Considerations for USAID Mission Staff for Programmatic COVID-19 Preparedness and Response: Digital Technologies and Data Systems

Information is critical to fight the spread of COVID-19. Responders and decision makers need detailed and timely data about the disease's spread. Health workers and communities need access to truthful information to protect themselves and their loved ones. However, responding to a public health emergency requires a multitude of actors from not only health and development institutions but also emergency response and humanitarian organizations, and can attract an influx of funding and new partners both at the local and international level. Each of these actors bring their own ways of collecting, sharing, and using data, and many of them bring new technology. Not all are familiar with each other. Nearly all require mobile or internet connectivity.

This was apparent during the 2014 Ebola outbreak in West Africa - the underlying technical, institutional, and human systems and processes required to gather, analyze, and use data were not robust enough to support a timely response. There was an unclear and asynchronous picture of the disease's spread - a "fog of information" impeded the response. Uncoordinated investments led to more than 50 digital data systems being used to support the affected countries.

We have learned a lot since then: Ensuring that country governments are in the driver's seat from the beginning, advancing a locally led and whole-of-government approach, and coordinating all related initiatives; establishing data protocols, reusing existing digital tools, and working with the private sector are essential. We must look for ways that technology can amplify local efforts, not usurp them.

Below are some steps that you can take today and this week to increase institutional readiness to prevent, detect, and respond to COVID-19, and its effects. Given the importance of information to the response, recommendations focus on data and digital technologies. Most items do not require contract modifications, and rather can prepare Missions and their partners to develop a plan to respond that's grounded in the local context.

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What can be done today?
Now is the time to get a handle on what exists: what resources do you have in the Mission? Across partners? What local assets and systems already exist that host country institutions can access and trust?

Work with Mission colleagues to:
- **Create a master list of existing Mission programs that can be useful to a response**. Schedule a conversation with COPs and key government stakeholders to brainstorm and refine the list. Exs:
  - DRG media programs that can support host nations to coordinate messaging and pivot to serve key public information functions and e-gov programs that can assist across sectors.
  - Health programs that can support host country information systems, health worker education, identify health data needs, identify interoperability needs, and provide TA.
  - Education programs that can support gov't to design a plan for disruption in education and catalogue remote education options for different beneficiary groups.
  - Sectoral programs that can produce quick "what you need to know" documents about the local context that can be used to inform cross-sectoral response.
- **Schedule a call** with IPs across sectors to discuss programmatic work related to data and technology and opportunities to collaborate. Example. **Add to public lists of global digital platforms and tools**.
- **Identify a Mission POC(s) to serve as a 'clearinghouse' for digital proposals.** Next week, establish screening criteria based on problems articulated by local stakeholders.
- **Review:**
  - **COVID-19 GIS resources** maintained through USAID/GeoCenter.
  - Global Digital Health Network **resources and listserv**.
  - USAID data sharing policies (example) and consult with RLOs.

Mobilize existing Mission programming to work with local counterparts to:
- **Conduct rapid inventories of:**
  - **Ministries'** (not just health) **digital platforms/systems/assets** (ex. geospatial, asset management, logistics, health (DHIS2), financial, mobile money). Include POCs for each. Solicit input from gov't to identify which will be essential to response and gov't services. Example, example.
  - **Cross-border data systems** and data sharing agreements.
  - **Privacy, interoperability, and tech deployment protocols and laws and key gov't POCs**.
  - **Private sector digital assets** (ex. call centers, software firms with capacity to update gov't IT systems, data collection and analysis firms, etc).
- **Begin/update lists of:**
  - **Popular media and communication channels** (ex. radio, text messages, messaging apps) to communicate vital information to the public, vulnerable populations, and health workers.
  - **Local influencers** such as trusted community leaders, interlocutors, and social influencers to share that information. Trust may be horizontal (ex. peer-to-peer and employers) more than vertical (ex. gov't). Incorporate info from counterparts (ex. Embassy Public Affairs) on bloggers and social influencers who can spread PSAs outside of traditional media.

- - **Groups that have or can create PSA content** to be shared through digital and non-digital channels.

What can be done this week?
Now is the time to reach out to government counterparts, private sector, and other donors to contribute to a coordinated response. Understand opportunities and risks, and work together to support across sectors.

Support host country government and other relevant institutions to:
- Be prepared that they will be approached with novel digital solutions. Support gov't **to identify a cross-ministry stakeholder group to serve as a 'clearinghouse' for proposals** (ex. CIO council)**.**
- **Identify standards to be used for preparedness and response** (ex. unique ID format for cases).
- **Support interoperability of key systems and update key registries.** Think beyond health systems.
- **Conduct a rapid, high-level risk assessment** on gov't information systems, digital assets, and governance. Identify risks and system gaps ([example](#)). Mitigation measures could include enabling remote access on systems and implementing cybersecurity protocols. Use the assessment to scenario plan (ex. how these systems would be affected with a lock down or cyber attack). Identify which staff need to service infrastructure components (ex. servers) and run data centers.
- **Establish critical data-sharing agreements** among relevant stakeholders where there are gaps.
- **Establish which data standards and systems will be used for COVID-19 data collection and analysis.** Given the number of entities involved, picking one system is not as important as setting a standard for sharing data transparently so stakeholders have access and commit to presenting analytic results publicly. Identify who is implementing COVID modules (ex. DHIS2 COVID). [Example](#)
- **Identify what TA is needed** to support gov't to integrate case identification and reporting indicators in the HMIS systems and strengthen other essential gov't info systems (ex LMIS).
- **Consult with [telecom regulators](#)** on preparing for special regulatory approval if need arises.
- **Create a list of local software and cybersecurity firms** with experience in gov't information systems.
- **Develop communications protocols** for sharing information to the public sector workforce.

Meet with private sector to:
- **Discuss how a crisis could affect ISP & MNO communication networks**. Discuss existing protocols.
- **Develop communications protocols** for major employers to share info with their workforce.

Engage donors to:
- **Identify, use, and support common indicators and repositories** for information such as details on relevant grants (ex. [IATI](#) or [KFF](#)) and country operational datasets (ex. [HDX](#)).

What can be done this month?
Now is the time to address critical gaps and adapt as the situation changes.

Work with the host-country government to:
- **Identify a data "czar"** to coordinate data analysis and sharing across agencies / coordination groups.
- **Establish a concurrence process** on donor-funded initiatives that include digital tools and tech (ex. piloting an app for contact tracing; drones to support internet connectivity). Having established processes and POCs to vet new tech proposals will save time and reduce confusion.
- **Identify key information and data needs.** Take a whole-of-government approach. Be proactive about what digital solutions are desired. Feed into evaluation criteria for incoming proposals.
- **Explore e-payment options** to ensure health workers can stay in their sites to receive salaries.
- Explore and help with **immediate policy changes** to improve network capacity, such as waivers of spectrum power limitations or tower siting restrictions.
- **Upgrade information systems** (ex. If gov't uses DHIS2, consider DHIS2's COVID module). Develop informational products on COVID-19 for public sharing. **Publish software code** in publicly available formats and with open standards and licenses when possible.
- **Establish and leverage emergency and public health/epidemiological data standards and exchange protocols** to simplify data analysis. A public health advisory board could develop these (ex. case definitions, indicators), working with groups such as OCHA and WHO. Periodically review.
- **Establish/update protocols to share case data, with full protection of personally identifiable information, to pre-approved actors** (ex. academics, response agencies) to facilitate modeling.

Work with your implementing partners on programmatic response:
- **Convene geospatial professionals** (in Missions, IP teams, GeoCenter, governments) to review/update OpenStreetMap for critical public infrastructure (ex. clinics, schools).
- **Consult local systems and actors on behavior change comms**. Begin talks with community leaders on how they can be empowered with radio and locally appropriate tech.
- **Assess information about knowledge, attitudes, and practices** related to preventing COVID-19 via tele-surveys and social media. The Ebola CAP used tools to connect social mobilizers.
- **Aggregate demand for technology expenditures**, such as broadband, SMS, and voice. Joint purchases of internet and mobility connectivity may facilitate "surge" needs. In addition, **explore shared, secure network architectures** like mesh networks in underserved areas. Identify sites that need reliable service (ex. test sites, food distribution sites, telemedicine units).
- **Support access to electronic master health facility registries** to effectively monitor services, **strengthen health worker registries** and systems (ex. iHRIS), and **identify essential data**.
- Understand **government patient privacy, data security, and interoperability policies**.
- Use existing e-systems, like mobile data collection tools, to **remotely monitor project operations.**
- Only collect new data after **identifying existing datasets and needs.** Identify how existing data repositories/databases can be **quickly modified** to store, analyze, and report on any new data.
- **Share and release easily understood data analyses results** and visualizations.
- **Embed** (if social distancing protocols allow) **with local institutions or support remote convenings.** Often the best conversations about data and technology happen outside of formal meetings.

Work with the private sector to:
- **Prepare options to communicate with the public and health workforce** to access info on social services and health (ex. set up a [caller tune](#), short code, call centers, help desks).
- **Identify existing and needed capabilities** (systems & data management, cybersecurity, call centers).
- **Establish toll-free URLs for health workers and emergency responders** to access websites (ex. DHIS2) and servers (ex. for surveys) without using their own data credit.
- **Publicize protocols to responsibly share mobility patterns from [mobile call data records](#)**..
- **Extend connectivity** to disease transmission hotspots and areas of need by upgrading network infrastructure and capacity (see [this](#)). Support expansion of local providers (ex. gov't can waive permitting or power rules to allow faster expansion). Explore partnerships with others (ex. satellites, low-altitude connectivity Bluetown or Google Loon).
- **Share mobile network coverage maps** to increase understanding of reach of voice and data.
- **Work with health ministries** to modify systems and create interoperable data flows to support detection and response. Work with non-health ministries to inform humanitarian response.
- **Employ surge support for data collection and analysis** of cases, contact tracing, and supplies. Consider e-first data entry solutions to reduce the need for paper, or OCR to speed data entry.

Work with academic institutions to:
- **Update procedures for rapid dissemination of peer-reviewed research** (pre-publication).
- **Ensure [public availability of datasets and analyses](#)** associated with pre-publications.
- **Collaborate with host-country science funders** and identify digital infrastructure to ensure the central storage and publication of research results for broad public availability.

Work with the donor community to:
- **Establish coordination forums on data and tech.**
- **Share or conduct rapid ICT assessments and data sets with open licenses that support reuse**.
- **Support efforts to integrate multi sectoral data into national management tools**, develop dashboard tools, strengthen monitoring / planning, and feed into community outreach.
- **Liaise with government-run ICT, CIO, and digital health technical working groups**.
- **Support solutions that employ digital health "[global goods](#)"** and align with national strategies (ex. interoperability, e-health). Select those appropriate to the context, and adhere to [Principles](#).

Work with HQ to:
- **Coordinate with USAID's [GeoCenter](#)** for custom geospatial and mapping needs.
- **Consult with M/OAA** and your Contracting/Agreement Officers to explore opportunities to leverage existing awards.
- Identify ways to **monitor misinformation** online and [develop a plan](#) for promoting truthful info.
- Consult with M/CIO on apps that integrate with USAID systems and use Agency IT security reqs.
- **Work with M/CIO on spear-phishing and e-scams**.
- **Collaborate with scientific research funders** to drive rapid re-use and analysis of existing, available research data. **Coordinate with [open data access initiatives](#).**

- **Support research programs to share research results** with coordination bodies and submit results to journals with public health community approved open access initiatives in place.

Lessons from the West African Ebola Outbreak Response

1. When the Ebola outbreak hit West Africa, the world was unprepared. The consequence: **over 30,000 Ebola cases**, including approximately **11,000 dead**, and **billions of dollars lost** globally.
2. **USAID efforts need to be informed by and embedded in the local context if they are to succeed.** In an emergency, this has to happen rapidly. Existing personnel within IPs have valuable skills to deploy, and experience adapting to local context, and can act as knowledge brokers to USAID and new stakeholders working on response activities. They are often working across sectors and have diverse views of the terrain, which is valuable when dealing with whole-of-government responses.
3. **Use a community-driven approach.** Behaviors started to change only when trusted community leaders advocated for changes. **Look for ways that tech can amplify local efforts, not usurp them.**
4. **Weak infrastructure, such as gaps in reliable electricity and/or digital connectivity** hindered real-time information sharing. Paper data collection was often slow and incomplete.
5. There was a **three-week lag between the collection of case data on paper and their eventual reporting in SitReps** making evidence-based decision making nearly impossible.
6. **Key datasets were often published as PDFs** and in difficult-to-find locations, limiting data ingestion and re-use for emergency, scientific, or research purposes.
7. **Re-using existing platforms increased effectiveness.** Many donor-funded mobile tools, including those to support front-line workers were not available when needed. The **proliferation of over 50 non-interoperable data systems impeded the operational response** by making it difficult to get a clear picture of evolving needs and available resources.
8. Data elements were not globally or locally standardized **making data non-interoperable and comparisons of data difficult** greatly weakening the response understanding of the outbreak.
9. **Many digital data systems deployed were not sustainable beyond the response** due to solutions not being locally generated, because of limited activity timelines, and limited investment in building local country capacity to maintain systems. This resulted in missed opportunities to strengthen county health systems and support improved preparedness for future disease outbreaks.

For more information:
- [Fighting Ebola with Information Report](#)
- [Principles for Digital Development](#)
- [The Principles of Donor Alignment for Digital Health](#)
- [10 Global Digital Health Solutions for International Coronavirus Response](#)
- [Principles for Digital Payments in Humanitarian Response](#)