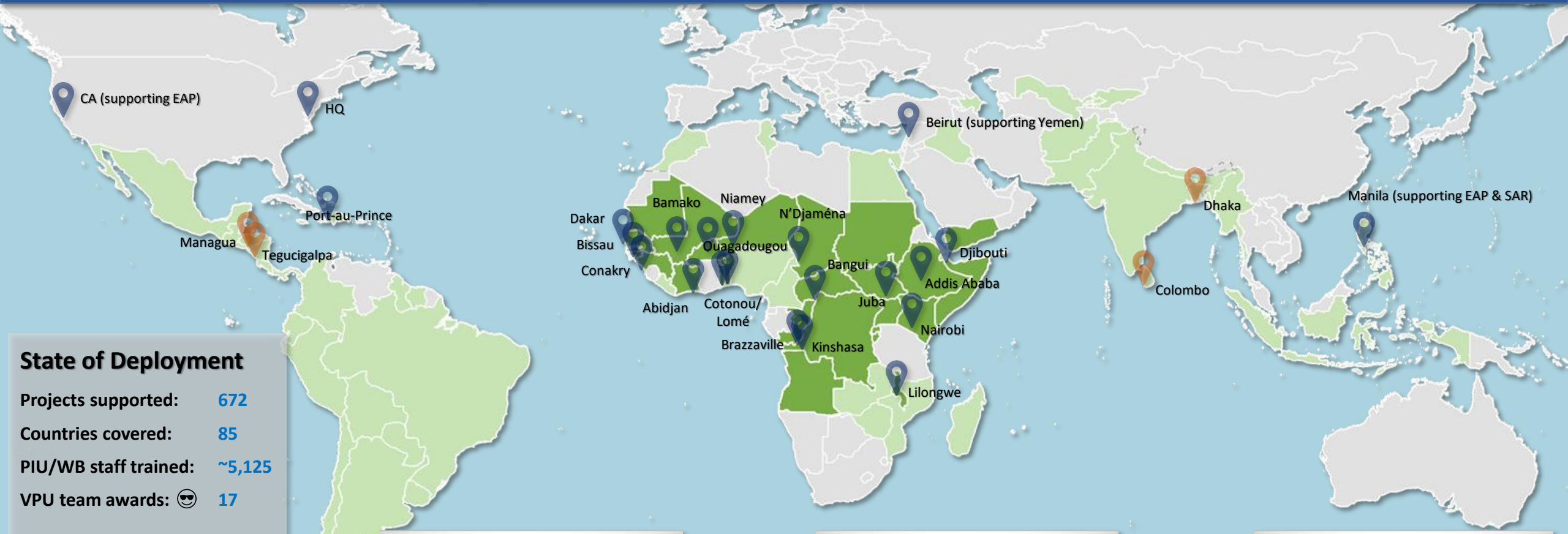
WORLD BANK GROUP SDG PARTNERSHIP FUND



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

The GEMS Core Team: Providing operational support from HQ and 21 field locations (and growing)

GEMS Deployment and the Team have vastly expanded, to cover 85 Countries and 21 Field FPs



State of Deployment

Projects supported:	672
Countries covered:	85
PIU/WB staff trained:	~5,125
VPU team awards: 😎	17

Supported Countries

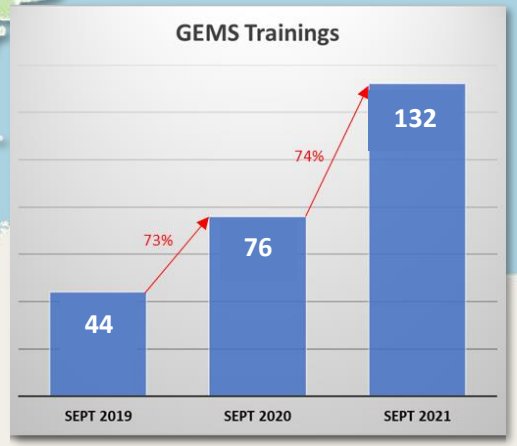
Ctr. covered by GEMS

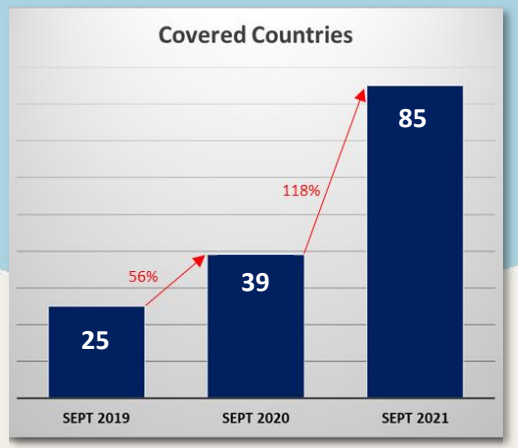
CMU-funded work

Presence of the Team

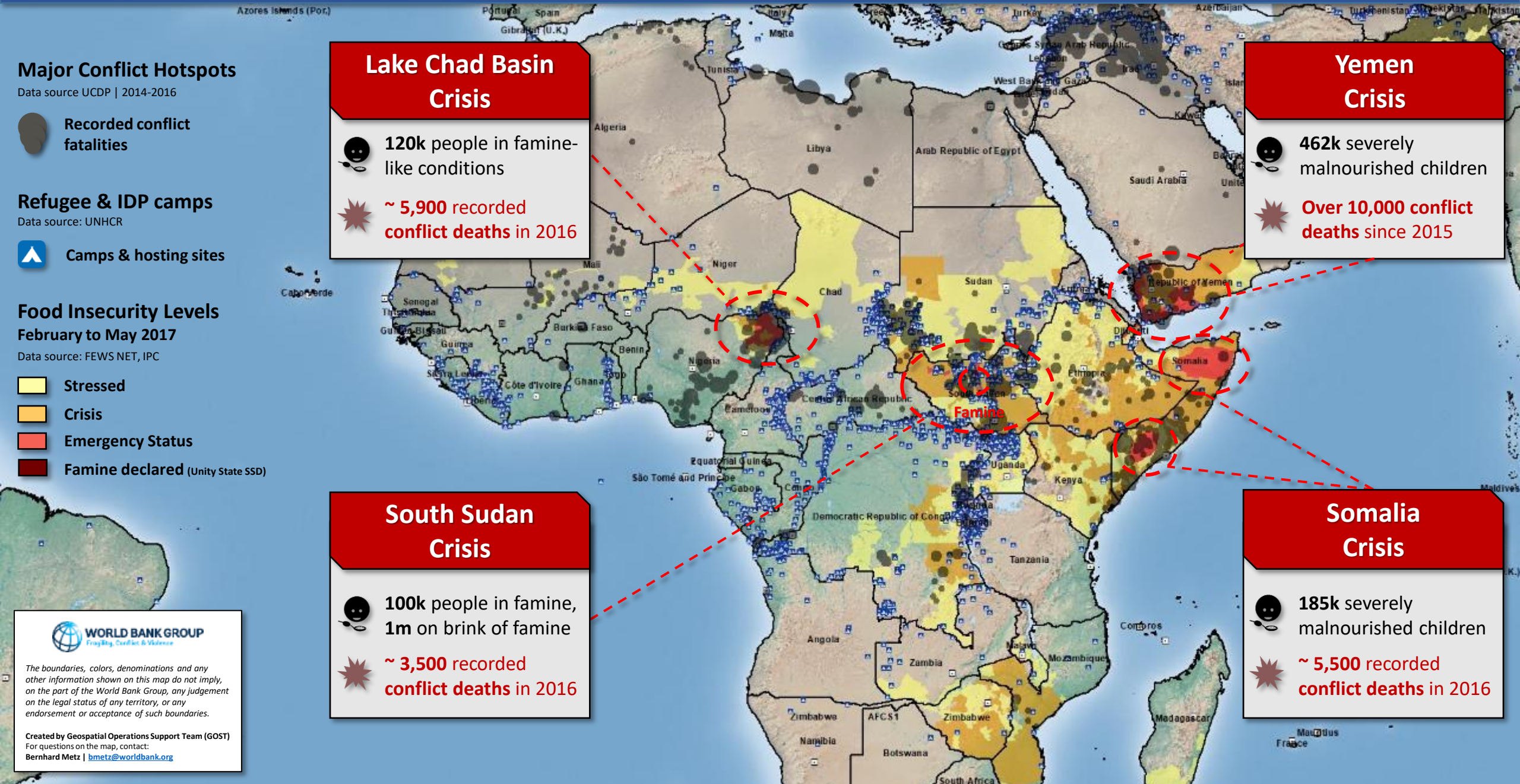
GEMS STC in Ctr. Office

GEMS STC coming soon





Fragility and Conflict: Obstacles to Access, Crisis Response, and Development



Remote Monitoring via GEMS: Getting Eyes on the Ground

Northeast Nigeria:
Joint UN-WB HDP Stabilization Mission

Mafa Water Point **Fully Functional**

City of Mafa | Mafa LGA | Borno State | 3,560 beneficiaries

Site Inspection Protocol

Inspected: Funke Mgwale | June 6, 2017 | 9:20 am

-Sample-

Observations:

- **The water point has been completed and is intact**
- **Utilization by the local community is high**

Example:
Fadama III project,
operating in Borno State,
Northeast Nigeria

Conflict Hotspot

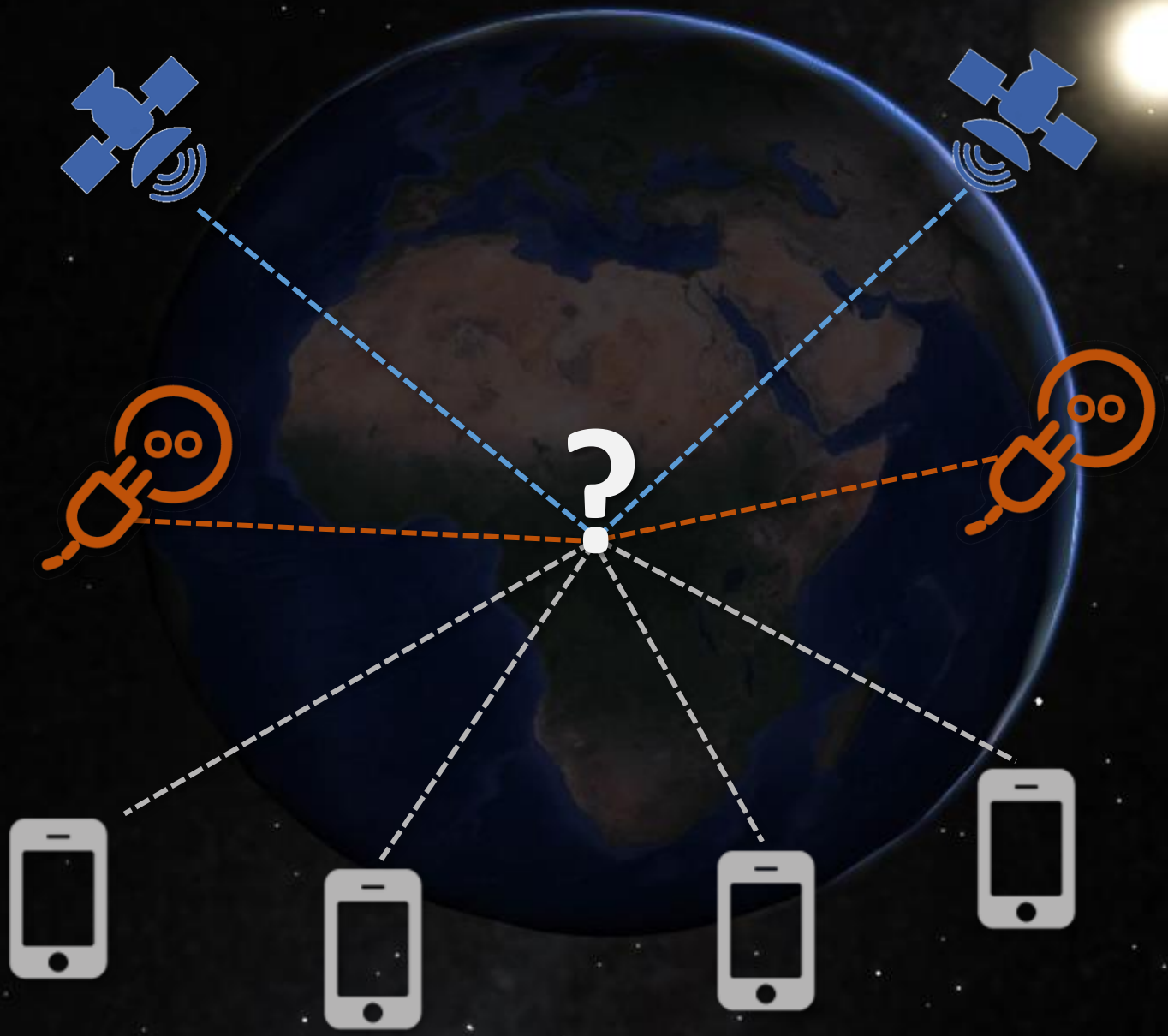
Refugee / IDP camp

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



WORLD BANK GROUP
Geospatial Operational Support Team

esa

fragility, conflict and security
eousd

See here for a summary video on the work with ESA

DATA LAB
THE WORLD BANK

project 360

Disruptive Technology
WORLD BANK GROUP
Disruptive ICTs Knowledge, Information & Data Services

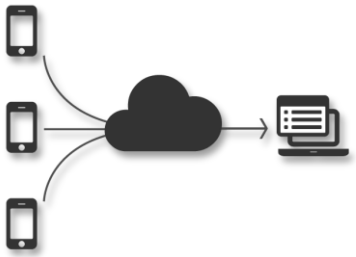
GEMS
Simplicity is Key for ICT in FCV
WORLD BANK GROUP

KoBoToolbox

The ‘Pocket Science’: Definition of the GEMS method

GEMS systematically builds client capacity in the creation of customized digital M&E systems. This is based on the use of **cost-free open source tools** and hand-held devices (smartphones/tablets) to collect granular **geo-tagged data** that **automatically** feeds into **interactive dashboards and web maps.**

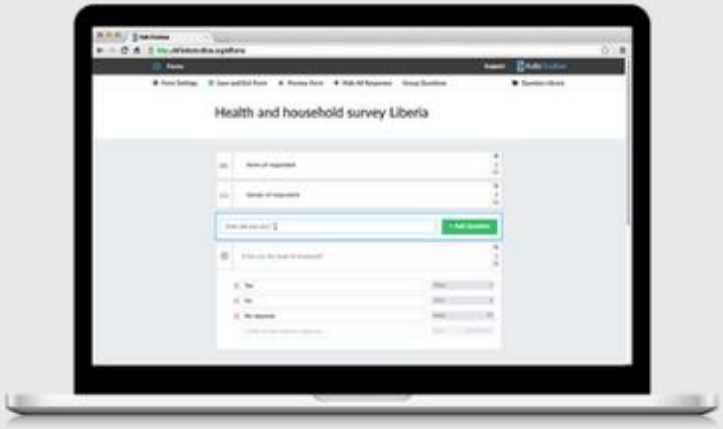
The aim is to contribute to **effective planning**, **real-time M&E**, **remote supervision**, **accountable TPM & geo-mapping** of projects and provide **Data Integrity** along the project cycle.



The used platform KoBoToolbox:

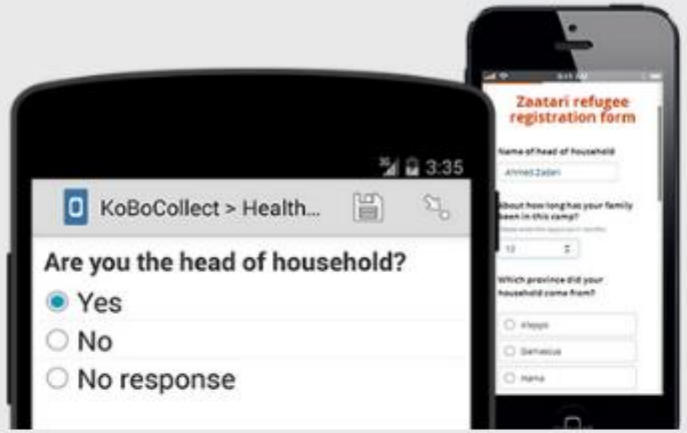
- Combines all relevant data related to operations, components, and field activities.
- Centralizes all collected data in one integrated system, connected to the M&E framework.
- Provides data in various formats incl. tables, text, photos, videos, audio, and maps.
- Allows for systematic recording of project indicators and survey responses to strengthen project planning implementation, risk assessments, and coordination across operations.
- Enables Bank Teams to directly access project data from PIUs in real-time.

For client use and ownership: All-in-one cost-free open-source tool KoBoToolbox



BUILD FORMS AND REUSE EXISTING QUESTIONS

Easily create survey forms through our intuitive and powerful tool. Store recurring questions in your library or share them with colleagues.



COLLECT DATA

Quickly and reliably collect your survey data on Android, iOS, and many other devices, online or offline, in any language and with complex skip logic.

ANALYZE AND MANAGE DATA

Inspect your data moments after it was collected - or download it for advanced analysis in other software in Excel, CSV, KML, and other formats.

https://www.youtube.com/watch?v=4PNtT51h3CQ

OPEN SOURCE DEVELOPMENT SUPPORTED BY

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

WITH ADDITIONAL SUPPORT FROM

CISCO FOUNDATION · HOPE · HUMANITY UNITED · Save the Children · TIDES · UNDP · UNHCR · unicef · OCHA · USAID · THE WORLD BANK

The GEMS method is cheap, easy to implement, scalable & sustainable

- **Simple** and **cost-free** technology at front-end (the “pocket science”)
- **Fully customized** data collection and M&E forms
- **No internet** / network connection **needed**
- **Automatic data synch** across platforms
- **Automatic geo-mapping** of interventions
- **Automatic statistical** and graphical outputs
- **Easy to scale** across portfolio/partners
- **No** ICT **experts needed**

➢ **Building Client Capacity for sustainable use**

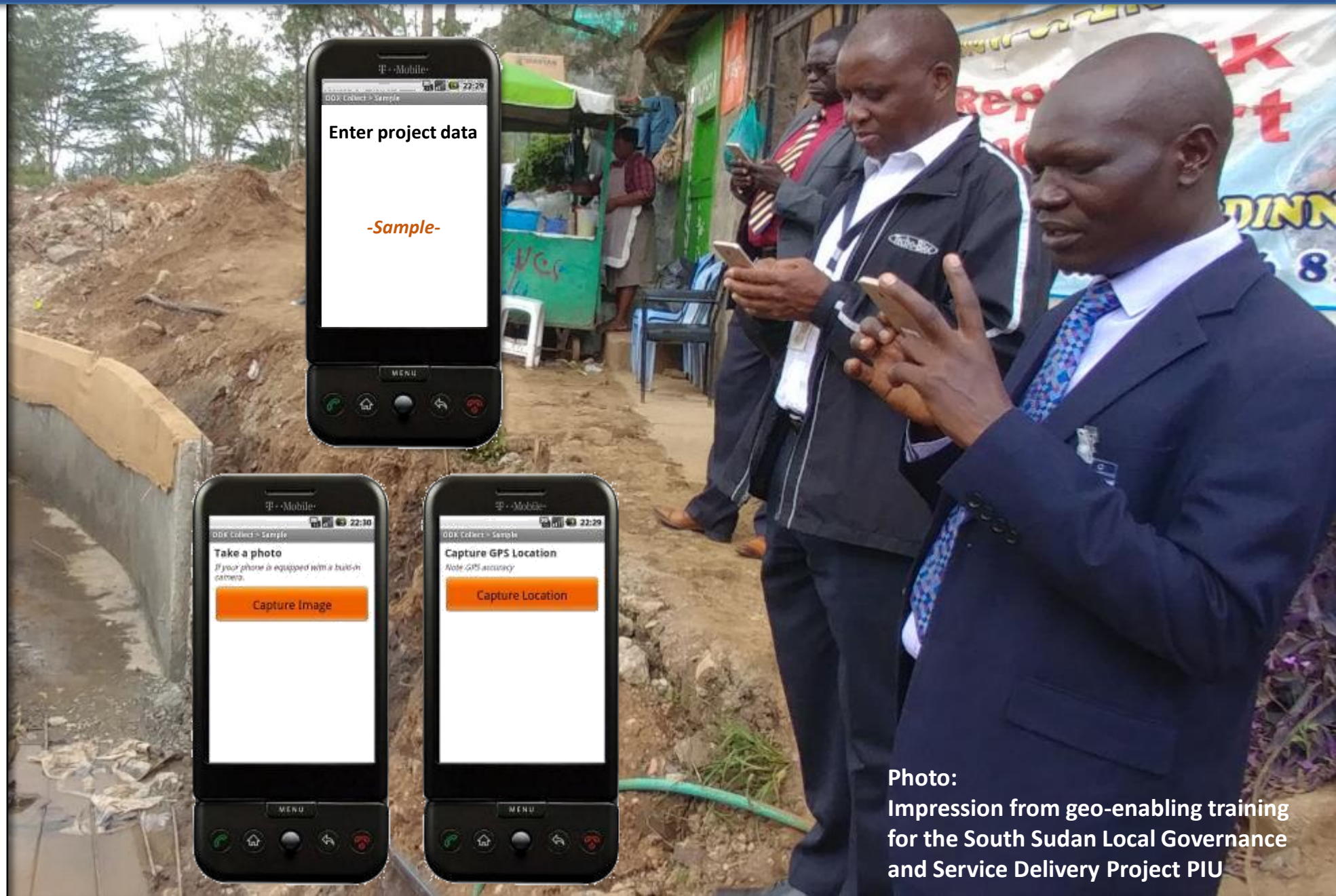


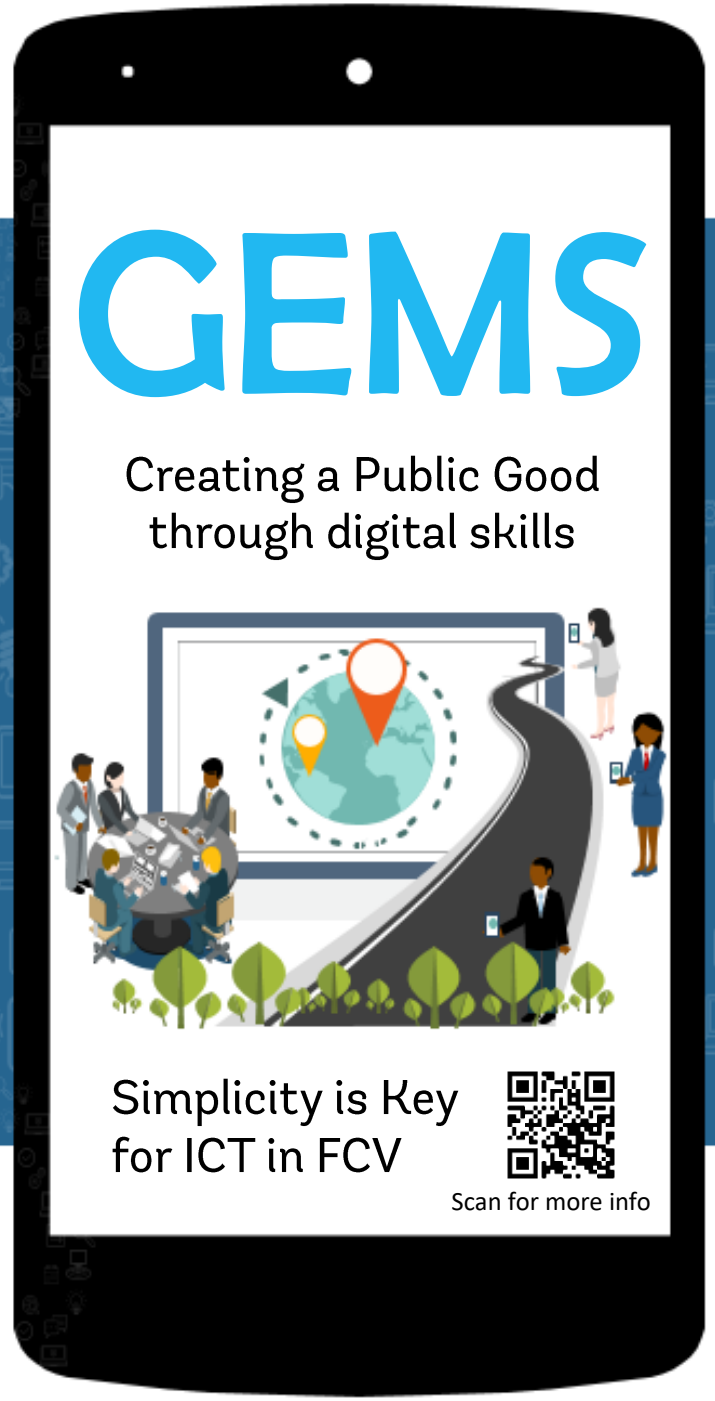
Photo:
Impression from geo-enabling training for the South Sudan Local Governance and Service Delivery Project PIU

Geo-Enabling initiative for Monitoring & Supervision

Want Support for your Projects?

Please access the GEMS website on www.worldbank.org/gems for more information

Contact the GEMS team at: GEMS-team@worldbank.org



KOREA TRUST FUND for Economic and Peace-Building Transitions

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ANNEX

Example Agenda for GP/CMU-specific Remote Trainings amid Travel Restrictions

Day	Time	Topic/Activities	Remarks	Specific Contents
Day 1 *tbd*	10.00am – 11.00am	**Introduction to GEMS for operations & ESF monitoring**	Fundamentals of GEMS for project M&E and real-time risk monitoring	Intro PPT; Enketo mock form; existing KoBo example in data and map view
	11.00am – 12.00pm	**Introduction to digital form creation and data collection**	Account creation & administration; questionnaire creation	Accounts; landing page; form builder; all question types; form deployment
	12.00pm – 2.00pm	***Lunch and work Break***	*"Homework": Quick data collection with mock form*	*Participants fill in new test form from previous session at different locations*
	2.00pm – 3.00pm	**Data analysis and continuation of form creation**	Detailed session on data analysis; nitty-gritty of KoBo forms	Details of question types; skip logic; conditionality; groups; metadata
	3.00pm – 4.00pm	**Data architecture and intro to the mobile app**	Intro to ODK collect and preparation of the 'homework'	Data architecture (roles, sharing); ODK Collect; QR sharing; homework prep.
Between days		***Main Homework***	Participants create their own form, deploy it, collect data, share form	Forms need to have at least 10 questions, of 5 different types, sample data collected
Day 2 *tbd*	10.00am – 11.30am	***Debrief of "Homework":***	Presentation of homework by all or select participants	Explanation of format and contents; discussion of use cases & technical issues
	11.30am – 12.00pm	**Project-specific use cases**	Discussion of sector/project-specific use cases	Best-practice sharing on forms, questions, data architectures, deployment
	12.00pm – 2.00pm	***Lunch and work Break***	*No "homework" this time*	
	2.00pm – 3.00pm	**Continuation with digital questionnaire creation**	Advanced functions in questionnaire creation and analysis (1)	Google Earth Pro; Cascades; Hyperlink creation specific functions of interest
	3.30pm – 4.00pm	**Next steps Q&A and Any open issues**	Questions on technical issues, protocols, and next steps	Summary of main concepts for deployment; whatever remains to be discussed
Day 3	Tbd	**Office Hours**	Teams can address individual issues	Technical issues and implementation plan

Possible Uses of GEMS for Clients, Task Teams, CMUs and Partners

Project Teams & Clients

- Project Planning & Baseline Data Collection
- Project Progress Monitoring & Remote Supervision
- Stakeholder Surveys & Iterative Beneficiary Monitoring
- Real-time Tracking of Service Delivery
- Project Impact Evaluation
- Tracking of Project Outputs and Outcomes
- Citizen Engagement & Grievance Mechanisms

WB Country Teams / Partners

- Spatial Planning & Portfolio Programming
- Portfolio Mapping & Coordination with Partners
- Environmental and Social Safeguards / ESF Monitoring
- Real-time Tracking of Missions and Security Issues
- Portfolio-wide Results Monitoring
- Verifying TPM Activities "Monitor-the-Monitors"
- Communications & Outreach

Operational Cycle

Icons provided by Freepik from www.flaticon.com

Examples of GEMS Use in the Field

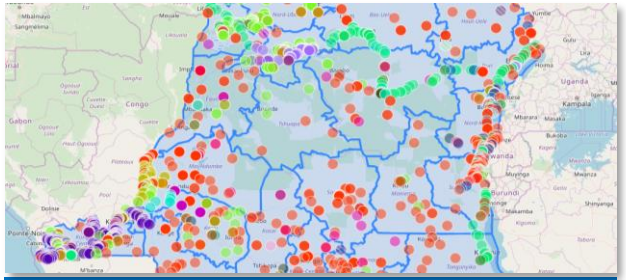
>650 supported projects in 85+ countries

See detailed examples by sector: here

Or scan QR code

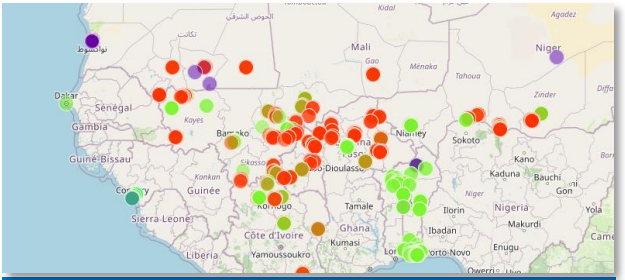
Project Planning and Preparation

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

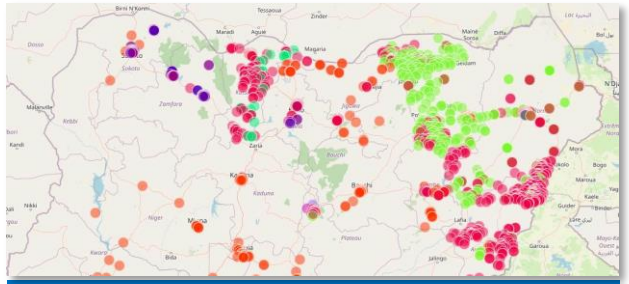
CAR, DRC, Haiti, Bangladesh, etc.

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.

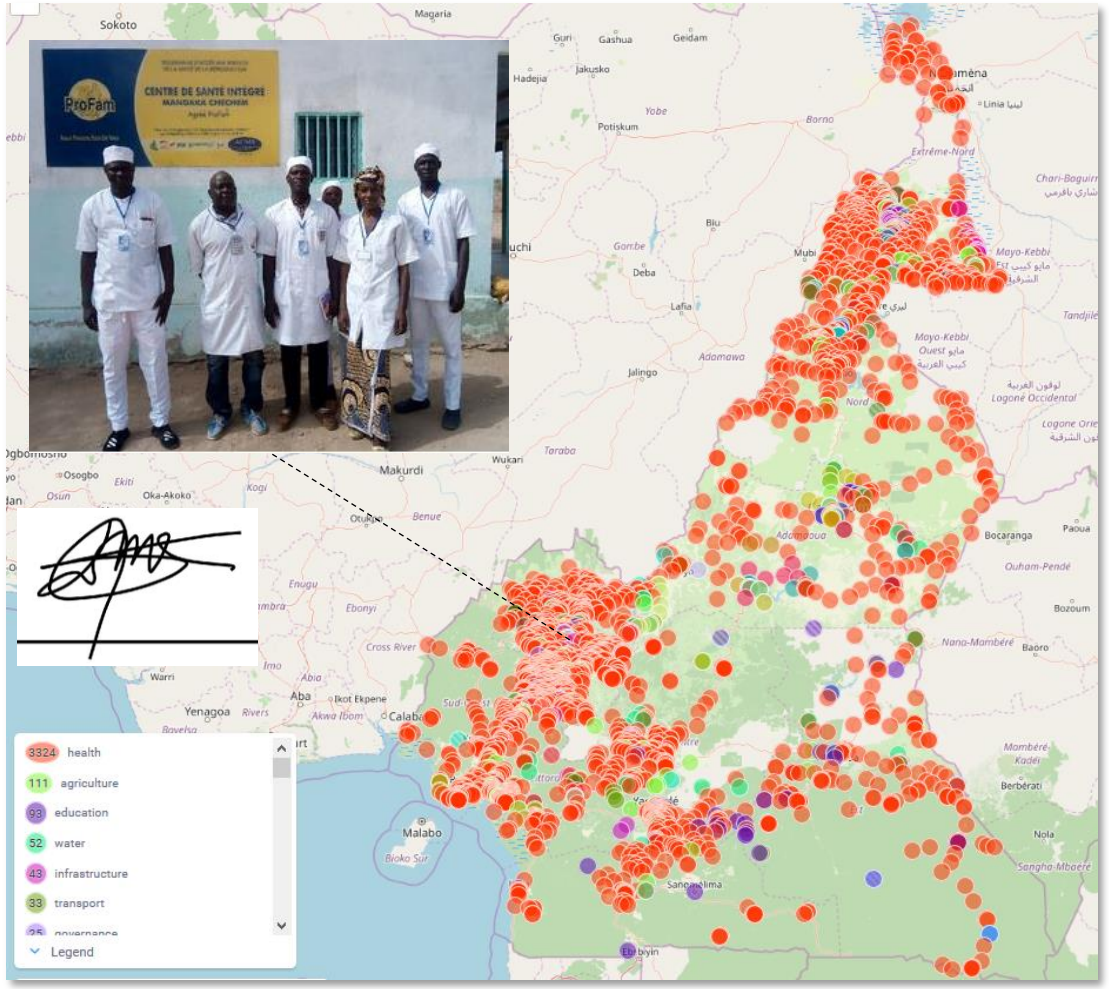
Tailored Client Use beyond WBG Ops

Various Adoptions around the World

Examples for Leveraging GEMS as Part of the COVID-19 Response

- **<u>No use</u> of GEMS for monitoring of the disease itself or any surveillance of individuals**
- **Operational planning, M&E and remote supervision amidst travel and access restrictions:**

  - Digital monitoring platforms across components, projects, programs and sectors.
  - Structured geo-mapping and recording of baseline data on service infrastructure (e.g. health clinics)
  - Remote supervision of a variety of activities (e.g. infrastructure construction, health trainings).
  - Real-time tracking of equipment stocks/delivery (e.g. through barcode recording).
  - Monitoring of social protection activities (e.g. LIPW/THIMO, psychosocial support).
  - Beneficiary or multi-stakeholder engagement (e.g. perception/feedback surveys).
  - Real-time monitoring of compliance with environmental and social safeguards/ESF.

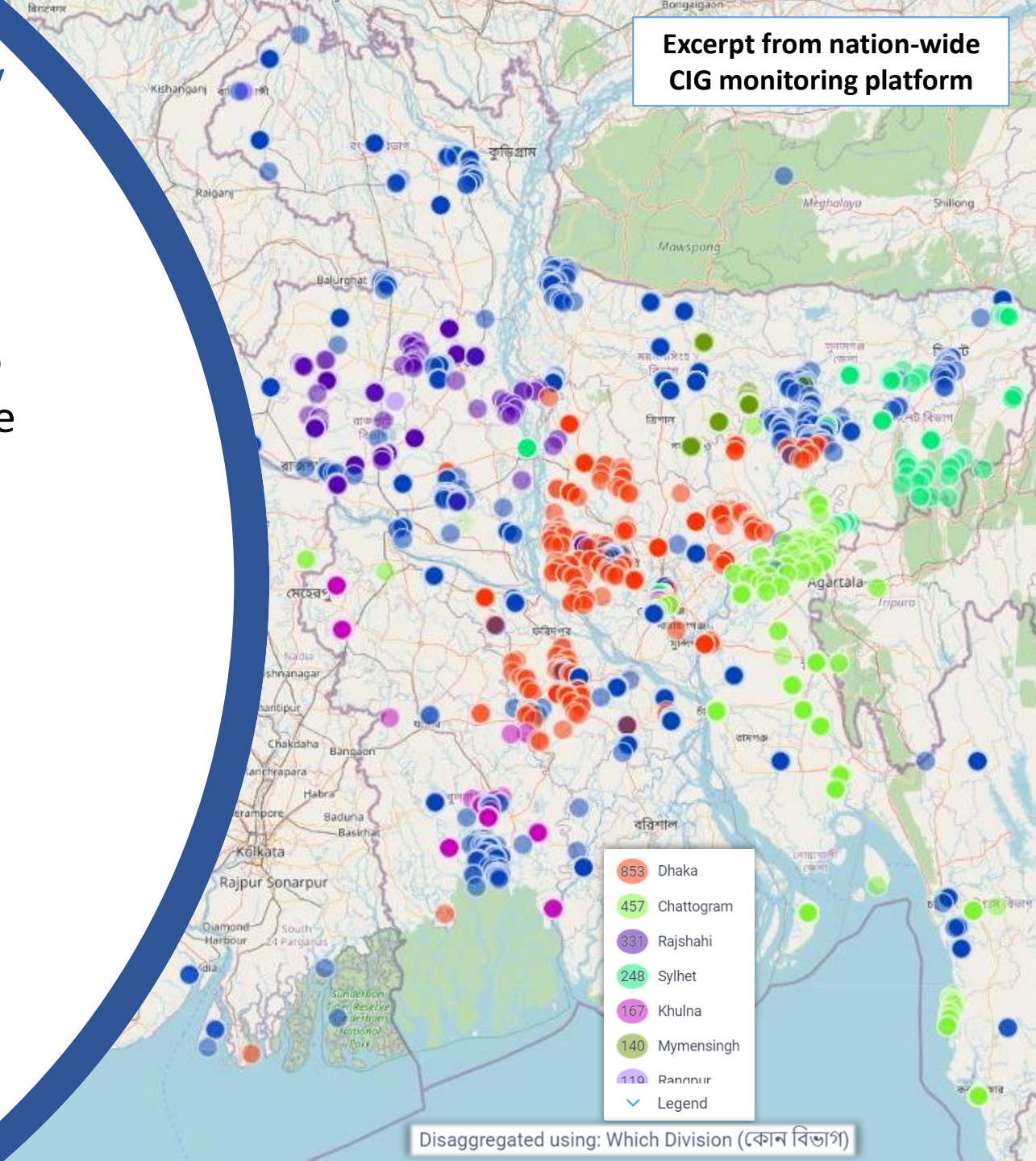


In Bangladesh, the National Agricultural Technology Program Phase II (NATP-2) aims to increase farm yields, diversify production, and improve market linkages for smallholder farmers.

- Adopting the GEMS tools has enabled the PIU to collect and analyze data concurrently and digitize their previously manual data collection process. All project reports now flow into just 8 forms.

- By embracing the ‘Train-the-trainers’ approach, the team scaled the GEMS use across 270 sub-districts to monitor 40,000 Common Interest Groups (CIGs) nation-wide.

- With ~1M beneficiaries in mind, the collected data serve to assess indicators for decision making, M&E, portfolio mapping, and risk management.



The Philippines Rural Development Project (PRDP) aims to support smallholder farmers and fisherfolk throughout the country to increase rural incomes and enhance farm and fishery productivity.

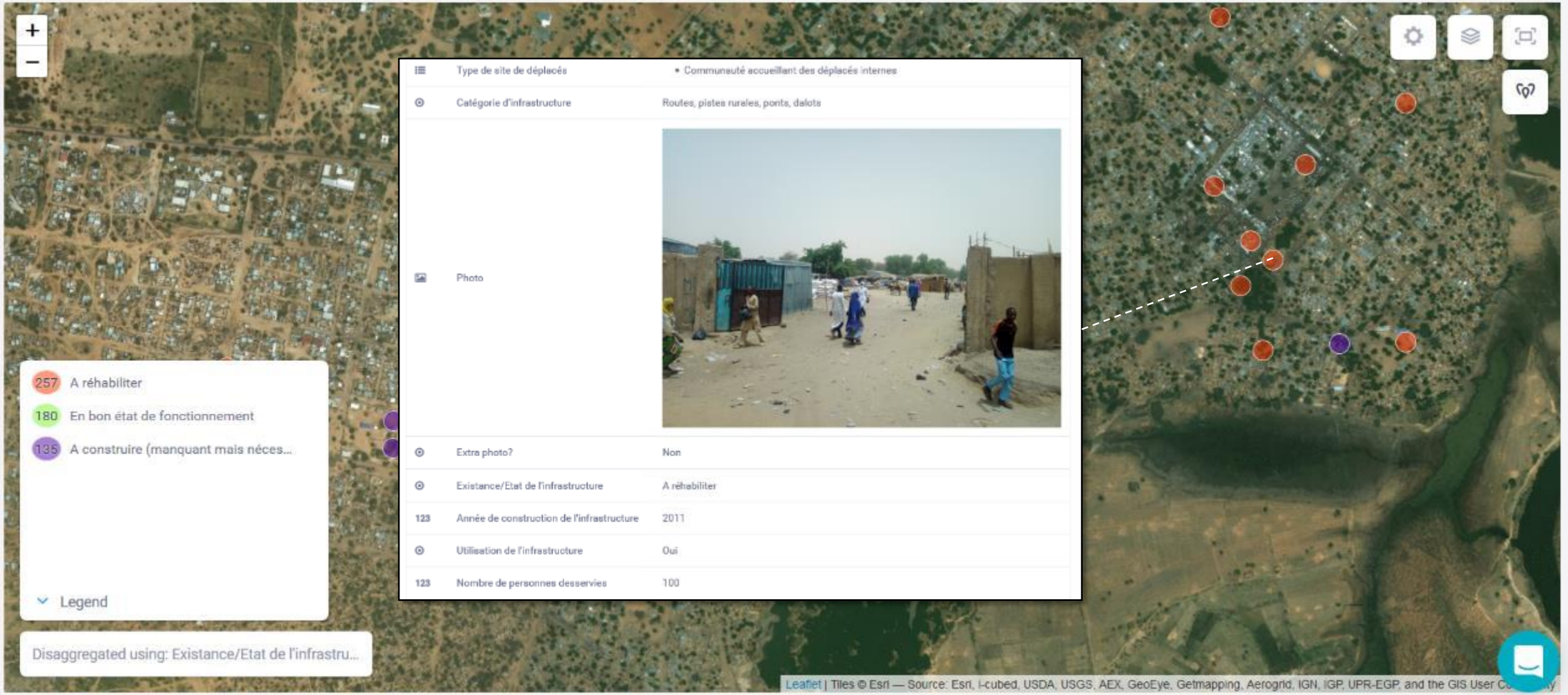
- Adopting GEMS allowed the project team to migrate their traditional pen-and-paper data collection process into a simplified mobile app.

- So far, the PRDP team have piloted GEMS to monitor completed infrastructure and enterprise subprojects and to assess farming clusters for consolidation.

- Within 3 months the PIU trained over 600 participants through multiplier capacity-building sessions, with more scheduled to roll out the GEMS tools across key offices.

Please see PRDP Newsletter and Video: GEMS use on PRDP monitoring

Example Niger: Online Dashboard for Project Planning and Real-Time Analysis

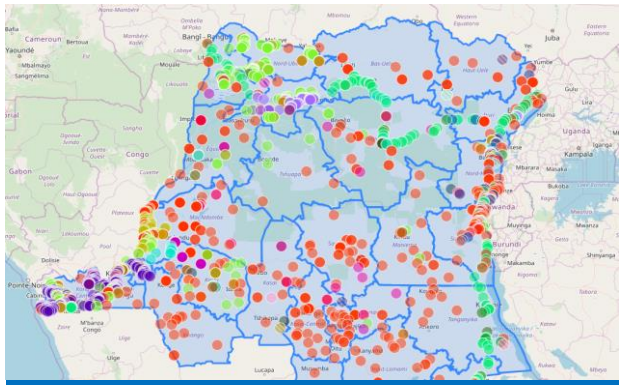


Examples of GEMS Use in the Field

Among >650 supported projects in 85+ countries

Remote Supervision in Conflict Contexts

In Afghanistan, GEMS helped track the distribution of seeds to over 280,000 farmers across the country, as part of a COVID emergency project



Infrastructure Mapping & Coordination

In the DRC, detailed data on 25,000+ schools was collected via GEMS in 3 months, changing the perspective of the Ministry of Education

Project Planning and Preparation

In Niger, GEMS helps plan and supervise infrastructure investments for refugees, internally displaced people and host communities

Communications and Citizen Engagement

In Azerbaijan, GEMS supported a country-wide Community-Driven Development project to establish a digital Citizen Engagement platform

Real-time Tracking of Service Delivery

In Haiti, GEMS helps closely monitor the provision of livelihood support to 40,000 vulnerable people during the COVID-19 pandemic

Project Progress Monitoring

In Uganda, a multisectoral nutrition project uses GEMS to track vital school feeding and deworming activities to prevent stunting

Real-Time Risk Management

In Myanmar, GEMS helps manage environmental and social risks and safeguards during implementation of a nation-wide electrification project

Potential Risks and Risk Mitigation (1): Privacy and Data Protection

1. **Data Protection:** Potential risks related to data protection are inherent to digital data collection and storage. This can be of particular concern in FCV contexts when the collected data might contain information related to for instance conflict activities, sensitive survey responses, or personal information (PII) of victims or displaced people.

   - The data platform is provided by the Harvard Humanitarian Initiative. The tool and servers comply with the latest industry standards in terms of data protection, incl. the EU's General Data Protection Regulation (GDPR).
   - Users retain full ownership of all submitted data, which is hosted on password-protected, encrypted accounts. The data is neither accessed by the platform provider, nor shared with any third parties.
   - For additional data protection, the GEMS team also has an agreement with UNHCR to use their server, which enjoys diplomatic immunity, for PII or any data related to displacement.

2. **Privacy:** In addition to data protection in the technical sense, data privacy protocols are a main focus of GEMS.

   - During the GEMS capacity-building workshops, the clients are also trained in best practices regarding data collection and privacy. This includes, among others, guidance in the following points:
     - The teams must adhere to the specific legal requirements of the respective country.
     - GPS coordinates must not be collected for displaced populations of less than 250 (UNHCR guidelines).
     - GPS coordinates of individual households are only collected in exceptionally and must never be shared publicly.
     - Before taking photos of people, enumerators must obtain their consent and have them sign a digital form.

   - **GEMS team provides very detailed guidance material on privacy and data protection (can be shared)**
   - **Client show generally positive uptake of best-practices for privacy and data protection during trainings**

Potential Risks and Risk Mitigation (2): Sustainable use of GEMS

3. **Limited Technological Capacity in FCV Contexts:** FCS, often have low capacity in terms of digital infrastructure as well as ICT skills among government employees. Therefore, tools and methods that depend on sophisticated technology and steady network connectivity face limitations on the ground. In brief, simplicity is key for ICT in FCV!

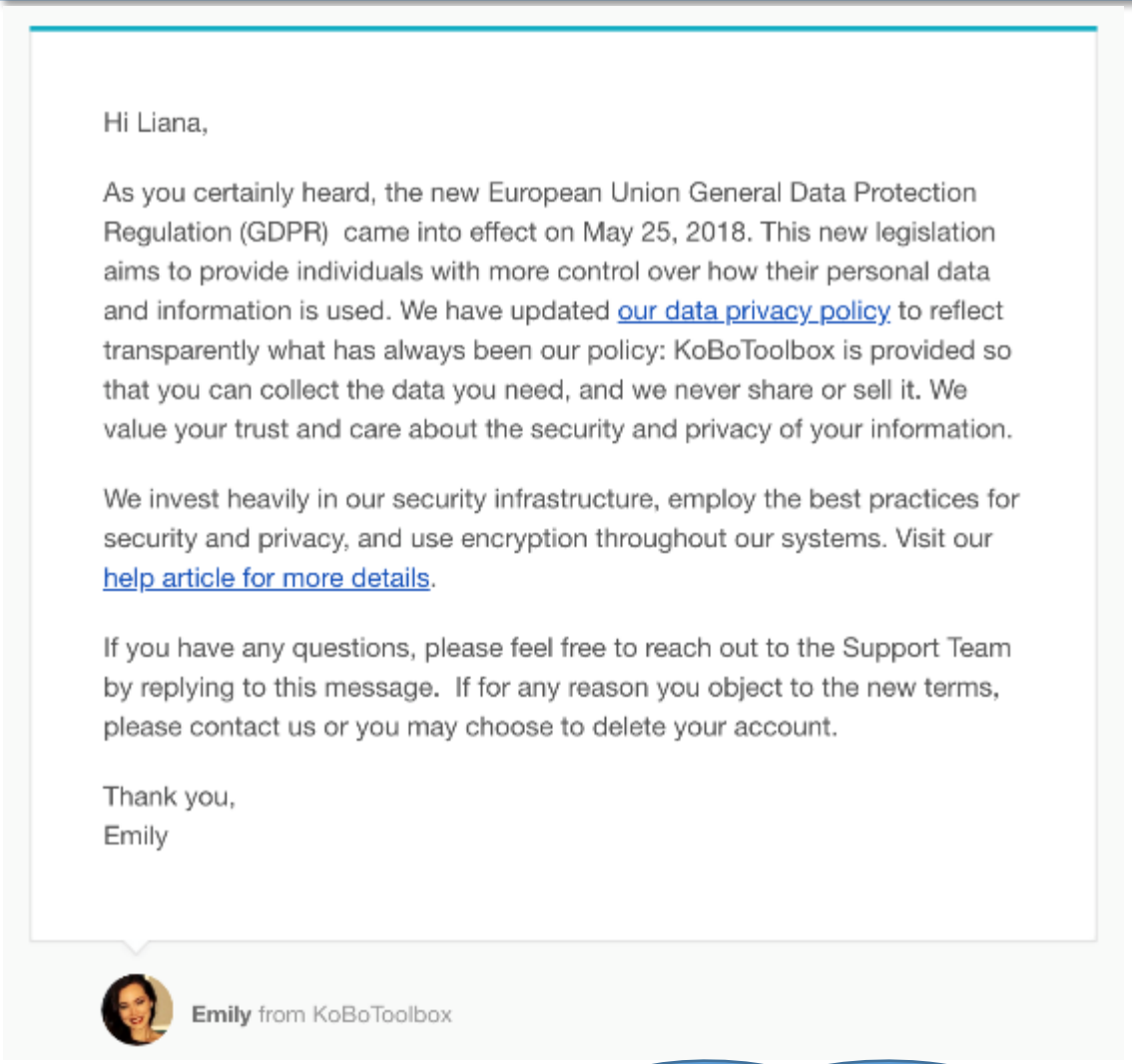
   - This is addressed by the design of the GEMS method and the used ICT tools. A central element of the method is to use 'simple-enough,' low-cost tools and procedures that are appropriate for low capacity environments.
   - Technically, the GEMS method is based on the use of cost-free software and common smartphones that allow for offline field data collection (i.e., no internet or network connectivity are required in the field).

4. **Sustainable Use and Scaling:** A potential risk is that the tools and methods are not used efficiently and sustainably for the benefit of projects. This could be due to weak capacity, budget limitations, or a lack of incentives.

   - The system provides incentives for sustainable use. The main aim of the GEMS methodology lies on building lasting capacity among the clients themselves to use the tools based on their specific needs.
   - Project Task Teams and Country Teams on WBG-side are explicitly involved in the system setup and training.
   - Dedicated GEMS focal points are designated within the projects and Country Teams to oversee the systematic and sustainable implementation of the method.
   - Regular follow up by GP and CMU staff with the project team creates incentives to properly run the system.

   - **GEMS is simple, low-cost & easy to scale, with no/limited need for procurement (solely smartphones, if needed).**
   - **However, local ownership by GPs/TTLs or CMUs and close coordination with clients is key!**

Protection of Privacy and collected Data in KoBoToolbox



Hi Liana,

As you certainly heard, the new European Union General Data Protection Regulation (GDPR) came into effect on May 25, 2018. This new legislation aims to provide individuals with more control over how their personal data and information is used. We have updated our data privacy policy to reflect transparently what has always been our policy: KoBoToolbox is provided so that you can collect the data you need, and we never share or sell it. We value your trust and care about the security and privacy of your information.

We invest heavily in our security infrastructure, employ the best practices for security and privacy, and use encryption throughout our systems. Visit our help article for more details.

If you have any questions, please feel free to reach out to the Support Team by replying to this message. If for any reason you object to the new terms, please contact us or you may choose to delete your account.

Thank you,
Emily

Emily from KoBoToolbox

You can also connect your own server to KoBoToolbox!

Server:

- KoBo offers free access to a server (Amazon Web Services) with unlimited space for every account (up to 10,000 submissions per month by default, more upon request – but **always cost free**).
- The server hosts the created questionnaires and collected data.
- KoBo does not access or forward any data or questionnaires.

Data protection:

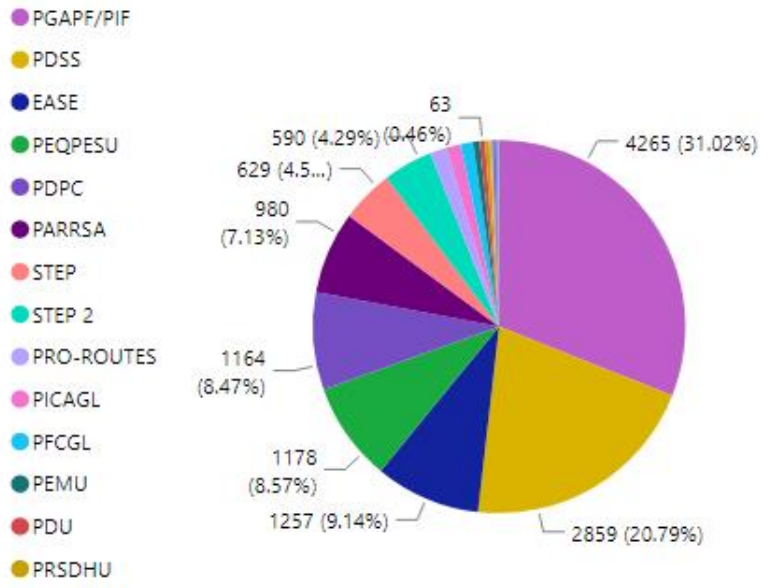
- KoBo makes frequent backups of its entire database to safeguard against data losses.
- Accounts are protected by usernames and passwords and underlying data is encrypted according to the latest standards.

Rights and data ownership:

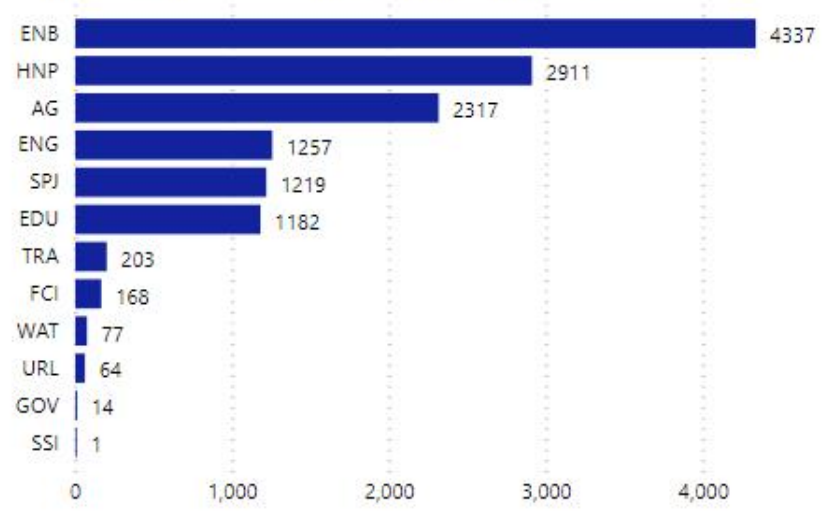
- The account users are the sole owners of any data and questionnaires hosted on KoBo.
- The account users are responsible for the collection and administration of personal data according to national or international data protection legislation (see the EU's General Data Protection Regulation – GDPR).
- Exclusively information (questionnaires and collected data) that has explicitly been made accessible for the public are available for internet users without the respective passwords. Data made public data may e.g. be included in Google searches, but access can be restricted any time.

Real-Time Supervision: Leveraging GEMS for interactive Portfolio Dashboards

Number of geolocated implementation sites by Project



Number of geolocated implementation sites by GP



GEMS PORTFOLIO MAPPING IN THE DRC

MONTHLY DASHBOARD: August 2021

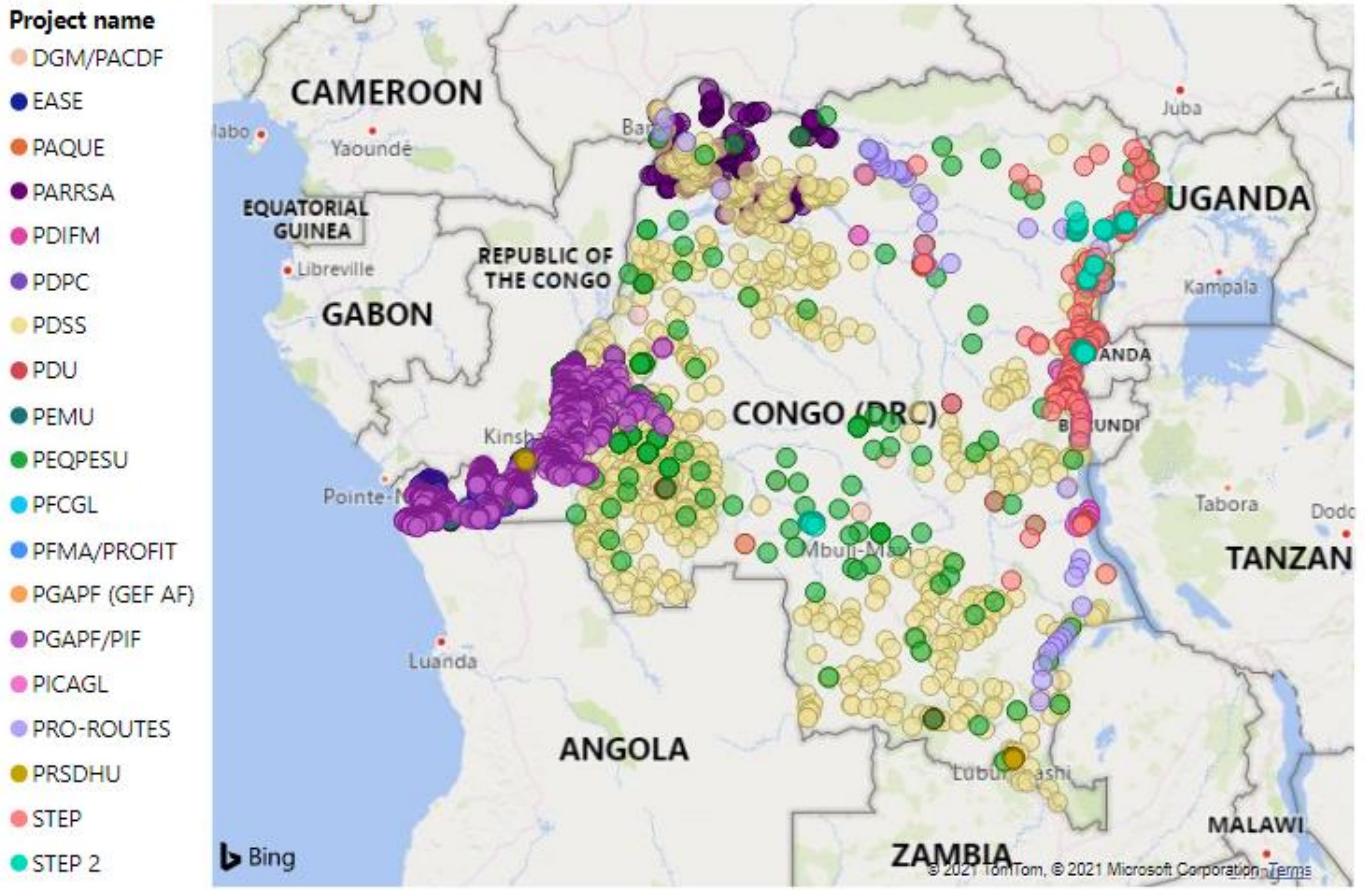
Project sites mapped as of today

13750

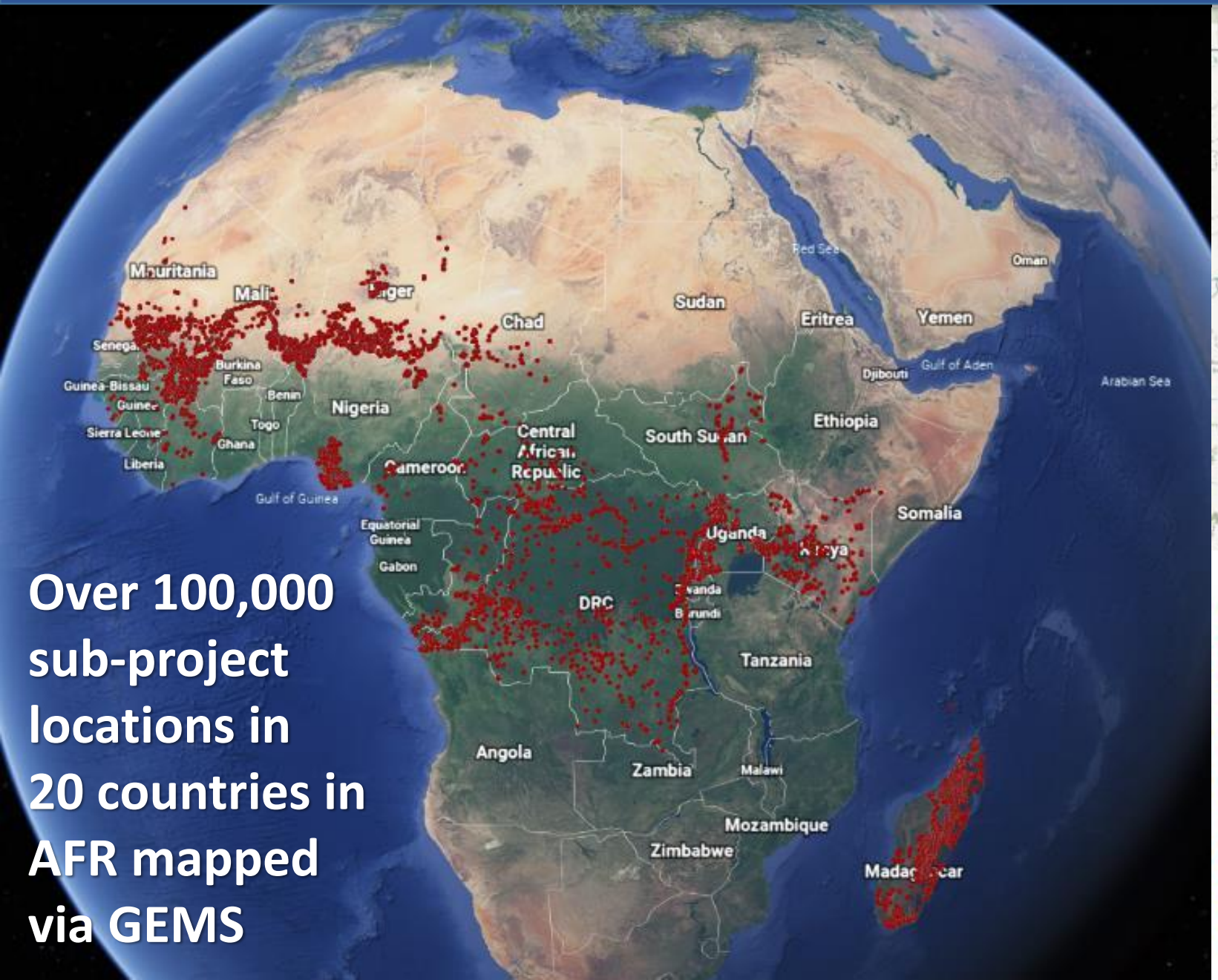
Last recorded Data Collection on

August 3, 2021

Location of Implementation Sites By Project

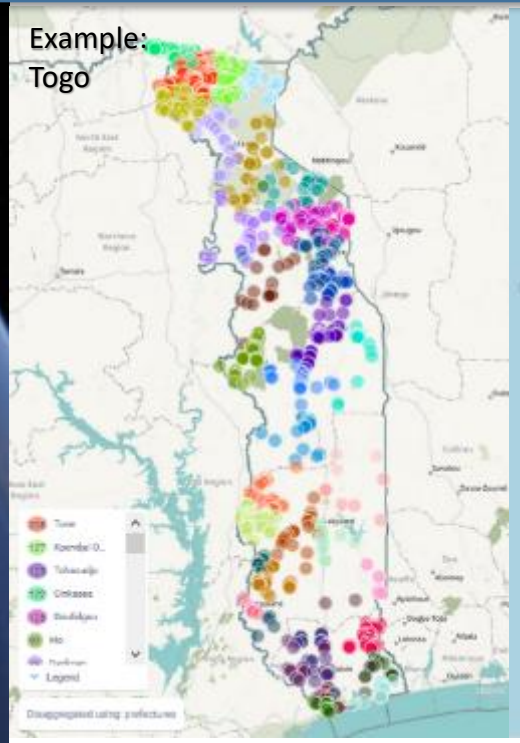


Systematic Mapping & Creation of Databases on Sub-Projects at Activity Level

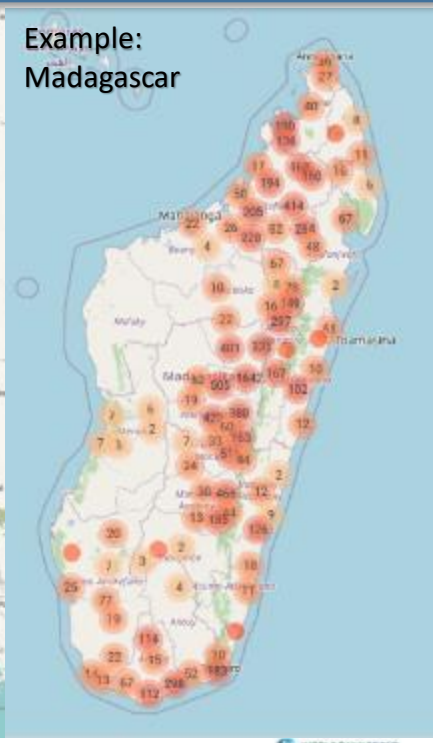


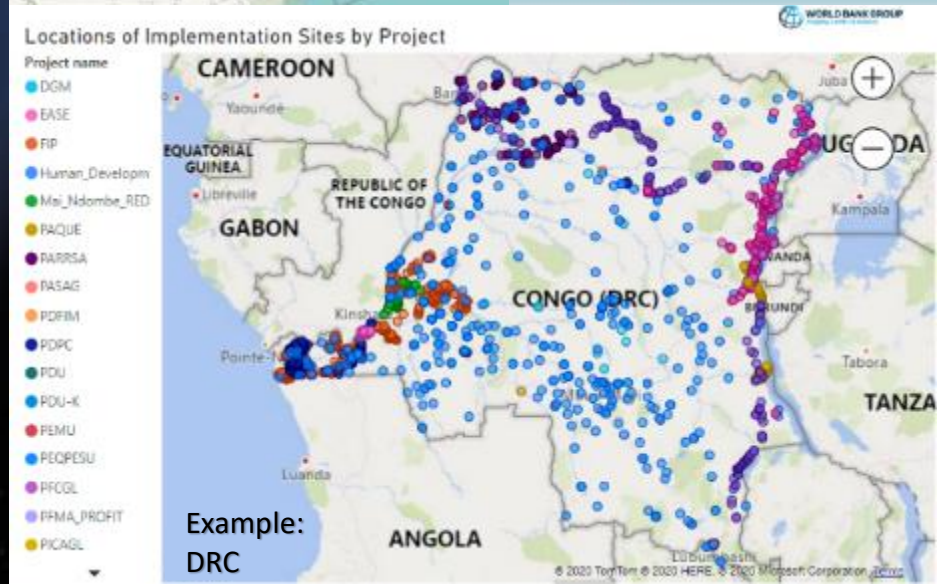
Over 100,000 sub-project locations in 20 countries in AFR mapped via GEMS

Example: Togo



Example: Madagascar





Leveraging GEMS for Gender and Youth Inclusion

Empowering Women & Youth with digital Skills

- More than half of GEMS team members and two thirds of in-country focal points are women.
- GEMS trainings encourage the participation of women and the proportion of female participants is continuously tracked.
- The technology and M&E skills taught by GEMS provide women and youth with new opportunities.

Closing crucial Data Gaps on Gender and Youth

- GEMS trainings build capacity in M&E on gender and demographic issues and raise client awareness on the importance of collecting disaggregated data
- The contents of GEMS surveys often focus on issues that are crucial for women's and youth inclusion, such as livelihoods, jobs, maternal and children health, nutrition, agriculture, and water.

Impressions from GEMS trainings in Nigeria and Uganda

The growing Community behind KoBo Toolbox

Creating a Public Good: Inclusion of Partners for more effective Collaboration

Principles *for* Digital Development

Use Open Standards, Open Data, Open Source, and Open Innovation

Be Collaborative

Design for Scale

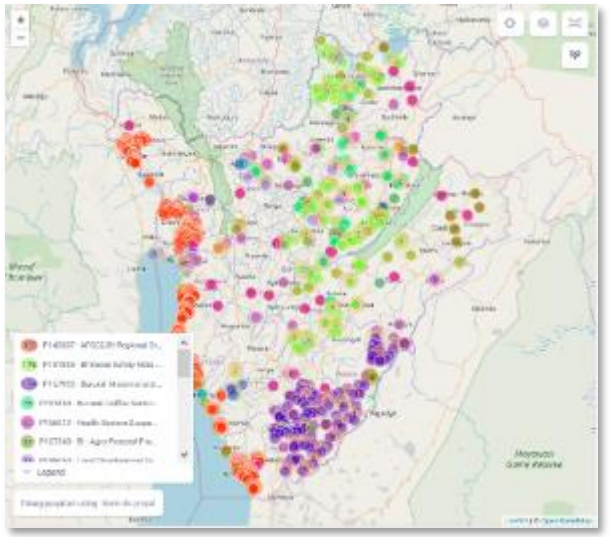
Build for Sustainability

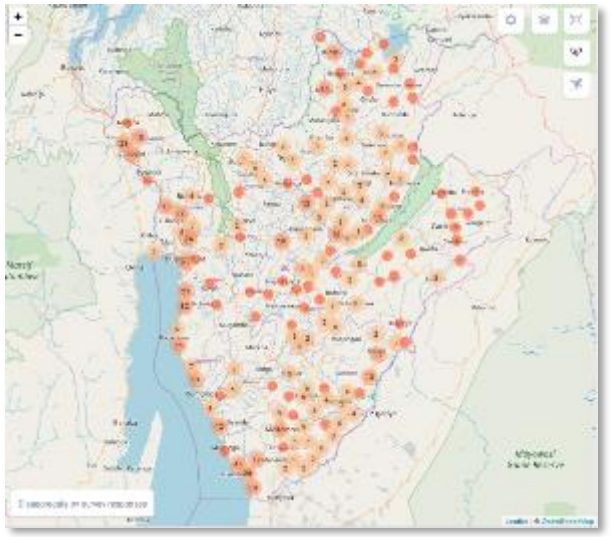
All partners are invited to join!

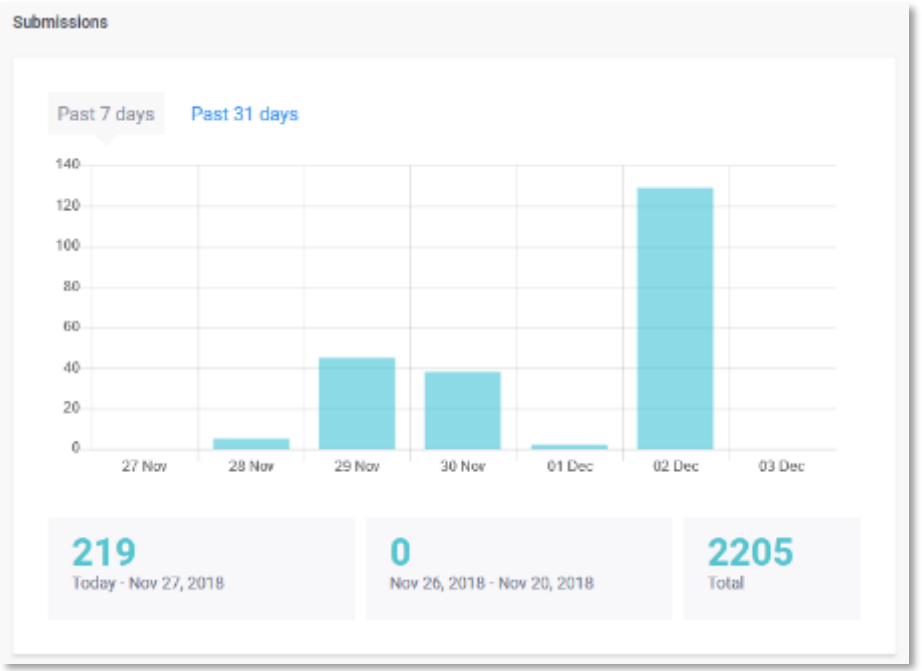
https://digitalprinciples.org/principles/

Examples: Country-Wide and Project-specific supervision platforms

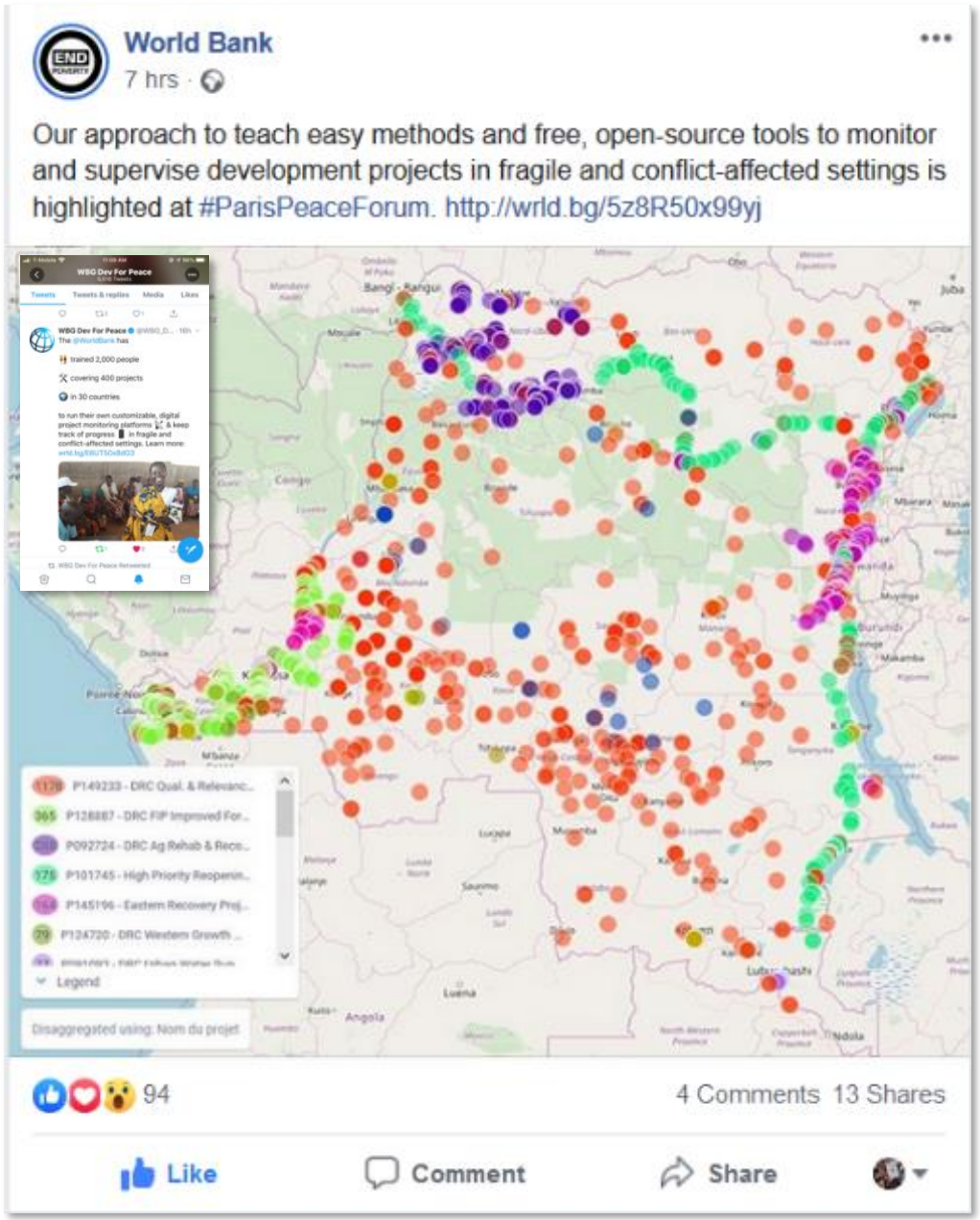
- **Throughout Africa:** Portfolio-Mapping and Monitoring Platforms
- **Sahel:** Cross-Agency Coordination and Portfolio Mapping Tool
- **Niger:** Project Planning, Monitoring and Evaluation Tool
- **Azerbaijan:** Project M&E and Citizen Engagement Tool
- **Uganda:** Real-Time M&E System to track diverse project components
- **DRC:** Structured mapping of all schools in the country (> 50,000)

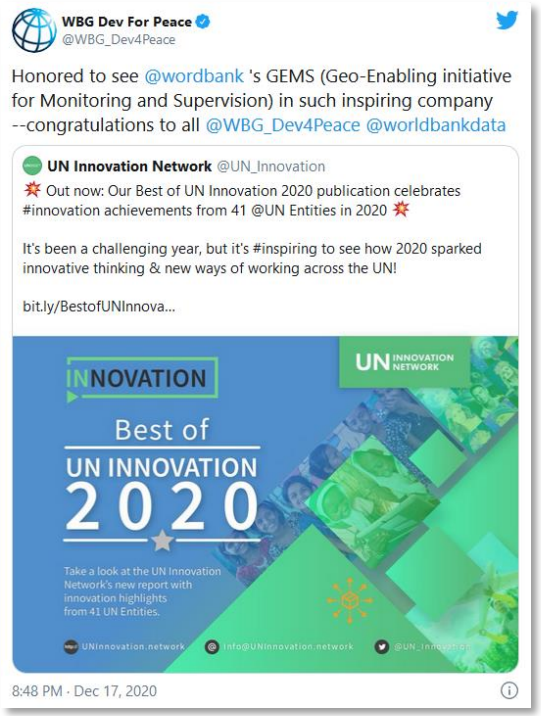
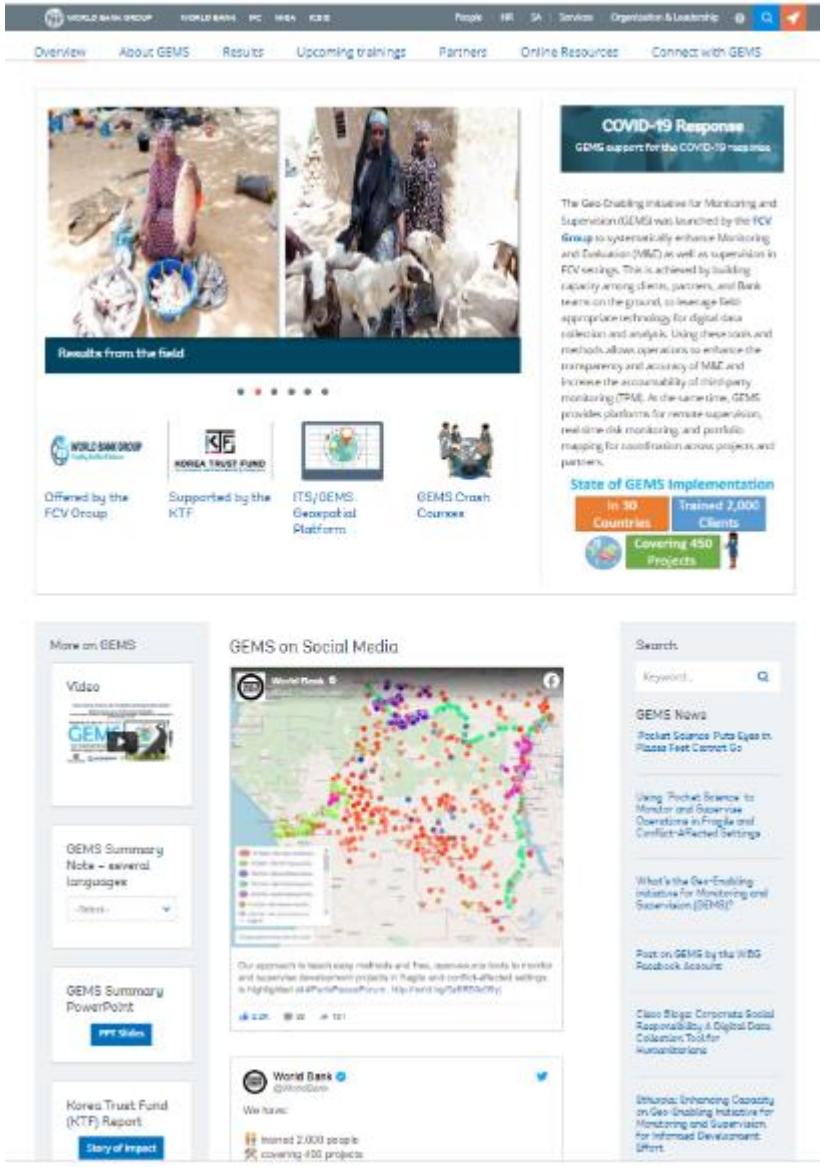
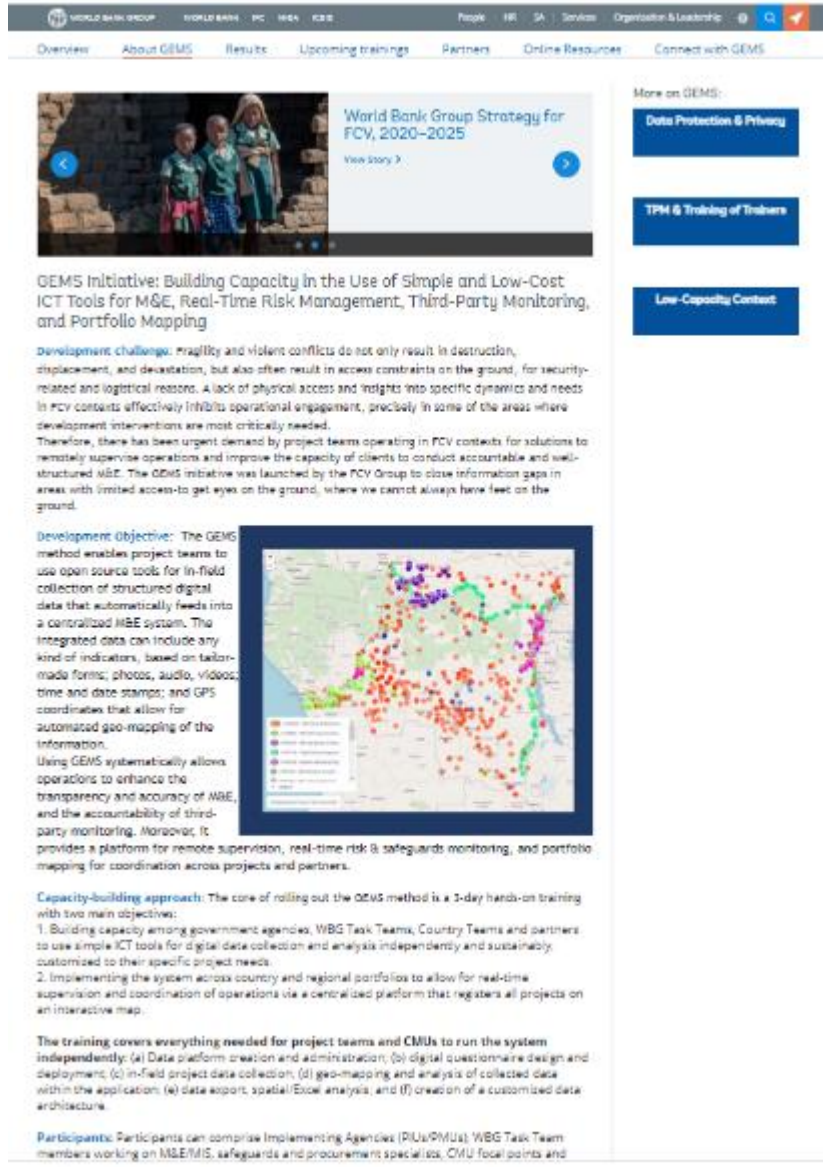






(Social) Media coverage: GEMS' impacts highlighted by the WBG and partners





Check our website (gems/) for general information, documents, follow-up