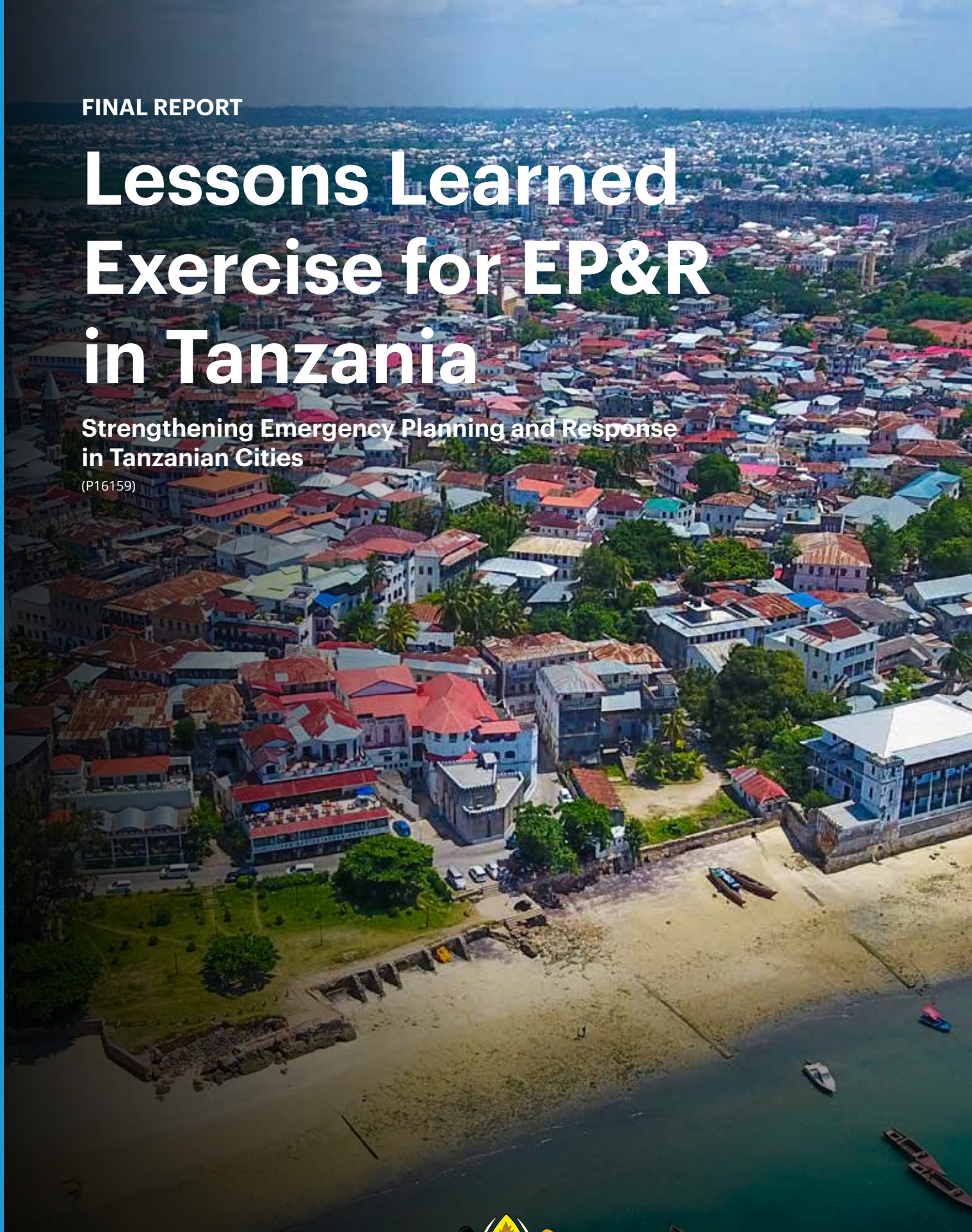
FINAL REPORT

Lessons Learned Exercise for EP&R in Tanzania

Strengthening Emergency Planning and Response in Tanzanian Cities

(P16159)



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This report has been prepared in close collaboration and partnership with the Government of Tanzania under the leadership of the Prime Minister's Office – Disaster Management Department. Conduct of the Lessons Learned Exercise (LLE) was led by Elad Shenfeld (Senior Disaster Risk Management Specialist, World Bank) with support from Adam McAllister (Senior Disaster Risk Management Consultant, World Bank) and Hugo Wesley (Disaster Risk Management Specialist, World Bank) with close guidance, coordination and support from Erik Dickson (Task Team Leader, Disaster Risk Management Team, Africa Region, World Bank) and the World Bank Disaster Risk Management Team in Africa Region, including Nyambiri Kimacha, Devotha Nkwabi, and Paulina Porches.

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- Comparatively for Tanzania Elites Community Organizers (CTECO)
- Tanzania Red Cross Society (TRCS)
- UNICEF
- University of Dar es Salaam
- World Vision

Content

1 Executive Summary

The Tanzania Lessons Learned Exercise (LLE) was initiated as a collaborative learning opportunity driven by 2014/2016 floods Kilosa District, Morogoro Region, Tanzania. The goal of the project was to facilitate key government, private sector and disaster relief agencies discussions of systems, procedures and experiences related to emergency preparedness and response (EP&R) capacity in Tanzania, leading to collaborative recommendations for EP&R capacity improvements. A strong benefit of the LLE proved to be an enriched, mutual understanding of each agency's perspective, resources and capacity for preparedness activities and response operations. As the first event of its kind in the region, it is hoped that the success of the LLE will enable the methodology to be used for similar EP&R learnings in other countries.

To facilitate the achievement of the LLE goal, three objectives were set:
Objective 1: To enable a targeted, collaborative government-led review of preparedness and responses associated with the Kilosa flooding disasters of 2014 and 2016 that capture lessons learned for enhancing EP&R capacities in Tanzania.
Objective 2: To enable a discussion-based Table Top Exercise (TTX) that is based on information gathered through Objective 1 activities and that projects how preparedness and response to similar disasters can be enhanced for the future in Tanzania. Details about this TTX can be found in Section 2.2.6.
Objective 3: To produce a LLE Final Report that captures findings and recommendations and that can be used to guide the next steps of EP&R capacity growth throughout the country.

To achieve these objectives, the LLE utilized a multifaceted approach to gathering information, including case studies, surveys, organizational and focus groups interviews, as well as a workshop with over 55 high-level participants across 20 different government departments that took places in Arusha on July 15 and 16, 2019. The workshop included a table-top disaster exercise, all with a foundational lens of previous flooding events. Findings of the LLE were translated into concrete recommended actions to better mitigate and prepare for future floods and other disasters affecting the country.

In every measure, the LLE surpassed expectations as a tool for enabling collaborative EP&R capacity improvements. LLE participants were enthusiastic throughout the project and their feedback indicated strong support. Asked to rate the LLE workshop, 97% of participants indicated that it was very or extremely successful and 94% indicated that they came away with a better understanding of EP&R capacity improvement solutions. As well, 94% of workshop participants noted that after the LLE they now have a better knowledge of EP&R principles and 97% noted they now have a better understanding of the Tanzania EP&R system.

The LLE produced findings across all five components of EP&R systems. In particular, partcipants noted an interest in improving across four key topics; coordination, training and exercises, early warning systems, and communication. While many recommendations were generated during the LLE, the following four recommendations were brought forward by the participants during the LLE Workshop:

1. Establish clear fast-track procurement, resource mobilization procedures and spending authority levels for executive leadership and incident commanders.
2. Improve technology and capacity for watershed-based early warnings.
3. Establish a modern National Emergency Operations and Communication Center (EOCC).
4. Conduct general disaster risk reduction and focused EP&R training.

With over 55 participants across 20 different government departments and external partners, the LLE generated deep, meaningful knowledge exchange. These discussions resulted in 29 collaboratively generated recommendations for increasing EP&R capacity across various aspects of the Tanzania EP&R system. These recommendations may be utilized in future investment planning for capacitating the government of Tanzania as it strengthens its capacity to protect its people and its economy from disasters.

2 List of Acronyms

AAL	Annual Allowable Loss
CRT	Crisis Response Team
DFID	United Kingdom's Department for International Development
DG ECHO	Directorate General for European Civil Protection and Humanitarian Aid Operations
DM Act	Tanzania Disaster Management Act
DRR	Disaster Risk Reduction
DRM	Disaster Risk Management
EF	Emergency Function
EOC	Emergency Operations Center
EOCC	Emergency Operations and Communications Center
EP&R	Emergency Preparedness and Response
EPRP	Emergency Preparedness and Response Plan
EWS	Early Warning System
GDP	Gross Domestic Product
GFDRR	Global Facility for Disaster Reduction and Recovery
GPS	Global Positioning System
IFRC	International Federation of the Red Cross and Red Crescent Societies
LLE	Lessons Learned Exercise
MOU	Memorandum of Understanding
PML	Probable Maximum Loss
R2R	Ready2Respond
RAS	Regional Administrative Secretary
RC	Regional Commissioner
SOP	Standard Operating Procedure
TEPRP	Tanzania Emergency Preparedness and Response Plan
TTX	Table Top Exercise
UNDRR	United Nations Officer for Disaster Risk Reduction
USD	United States Dollar
WASH	Water / Sanitation / Hygiene

3 Introduction

The Tanzania Lessons Learned Exercise (LLE) for Emergency Preparedness and Response (EP&R) was designed and delivered as a collaborative project between the Government of Tanzania and the World Bank. The project used the Kilosa flood events of 2014 and 2016 as focusing events to capture lessons learned by the government, private sector and disaster relief agencies regarding EP&R across the national, regional and district levels of government throughout the country. Through discussion and analysis, those lessons have been transformed into clear, actionable recommendations for improving EP&R capacity vertically throughout the three primary levels of government as well as horizontally at the national and regional levels.

As a collaborative exercise, the LLE drew from the World Bank's EP&R platform which is based upon the Ready2Respond (R2R) framework and provides clear, objective information and tools to enable EP&R investments. This approach ensured a consistent, comprehensive and integrated EP&R foundation that integrates with other recent World Bank projects. The R2R framework was also adopted by the United Nations' Global Preparedness Partnership in 2018, further enabling the LLE findings in this report to be understood and acted upon by other development partners. Through organizing results in this manner, national leadership and ownership will be improved as will the potential for recommendations to be implemented through various partners.

While the LLE focused primarily on the Kilosa Flood disasters of 2014 and 2016, experiences from other flooding events in the Morogoro Region and other disasters that have recently occurred throughout the country, were also captured opportunistically. The LLE included an examination of event timelines and government response; national, regional and local preparedness prior to events; multi-hazard responses by government and partners; EP&R capacity building project ideation; and a tabletop exercise based on a similar, yet fictional, flood event.

The approach proved successful in engaging the government at all levels to consider pathways to improving EP&R capacity. In particular, the leadership of the staff and executive of the Prime Minister's Office – Disaster Management Department (PMO-DMD) enabled constructive open space for others to reflect their experiences and effectively contribute to conversations. Through various information gathering and collaboration opportunities, the LLE has enabled a forward focused, common vision of EP&R capacity needs, and subsequent priority actions that are required across jurisdictional levels in Tanzania.

4 LLE Methodology

4.1 GOALS AND OBJECTIVES

The goal of this LLE was to facilitate key government, private sector and disaster relief agencies discussions of systems, procedures and experiences related to EP&R capacity in Tanzania, leading to collaborative recommendations for capacity improvements. A strong benefit of the LLE has proven to be an enriched, mutual understanding of each agency's perspective, resources and capacity for preparedness activities and response operations.

To facilitate the achievement of the goal, three objectives were established for the LLE:

Objective 1: To enable a targeted, collaborative government-led review of preparedness and responses associated with the Kilosa flooding disasters of 2014 and 2016 that capture lessons learned for enhancing EP&R capacities in Tanzania.

Objective 2: To enable a discussion-based Table Top Exercise (TTX) that projects how preparedness and response to similar disasters can be enhanced for the future in Tanzania.

Objective 3: To produce a LLE Final Report that captures findings and recommendations and that can be used to guide the next steps of EP&R capacity growth throughout the country.

The LLE was deliberately managed with a tight scope in the Tanzania EP&R landscape with a goal that kept operational effectiveness as its core theme. This ensured the LLE remained focused on creating a practical impact on strengthening EP&R in Tanzania, while being conscious of government time and resources committed to the project. While offering significant benefit as a stand-alone project, the LLE ultimately represents a critical first step in the investment planning process for systemically and sustainably modernizing Tanzania's EP&R capacity – a key consideration in protecting and advancing development gains throughout the country.

4.2 INFORMATION GATHERING METHODOLOGY

To ensure robust information for accurate analysis and practical EP&R capacity recommendations, a multi-modal approach was utilized. This methodology enabled the LLE to engage over 55 participants across 20 partners and led to 27 collaboratively generated ideas for EP&R capacity building projects The following six methods used for LLE information collection are described below.

4.2.1 Literature Review

A brief analysis of peer-reviewed and grey literature regarding EP&R in Tanzania was completed. This review included a high-level gap analysis of disaster risk management documents produced by the Tanzania government as well as reference sources from nearby jurisdictions with similar risk profiles to ensure a more robust understanding. The full literature review can be found in the LLE Desk Review report.

4.2.2 Pre-mission Survey

A short survey was circulated to prospective and confirmed LLE participants prior to the mission. The survey results were analyzed and consolidated with literature review findings to inform mission planning and refine workshop materials. These results were also used for initial reporting to the Disaster Management Department as well as for plenary reporting during the first day of the LLE Workshop. Survey results can be found in Annex 9.3

4.2.3 World Bank Staff Engagement

World Bank staff currently engaged, or recently engaged, in Tanzania DRM projects were consulted before, during and after the LLE mission and workshop. The insights and general impressions on the state EP&R capacity in Tanzania, particularly related to selection of the focusing disaster event and for support logistics, were vital for establishing context and ensuring a professional, high-value experience for all LLE participants. By capturing the advice and input of appropriate World Bank DRM staff, a more accurate picture emerged and opportunities to align LLE recommendations with those of ongoing or emerging World Bank project were more readily identified.

4.2.4 Site Visits

Throughout the LLE mission and specifically during site visits, the LLE Team recorded empirical observations about EP&R related elements, such as the condition of critical infrastructure, such as early warning systems and emergency operations centres. In addition, notes regarding the down-scaling and mainstreaming of national policy frameworks to the local and operational level also proved to be helpful for completing the LLE analysis and formulating recommendations.

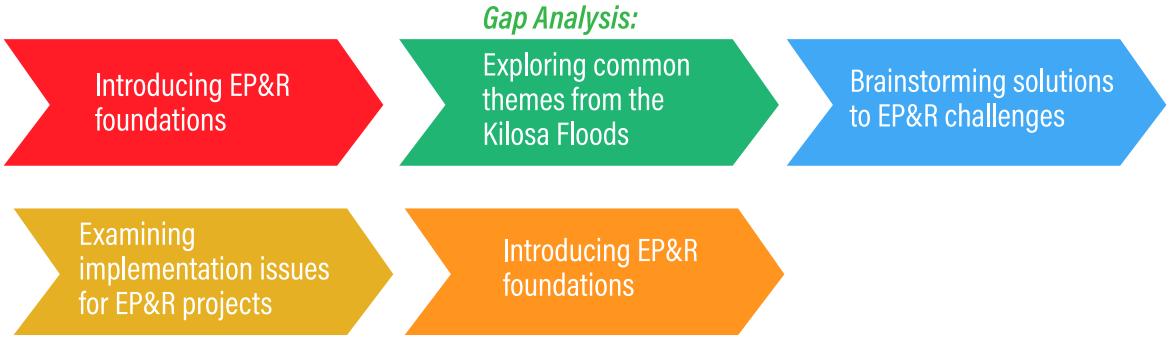
4.2.5 Participant Interviews

During the LLE mission participants were engaged in direct interviews using open-ended questions that focused on EP&R elements noted in the R2R framework as applied to the 2014 and 2016 Kilosa Floods. However, in situations where participants were not directly engaged in those events, the scope was deliberately expanded to all-hazards and not directly tied to a particular event. These interviews occured through one-on-one meetings, organization-specific group meetings, guided field tours, focus group sessions and informal discussions with participants. The general interview guidance, including the interveiw questions, that was used during the LLE is provided in Annex 9.4, however additional directed or follow-up questions that are not specifically noted were also included in these discussions. Through the LLE, most meetings were scheduled for 1 – 1.5 hours although in certain cases meeting times were extended to 2 hours by mutual agreement with participants. Further, during several meetings, participants suggested additional individuals be contacted for an interview. This highlighted the benefit of ensuring flexibility in the mission scheduled so that these opportunistic meetings could occur.

4.2.6 Workshop

A critical element of the LLE was the 1.5-day workshop delivered during the second week of the mission.The workshop was divided into two sessions that engaged and challenged participants in different ways. The first session, which set the agenda for all of the first, focused on enabling LLE participants to leverage their knowledge of the Kilosa Flood events, and other disasters in Tanzania. Participants created project concepts in multi-disciplinary teams to overcome a capacity gap noted during previous disasters and previewed those concepts in plenary. During this session, the LLE team also introduced the World Bank R2R framework at a high level to encourage participants to view EP&R systemically and help conceptualize their potential projects. The second session, which was the exclusive focus of the second day, was a discussion-based narrative table top exercise (TTX). This TTX walked participants through a scenario based on a similar event as the Kilosa floods. At critical points, the LLE Team paused the scenario to ask the participants to work together in groups to identify potential solutions to introduced challenges that are based on the common capacity themes noted by participants during the pre-mission survey and through direct interviews. Details about the Workshop can be found in Annexes 9.6 – 9.12.

Diagram of LLE Workshop process flow

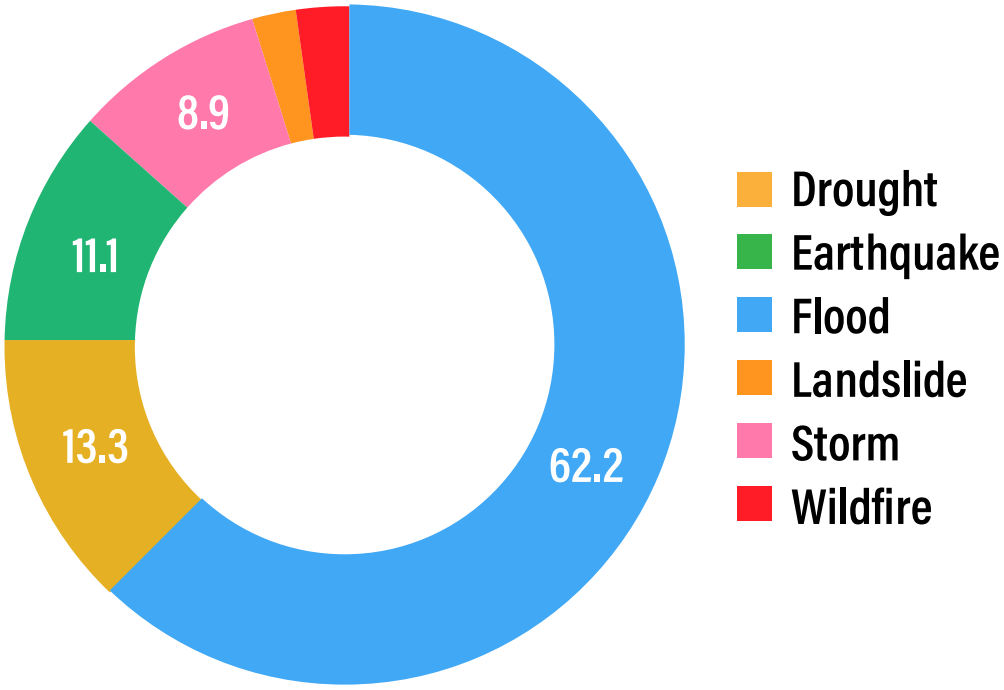


5 Analysis of Tanzania flood emergencies, 2014 – 2016

According to the World Resources Institute, Tanzania is one of the 15 countries in the world that account for 80% of the population exposed to river flood risk worldwide (Other African countries included on the list are Egypt, Nigeria and Democratic Republic of the Congo)[1]. Between 2014 and 2018, Tanzania faced a number of severe flooding and flash flood events. The country's Emergency Preparedness and Response Plan (TEPRP) lists floods as a main hazard in the majority of the country's seven agro-ecological regions[2].

While Tanzania's main natural disaster hazards are drought, floods, earthquakes, and epidemics, according to the EM-DAT International Disaster Database[3], 62.2% of internationally reported economic losses between 1990 -2014 in Tanzania were due to flooding. This reinforces the merits of the decision to focus the LLE on recent flood events.

Disaster losses in Tanzania between 1990 and 2014



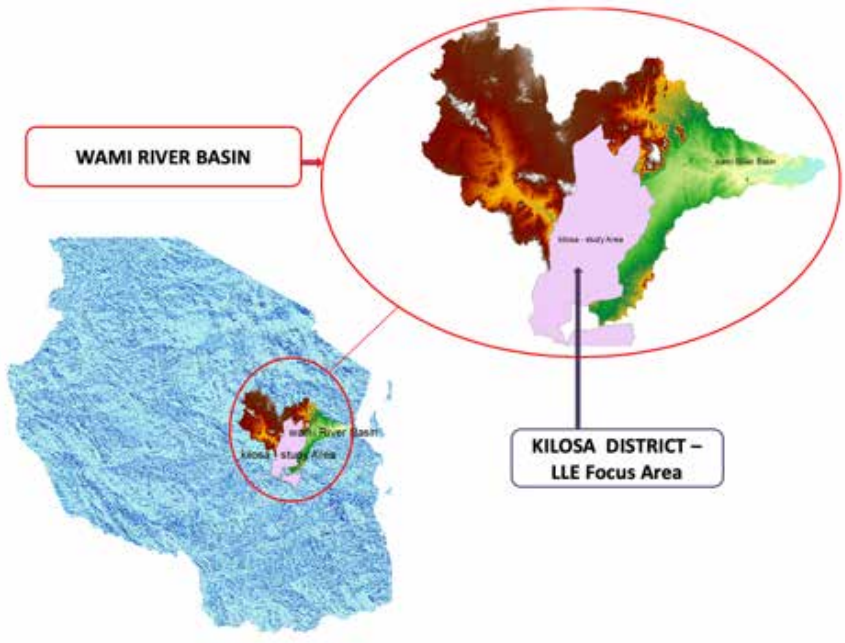
1 https://www.wri.org/blog/2015/03/world-s-15-countries-most-people-exposed-river-floods
2 Namely: Coastal region, Northern Rift Valley and volcanic islands, Southern Highlands, Inland sedimentary plateau, Ufipa plateau and Western highlands. Tanzania Emergency Preparedness and Response Plan, 2012, p.15
3 EM-DAT is an OFDA/CRED - International Disaster Database http://www.emdat.be - Université catholique de Louvain Brussels - Belgium

Urban planning in the country's towns and cities, particularly in Das es Salaam, has come under greater pressure due to the consistent magnitude of the country's growth. Urban planning has been challenged to keep pace with this economic and population growth, leading to the accrual of risk from the hazards affecting the country, particularly flooding. For example, these patterns have resulted in increased home construction in low-lying areas at risk of flooding[4]. Residential areas in most cities are significantly congested, making rescue and relief operations very difficult during urban emergencies. The impacts of disasters such as fire, flood, or disease outbreaks can be intensified in such urban settings[5].

Flooding in Tanzania has the most significant impact of any natural hazard affecting Tanzania. This hazard affects an average of 150,000 people annually, approximately 0.26% of the country's population. However, the distribution of people potentially affected by floods is concentrated in the east, specifically in the regions of Morogoro, Pwani, Tanga[6], and Dar es Salaam, creating a more localized and intensive impact when considered at the scale of the more recent flood events. According to the United Nations Office for Disaster Risk Reduction (UNDRR) Tanzania Disaster Risk Profile, this pattern is likely to continue and intensify with future climate change projections, with the overall number of people affected by floods increase as well. The local Tanzanian economy is heavily exposed to flooding. On a yearly average, flood prone areas produce approximately 0.45% of the national Gross Domestic Product (GDP), which corresponds to roughly 215 million USD per year[7]. The value of direct economic losses in terms of annual average loss (AAL) is almost USD 44 million. The larger portion of these losses are felt across the housing, service and agricultural sectors[8].

It is worth noting that although the AAL is about USD 44m, the likelihood of a USD 70m loss from floods is on average once every five years, meaning that significantly larger losses may be experienced frequently[9]. The likelihood of disaster losses of about USD 200m is on average once in 100 years[10]. UNDRR expects that frequent flood-related losses will significantly increase under future climate conditions while the extreme losses may have a smaller impact in the future[11]. The specific shape of the Probable Maximum Loss curve (PML) curve[12] shows that flood risk can be considerably reduced by strategically minimizing the impact of very frequent and frequent disaster events, hence by investing in disaster risk reduction.

Map of Wami River Basin within Tanzania and LLE Focus Area of Kilosa District



4 https://www.reuters.com/article/us-tanzania-disasters/tanzania-steps-up-efforts-to-manage-surge-in-disasters-idUSKBN0MT15420150402
5 https://www.reuters.com/article/us-tanzania-disasters/tanzania-steps-up-efforts-to-manage-surge-in-disasters-idUSKBN0MT15420150402
6 UNISDR Tanzania Disaster Risk Profile, Country Climate Outlook. August 2018. P.11 - 12.
7 UNISDR Tanzania Disaster Risk Profile, Country Climate Outlook. August 2018. P.11.
8 UNISDR Tanzania Disaster Risk Profile, Country Climate Outlook. August 2018. P.12.
9 UNISDR Tanzania Disaster Risk Profile, Country Climate Outlook. August 2018. P.14
10 UNISDR Tanzania Disaster Risk Profile, Country Climate Outlook. August 2018. P.14
11 UNISDR Tanzania Disaster Risk Profile, Country Climate Outlook. August 2018. P.14
12 UNISDR Tanzania Disaster Risk Profile, Country Climate Outlook. August 2018. P.14

While the focus of the LLE is the 2014/2016 Kilosa Floods, a significant flood event in the area predates these disasters. In December 2009, major rainfall occurred across the Wami River Basin and resulted in the worst flooding in recent memory in Kilosa. Five people were killed, almost 14,000 people were affected, and over 3,000 homes were destroyed. Further, in a major blow to the local economy, over 12,000 hectares of rice paddy was destroyed. Several years later, in January 2014, heavy rains caused flash floods in the three districts namely Kilosa, Mvomero and Gairo in the Morogoro region[13]. The event displaced over 10,000 people and destroyed or damaged houses, roads, bridges, public buildings and crops[14]. A total of 2097 households in all three districts were displaced[15]: The Kilosa district was the most affected with up to 1,865 households displaced, while 222 households in Mvomero district and another ten households in Gairo district were also impacted by the event.
Search and Rescue efforts were coordinated by the Prime Ministers Office's Disaster Management Department (PMO-DMD) as well as Regional and local authorities. The Tanzania military was brought in to assist with the re-construction of the damaged roads and bridges[16].
The central government through the Prime Minister's Office and the Morogoro regional authority mandated the Tanzania Red Cross Society (TRCS) to carry out distributions of emergency shelter items, tents and provide technical support for the construction of emergency shelter. The PMO-DMD donated relief items included soap (100 cartons), tents (26 pieces), blankets (800 units), kitchen sets (300 sets) and mats (1,450 pieces) for distribution to affected families.

TRCS also had a standby project agreement with UNICEF to support the disaster preparedness activities through the pre-positioning of stocks in the sectors of water, sanitation and hygiene (WASH), Nutrition and Health, which were mobilized in the operation. The Directorate-General for European Civil Protection and Humanitarian Aid Operations (DG ECHO) and the 2004 Tsunami Residual Funding covered some of the emergency funds allocated by the International Federation of Red Cross and Red Crescent Societies (IFRC) for the operation. A large number of other donors and partners of the TRCS provided vital support to the government during the response and recovery for this event[17].

In April of that same year, extensive rainfall over Dar es Salaam caused flooding in all of the city's districts, affecting an estimated 20,000 people and killing 19 people. The floods also caused damage to transport infrastructure and affected people had to relocate to churches and schools. Other affected regions included Rorya District in Mara where 300 houses were damaged due to heavy rains and strong winds. The southern region of Mbeya was also hit by the spring flooding and at least three people died in Kyela District[18]. Dar es Salaam, which was impacted by floods again in 2015 and 2018, generates over 40% of Tanzania's GDP but is exposed to a range of risks, including sea level rise, coastal erosion, water scarcity and insect-borne diseases[19].

Between January and May 2016, in Eastern and Southern Africa, heavy rains that intensified resulted in excessive flooding throughout the region, affecting more than half a million people, causing over 370 deaths and damaging infrastructure and livelihoods. Out of all Eastern and Southern African countries, Tanzania ranked second highest impacted with 70,000 people affected by floods and 20,000 displaced over that period[20]. In January 2016, the Dodoma Municipality of Tanzania and Bahi district in Dodoma region, in eastern central part of the country, experienced significant flooding as a result of heavy rain accompanied by strong winds[21]. The flood affected 2,800 people and destroyed 155 homes. Wards with the highest number of destroyed houses included: Chamwino Ikulu (38), Chimendeli (29), Mpunguzi (35), Mlowa (27) and Nghulugano (26)[22]. In the Bahi district, an estimated 2,650 people are affected, of which 145 houses were completely destroyed with the majority of people seeking refuge in public buildings or with friends and family. The highest number of homes destroyed were found in the following districts: Chikola (56), Kinonduli (57) and Li-

13 https://reliefweb.int/disaster/fl-2014-000053-tza
14 OCHA ROSA Humanitarian Bulletin Issue 15 May 2014. p.3
15 https://reliefweb.int/sites/reliefweb.int/files/resources/MDRTZ015fr%20Nov%20%281%29.pdf . IFRC DREF Final Report.
16 https://reliefweb.int/sites/reliefweb.int/files/resources/MDRTZ015fr%20Nov%20%281%29.pdf . IFRC DREF Final Report.
17 https://reliefweb.int/sites/reliefweb.int/files/resources/MDRTZ015fr%20Nov%20%281%29.pdf . IFRC DREF Final Report.
18 https://reliefweb.int/disaster/fl-2014-000053-tza
19 http://news.trust.org//item/20140721110205-5rqd9
20 https://reliefweb.int/sites/reliefweb.int/files/resources/Flood%20Snapshot%2027th%20May%202016.pdf. Ethiopia was the most affected country with nearly 237,000 people affected by the floods.
21 https://reliefweb.int/disaster/fl-2016-000011-tza
22 https://reliefweb.int/disaster/fl-2016-000011-tza

gwa (32)[23]. In February 2016, the Rufiji district in Coast region experienced additional rains and flooding. Fifteen wards in Rufiji district were affected by the floods; an estimated of 53,446 people were impacted with houses submerged by flood waters or severely damaged, resulting in over 3,000 people displaced and in need of humanitarian assistance[24].

Red Cross mandate in support to these floods came from the local government authorities in Dodoma and Coast regions [25], who tasked the local TRCS branch with the distribution of food items (maize) and other non-food items (kitchen sets and sleeping mats). International Red Cross Movement partners actively involved in the operation included once more the American and Spanish Red Cross Societies and the IFRC. Major contributors to the IFRC Emergency Appeal were the Red Cross Societies and governments of Australia, Austria, Belgium, Canada, Denmark, Ireland, Italy, Japan, Luxembourg, Monaco, the Netherlands, Norway, Spain, Sweden and the USA, as well as DG ECHO, the UK Department for International Development (DFID) the Medtronic and Zurich Foundations.

In Dodoma, the TRCS was the only operational humanitarian organization on the ground assisting the displaced population with immediate relief items and provision of first aid services, though Ahmadiya Muslim Foundation, a religious organization, also donated food items (maize flour, juice and biscuits) for distribution to the affected population[26].

Despite the recent and significant response to these events, limited information could be located to verify and validate the particular response timeline for the 2014 and 2016 Kilosa flood events (Morogoro Region). As noted by several LLE participants, the high rate of movement for professionals between ministries, or within ministries but across regions, has reduce the institutional knowledge of the event and the lessons learned. However, LLE interview participants were helpful in highlighting several key elements for this particular event. For example, the 2016 flood in Kilosa was one of the first regionally declared disasters after passage of the 2015 Disaster Management Act. As such, there were significant differences in disaster response leadership and roles between the 2014 and 2016 Kilosa floods. While the 2014 Kilosa flood was led by the Regional Commissioner (a president-appointed official), the 2016 event was, ultimately, led by the Regional Administrative Secretary (RAS) per direction of the new Act. This leadership change required discussion between the Regional Commissioner and the RAS in the initial stages of the response and, to their credit, was worked out quickly and constructively with clarity as to roles and how those roles complimented each other. This challenge may have been partially precipitated by Kilosa District creating its own District Emergency Preparedness and Response Plan (DEPRP) in 2015, prior to the passage of the DM Act (2015). While a significant achievement, the Kilosa DEPRP plan did not reflect the new response leadership model required by the DM Act (2015). As a result, some confusion regarding decision-making authority during disasters within Kilosa District persists and potential carries up to the regional level.

Following the 2016 flood, staff in the Morogoro Region reported that it took two days for the Region to find out that Kilosa had been affected during 2016 flood. This significantly delayed the ramping up of response operations and mobilization of regional and national resources. Further highlighting communication challenges, there was no official Emergency Information Officer during the 2014 or 2016 Kilosa Floods to coordinate public messages and media engagement. This led to some confusion and lack of clarity for responders and those living or working in affected areas. However, giving an indication of response strengths, some participants noted that for the 2014 and 2016 Kilosa floods, local leaders announced that a flood was imminent based on meteorological warnings issued by Tanzania Meteorological Agency (TMA). Combined, this advanced warning and engagement of local leaders enabled the most vulnerable to evacuate, reducing the number of fatalities in comparison to the 2010 Kilosa Flood.

Some helpful research regarding the impact of transport infrastructure on riverine flooding in Kilosa District has also been completed. This research, a case study on the construction of the 142 kilometre Dumila-Rudewa-Kilosa-Mikumi Road, examined flood levels from the earlier 2009/10 flood in Kilosa District. The study found that current road and bridge construction practices were mildly contributing to worsening impacts of the five-year return period flood. The study, completed by the Ministry of Water and Irrigation, recommends that bridges be redesigned wider and higher to accommodate more water discharge. As well increasing culverts to enable flood water to flow in similar patterns as observed prior to construction of the elevated road will help to mitigate downstream and secondary consequence such as erosion events triggered by increased channel volume and velocities. Finally, the study recommends that road height be

23 https://reliefweb.int/disaster/fl-2016-000011-tza
24 https://reliefweb.int/disaster/fl-2016-000011-tza
25 https://reliefweb.int/sites/reliefweb.int/files/resources/MDRTZ019OU3.pdf
26 https://reliefweb.int/sites/reliefweb.int/files/resources/MDRTZ019dfr.pdf

elevated to an appropriate level so as to permit safe use as an evacuation route during severe flooding.

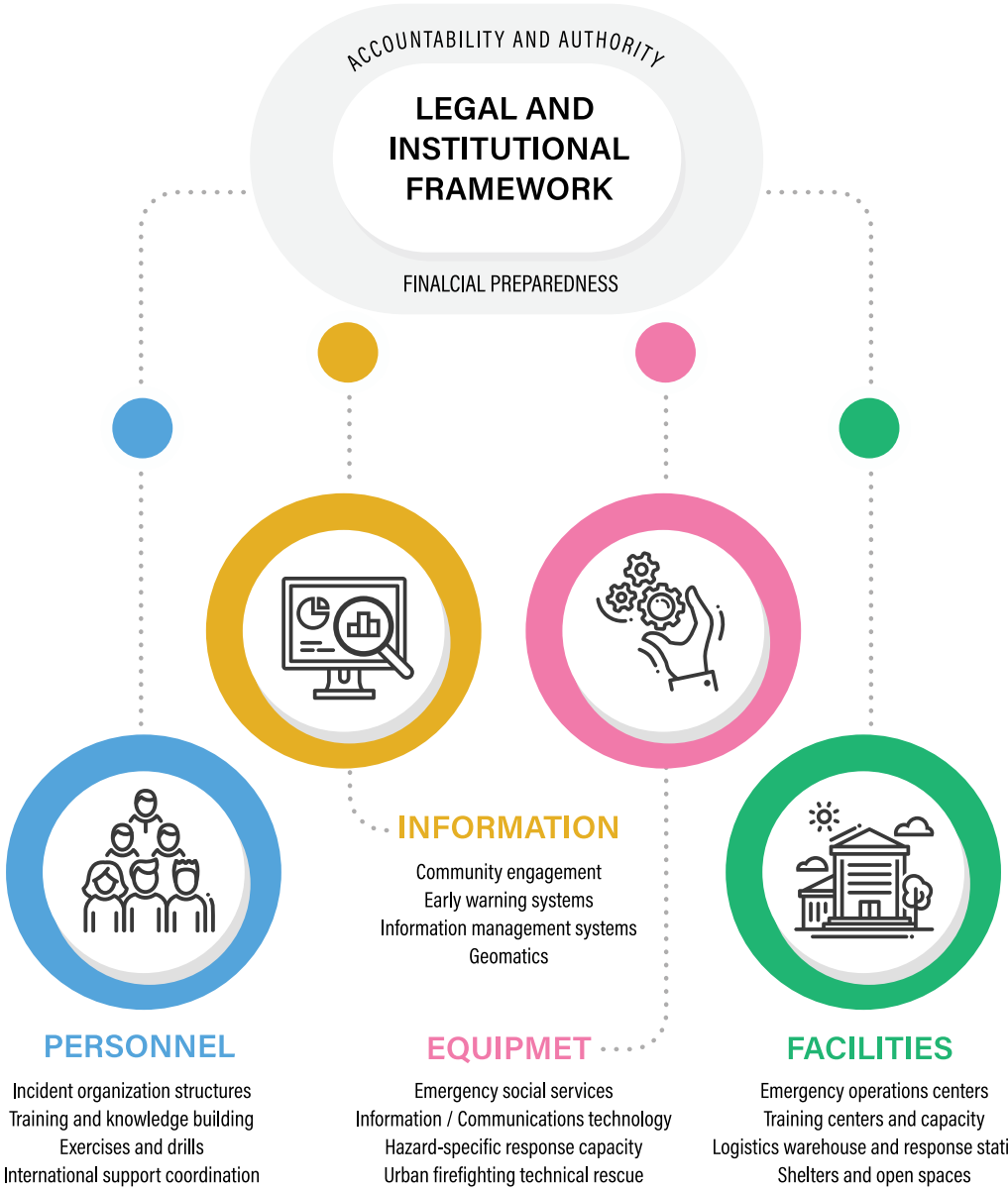
In terms of coordinating flood-displaced individuals and families, significant differences were noted between the 2014 and 2016 floods. In particular, during the 2014 Kilosa flooding, schools were used as immediate temporary shelter for a short period. However, this led to challenges with those whose homes had been destroyed and were then being asked to live in temporary shelters, e.g. tents, tarpaulin structures, until new dwellings could be constructed. As a result, during the 2016 flood, no schools were used for immediate sheltering of those affected by the flooding, which also increased pressure on Ministry of Health and UNICEF to ensure supports for water, sanitation and hygiene in the prevention of disease outbreaks.

In 2014, the Kilosa Flood command post was established at the District Commissioner's office with meetings held every morning and also sometimes in the evenings. It is unclear if this approach was replicated during the 2016 flood, however the 2014 situation suggests an acknowledgement of the international best practice of setting a consistent briefing schedule that ensures a common operating picture and improved interagency situational awareness. Importantly, the practice highlights the collaborative and cooperative nature of preparedness and response activities being undertaken in Kilosa District and, more broadly, within Morogoro Region. It suggests a strong, pervasive interest throughout the community, engaged ministries and international partners to work in a committed way to improve flood resilience.

6 Findings and Recommendations

Using the information collected during the LLE, the following findings and associated recommendations have been captured. The format for this section aligns with the World Bank's Emergency Preparedness and Response investment platform (Ready2Respond) to ensure a systemic approach to building EP&R capacity.

Emergency preparedness and response system core components of the World Bank Ready2Respond platform



During the first week of the LLE mission, direct engagement with participants highlighted four common EP&R themes, including:

- *Communication* – the capacity for responding agencies to transfer information during operations as well as the inter-agency communications required for effective preparedness.
- *Early Warning Systems* – with a particular focus on riverine flood early warning systems, this included the capacity to detect, analyze, actively message, and rapidly distribute information about natural hazard events.
- *Training and Exercises* – the need for personnel to plan and practice collaboratively and collectively to ensure continuous improvement for their level of preparedness.
- *Coordination* – the capacity for decision-making and effective team work at the operational, tactical and strategic levels during response, often including emergencies that involve multiple levels of government.

These themes were captured and used to focus discussion during the LLE Workshop in Arusha. As a result, several EP&R capacity improvement project recommendations within the World Bank's EP&R Platform (Ready2Respond) arose directly from the participants. These recommendations are noted below in bold and can be found in Annex 9.7 for further exploration.

6.1 LEGAL AND INSTITUTIONAL FRAMEWORK

6.1.1 Findings

Through participant discussion and literature review, a clear pattern of modernizing Tanzania's EP&R legal and institutional framework was noted. In particular, the following laws and policies have been established and/or updated recently:

- Tanzania Emergency Preparedness and Response Plan (TEPRP) | 2012
- Disaster Management Act (DM Act) | 2015
- Dar es Salaam Multi-Agency Response Team (DarMAERT) | 2018
- Public Health Act | 2009
- Agriculture Climate Resilience Plan | 2014

With the advancement of the legal and institutional framework for EP&R in Tanzania, challenges have arisen. For example, the TEPRP is the basis for all preparedness and response plans at all administrative levels across the country. However, the TEPRP has not been updated since it was first introduced in 2012 leading to significant dissonance between it and the country's major disaster legislation, the DM Act (2015). This dissonance has played out between the Regional Commissioner (RC) and the Regional Administrative Secretary (RAS) during response operations in 2016, shortly after the new DM Act was passed. While the two individuals admirably worked out their approach to align with the new legislation, the situation highlights potential complications that can reduce response efficacy and increase consequences. This ability to work together constructively during disaster response is also echoed in the LLE survey which found 83% of respondents noting that their agency was able to work with others during the 2014 and 2016 Kilosa flood responses.

Regarding preparedness and response plans, there is significant inconsistency both in terms of format, content, currency and even presence, vertically and horizontally within the government. In some areas, such as Kilosa District, important locally-led initiatives prompted by District leadership have resulted in updated plans that have local context and guide response operations at the District level. For the emergency functions noted in the TEPRP, there are no specific plans, templates or clear guidance regarding the roles nor how identified emergency function partners should collaborate for preparedness activities and response operations. As well, there is no policy directing identified emergency function lead departments/agencies to develop these plans. The LLE survey corroborated this lack of planning and preparedness with 62% of respondents stating that their agency was not fully prepared for the 2014 and 2016 Kilosa Floods. While the National Operational Guidelines are outdated and do not reflect the DM Act (2015), they may provide a starting point for improving consistency in EP&R planning as well as Standard Operating Procedures (SOPs) for a variety of response operations.

Generally speaking, the majority of participants indicated that capacity development for particular technical/operational elements of EP&R should be aligned directly with the emergency function roles noted in the TEPRP. For example, despite Tanzania Fire and Rescue Force (TFRF) being mandated as the co-lead for the Search and Rescue Emergency Function in the TEPRP, and having sufficient regional staffing and training programs, they are extremely limited regarding equipment and modern facilities. As a result, their functional capacity for critical technical operations, such as swift water rescue, are severely limited. In this case, other government departments such as the military and/or Tanzania Police Services will undertake those activities in part, although in some cases without the training or equipment necessary to safely perform these dangerous operations.

That noted, in the case of swift water rescue, and despite flooding being the most significant natural hazard affecting the country, no service in the Tanzanian government appears to hold any form of comprehensive swift water rescue capacity. Similar challenges were noted across all of the emergency functions noted in the TEPRP. To that end, it has been acknowledged by various participants that, prior to any major EP&R capacity building efforts, the TEPRP should undergo a significant review and be revised to reflect the DM Act (2015), international best practice, and where appropriate, the contextual realities of existing ministry/department operational capabilities.

Additional key findings include:

- The critical difference between executive authority and operational command is not well understood across regions and districts, however local relationships have been helpful in overcoming resulting response challenges.
- There is limited quality assurance and quality control capacity and process in place within PMO-DMD regarding District or Regional Emergency Preparedness and Response Plan (EPRP) completion and/or annual updates.
- Evidence for coordinated and planned engagement of private sector resources, including negotiation of cost, is limited at regional and district levels, although there are potential learnings in this regard that can be carried forward from the 2014 and 2016 Kilosa Floods.
- Critical infrastructure does not appear to be mapped and available for response planning, nor are there specific resilience requirements noted for such infrastructure.
- Procurement procedures during response are unclear and may lack the transparency necessary during high-profile and/or high-consequence disasters.
- There may be some confusion created by overlapping mandates of the Regional Safety and Security Committee (RSSC) and the Regional Disaster Management Committee (RDMC) during response. The RSSC appears to manage operational coordination during disasters. However, this is likely an outdated approach as the DM Act (2015) has passed that accountability to the RDMC. Challenges have arisen in that the RDMC has a slightly different membership, which has led to transitional challenges and decision-making outside of the DM Act, albeit still aligned with the older, partially outdated TEPRP.
- The military should be commended for developing a domestic emergency operations plan for supporting search and rescue (SAR) and reconstruction, however those plans are rarely shared, thereby complicating coordinated efforts across government.
- The Tanzania Red Cross Society (TRCS) is an auxiliary to government by legislation and does excellent work to support humanitarian needs across the country. However, it is impossible for the TEPRP emergency function leadership tasks assigned to the TRCS to be completed as the government provides no annual programmatic budget to the agency. As such, and similar to all other emergency functions, the Shelter and Mass Care Emergency Function does not have an operational plan/SOP and there is no SOP for mass evacuation. Regardless, there is strong capability for the services considered under this emergency function and TRCS training for volunteers can, in certain circumstances be compressed to two days, or less.
- Without exception, the LLE participants noted that to better capacitate and coordinate DRM throughout the country, following through on the DM Act commitment to transform PMO-DMD into the Disaster Management Agency was a vital step. Further, participants noted the need to fully operationalize the Disaster Management Fund noted in the DM Act (2015) and ensure funding can be used for a full suite of preparedness and response activities, instead of focusing only on disaster relief.
- The Tanzania Peoples Defence Force (TPDF) has been a significant support during domestic disasters. However, the low threshold for their engagement is indicative of the limited EP&R capacity of government at all levels to respond effectively with domestic, non-military resources.
- District and Regional Disaster Management Committees are intended to provide oversight, priority-setting and executive decision-making. Due in part to the absence of a SOP for these committees, participants indicated that the committees will often take on the role of operational command. This creates an unfortunate and often confusing situation on the ground for response personnel, thereby slowing operations and removing authority from those with the highest level of technical, operational experience in emergencies.

6.1.2 Recommendations

The following recommendations for improving capacity related to the Legal and Institutional Framework component of the Tanzania EP&R system are provided in consideration of the above findings:

1. Update the TEPRP to reflect the substantive policy and operational changes since its release in 2012, including specific requirements for emergency function lead and support partners regarding response planning, exercising and sharing of information.
2. Develop priority Contingency Plans (scenario specific)
3. After completion of the TEPRP update,

ensure all Emergency Function plans are updated by the assigned ministry leads and that all agencies with EP&R responsibilities create/revise their specific service continuity/resilience plans.

4. Update the National Operational Guidelines to address direction in the DM Act (2015) and include templates for emergency function plans, SOPs for response operations, and Regional and District Disaster Management Committee SOPs. This should also include direction regarding adoption of the Incident Command System (or other similar system) to ensure operational consistency and the ability to scale quickly and flexibly to meet the challenges presented by disasters.
5. **Establish clear fast-track procurement, resource mobilization procedures and spending authority levels for executive leadership and incident commanders** within regions and districts and include this information as a centrally-delivered training module, ideally through electronic learning hosted by PMO-DMD.
6. Engage the national government to fully capacitate the Disaster Management Fund described in the DM Act (2015), including capital and program budget as well as administrative guidelines and an initial Call-for-Proposals to support district and regional preparedness initiatives, as well as lost-wages compensation for TRCS volunteers.
7. Create a PMO-DMD-led critical infrastructure assurance program, including land-use restrictions, hazard-sensitive structural codes, location and attribute data sharing, and early warning system linkages, through close collaboration with private sector partners.
8. Develop a time-sensitive plan, including capital and annual program funding requirements, to transition the PMO-DMD into the Disaster Management Agency per the requirements of the DM Act (2015).

6.2 PERSONNEL

6.2.1 Findings

The literature review revealed recent and significant improvement in how preparedness and response personnel across various levels of government work together during emergency response. In particular, the creation of the Dar es Salaam Multi-Agency Response Team (DarMAERT) shows promise as a pilot approach for coordinated response operations at the regional level. This team is intended to function as an operational arm of the Regional Disaster Management Committee during disasters and has taken steps to ensure common training and standard operating procedures.

Within the majority of departments and agencies, the retention of trained and/or experienced personnel in the field of emergency preparedness and response was noted as an ongoing challenge. For example, during a focus group discussion in Morogoro Region it was noted that since the 2014 and 2016 Kilosa Floods, only three of eight participants, each representing their response agency, were located in Morogoro at the time of the 2014 and 2016 Kilosa Floods. As a result, much of the organizational knowledge and local lessons learned during the event had been lost.

Since 2006, the Tanzania Police Force (TPF) have established Crisis Response Team (CRT) in each District, with 15-30 offices assigned for both response operations and creating After Action Reports. These CRTs work closely with other organizations for response, e.g. evacuation, but also for humanitarian relief with TRCS, as the emergency function lead for Shelter and Mass Care, to identify safe relocation/temporary shelter sites for those displaced by disasters. During quick onset emergencies, such as flash flooding, the TPF are usually the first to respond due to the geographic distribution of police posts. For the majority of emergencies, the local TPF usually retains local command of operations; however, there is no formal mechanism, SOP or recognition of this approach in government documentation. In recognition of this command and coordination role, the TPF provides limited training for police officers to prepare for seasonal hazards such as flooding. In particular, the training reminds TPF officers of their responsibility for the distribution of alerts and warnings at regional, district and community levels. For specific TPF operations, Police General Orders provide significant guidance and several detailed SOPs have been developed by the Police Colleges for disaster situations, although these SOPs have yet to be tested in the field.

Further extending the capacity of the TPF is the National Service Corps, which is a training reserve for the TPF. The Regional Safety and Security Committee can request

these reserves to support TPF with response operations, however the Regional Disaster Management Committee does not have this power, exacerbating challenges noted above in Section 6.1 – Legal and Institutional Frameworks.

Regarding Shelter and Mass Care, the government relies heavily on the professionalism and logistical capacity of TRCS. However, there is no lost-wages compensation for TRCS volunteers during domestic deployment. This hinders the TRCS volunteer capacity and readiness to provide response for large-scale disasters or simultaneous events across multiple locations in the country. Capacitating the Disaster Management Fund, as noted earlier, and enabling use of those funds to provide TRCS volunteer lost-wages compensation, may enable longer term and more robust humanitarian relief operations. To the credit of the TRCS, PMO-DMD and other government agencies, efforts to develop and provide psycho-social support services to disaster-affected communities have been adopted early, whereas even in some other countries with significantly more resources and EP&R capacity, there is no hint of such programs.

Tanzania Fire and Rescue Force (TFRF), another key response agency, has made significant improvements in developing its personnel and planning for disasters. For example, it has agreements in place with Germany for training and knowledge sharing that enable staff to travel to Germany and train with local firefighting and rescue teams. This represents an excellent and progressive approach to capacity building for the TFRF and has translated to clear SOPs for certain response operations. However, as noted in following sections, significant challenges remain with respect to TFRF facilities and equipment limitations that compromise its mission.

In general, the approach to decentralize operational control for disaster response has been well received by most participants, however the lack of training, knowledge building, and exercise programs has muted the benefit of this approach. Further to this, the critical difference between executive authority and operational command is not well understood across regions and districts, however local relationships have been helpful in overcoming resulting response challenges as has been noted at several points during the response to the 2014 and 2016 Kilosa Floods. Reinforcing this finding from participant interviews, the LLE survey noted that 90% of respondents indicated that their organization would need training and technical support.

6.2.2 Recommendations

The following recommendations for improving capacity related to the Personnel component of the Tanzania EP&R system are provided in consideration of the above findings:

1. Develop a pre-scripted exercise package and After-Action Report template to enable regions and districts to more cost-effectively exercise their EPR Plans annually and embrace a continuous improvement process.
2. Deliver targeted trainings on roles and accountabilities in disasters to the Regional Commissioner (RC) and the Regional Administrative Secretary (RAS), as well as those enabled during emergencies to serve in those functions should the RC and the RAS not be available.
3. Replicate, and modify as necessary, the development process of the Kilosa District EPRP. In particular, use the experience of Kilosa to test plans that are developed and to capture experiential learnings from those involved in the response and recovery.
4. Carefully monitor implementation progress and the overall process of DarMAERT to explore regional applicability of how the various key responding agencies may train and respond together in a more coordinated fashion.
5. **Conduct general disaster risk reduction and focused EP&R training**, including table top exercises, for the Kilosa District Disaster Management Committee. Replicate this for National, Regional and District Disaster Management Committees throughout the country, including topics on empowering the committees to make decisions, setting priorities for EP&R activities and improving collaboration with PMO-DMD. Consider targeted worshops on topics such as situation awareness, resource coordination and mobilization, and the use of social media in disasters. For example:
   - → **Standard Operating Procedure/Guideline Development—**addresses the process of writing standard operating procedures and the essential parts of the procedure to document and communicate complex information with clarity and conciseness to others within their organization.
   - → **Emergency Operations Centre Situational Awareness and Information Sharing—**addresses the fundamentals of situational awareness and the common operating picture for emergency management and includes concepts, theory, capabilities, tools, and techniques for achieving a more effective situational awareness and the common operating picture system to effectively improve critical decision-making prior to, during, and after an incident.
   - → **Emergency Operations Centre Resource Coordination and Management—**applies resource management principles as for centres supporting large, multi-jurisdictional incidents, and shows how systems for managing resources can be used to improve incident response.

- **Public Information and Social Media Coordination**—introduces participants to what the Public Information Officer (PIO) does in emergency management. Potential topics covered include the role of the PIO; communication tools and resources encompassing social media; effective communication; preparing the community through outreach and other means; and communication in an incident.

6.3 INFORMATION

6.3.1 Findings

Through the organizational engagement as well as the extensive literature review conducted prior to the LLE mission, the coordination and timely sharing of information was consistently noted as an area of focus. Further, and in a positive gesture toward embracing continuous improvement, 69% of LLE survey respondents felt that there were best practices that could be derived from the 2014 and 2016 Kilosa Floods. A willingness towards community action and engagement appeared to be quite strong during these events, despite a lack of formal mechanisms to enable that engagement. For example, there is no consolidated contact information within the government, be that telephone or email, for ministries, international agencies, or the public to share critical disaster information or to request vital emergency support.

While inbound emergency communications may benefit from capacity improvement, outbound emergency communications may also be improved. The Tanzania early warning systems (EWS) is not centrally coordinated, nor is there a comprehensive understanding of what a fully mature system may include. In terms of warning message dissemination, several participants confirmed that informal channels such as WhatsApp groups and Facebook were being used as the primary methods for official warning message distribution at the regional and district level. As the government has no control over these social platforms, service restoration priorities during disruptions, etc., reliance on these tools, while convenient, diminishes the government's responsibility to ensure warning messages are distributed in a multi-modal manner that maximizes reach.

Tanzania Meteorological Agency (TMA) does use the international standard Common Alerting Protocol for issuing rainfall, and other meteorological-related warnings. This is a very positive step that enables TMA-issued warnings to readily be spread across various media platforms, including television, radio, social media, etc. However, these alerts are typically very technically detailed, not actively messaged and are generally poorly understand by the public in terms of appropriate action. Further, there appears to be no capacity for, nor engagement with, private sector telecom companies to enable location-based alerts via mobile phone. Highlighting the challenges with leadership and collaboration with the TEPRP-assigned emergency functions noted earlier, warnings issued by TMA have no engagement with Ministry of Information, Culture, Arts and Sports (MOI). This despite MOI being the primary agency assigned the Communications and Warning Emergency Function within the TEPRP.

With respect to the use of GIS and geo-reference information to support EP&R, the TRCS uses the low-resolution nation-wide risk mapping completed by PMO-DMD in 2010 to support planning for disaster relief operations. However, access to the information can be challenging. TRCS used this risk mapping to complete Vulnerability/Capacity Assessment is certain areas, however, the Districts are still relied upon to provide the detailed local information about vulnerable populations. As a result, while the TRCS effort represents a strong start in leveraging geo-referenced disaster management to reduce human and economic consequences, there is significant room to improve. For example, as confirmed by participants across the country, there appears to be no disaster management information system, such as WebEOC, in place that enables information flow and creates a real-time common operating picture. This can be a meaningful support during EP&R activities, enabling evacuation routes to be generated and shared between all involved parties either before or during a disaster. Neither that information, nor the capacity to share it quickly and accurately, currently exists in the country.

In a similar fashion as TMA's provision of early warnings for meteorological emergencies, such as heavy rainfall, cyclones, etc., the Ministry of Water and Irrigation and Irrigation (MoWI) holds responsibility for issuing warnings related to riverine flooding. However, at the moment the MOWI does not have the

technical capacity to fulfill its responsibility in this regard. Participants shared that MOWI has insufficient river monitoring gauges, no flood modelling capacity and limited active messaging capability in terms of ensuring the public understands what action to take when potentially provided with riverine flood messages. However, despite the lack of technical capacity to share data and conduct related analysis quickly to multiple responder agencies, the Memorandum of Understanding (MOU) between TMA and the Ministry of Water and Irrigation and Irrigation (MoWI) for sharing hydrometeorological data is worth noting as a model for other ministries. Agreements such as this MOU clear a path for staff to collaborate and share information that reduces human and economic consequences during disasters. It ensures that once appropriate technologies and datasets become available, their use will not be impeded due to lack of understanding and formalized processes. It is worth noting that internal data sharing agreements can also set a foundation for data sharing with the private sector, particularly those companies that own or manage critical infrastructure assets such as telecommunications towers, hospitals, airport terminals, fuel infrastructure, port facilities, etc.

6.3.2 Recommendations

The following recommendations for improving capacity related to the Information component of the Tanzania EP&R system are provided in consideration of the above findings:

1. **Increase EP&R planning capacity, and planning accuracy**, through improved linkages between data owners and data users via data sharing agreements. With the PMO-DMD's National EOC as a core entity, this effort may first be approached across the national government, then between various levels of government and finally between government and the private/international sectors.
2. **Improve technology and capacity for watershed-based early warnings**, as well as impact-based weather forecasting. This would include dramatically increasing the number of automatic weather stations and automatic river gauges, as well the introduction of a flood forecasting model to utilize the incoming data and indicate when conditions are set for flooding, as well as the likely extent and severity of the flood conditions. The Wami River Basin may be considered as a strong contender to pilot such a project.
3. **Increase collaboration with responders during operations** by including weather and river condition updates as part of daily consolidated situation report issued by the National EOC.
4. Improve early warning messages to ensure local level understanding and promote appropriate response actions by the public, e.g. move to high ground, avoid rivers, etc. In many cases, these messages can be pre-scripted and distributed automatically after certain hazardous condition thresholds are surpassed.
5. Establish a robust, centrally-managed disaster management information system that enables geo-referenced hazard and vulnerability, as well as real-time response operation details to be managed and shared with selected agencies and partners.
6. Engage private sector mobile telecommunications companies, including service providers, network managers, and infrastructure owners, to formalize location-based alerts via the mobile network to enhance rapid distribution of early warning messages.

6.4 EQUIPMENT

6.4.1 Findings

Anticipated challenges due to EP&R equipment gaps were expressed as a common concern during the LLE interviews and survey. A large majority, 75%, of respondents indicated that they had insufficient resources to fulfill their responsibilities during the Kilosa Floods. For example, the TPF requires equipment improvements to capacitate the aforementioned Crisis Response Teams that are positioned in each District. This includes basic personal protective equipment as well as helicopters, vehicles with moderate towing capacity, light-weight resilient boats and outboard motors, mobile command posts, etc. At the regional level, the TPFs Field Force Units have been ¾ capacitated and this work has been completed in coordination with other ministries.

While both the TPDF and the TFRF undertake flood search and rescue operations, neither are reasonably equipped for this activity. In particular, swift water rescue capacity does not appear to exist in any agency or at any level of government in the country. This ca-

pacity gap significantly increases the potential for loss of life and injuries for both rescuers and those in danger. Given its mandate and existing training liaisons with Germany, the TFRF is best positioned to lead on activity.

In addition to its capacity gap for swift water rescue, the TFRF is facing critical gaps in other areas of EP&R equipment. For example, quick response suppression vehicles, such as modified Toyota Hilux, are cost-effective and can improve the reach of the TFRF through carrying inflatable boats and associated swift rescue kits. Specially equipped dive teams with appropriate vehicles, stationed in strategic areas around the country, were also noted as a helpful capacity to support flood and other water-related rescues, such as capsized boats on inland lakes and waterways. Finally, the TFRF critically requires basic and advanced personal protective equipment and modern radios, as well as procurement planning support for management of program budgets and initial funding to bridge the capital gap.

Regarding humanitarian relief equipment, TRCS and UNICEF collaborate outside of government to preposition relief supplies, especially Water/Sanitation/Hygiene (WASH) capacity in areas that are likely to be affected by seasonal hazards such as riverine flooding in the Wami River Basin. Despite this coordination effort, stored supply of relief resources was noted by participants as being depleted faster than the replenishment rate. This situation of diminished relief capacity may create unnecessary hardship and increase humanitarian consequences during the next significant disaster event in the country. The TRCS, UNICEF, government and other partners have made significant and commendable strides regarding the provision of psycho-social supports for disaster-affected communities and responders. However, temporary housing for those displaced during the 2014 and 2016 Kilosa floods was noted as a major challenge. Based on participant information, this challenge arose due to equipment, e.g. tents and tarpaulins, that were intended for short duration shelter but were ultimately used for long durations. Increased foresight gained through thoughtful, experience-based planning, combined with improved equipment may improve future temporary housing operations for flood-displaced persons.

6.4.2 Recommendations

The following recommendations for improving capacity related to the Equipment component of the Tanzania EP&R system are provided in consideration of the above findings:

1. Complete the equipment procurement for the remaining regional TPF Field Force Units. This will ensure a consistent and reliable baseline response capacity for conducting evacuations and supporting humanitarian relief operations across all regions and will enable a functional, multi-hazard response capacity across all regions.
2. Enable swift water rescue capacity within the TFRF through technical equipment procurement coupled with establishing necessary supply chains and technical trainings on new equipment.
3. Functionally capacitate general search and rescue, as well as firefighting, capacity within TFRF to enable response and increase the threshold for requiring military domestic operations to support disaster response. This approach will enable the TPDF to focus on its primary mandate of civil protection from human-induced hazards and ensure the TFRF has the necessary modern equipment to fulfil its standing mandate as well as its leadership role for the Search and Rescue, and Firefighting Emergency Functions assigned in the TEPRP.
4. Restock and modernize humanitarian relief supplies and ensure pre-positioning in seasonally flood prone areas such as Morogoro Region. As the Shelter and Mass Care Emergency Function lead assigned in the TEPRP, the TRCS should be utilized as a lead government representative for the planning and implementation of these efforts.
5. Improve and modernize temporary shelter options for flood-displaced individuals as well as mass evacuation equipment. Combined, these resources will enable displaced families and communities to remain local and participate in the structural and psycho-social recovery of their community, a key step in limiting the economic consequence of disasters.

6.5 FACILITIES

6.5.1 Findings

Resilient, modern and strategically distributed EP&R facilities are limited in the regions and districts that were examined through the LLE. While the majority of participants focused on other areas of EP&R capacity building, several findings emerged regarding facilities. Importantly, there is currently no modern, appropriately capacitated National EOC. In support of action on this finding, almost every participating agency highlighted the importance of this facility as a cornerstone of the entire EP&R system in the country. PMO-DMD noted that with the recent relocation

to Dodoma, 100 acres has been set aside as an intended site for such a facility.

In addition to capacity challenges with the National EOC, the regional EOCs are also limited. In the case of Morogoro, the regional EOC is strategically well positioned above any potential riverine flood hazards. However, the capacity is below the requirement to enable highly-effective coordination of regional resources and the Regional Disaster Management Committee. At the operational level, TFRF also indicated a facility gap that was limiting their service capacity in almost every region.

Also located in Dodoma, the Ministry of Health has an excellent, high-functioning EOC exclusively for addressing human health emergencies, be those emergencies associated with other disasters such water-borne illness arising from potable water supply challenges after riverine floods, or epizootic outbreaks such as Ebola. As well, while TRCS has a large, 600m2 warehouse in Dodoma, the agency also noted the need for additional storage space to enable more rapid distribution of humanitarian aid to disaster-affected regions in the country.

Several old German-built dams in the upper Wami River Basin, as well as an embankment protecting areas of Kilosa, have fallen into disrepair. Recently however, several areas of the Kilosa embankment that have been repaired, much of it by TPDF. Unfortunately, local cattle grazing activities, as well as changes to the river's main channel, have threatened both the old and newer sections of the embankment and heavy siltation/infill from river sediment behind the dams have caused structural deterioration. As a result of these maintenance challenges, the flood control structures that used to significantly mitigate flooding in the area now are unable to provide flood control. Worse still, based on information from MOWI, these structures are at risk of failure during floods. Working with Kilosa District officials, the PMO-DMD have developed land-use guidelines to inform development along the river in Kilosa. However, community perceptions regarding appropriate use of these areas do not yet appear to have shifted to prioritize flood safety over grazing and other activities that harm the local flood control structures. To ensure future flood protections, any structural improvements should proceed only after the community perceptions about those structures has shifted to a flood protection priority.

6.5.2 Recommendations

The following recommendations for improving capacity related to the Facilities component of the Tanzania EP&R system are provided in consideration of the above findings:

6. Create an integrated, multi-hazard early warning center for the national government that would enable technical specialists from the various ministries to be co-located in a common facility, although still independently managed. The facility would include resilient structure, connectivity, servers and redundant communication technology. Ideally, this center would be located adjacent to a modernized National EOC as part of the government establishing a disaster management campus under the general administration of a Disaster Management Agency.
7. Retrofit, reconstruct and/or establish new stations and outposts for TFRF to ensure capacity for rapid delployment of response resources. In particular, ensure that for the most time-sensitive emergencies, e.g. swift water rescue, found in recurring areas such as Kilosa, the TFRF have sufficient dedicated facilities.
8. Establish an Emergency Joint Information Center within the PMO-DMD 100-acre campus that can provide a functional facility for government statements, media briefings, social media engagement, etc. in support of national and regional emergency response operations. Such a facility would also serve as a training facility during times when it was not required for response operations support.
9. **Establish a modern National Emergency Operations and Communication Center (EOCC)** as part of a Disaster Management Agency campus located on the aforementioned 100 acres site set aside in Dodoma for this purpose. Ideally, such a facility would function as the nerve center for an integrated national response capacity and link to an integrated, multi-hazard early warning center as well as Emergency Joint Information Center for managing disaster response information.
10. Build regional coordination capacity with an EOC-in-the-box technical package that would include laptops, GPS-enabled radios, spare charging cables, back-up generators for sustained power supply, and local WiFi with satellite up-link and/or digital capability for voice and data communications.
11. Complete the renewal of the Kilosa flood protection embankment and begin the full rehabilitation of the flood control dams in the tributary rivers of the Wami River Basin, thereby significantly reducing the likelihood of severely destructive flood events in the river basin.

6.6 RECOMMENDATIONS SUMMARY

The LLE resulted in 29 collaboratively generated recommendations for improving the capacity of the Tanzania EP&R system. Recommendations have been summarized in the table below for quick reference. Highest priority items that should be considered time-sensitive and/or will need to be completed to enable other recommediations to proceed, have been noted as such.

NO.	RECOMMENDATION TITLE	PRIORITY EFFORT
1. Legal and Institutional Framework		
1.1	Update the TEPRP	■
1.2	Develop/update Emergency Function plans	
1.3	Update the National Operaitonal Guidelines	
1.4	Establish fast-track procurement and resource mobilization procedures	
1.5	Capacitate the Disaster Management Fund	
1.6	Create a critical infrastructure assurance program	
1.7	Establish the Disaster Management Agency	■
2. PERSONNEL		
2.1	Develop exercise package and AAR template	
2.2	Deliver targeted trainings on executive and committee EP&R roles and accountabilities	■
2.3	Codify the Kilosa District EPRP process and plan	
2.4	Monitor DarMAERT progress and replicate approach regionally	
2.5	Conduct general disaster risk reduction and targeted EP&R trainings	
3. INFORMATION		
3.1	Improve data sharing to enable more accurate planning	
3.2	Improve technology and capacity for watershed-based early warnings	■
3.3	Create a daily consolidated situation report, including weather and river conditions, to be issued by PMO-DMD	
3.4	Improve active messaging for early warnings	
3.5	Establish a robust disaster management information system for preparedness activities and response operations	
3.6	Engage private sector telecommunications companies to enable location-based warnings	
4. EQUIPMENT		
4.1	Complete equipping of regional TPF Field Force Units	
4.2	Enable swift water rescue capacity through equipping of TFRF at regional level	■
4.3	Functionally capacitate TFRF to undertake general Search and Rescue operations as well as urban/structural firefighting	
4.4	Restock, modernize and preposition humanitarian relief supplies in commonly flood-affected regions	■
4.5	Improve and modernize temporary shelter options for evacuees	■
5. FACILITIES		
5.1	Create an integrated, multi-hazard early warning center	
5.2	Establish an Emergency Joint Information Center	
5.3	Establish a modern National Emergency Operations and Communications Center	■
5.4	Build regional coordination capacity through EOC-in-a-box technical packages	
5.5	Complete renewal of Kilosa flood protection embankment and initiate rehabilitation of the Wami River flood control dams.	■

7 LLE Summary

As confirmed participant feedback, the 2014 and 2016 Kilosa Flood LLE fully met and surpassed the established project objectives. For example, when asked to rate the LLE workshop, 97% of participants indicated that it was very or extremely successful and 94% indicated that they came away with a better understanding of EP&R capacity improvement solutions. Further, 94% of participants noted that after the LLE they had a better knowledge of EP&R principles with 97% noting they had a better understanding of the Tanzania EP&R system.

Within the common themes noted by participants for focused improvement – Communication, Early Warning Systems, Training and Exercises, and Coordination – significant EP&R efforts have been made by EP&R partners. A strong foundation, built by unity of effort from all engaged partners, suggests that focused capacity building would be timely and well supported across the country. As noted by all participants, comprehensive EP&R capacity building may best be managed if it was undertaken in a collaborative manner with effective leadership by an enabled Disaster Management Agency. In total the LLE engaged over 55 participants across 20 partners and lead to 29 collaboratively generated ideas for EP&R capacity building projects. Further assessment with a focus on the Equipment and Facilities components of the World Bank's Ready2Respond platform may highlight additional investments that will ensure sustainable, systemic EP&R capacity building.

Due to the unwavering, informed leadership of PMO-DMD and the constructive participation and commitment of the participants, the 2014 and 2016 Kilosa Floods LLE shows the potential for dramatically increasing disaster resilience across Tanzania through targeted investment in EP&R capacity.

8 Annexes

8.1 INVITATION TO PARTICIPATE LETTER

Location, Date
[Name and Surname-XXX]
[Position-XXX]
[Address-XXX]

Invitation to the 2014 and 2016 Kilosa Floods Lessons Learned Exercise
July 8-16, 2019 | Tanzania

Dear XXXXX,

The World Bank Group has the pleasure of inviting you to participate in the Kilosa Floods Lessons Learned Exercise (LLE) which will take place in various locations throughout Tanzania from July 8-16, 2019. The LLE is organized by the World Bank Africa Disaster Risk Management (DRM) team in partnership with the World Bank's Global Facility for Disaster Reduction and Recovery (GFDRR) and the Government of Tanzania.

Through the lens of the Emergency Functions described in the Tanzania Emergency Preparedness and Response Plan (TEPRP), the LLE will give key government and emergency relief entities an opportunity to discuss the government's systems, procedures and experiences related to emergency preparedness and response, and to better understand each agency's perspective, capacities and placement within the response operation. The LLE will also explore private sector resilience for critical infrastructure and services, as well as the integration of not-for-profit organizations with government-led response operations. The outcome from this LLE will be collaborative, fiscally sustainable, recommendations for investment in Tanzania's emergency preparedness and response capacity that reflect the context of the country.

During the course of the LLE, the World Bank will conduct short interviews, typically one hour, with key personnel that have direct experience with the 2014 and 2016 Kilosa Floods. As well, those that are working in key managerial and operational roles identified in the Tanzania Emergency Preparedness and Response Plan, specifically those with leadership accountability for identified Emergency Functions, will be vital to an informed outcome for this effort. The interviews will focus on three areas of discussion: 1) progress in the field of emergency preparedness and response, 2) areas for improvement within each Emergency Function, and 3) details about the operational capacity and processes for the Emergency Function that is appropriate to the interview participant.

We would be grateful if you could kindly confirm, via email to xxxxxx@worldbank.org, your availability and interest regarding an interview during the week of July 8, 2019.

Should you have any questions about the event, please do not hesitate to contact XX. XXXX XXXXXXX, at xxxxxxx@worldbank.org, or Mr. Elad Shenfeld, Senior Disaster Risk Management Specialist at eshenfeld@worldbankgroup.org.
We look forward to your participation in this Lessons Learned Exercise.

Sincerely,

[SIGNATURE]
TTL
Title
World Bank Group

8.2 SURVEY TEMPLATE

BASELINE SURVEY FOR THE KILOSA FLOODS LESSONS LEARNED EXERCISE (LLE)

Background and Objectives

This document is intended to gather information from the Kilosa Floods Lessons Learned Exercise organized by the Government of Tanzania and the World Bank Disaster Risk Management team.

The objective of this survey is to engage in an initial baseline data gathering for the LLE process and to collect the information that will help to inform follow-up discussions and the LLE Workshop.

The survey will focus on the following areas:

Topic 1. Initial lessons learned from the 2014 and 2016 and Flood Response
Topic 2. Progress and knowledge of the current situation

Information on the survey form
All the data referring to the respondent of this survey, are confidential, and will be used specifically for the LLE.

For each question on the form, you have the opportunity to explain your opinion and/or add more fields if necessary.

We thank you for your cooperation and for taking the time to complete this survey. The results are key to strengthening Sierra Leone's capacity for disaster preparedness and early recovery.

Identification of the entity	Identification of the respondent
Name:	Name:
Country:	Title:
Date:	Email:

TOPIC. 1
Initial Lessons Learned from the Kilosa Floods

Based on the response to the Kilosa Floods:

Was your ministry/agency as fully prepared as it could be for the emergency?

YES	
NO	

Describe:

Was your ministry/agency equipped, mandated and capable of responding to an emergency such as the Kilosa Floods?

YES	
NO	

Describe:

Did you have sufficient resources to fulfill your responsibilities and missions? If not, how did you obtain them?

YES	
NO	

Describe:

What resources were not available?

Describe:

Where there any standard operating procedures (SOPs)/standard protocols and guidelines related to these types of extreme conditions?

YES	
NO	

Describe:

Were there any mutual aid agreements in place/MOUs? Were you able to mobilize personnel and equipment during the event?

YES	
NO	

Describe:

Are there any "best practices" you can derive from this event?

YES	
NO	

Describe:

Can you create an easily accessible repository for lessons learned and best practices you have documented?

YES	
NO	

Describe:

Has your ministry/agency been able to work effectively with other ministries/agencies during the response? Are there certain aspects of response that could be improved through collaboration with response partners?

YES	
NO	

Describe:

What recommendations would you make to others responding to similar events?

Describe:

TOPIC 2.
Progress and knowledge of the current situation

What do you consider to be the greatest strengths and opportunities for improvement of your institution in terms of emergency management in Tanzania? Add more fields if necessary.

STRENGTHS	OPPORTUNITIES FOR IMPROVEMENT

Does your sector or institution have an emergency operations plan, coordination or communication protocols or other instruments that define the response tasks, institutional responsibilities and coordination mechanisms?

YES	
NO	

Describe:

Does your institution have an updated resource inventory?

YES	
NO	

If your answer is YES, mark with a (x) the types of items that the inventory contains

Type of elements	(x)	Last update date
Human Resources		
Equipment		
Tools		
Humanitarian aid		
Medical supplies		
Others. Specify:		

Is there any capacity building training / technical support that your organization should receive?

YES	
NO	

If the above answer is affirmative, what issues do you consider necessary to address?

1	
2	
3	
4	
5	

Again, thank you very much for your time and collaboration.

8.3 SURVEY RESULTS

As mentioned above, part of the LLE involves sending a pre-mission survey to stakeholders. For the Tanzania LLE, the survey was intended to gather information about the Kilosa Floods from key government officials and stakeholders involved in the response operation. The objective of this survey was to engage in an initial baseline data gathering for the LLE process and to collect information that would help inform follow-up interviews and discussions during the LLE Workshop. The below section summarizes some of the most salient results of the survey, which were also presented during the LLE workshop.

PREPARATION TO THE EVENT

The survey found mitigated answers in terms of how well different agencies/ministries were prepared for the event, with just over 62% saying they were prepared. This underlined a need to gain a more holistic view of the current gaps and opportunities in terms of preparedness to disasters in the country. Nevertheless, the survey underlined that (i) there is a clear understanding of the roles and responsibilities of the agencies, and (ii) there remain some concerns on mobilization of the local community during response operations.

In addition, respondents also shared qualitative information regarding their views on the preparation to the Kilosa floods:

- Early Warning Systems are crucial to make sure everyone is informed on time.
- Preparation involved local authorities to ensure local communities receive assistance.
- The question of equipment is important before the event in order to foster a better response.

COORDINATION DURING THE EVENT

According to the survey, there was a clear consensus that ministries/agencies were able to work effectively with others during the response with 83% of the respondents responding so. This result shows:

- Coordination is perceived as effective. Several respondents praised local coordination on the ground and having a disaster Committee at the District level greatly helped coordination.
- There is a good awareness in general about who does what, but there is a lack of resources. This is something that interviews throughout the week also confirmed.

RESOURCES

There was a clear consensus in the survey that there were not enough resources to fulfill the stakeholders' responsibilities with over 83% of the respondents saying they needed more resources. In addition, some of the areas where more resources were highlighted in the survey include: (i) equipment to improve Eearly Warning Systems; (ii) seting aside budget and relief items and (iii) the importance to work with external partners

BEST PRACTICES

From the survey, 69% of the respondents were able to derive best practices from the disaster events in Kilosa. Some of these were:

- Coordination was seen as effective, between the military, civil authorities and civilians.
- There was a good intervention by the local level disaster recovery committee at Ward / Subward

In addition, some of the areas mentioned in the survey which should be maintained for the future include: (i) coordination; (ii) the intervention of first responders.

TECHNICAL SUPPORT AND TRAINING

The survey highlighted a clear consensus: all respondents (100%) identified the need for technical support and trainings. Some examples include:

- The need for trainings to understanding the role of each department/agency;
- Improve the capacities of frontline responders;
- Strengthen EOCC, Review older documents, develop SoPs and Contingency Plans, conduct simulation exercises, establish RRT, training regional and district disaster committees;
- Integrating cash and voucher intervention in disaster Preparedness and Response;
- Community engagement and Accountability;
- Gender and Inclusion issues.

FURTHER RESULTS

Some further results from the survey can be underlined below:

- Two thirds of the respondents did not have any mutual aid agreements in place/MOUs.
- Over 60% of the respondents mentioned they had standard operating procedures (SOPs)/ standard protocols and guidelines.
- Respondents expressed the need for the establishment of multisectoral national task force group which have regular meetings and the existence of sub committees which are in line with various thematic areas relevant to various public health emergencies.

8.4 INTERVIEW GUIDELINES

As meeting duration is likely to be between 1.5 hours for critical participants and one hour for other participants, it will be helpful to ensure participants have sufficient time to guide the discussion in their own words as a means of determining EP&R strengths and opportunities for improvement. As such, questions have been targeted to the focus and approach of the LLE:

PROGRESS IN THE FIELD OF EMERGENCY PREPAREDNESS AND RESPONSE

- What advances in emergency planning and response have been made in recent years (key legislative milestones, institutional improvements etc.)?
- What major disruptive events have tested the system? What was your role in those events and what has changed since?
- Does Tanzania participate in any international agreements and bilateral cooperation mechanisms? If so, what are recent examples where support was offered from outside the country or vice versa, and what was the decision-making process in this regard?

AREAS FOR IMPROVEMENT

- Based on recent disaster experiences in the country, what are your major Emergency Function(s) challenges related to:
  1. Legal and institutional frameworks?
  2. Information?
  3. Facilities?
  4. Equipment?
  5. Personnel?

EMERGENCY FUNCTION

- What activities do you undertake as the lead for your Emergency Function under the TEPRP?
- How would you describe your response plan for your Emergency Function(s)? Does it include standard operating procedures (SOPs)/standard protocols and guidelines related to these types of extreme conditions? If yes, how did you apply the SOPs in your response operations during the 2016 Morogoro region floods?
- How often do you exercise/test your response capacity using your plan and what is your approach to ensure continuous improvement, that you apply the lessons you have learned?
- How do you engage with the other departments and partners listed as supports for the Emergency Function to ensure a common concept of operations and up-to-date contact information?
- What processes do you have in place for communicating with the public and your Emergency Function team during a response (Level 2 or higher)?

8.5 LLE MISSION AGENDA AND INTERVIEW PARTICIPANTS

MONDAY 8 JULY 2019 – DAR ES SALAAM

11 am - Police

S/N	Name	Designation	Organization	Phone No.	Email
	ACP Edward Jotham Balele	Assistant Commissioner of Police (ACP)	Police HQ	0719741314	mapande48@gmail.com

1.30 pm - DART

S/N	Name	Designation	Organization	Phone No.	Email
	Fanuel Kalugendo	DART	DART	0767418806	Fanuel.kalugendo@dart.go.tz

3.30pm - TRCS

S/N	Name	Designation	Organization	Phone No.	Email
	Viva Shoo	Disaster Response Manager	Tanzania Red Cross Society (TCRS)	0713412791	Vivaoliva12@gmail.com
	Lucrecia Rubandwa	Disaster Preparedness officer	TRCS		
	Joston Westone	Disaster Preparedness Manager	TRCS		

TUESDAY 9 JULY 2019 - DAR ES SALAAM

11 am - TMA

S/N	Name	Designation	Organization	Phone No.	Email
	Wilberforce Kikwasi	TMA	Tanzania Meteorology Agency		
	Chuki Sangalugembe	TMA	Tanzania Meteorology Agency		
	Noel Y. Mlay	TMA	Tanzania Meteorology Agency		
	Joyce F. Makwata	TMA	Tanzania Meteorology Agency		
	Mariana F. Materu	TMA	Tanzania Meteorology Agency		
	Samwel Mbuya	TMA	Tanzania Meteorology Agency		samwel.mbuya@meteo.go.tz
	Wilbert Timiza Mumke	TMA	Tanzania Meteorology Agency		

2 pm – TANROADS - Ministry of Works and Communications

S/N	Name	Designation	Organization	Phone No.	Email
	Eng. Ladislaus Bigambo	TANROADS	TANROADS	07591165	Ladis.b@gmail.com

3.30 pm – UNICEF (informal meeting, not part of formal interview process)

S/N	Name	Designation	Organization	Phone No.	Email
	Judith Bihondwa	Planning Emergency Specialist	UNICEF	0784680028	jbihondwa@unicef.org

WEDNESDAY 10 JULY 2019 – MOROGORO

10.30 am – Regional Administrative Secretary

S/N	Name	Designation	Organization	Phone No.	Email
	Clifford Tandari	Regional Administrative Secretary	Regional Commissioner's Office Morogoro		

11.00 am – Mini workshop (Morogoro)

S/N	Name	Designation	Organization	Phone No.	Email
	Diaz J. Ndomba	Focal Person	RAS - Morogoro	0784911165	ntenukila@gmail.com
	Wilfred Mathew	Regional Coordinator	Tanzania Redcross society	0767437755	wilfredmath@gmail.com
	Elizabeth D. Badi			0714898100	elizabethbadi15@gmail.com
	Hamadi S. Dadi	Fire Fighter	Tanzania Fire and Rescue Forceforce	0713987205	pdadi85@gmail.com
	Asifwe A. Ulime			0762405773	

THURSDAY 11 JULY 2019

8.30 am - DMD

S/N	Name	Designation	Organization	Phone No.	Email
	Col Matamwe J. Said	Director	PMO-DMD	0713242590	jimmy.said@pmo.go.tz

9.00 am – TPDF

S/N	Name	Designation	Organization	Phone No.	Email
	Lt Col Yenu Athumani Mgugule	Ag HEMDU	TPDF	0784746784	yenu.mgugule@modans.go.tz

11.00 – DMD

S/N	Name	Designation	Organization	Phone No.	Email
	Edgar Senga	DRR Coordinator	PMO-DMD	0752924391	katenenga@yahoo.co.uk
	Harison Chinyuka	Disaster Coordinator	PMO-DMD		
	Charles E. Msangi	SDRM Expert	PMO-DMD	0753777771	charles.msangi@pmo.go.tz

14.00 – Ministry of health

S/N	Name	Designation	Organization	Phone No.	Email
	Dr. Faraja Msemwa		Ministry of Health	0755535496	farajadr@yahoo.com

FRIDAY 12 JULY 2019

10 am – Fire and Rescue

S/N	Name	Designation	Organization	Phone No.	Email
	Bashiri Mahadhi Madhehebi	Deputy Commissioner	Fire and Rescue Force	0762701035	bashiri.madhehebi@frf.go.tz

11.30 am – Ministry of Water and Irrigation

S/N	Name	Designation	Organization	Phone No.	Email
	Obadia K. Kibona	Senior Environmentalist	Ministry of Water and Irrigation	0769310271	obadia.kibona@maji.go.tz
	Eng Ayubu Madebo -Ujenzi	Hydrologist	Ministry of Water and Irrigation		

1.30pm – DMD – check-in meeting not part of the interview process

S/N	Name	Designation	Organization	Phone No.	Email
	Bashiru Taratibu Hussein	Assistant Director	PMO-DMD	0713236349	bashiru.hussein@pmo.go.tz
	Ewald Peter Bonifasi	Disaster Coordinator	PMO-DMD	0735205999	ewald.bonifasi@pmo.go.tz
	Charles E. Msangi	SDRM Expert	PMO-DMD	0753777771	charles.msangi@pmo.go.tz

8.6 LLE WORKSHOP AGENDA

TANZANIA EP&R LESSONS LEARNED EXERCISE | Workshop Agenda

Workshop Dates:
July 15-16
Workshop Duration:
1.5 days

Workshop Objective:

Using the Kilosa flood disasters of 2014 and 2016 as focusing event and the World Bank's Ready2Respond platform as a foundation, this workshop will bring together government and disaster relief agencies to improve emergency preparedness and response (EP&R) capacity in Tanzania. Together we will explore lessons learned from these disasters through the eyes of participants and collaboratively define opportunities for capacity improvement. The workshop will begin in the morning of Day 1 with participant reflections on what worked well during response operations and where there is room for improvement. A second session in the afternoon will introduce Ready2Respond as a high-level platform to view EP&R systemically and for framing solutions to challenges noted in the first session. During the morning of Day 2, participants will engage in a discussion-based table-top exercise using a similar scenario to the Kilosa flood disasters. At critical challenge points, the facilitators will pause the scenario to ask participants to work together in interdisciplinary groups to identify potential solutions to the identified challenge. The workshop will close with a summary of the information gathered during the full Lessons Learned Exercise and provide clarity on the project's next steps.

WORKSHOP AGENDA:

Day One

TIME	TOPIC	FACILITATOR
9:00am	Welcome and Opening Remarks	**Col. Matamwe Jimmy Said, Director, DMD**
9:10am	Workshop Overview and Goals	**Elad Shenfeld, World Bank Group**
9:40am	Overview of the Tanzania EP&R System	**Charles Msangi, Senior Officer, Disaster Management Department**
10:10am	LLE Initial Findings	**Hugo Wesley, World Bank Group** **Adam McAllister, World Bank Group**
10:40am	Break	---
11:00am	Reflective discussion on the Kilosa Flood response	**DMD and World Bank LLE Team**
12:30pm	Lunch	---
1:20pm	Group Photo	**Meet by the pool*
1:40pm	Introduction to the World Bank's EP&R capacity platform	**World Bank LLE Team**
2:00pm	Project development session for EP&R capacity improvement	**DMD and World Bank LLE Team**
3:00pm	Break	---
3:15pm	EP&R Project Presentations	**DMD and World Bank LLE Team**
4:30pm	Day 1 Summary and Close	**DMD and World Bank LLE Team**

Day Two

TIME	TOPIC	FACILITATOR
8:30am	Welcome and table-top exercise introduction	**DMD and World Bank LLE Team**
9:20am	Start Exercise	**DMD and World Bank LLE Team**
10:15am	Break	---
10:30am	Table-top Exercise Continues	**DMD and World Bank LLE Team**
11:30am	End Exercise and Debrief	**DMD and World Bank LLE Team**
11:50am	Next Steps and Workshop Evaluation	**DMD and World Bank LLE Team**
12:05pm	Certificate Award Ceremony	**DMD and World Bank**
12:20pm	Closing Remarks	**Director, DMD (Zanzibar)**
12:30pm	Lunch	---

8.7 WORKSHOP GENERATED PROJECT CONCEPTS

LESSONS LEARNED EXERCISE TANZANIA: KILOSA FLOODS 2014 AND 2016

PROJECT CONCEPT TEMPLATE

PROJECT TITLE:

Establishing an Integrated National Emergency Communication and Coordination System

OBJECTIVE:

Primary Objective:
To enable effective and efficient emergency communication during emergency preparedness and response.

Specific Objectives:
1. To establish and equip EOCC at all levels of government.
2. To train emergency responders on how to use the EOCC equipment.
3. To develop communication SOPs for emergency response.
4. To improve interoperability among emergency responders.
5. To disseminate and communicate critical emergency information in a timely and effective manner.

KEY STAKEHOLDERS:

- Government ministries, agencies and departments at all levels.
- UN and International Organizations.
- Private sector.
- NGOs, CBDs and FBDs.

OUTPUTS:

- Digital (computer) based emergency communication system throughout the country.
- EOCCs equipped with the required communication equipment.
- Clear and well-defined SOPs.

OUTCOMES:

- Well-coordinated communication during response.
- Timely dissemination of critical emergency information to emergency response stakeholders.

REQUIRED BUDGET (USD OR TZ SHILLING):

- Will be determined upon project design, including detailed project activities.

HOW LONG TO COMPLETE THE PROJECT (# OF MONTHS)?

- 12-24 months.

HOW WOULD YOU MEASURE SUCCESS?

- Improved disaster response.
- Reduced impact, e.g. mortality, related to emergency incident.

LESSONS LEARNED EXERCISE TANZANIA: KILOSA FLOODS 2014 AND 2016

PROJECT CONCEPT TEMPLATE

PROJECT TITLE:

Integration of local and expert knowledge in the reduction of disaster risk at local and national level

OBJECTIVE:

1. Identify and document local and expert knowledge on disaster risk reduction at all levels.
2. Mainstream best practices from both local and expert knowledge into school curriculum, training manuals and guidelines on DRR.
3. Monitor and evaluate the use and impact of applied school curriculum, training manuals and guidelines.

KEY STAKEHOLDERS:

- Government
- Non-state actors (NGOs, CBDs, UN Agencies, Private Sector, INGOs, FBOs)
- Donors
- Academic Institutions

OUTPUTS:

- Identified and documented best practice on DRR.
- Developed school curriculum, training manuals and guidelines.
- Developed monitoring and evaluation frame work (stragegic).

OUTCOMES:

- Improved DRR practice at all levels.
-

REQUIRED BUDGET (USD OR TZ SHILLING):

- 7,000,000.00 (USD).
-

HOW LONG TO COMPLETE THE PROJECT (# OF MONTHS)?

- 24 months.
-

HOW WOULD YOU MEASURE SUCCESS?

- By the use of developed monitoring and evaluation framework, will determine the achievement (quantity and quality).

LESSONS LEARNED EXERCISE TANZANIA: KILOSA FLOODS 2014 AND 2016

PROJECT CONCEPT TEMPLATE

PROJECT TITLE:

Conduct DRR training and table top simulation exercise for Kilosa District Disaster Management Committee

OBJECTIVE:

1. To build capacity of the District Disaster Management Committee.
2. To reduce impacts of disaster events
3. To improve preparedness mechanisms

KEY STAKEHOLDERS:

- Government institutions
- NGOs and CBOs
- DPs

OUTPUTS:

- Trained committee
- Improved awareness in implementing DRR act and Policy
- Strengthened community based EPRPs
- Training-of-trainers (ToT) established in the lower level

OUTCOMES:

- Reduce risk for disaster events.
- Improved skilled personnel at lower levels.
- DRM team capacitated.

REQUIRED BUDGET (USD OR TZ SHILLING):

- 100,000.00 (USD).

HOW LONG TO COMPLETE THE PROJECT (# OF MONTHS)?

- 12 months.

HOW WOULD YOU MEASURE SUCCESS?

- Increase performance in disaster response.
- Increase productivity.
- Reduce number of disaster events.

LESSONS LEARNED EXERCISE TANZANIA: KILOSA FLOODS 2014 AND 2016

PROJECT CONCEPT TEMPLATE

PROJECT TITLE:

Strengthen Disaster Management Committees at all levels

OBJECTIVE:

1. To empower disaster management committees to manage and prevent disasters at their levels.
2. To identify their disaster management priority needs.
3. To strengthen collaboration between various stakeholders and Disaster Management Department (DMD).
4. To strengthen their capacity for resource mobilization.

KEY STAKEHOLDERS:

- DMD
- DRR In-line ministries and agencies
- Humanitarian organizations (Red Cross, CARITAS, SDAs, etc.)
- Influential people
- Community leaders and community members
- FBOs, NGOs, CBOs, CSOs, Army forces.

OUTPUTS:

- Investments on having communication devices for disaster management committee.
- Train committees on disaster management prioritization of needs
- Train disaster management committees and other stakeholders on Disaster Management Act.
- Organize sensitization workshops on resource mobilization.

OUTCOMES:

- Improved communication mechanism on DRR.
- List of priority disaster management needs.
- Improved collaboration between DMD and other stakeholders.
- Improved resource mobilization capacities.

REQUIRED BUDGET (USD OR TZ SHILLING):

- 20,000.00 (USD) per District.

HOW LONG TO COMPLETE THE PROJECT (# OF MONTHS)?

- 3 months.

HOW WOULD YOU MEASURE SUCCESS?

- Reports from District Executive Director.
- Number of platforms established.
- Formulate key performance indicators.

LESSONS LEARNED EXERCISE TANZANIA: KILOSA FLOODS 2014 AND 2016

PROJECT CONCEPT TEMPLATE

PROJECT TITLE:

Strengthening early warning systems

OBJECTIVE:

1. Ensure availability of quality early warning information.

KEY STAKEHOLDERS:

- MDAs
- UN Agencies / International Agencies
- Private sector
- Civil society
- Academia

OUTPUTS:

- Automatic weather stations.
- Hydrological stations (Automatic).
- Early warning information database.
- Various testing equipment.

OUTCOMES:

- Reliable early warning information.
- Efficient disaster management.
- Reduce disaster risk.

REQUIRED BUDGET (USD OR TZ SHILLING):

- 20,000,000.00 (USD)

HOW LONG TO COMPLETE THE PROJECT (# OF MONTHS)?

- 60 months.

HOW WOULD YOU MEASURE SUCCESS?

- Reduction in number of death due to natural and human-induced disasters.
- Reduction in economic loss and damage from disasters.
- Increased level of resilience.
- Improved well-being of community.
- Improved standard of living.
- Increased in sustainable livelihoods across communities.

LESSONS LEARNED EXERCISE TANZANIA: KILOSA FLOODS 2014 AND 2016

PROJECT CONCEPT TEMPLATE

PROJECT TITLE:

Strengthening communication and response mechanisms

OBJECTIVE:

1. To review and implement existing National Disaster Communication Strategy.
2. To strengthen the National Emergency Operation and Communication Centre.
3. To enhance communication and information systems, including modern equipment, development of social media platforms, creation of awareness, and trainings).
4. To strengthen response mechanisms into incident command systems.

KEY STAKEHOLDERS:

- PMO-DMD
- Ministry of Finance
- Ministry of Agriculture
- Ministry of Health
- Tanzania Meteorological Agency
- Tanzania Communication Regulatory Authority
- Red Cross
- NGOs (International and local)
- Private Sector
- Development partners (UN Agencies, World Bank Group)

OUTPUTS:

- Timely and effective response to emergencies and disasters.
- Decreased damages and losses due to disasters.

OUTCOMES:

- Improved communication response mechanisms.
- Timely response and coordination.
- High participation and involvement of local communities in DRR activities.
- Increased resilience level by building the resilience culture.

REQUIRED BUDGET (USD OR TZ SHILLING):

- 3,800,000.00 (USD)

HOW LONG TO COMPLETE THE PROJECT (# OF MONTHS)?

- 36 months.

HOW WOULD YOU MEASURE SUCCESS?

- Reduced response time.
- Modernized communication and information system in place.
- Reduced mortality rate due to disasters.
- Elevated resilience level.

LESSONS LEARNED EXERCISE TANZANIA: KILOSA FLOODS 2014 AND 2016

PROJECT CONCEPT TEMPLATE

PROJECT TITLE:

Resource mobilization

OBJECTIVE:

1. To develop a proactive resource mobilization strategy.
2. To develop synergies within government sectors, international and private organizations.
3. To develop public-private partnership guideline on resource mobilization.
4. To develop risk transfer program.

KEY STAKEHOLDERS:

- PMO-DMD
- Ministry of Finance
- Private Sector
- NGOs (international and local)
- Development partners
- Voluntary organizations (CBOs)

OUTPUTS:

- Enhanced disaster management budgeting system.
- Timely response to emergencies and disasters.
- Effective mechanism for resource allocation will be in place.
- Timely deployment of resources – human, equipment, relief items, etc.

OUTCOMES:

- Improved DRR aspects at all levels.
- Budgetary systems have increased capability to respond effectively to disasters and emergencies.
- Stabilized resilience mechanism as funds and necessary tools are put in place.
- Timely deployment of resources to disaster affected areas.

REQUIRED BUDGET (USD OR TZ SHILLING):

- 1,480,000.00 (USD)

HOW LONG TO COMPLETE THE PROJECT (# OF MONTHS)?

- 24 months.

HOW WOULD YOU MEASURE SUCCESS?

- Number of affected population in district/region received humanitarian assistance.
- Resource mobilization strategy in place.
- Number of stakeholders engaged in DRR resource mobilizations.
- Number of vulnerable people involved in risk transfer programs.
- Regularly conduct of monitoring and evaluation meetings with success indicators guidelines.

LESSONS LEARNED EXERCISE TANZANIA: KILOSA FLOODS 2014 AND 2016

PROJECT CONCEPT TEMPLATE

PROJECT TITLE:

Strengthening early warning system for flood events in Wami River basin

OBJECTIVE:

1. Strengthen awareness on hazards management to the communities within the flood prone zone.
2. Facilitate information sharing pre- and post-warning.
3. Improvement of livelihoods.

KEY STAKEHOLDERS:

- PMO-DMD
- Ministry of Agriculture; Ministry of Health
- Ministry of Infrastructure and Communication, i.e. TMA, TRC
- Ministry of Water and Irrigation, i.e. Wami River Basin
- UN-FAO, WB, UNDP, USAID
- Academia
- Private Sector

OUTPUTS:

- Installed hydromet monitoring stations.
- M & Ev flooding system, i.e. flooding models.
- Preservation of rehabilitated and retaining dams.
- Reduce cost of operation of TRC, TANROADS, PMO
- DAUAWA irrigation schemes, etc.

OUTCOMES:

- Reduced disaster risk within the project area.
- Improved economic activities, i.e. livelihoods.
- Increased revenue to TRC.

REQUIRED BUDGET (USD OR TZ SHILLING):

- Estimated cost is solution dependent.

HOW LONG TO COMPLETE THE PROJECT (# OF MONTHS)?

- 36 months.

HOW WOULD YOU MEASURE SUCCESS?

- Accuracy of information to be used by TMA/MoWI for early warning system.
- Increase of productivity to farmers.
- Reduced rate of death caused by flooding.
- Improved efficiency of operation, i.e. railway, roads, etc.

8.8 WORKSHOP PARTICIPANTS

S/N	Name	Designation	Organization	Phone No.	Email
	Makame Khatib Makame	Executive Director	Zanzibar Disaster	0773335227	makesme16@yahoo.com
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	Samwel Ibrahim Mbuya	Manager CFO	TMA	0764750980	samwel.mbuya@meteo.go.tz
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	Shabani Ghuhia Ally	PCL/Officer	PO- RALG	0718615054	ghuhia.shaban@tamisemi.go.tz
	Amini Hillary Mshana	Managing partner	DarMAERT	0767237144	aminimshana@hotmail.com
	Dr. Christopher Moses Mnzava	DarMAERT- Coordinator	RS DSM	0713327399	mnzavachris60@gmail.com
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	Fanuel Kalugendo	DRR Focal Person	DART	0767418806	fanuel.kalugendo@dart.go.tz
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S/N	Name	Designation	Organization	Phone No.	Email
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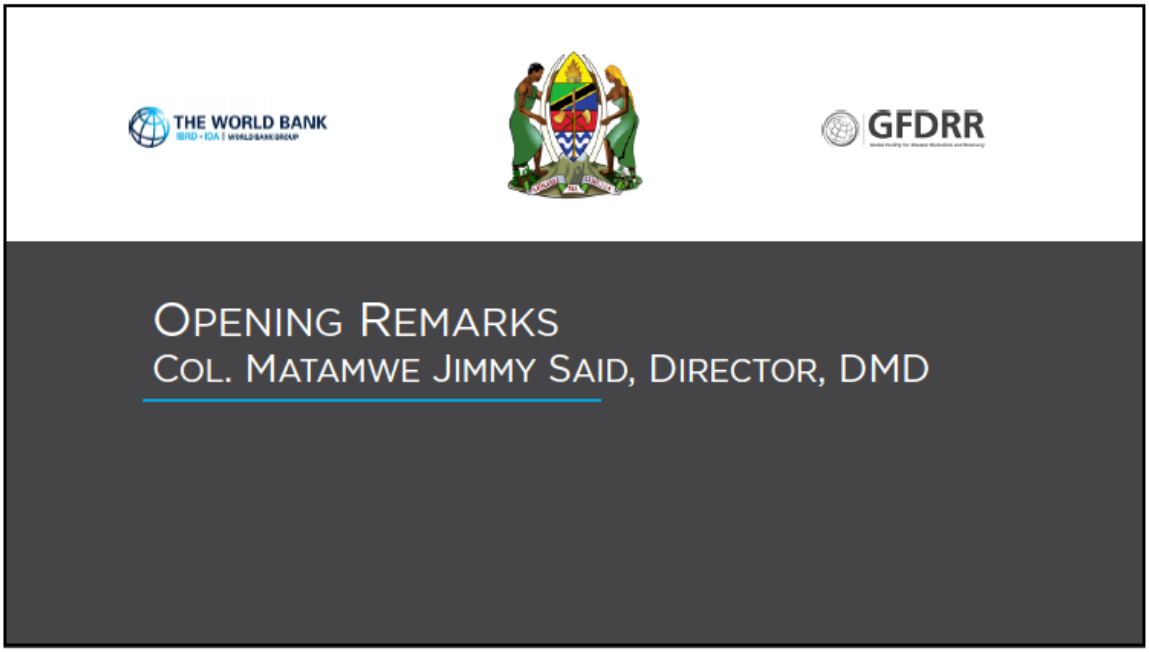
	Joe Leitman	Lead DRM specialist	World Bank/GFDRR		jleitmann@worldbank.org
	Elad Shenteld	Senior Program Officer	World Bank/GFDRR		eshenfeld@worldbank.org
	Adam Mc Allister	Senior DRM Consultant	World Bank/GFDRR		adam@mcallister-craig.com

8.9 WORKSHOP PRESENTATION

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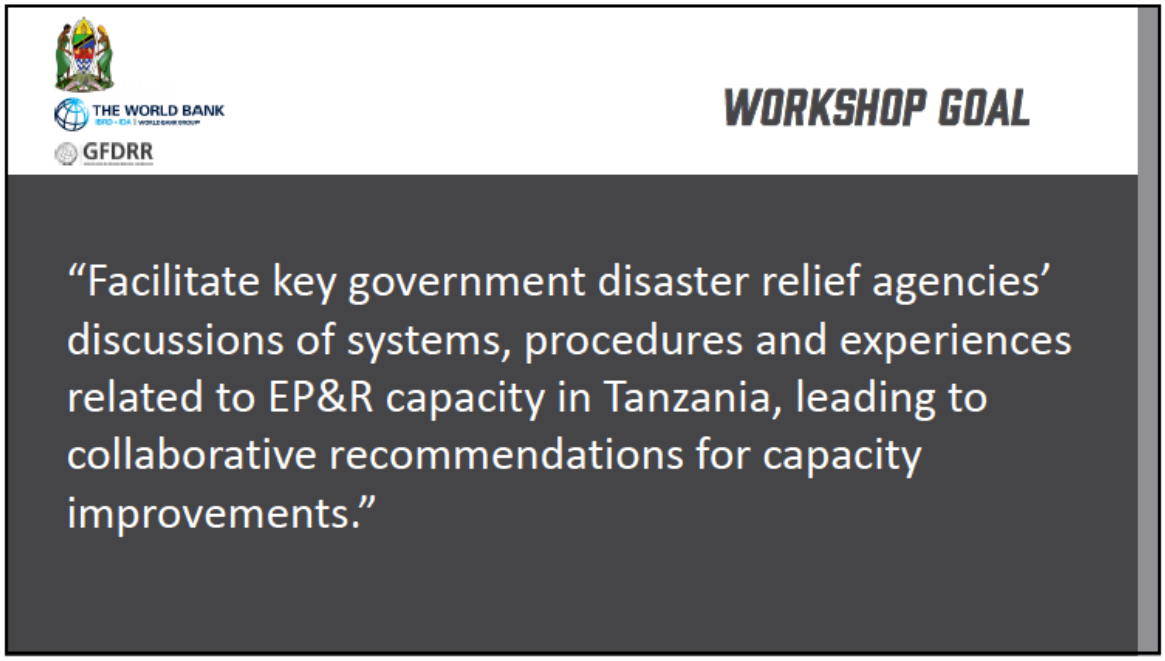
WORKSHOP OVERVIEW AND GOALS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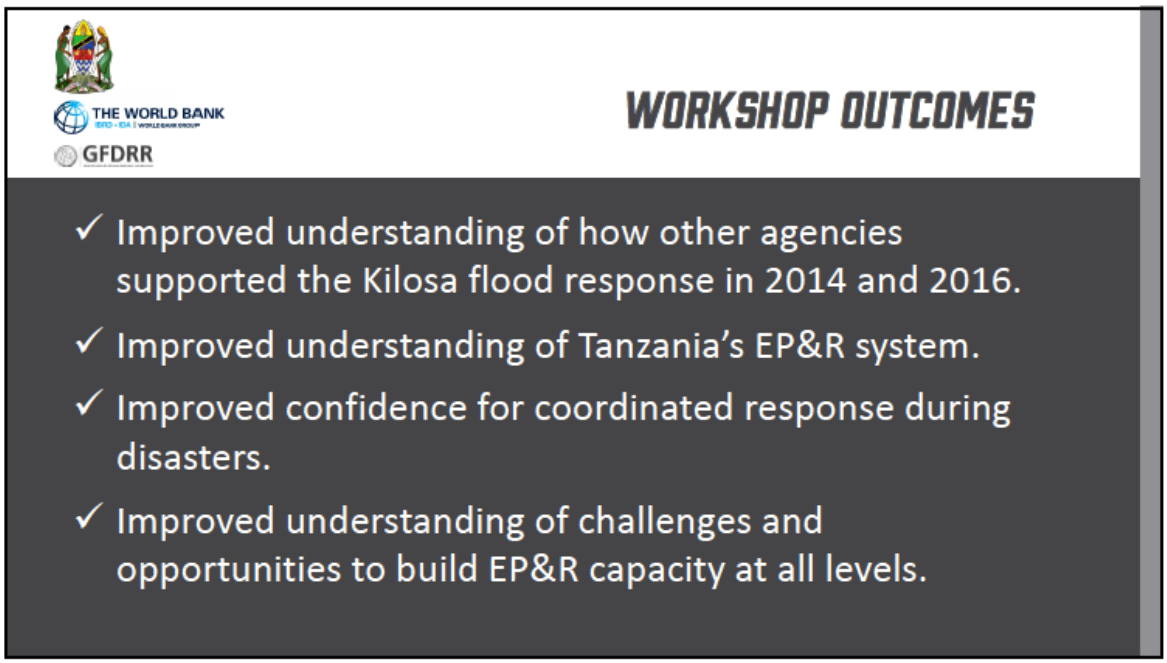
WORKSHOP GOAL
"Facilitate key government disaster relief agencies' discussions of systems, procedures and experiences related to EP&R capacity in Tanzania, leading to collaborative recommendations for capacity improvements."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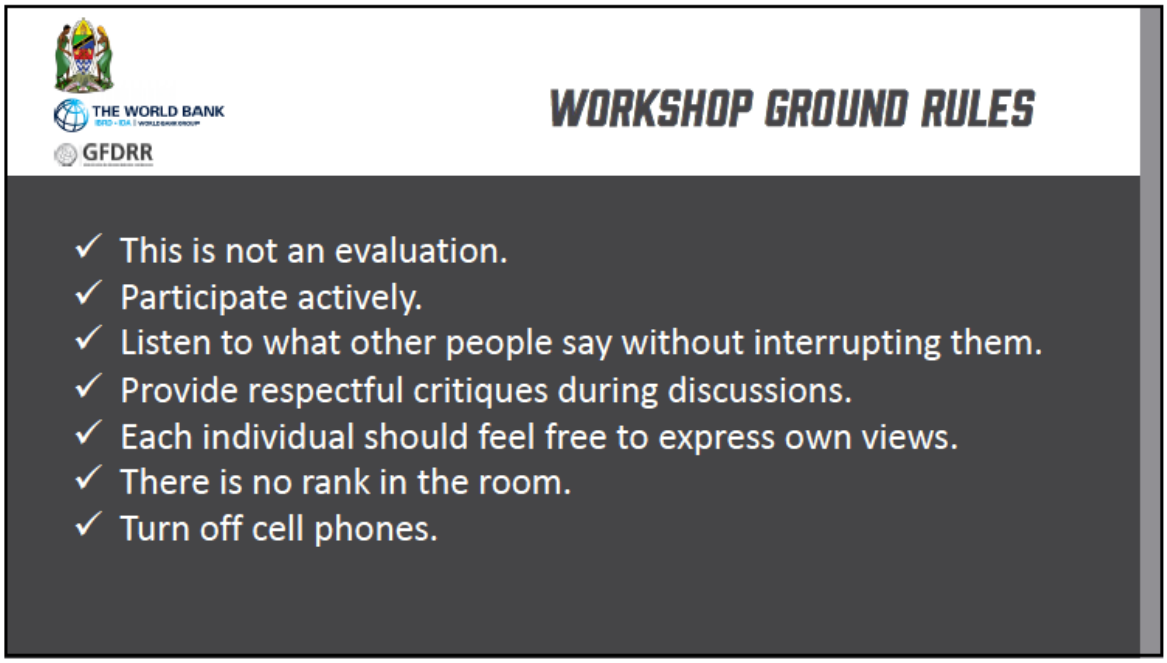
WORKSHOP OUTCOMES
✓ Improved understanding of how other agencies supported the Kilosa flood response in 2014 and 2016.
✓ Improved understanding of Tanzania's EP&R system.
✓ Improved confidence for coordinated response during disasters.
✓ Improved understanding of challenges and opportunities to build EP&R capacity at all levels.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WORKSHOP GROUND RULES
✓ This is not an evaluation.
✓ Participate actively.
✓ Listen to what other people say without interrupting them.
✓ Provide respectful critiques during discussions.
✓ Each individual should feel free to express own views.
✓ There is no rank in the room.
✓ Turn off cell phones.

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WHAT DID WE DO SO FAR

- ✓ Inception Report and Desk Review (May, 2019)
- ✓ Pre-workshop survey (July, 2019)
- ✓ Pre-workshop mission (July, 2019):
  - ➢ Dar es Salaam
  - ➢ Morogoro
  - ➢ Dodoma

Collected information from over 40 people.

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WORKSHOP AGENDA


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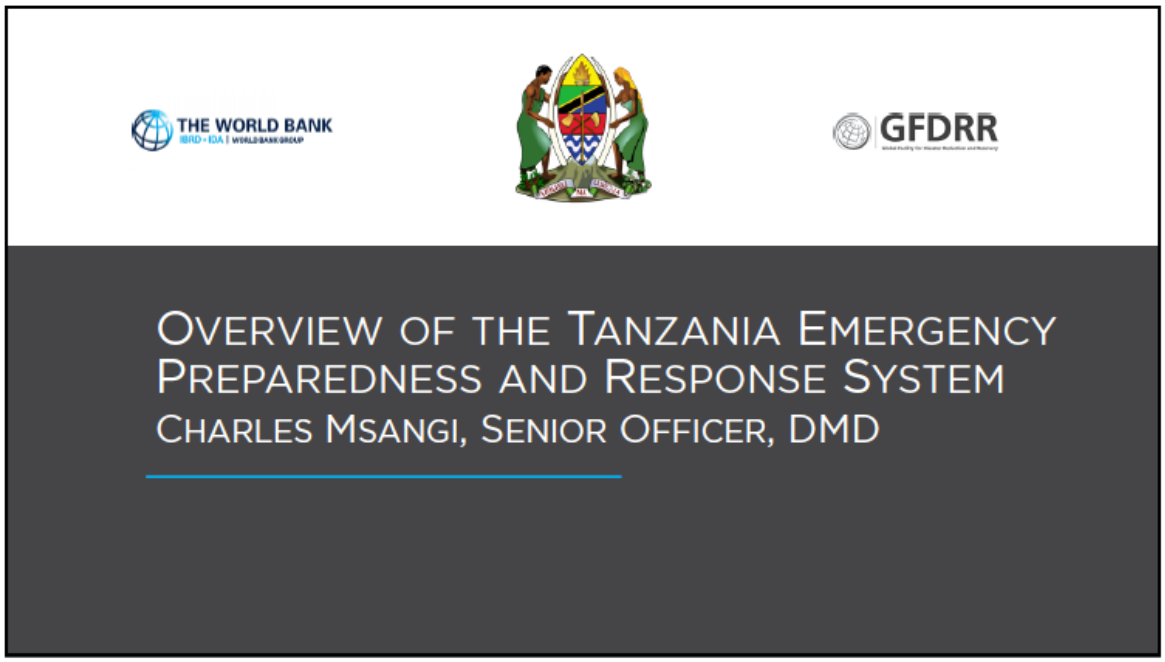
ICE BREAKER CHALLENGE:
FLOATING HULA HOOP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OVERVIEW OF THE TANZANIA EMERGENCY PREPAREDNESS AND RESPONSE SYSTEM
CHARLES MSANGI, SENIOR OFFICER, DMD


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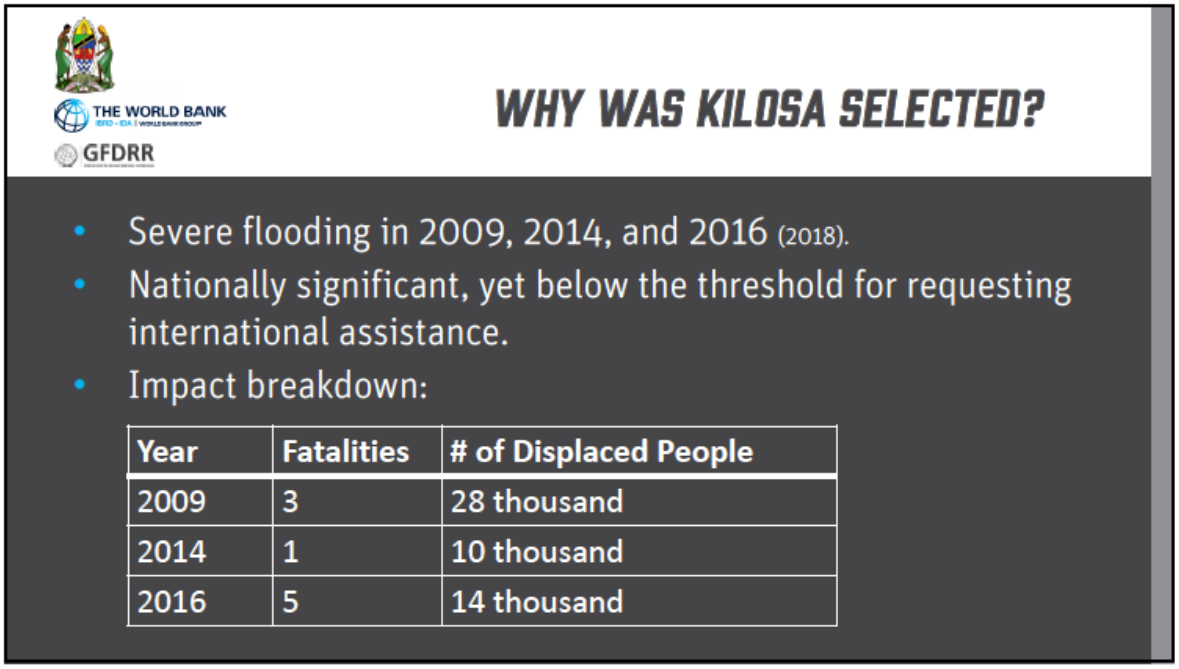
WHAT WE HAVE FOUND SO FAR:
CONTEXT, SURVEY AND INTERVIEWS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WHY WAS KILOSA SELECTED?
• Severe flooding in 2009, 2014, and 2016 (2018).
• Nationally significant, yet below the threshold for requesting international assistance.
• Impact breakdown:
Year | Fatalities | # of Displaced People
2009 | 3 | 28 thousand
2014 | 1 | 10 thousand
2016 | 5 | 14 thousand

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WHY IS KILOSA STILL A CONCERN?

- River basin natural hydrology and dam infrastructure.
- Human-caused deterioration of protective embankment.
- Natural erosion of embankment from river movement.
- Local and regional response capacity limitations.

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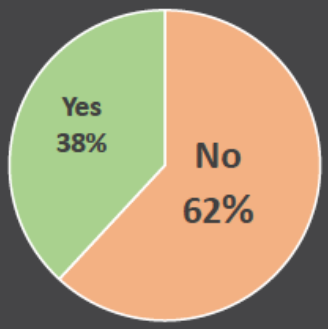
SURVEY FINDINGS

Was your agency fully prepared for the emergency?

Takeaway:

- Need for a more holistic view of gaps and opportunities.



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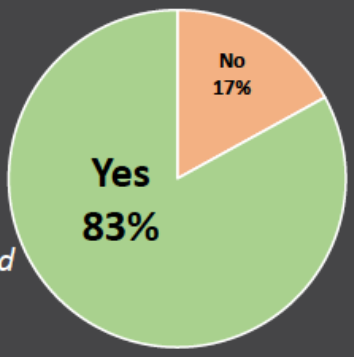
SURVEY FINDINGS

Was your agency able to work with others during the response?

Takeaways:

- Coordination perceived as effective.
- Good awareness but lack of resources.

"Having a Disaster Committee set-up greatly helped coordination."



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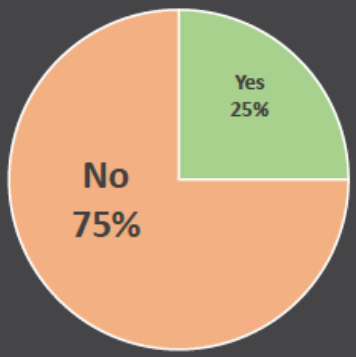
SURVEY FINDINGS

Did you have sufficient resources to fulfill your responsibilities and missions?

Takeaway:

- Clear need for more resources.

"It is important to set aside budget to cover the needs of the affected community."



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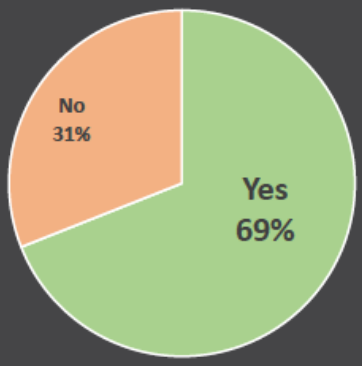
SURVEY FINDINGS

Are there any "best practices" you can derive from this event?

Takeaways:

- Some areas should be maintained:
  - Coordination.
  - Intervention of first respondents.

"I experienced one thing that i cannot forget. Coordination was Bravo!!!"



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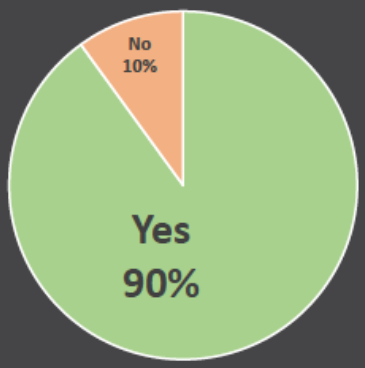
SURVEY FINDINGS

Would your organization need training/technical support?

Takeaway:

- Clear need for capacity building

"There is a need to know and get equipped to government procedures"



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INTERVIEW FINDINGS

Common Themes

- Communications
- Early Warning Systems
- Training and Exercises
- Coordination

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BREAK

WORKSHOP:
LESSONS LEARNED FROM THE 2014 AND 2016 KILOSA FLOODS

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FACILITATED DISCUSSION:

REFLECTING ON THE 2014 AND 2016 KILOSA FLOOD RESPONSE

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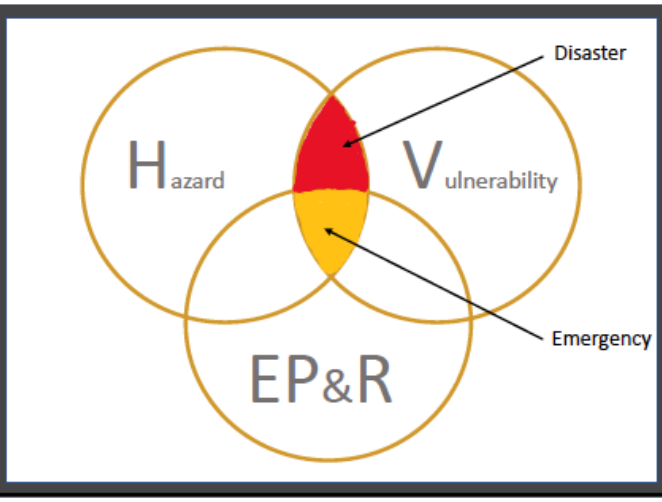
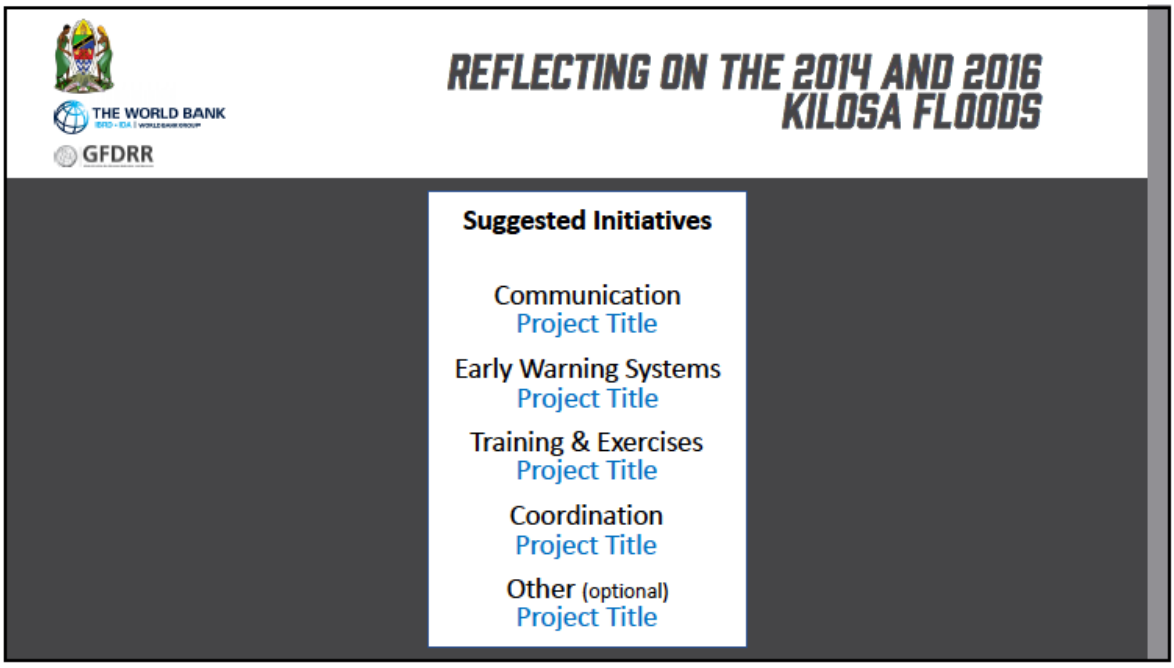
REFLECTING ON THE 2014 AND 2016 KILOSA FLOODS

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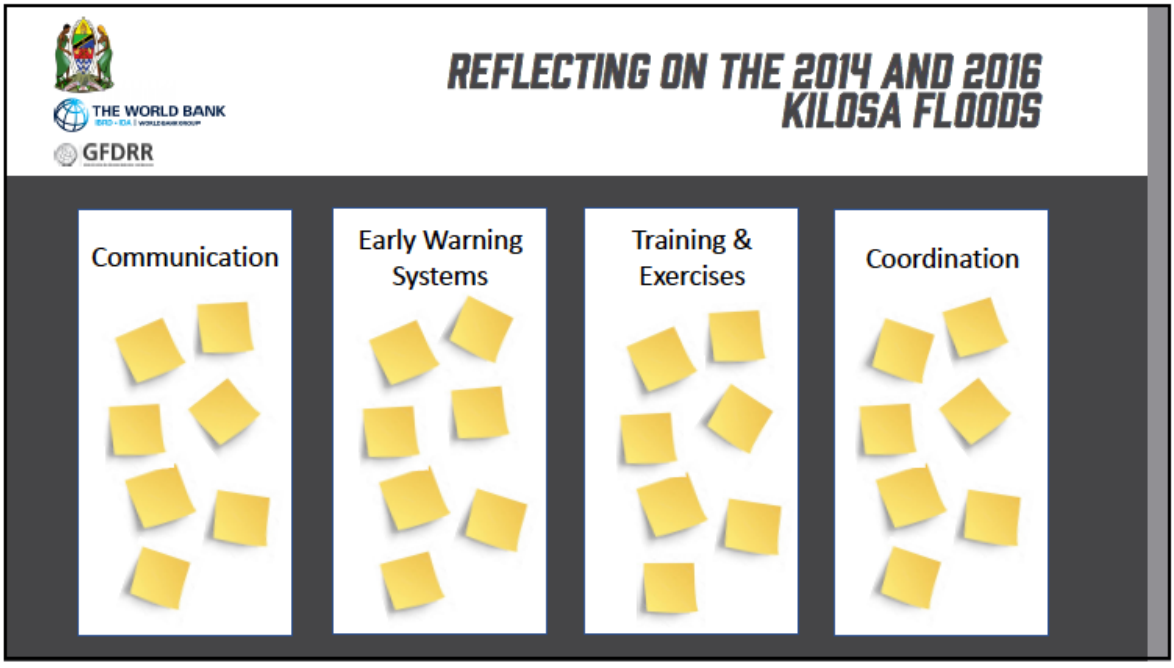
REFLECTING ON THE 2014 AND 2016 KILOSA FLOODS
Suggested Initiatives
Communication
Project Title
Early Warning Systems
Project Title
Training & Exercises
Project Title
Coordination
Project Title
Other (optional)
Project Title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REFLECTING ON THE 2014 AND 2016 KILOSA FLOODS
Communication
Early Warning Systems
Training & Exercises
Coordination

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FACILITATED DISCUSSION:
OVERCOMING CHALLENGES TO BUILDING CAPACITY

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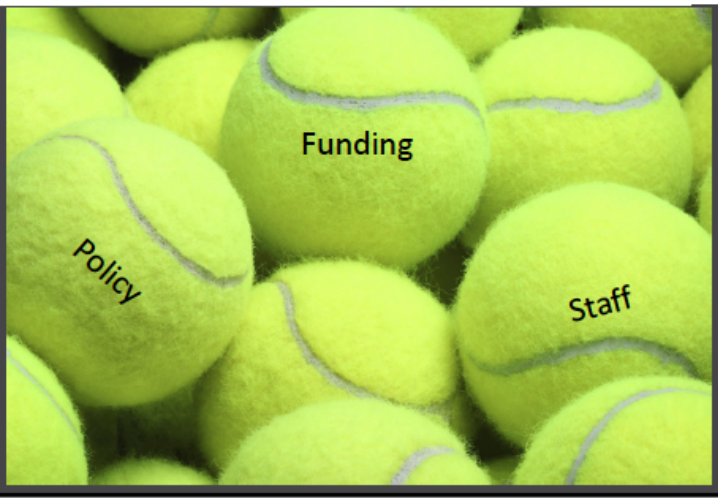
FROM CHALLENGES TO SOLUTIONS: DON'T DROP THE BALL!!!

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LUNCH
WORKSHOP:
LESSONS LEARNED FROM THE 2014 AND 2016 KILOSA FLOODS
MEET BY THE POOL AT 1:20PM FOR A GROUP PICTURE!


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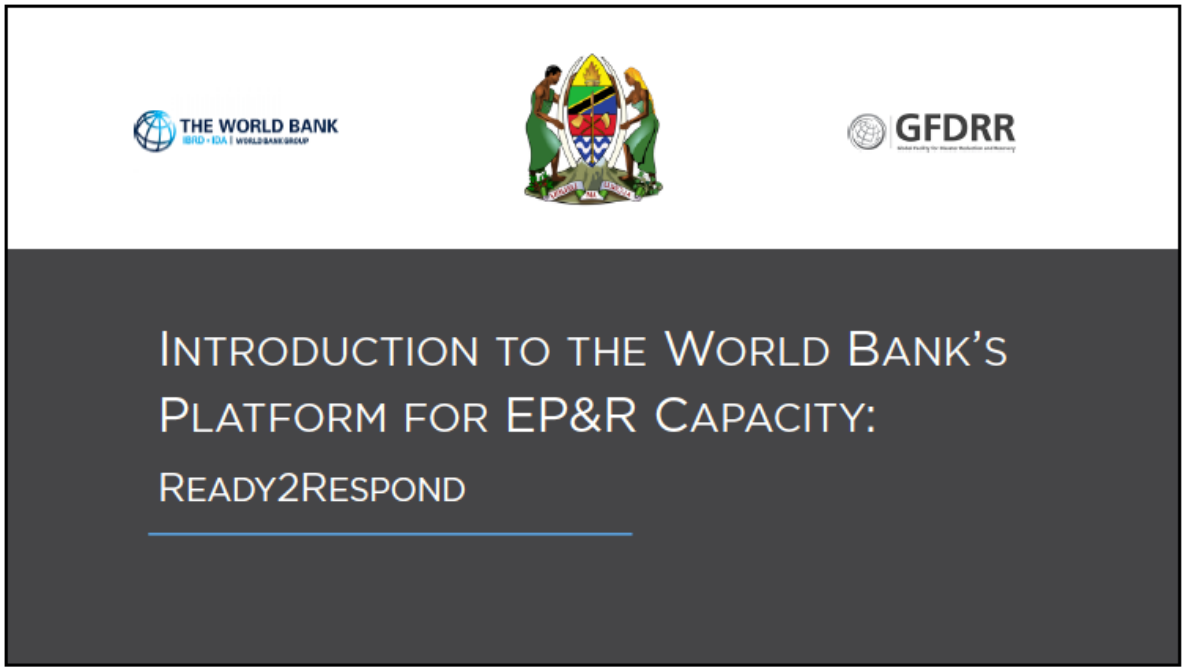
MORNING RECAP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INTRODUCTION TO THE WORLD BANK'S PLATFORM FOR EP&R CAPACITY:
READY2RESPOND


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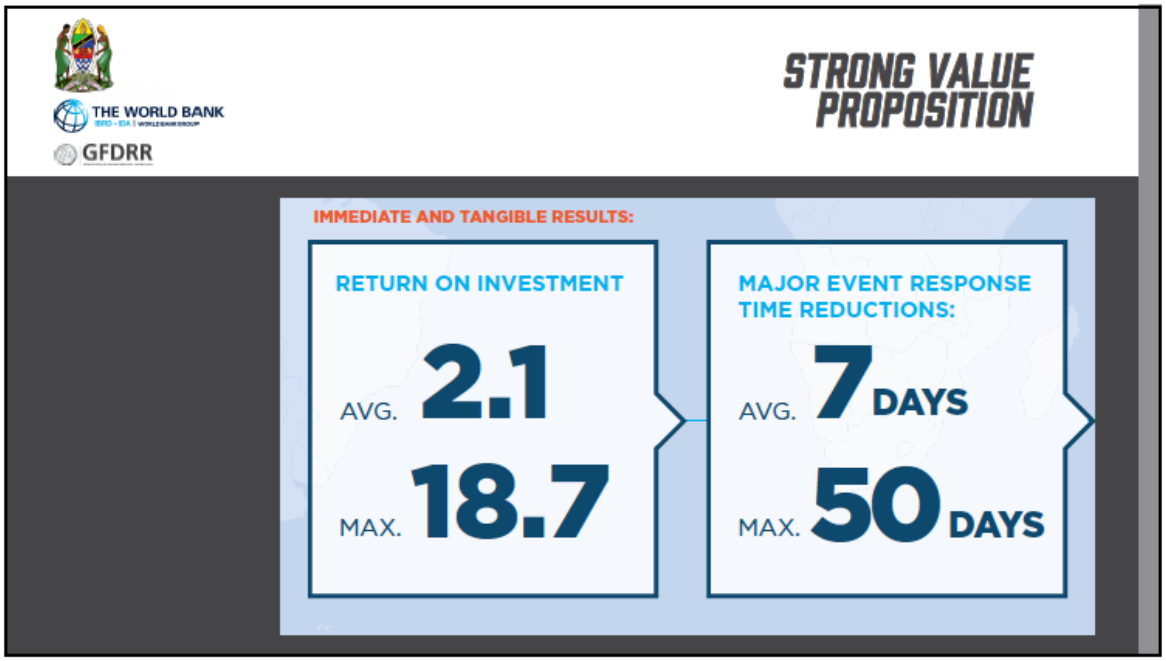
ADDRESSING NATIONAL, REGIONAL AND DISTRICT INTERESTS
Protect the public
Build institutional capacity
Increase climate change resilience
Safeguard development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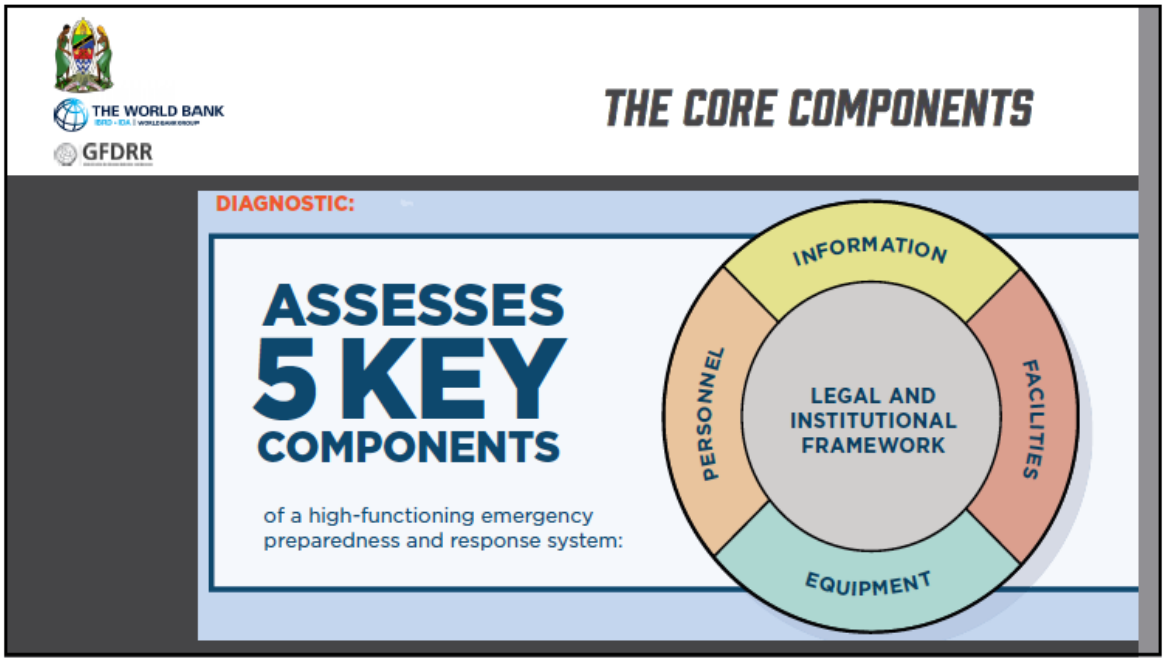
STRONG VALUE PROPOSITION
IMMEDIATE AND TANGIBLE RESULTS:
RETURN ON INVESTMENT
AVG. 2.1
MAX. 18.7
MAJOR EVENT RESPONSE TIME REDUCTIONS:
AVG. 7 DAYS
MAX. 50 DAYS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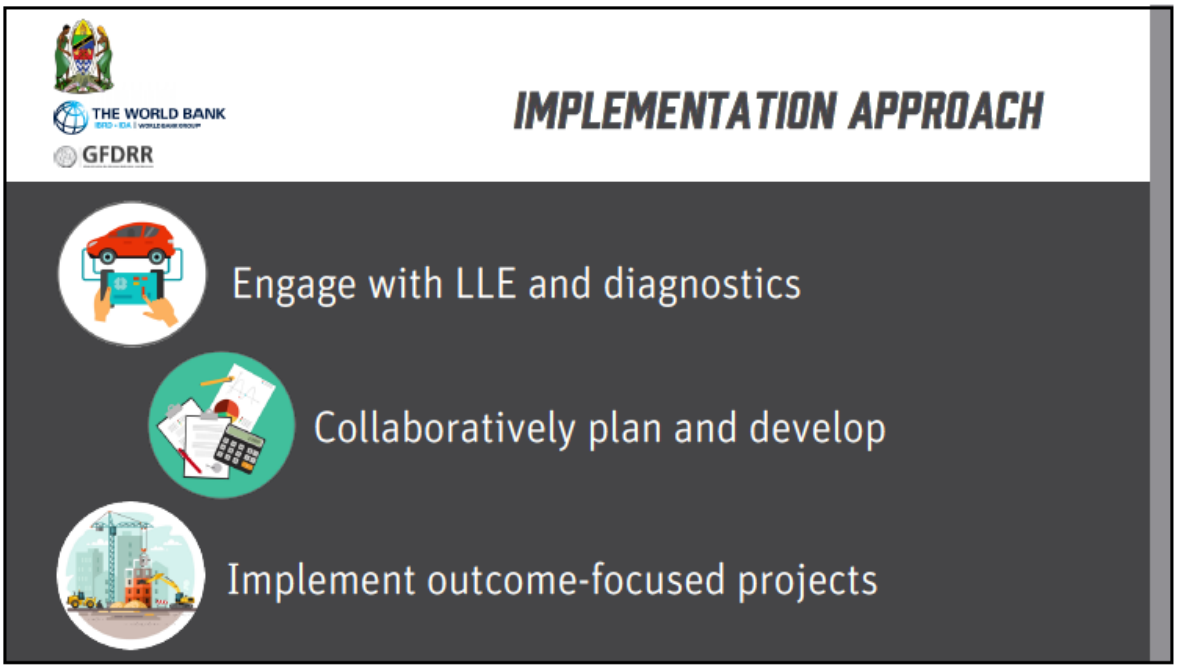
THE CORE COMPONENTS
DIAGNOSTIC:
ASSESSES 5 KEY COMPONENTS
of a high-functioning emergency preparedness and response system:
INFORMATION
FACILITIES
EQUIPMENT
PERSONNEL
LEGAL AND INSTITUTIONAL FRAMEWORK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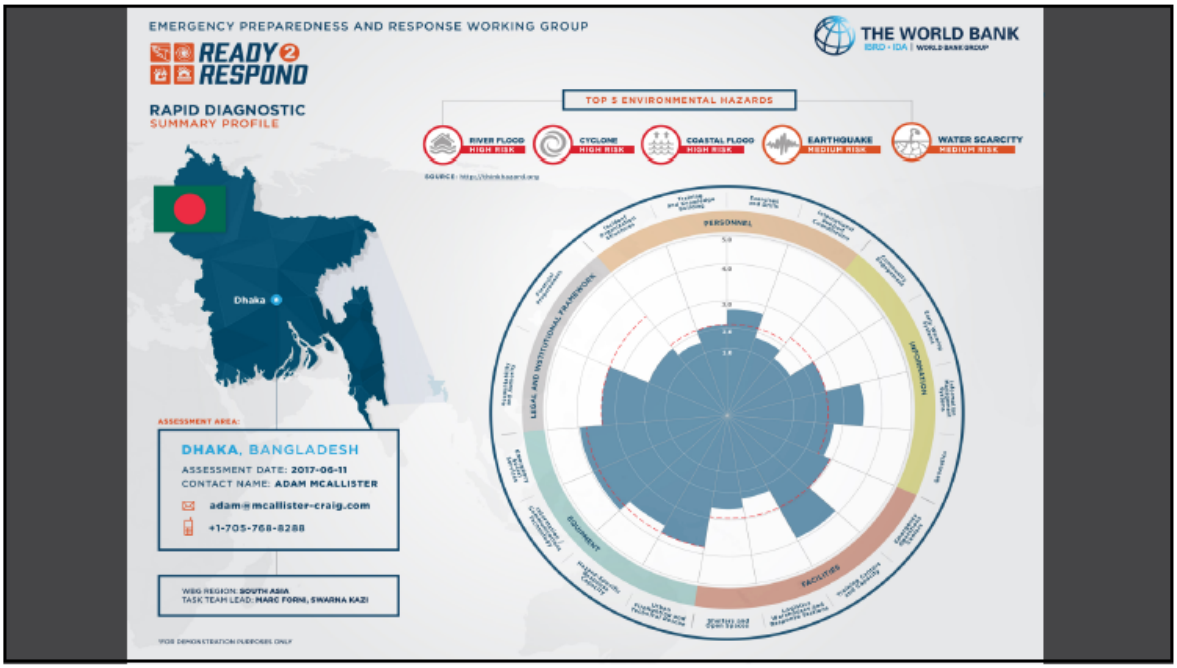
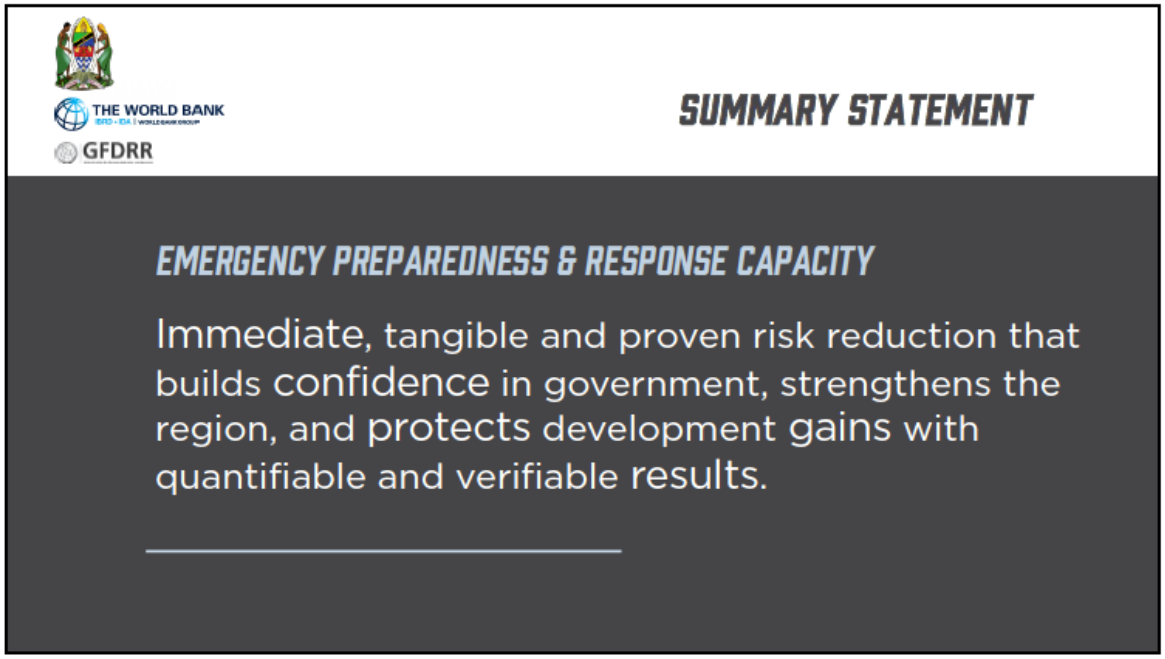
IMPLEMENTATION APPROACH
Engage with LLE and diagnostics
Collaboratively plan and develop
Implement outcome-focused projects


EMERGENCY PREPAREDNESS AND RESPONSE WORKING GROUP
READY2RESPOND
THE WORLD BANK
RAPID DIAGNOSTIC
SUMMARY PROFILE
TOP 5 ENVIRONMENTAL HAZARDS
RIVER FLOOD HIGH RISK
CYCLONE HIGH RISK
COASTAL FLOOD HIGH RISK
EARTHQUAKE MEDIUM RISK
WATER SCARCITY MEDIUM RISK
Dhaka
ASSESSMENT AREA:
DHAKA, BANGLADESH
ASSESSMENT DATE: 2017-06-11
CONTACT NAME: ADAM MCALLISTER
adam@mcallister-craig.com
+1-705-768-8288
WBG REGION: SOUTH ASIA
TASK TEAM LEAD: MARC FORNI, SWARNA KAZI
PERSONNEL
INFORMATION
FACILITIES
EQUIPMENT
LEGAL AND INSTITUTIONAL FRAMEWORK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SUMMARY STATEMENT
EMERGENCY PREPAREDNESS & RESPONSE CAPACITY
Immediate, tangible and proven risk reduction that builds confidence in government, strengthens the region, and protects development gains with quantifiable and verifiable results.


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FACILITATED DISCUSSION:
EP&R PROJECT DEVELOPMENT

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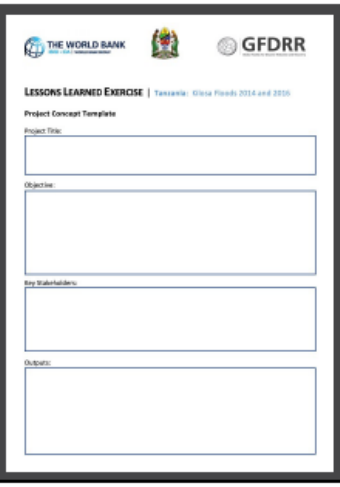
EP&R PROJECT DEVELOPMENT

- Of your 5 projects, select 1 to develop.
- In your groups, please create a Project Concept using the Project Concept Template provided.
- If you have time, please create a second Project Concept to share.
- Please choose a presenter to share your Project Concept with the larger group.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LESSONS LEARNED EXERCISE | Tanzania: Kilosa Floods 2014 and 2016

Project Concept Template

Project Title:

Objective:

Key Stakeholders:

Outputs:

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BREAK

WORKSHOP:
LESSONS LEARNED FROM THE 2014 AND 2016 KILOSA FLOODS


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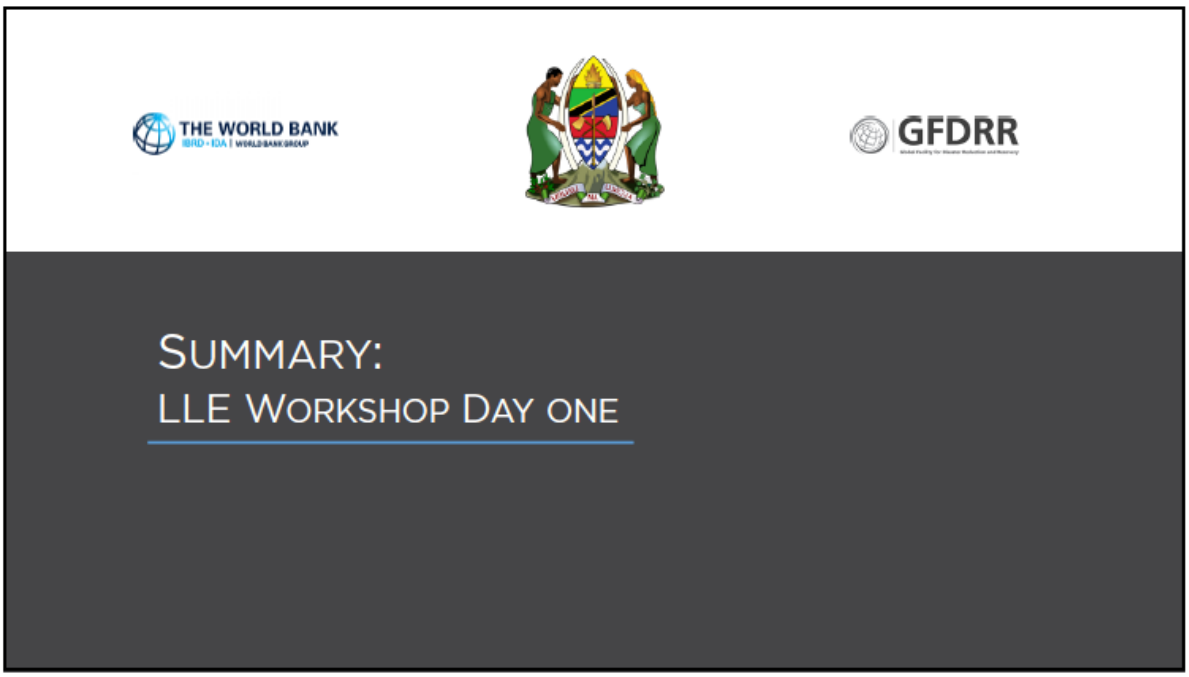
EP&R PROJECT PRESENTATIONS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SUMMARY:
LLE WORKSHOP DAY ONE


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ASANTENI SANA!
WORKSHOP:
LESSONS LEARNED FROM THE 2014 AND 2016
KILOSA FLOODS


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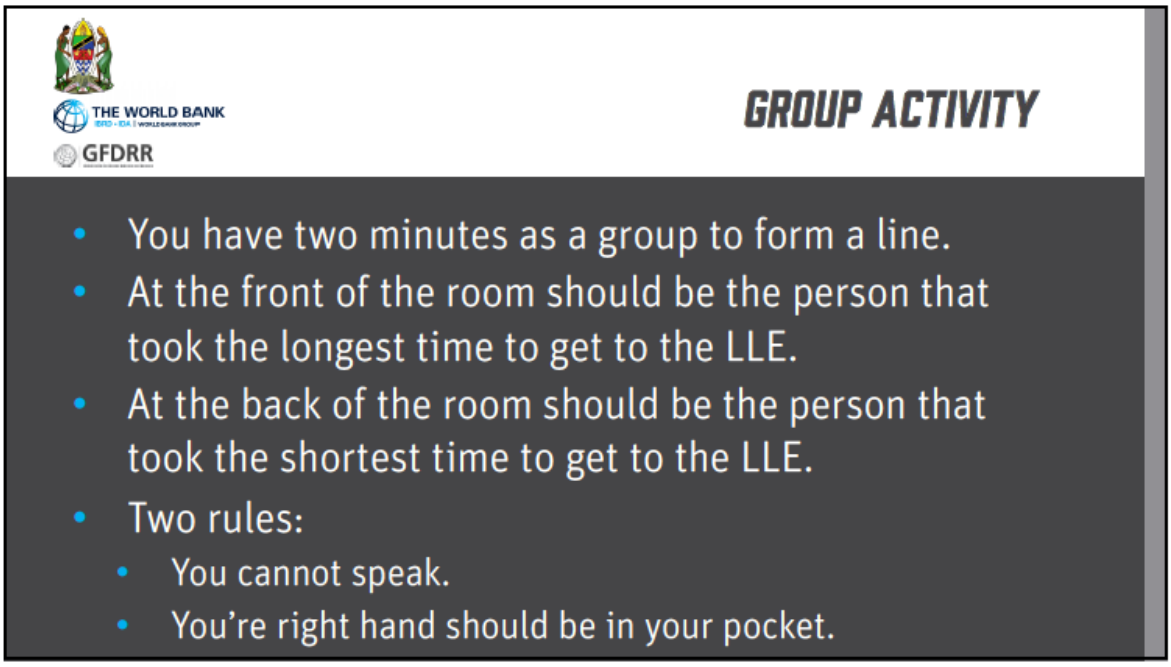
GFDRR
KARIBU!
WORKSHOP – DAY 2:
LESSONS LEARNED FROM THE 2014 AND 2016 KILOSA FLOODS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GROUP ACTIVITY
You have two minutes as a group to form a line.
At the front of the room should be the person that took the longest time to get to the LLE.
At the back of the room should be the person that took the shortest time to get to the LLE.
Two rules:
You cannot speak.
You're right hand should be in your pocket.


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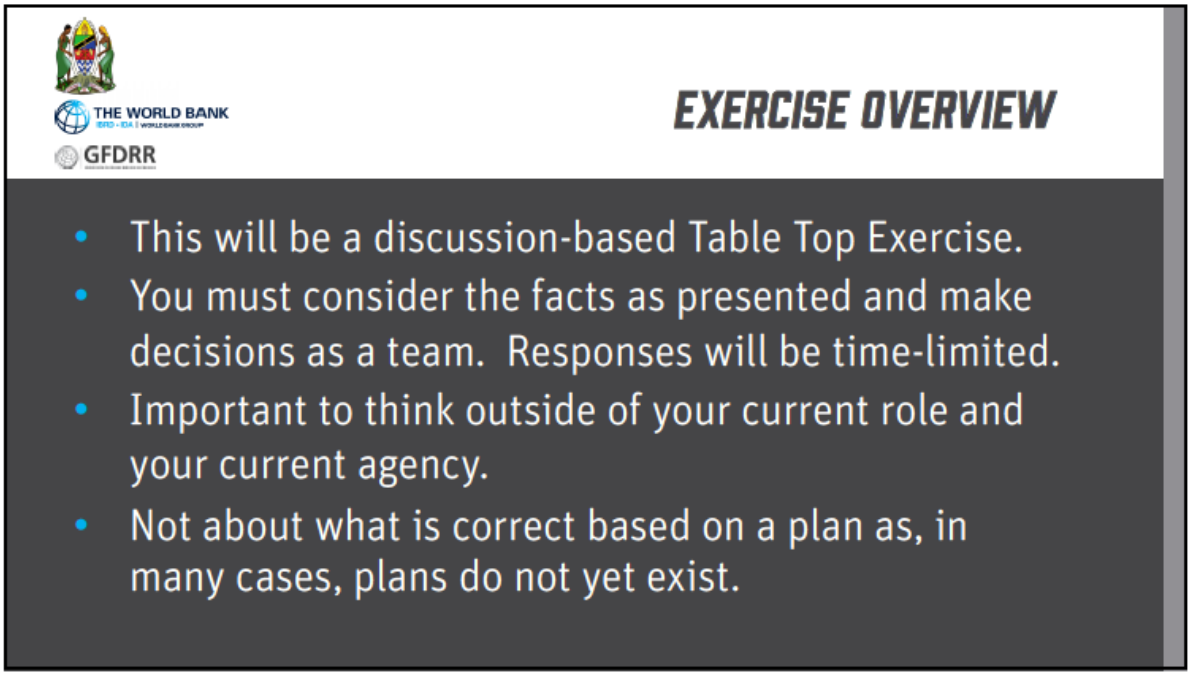
TABLETOP EXERCISE:
OVERVIEW, OBJECTIVES AND GROUND RULES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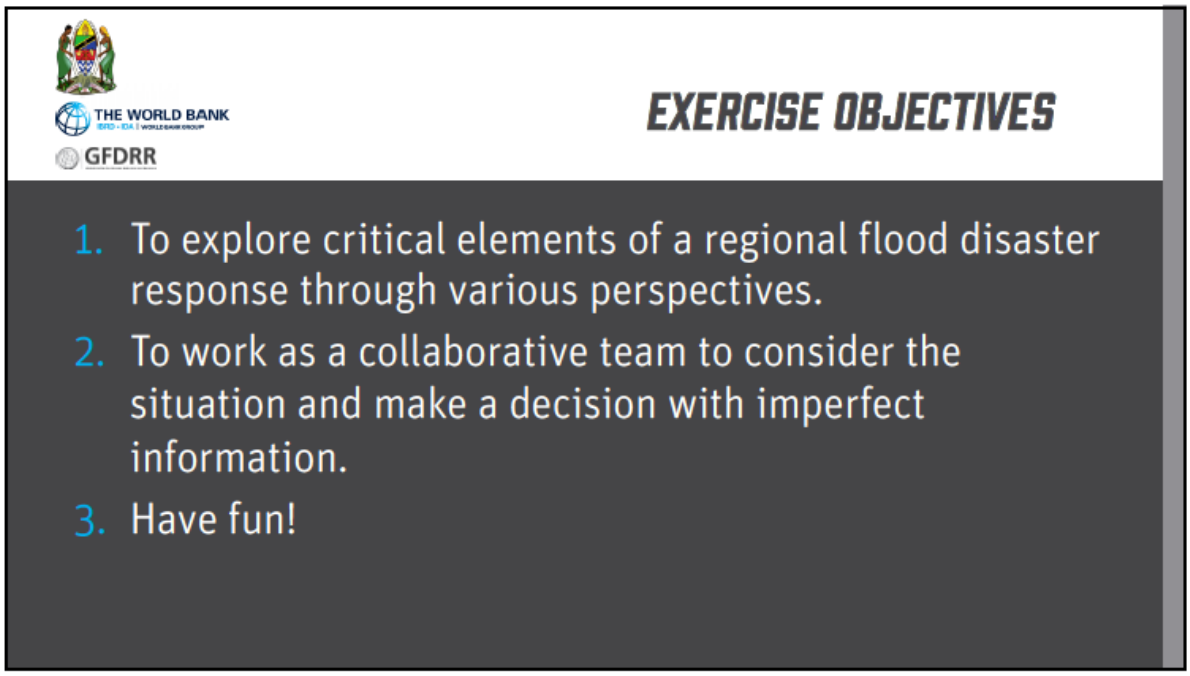
EXERCISE OVERVIEW
• This will be a discussion-based Table Top Exercise.
• You must consider the facts as presented and make decisions as a team. Responses will be time-limited.
• Important to think outside of your current role and your current agency.
• Not about what is correct based on a plan as, in many cases, plans do not yet exist.


THE WORLD BANK
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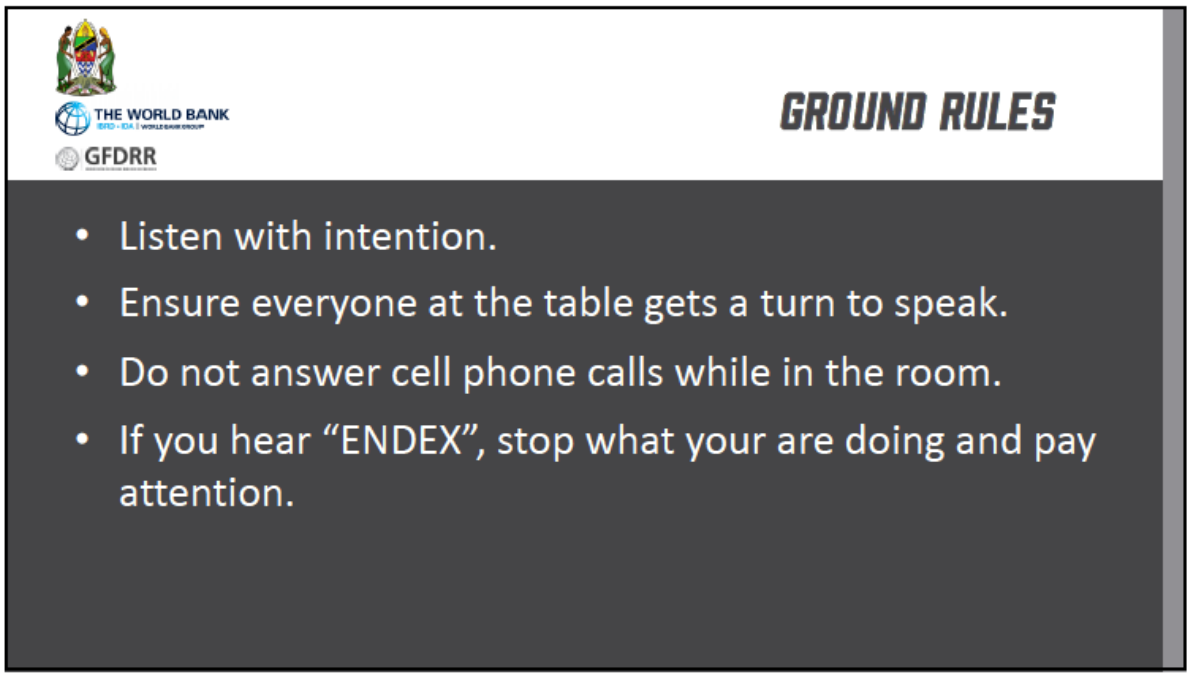
EXERCISE OBJECTIVES
1. To explore critical elements of a regional flood disaster response through various perspectives.
2. To work as a collaborative team to consider the situation and make a decision with imperfect information.
3. Have fun!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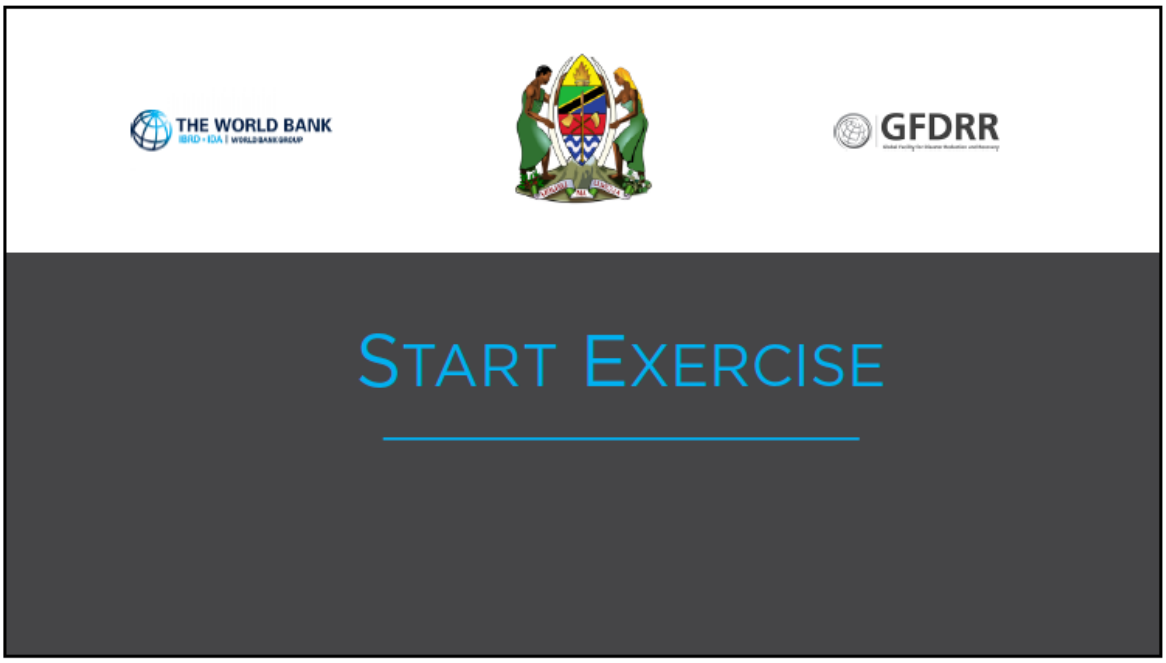
GROUND RULES
• Listen with intention.
• Ensure everyone at the table gets a turn to speak.
• Do not answer cell phone calls while in the room.
• If you hear "ENDEX", stop what your are doing and pay attention.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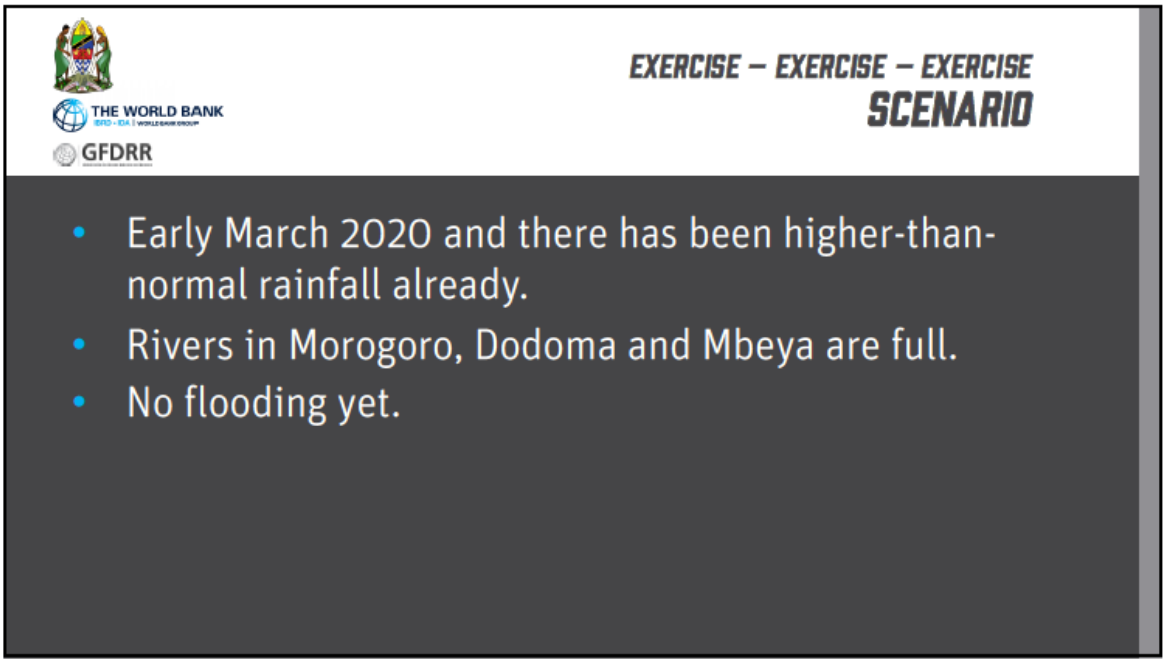
START EXERCISE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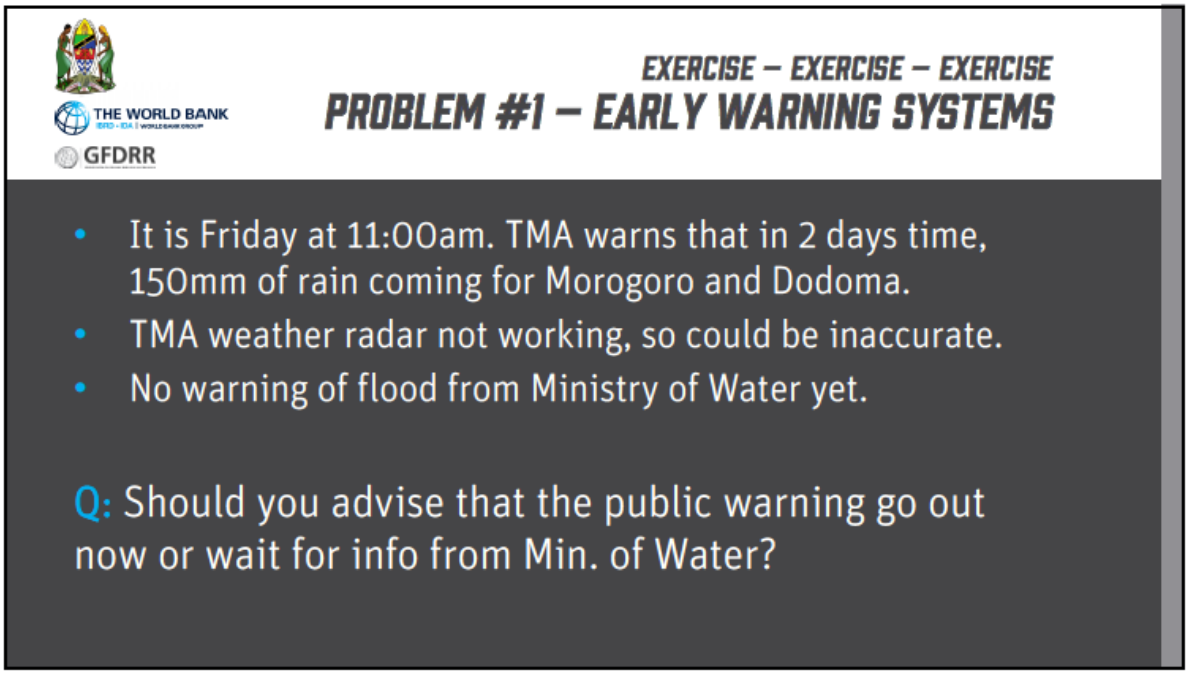
EXERCISE – EXERCISE – EXERCISE
SCENARIO
• Early March 2020 and there has been higher-than-normal rainfall already.
• Rivers in Morogoro, Dodoma and Mbeya are full.
• No flooding yet.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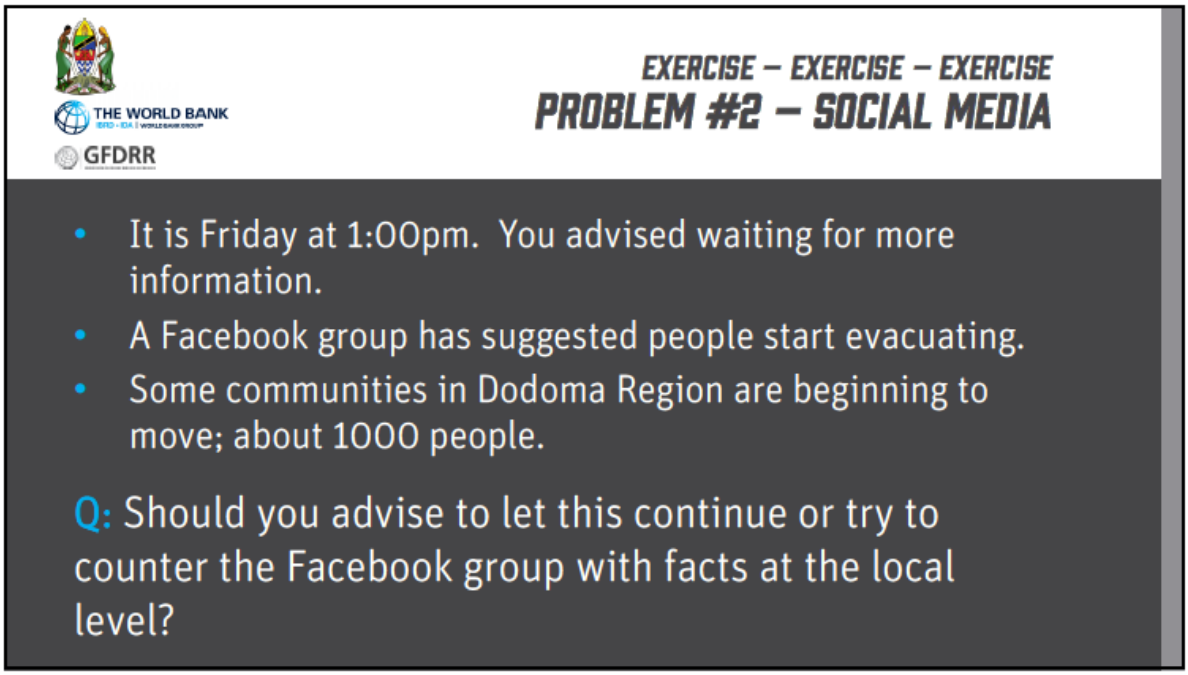
EXERCISE – EXERCISE – EXERCISE
PROBLEM #1 – EARLY WARNING SYSTEMS
• It is Friday at 11:00am. TMA warns that in 2 days time, 150mm of rain coming for Morogoro and Dodoma.
• TMA weather radar not working, so could be inaccurate.
• No warning of flood from Ministry of Water yet.
Q: Should you advise that the public warning go out now or wait for info from Min. of Water?


THE WORLD BANK
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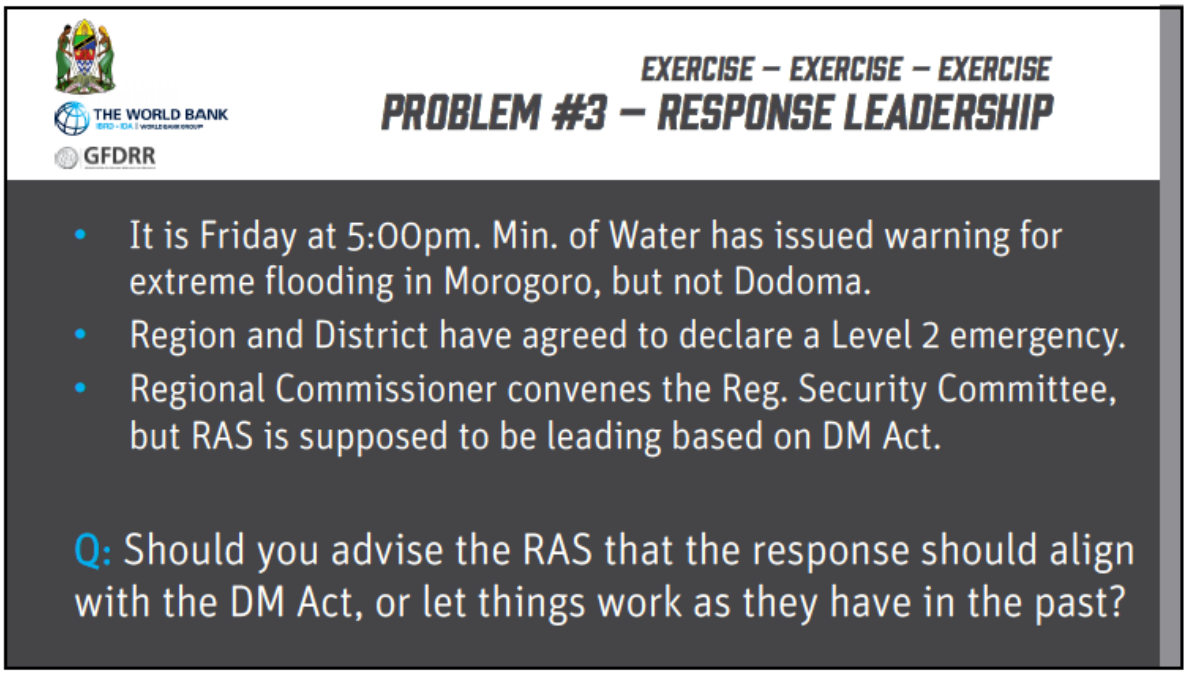
EXERCISE – EXERCISE – EXERCISE
PROBLEM #2 – SOCIAL MEDIA
• It is Friday at 1:00pm. You advised waiting for more information.
• A Facebook group has suggested people start evacuating.
• Some communities in Dodoma Region are beginning to move; about 1000 people.
Q: Should you advise to let this continue or try to counter the Facebook group with facts at the local level?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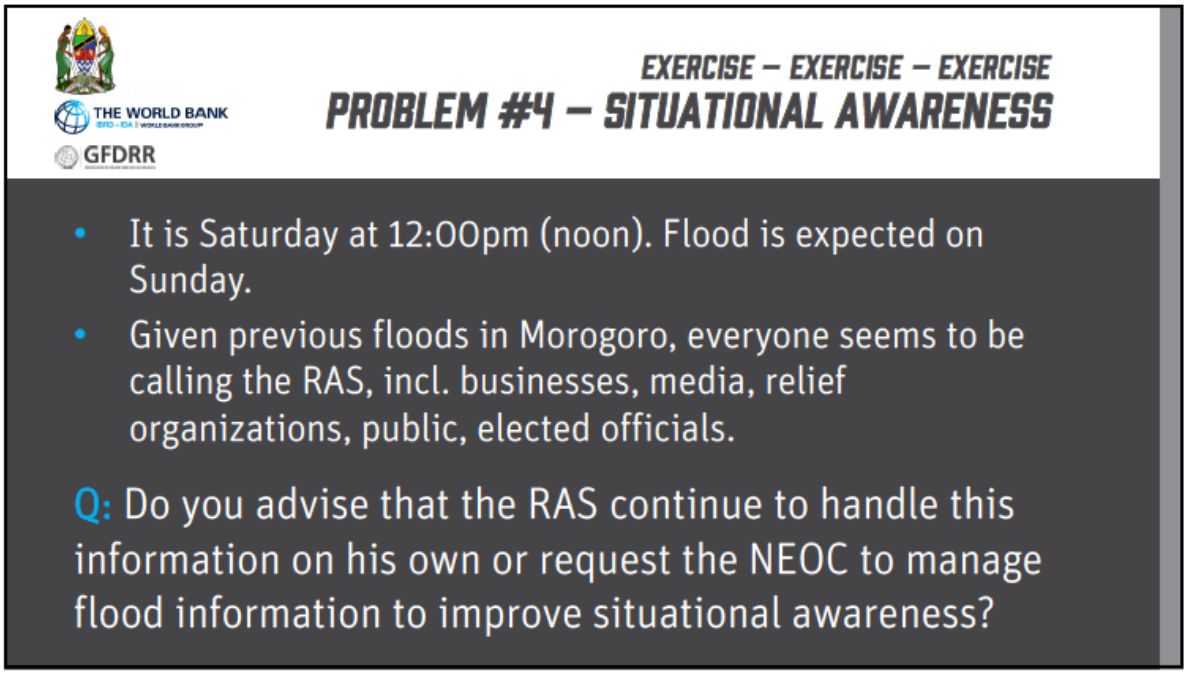
EXERCISE – EXERCISE – EXERCISE
PROBLEM #3 – RESPONSE LEADERSHIP
• It is Friday at 5:00pm. Min. of Water has issued warning for extreme flooding in Morogoro, but not Dodoma.
• Region and District have agreed to declare a Level 2 emergency.
• Regional Commissioner convenes the Reg. Security Committee, but RAS is supposed to be leading based on DM Act.
Q: Should you advise the RAS that the response should align with the DM Act, or let things work as they have in the past?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EXERCISE – EXERCISE – EXERCISE
PROBLEM #4 – SITUATIONAL AWARENESS
• It is Saturday at 12:00pm (noon). Flood is expected on Sunday.
• Given previous floods in Morogoro, everyone seems to be calling the RAS, incl. businesses, media, relief organizations, public, elected officials.
Q: Do you advise that the RAS continue to handle this information on his own or request the NEOC to manage flood information to improve situational awareness?


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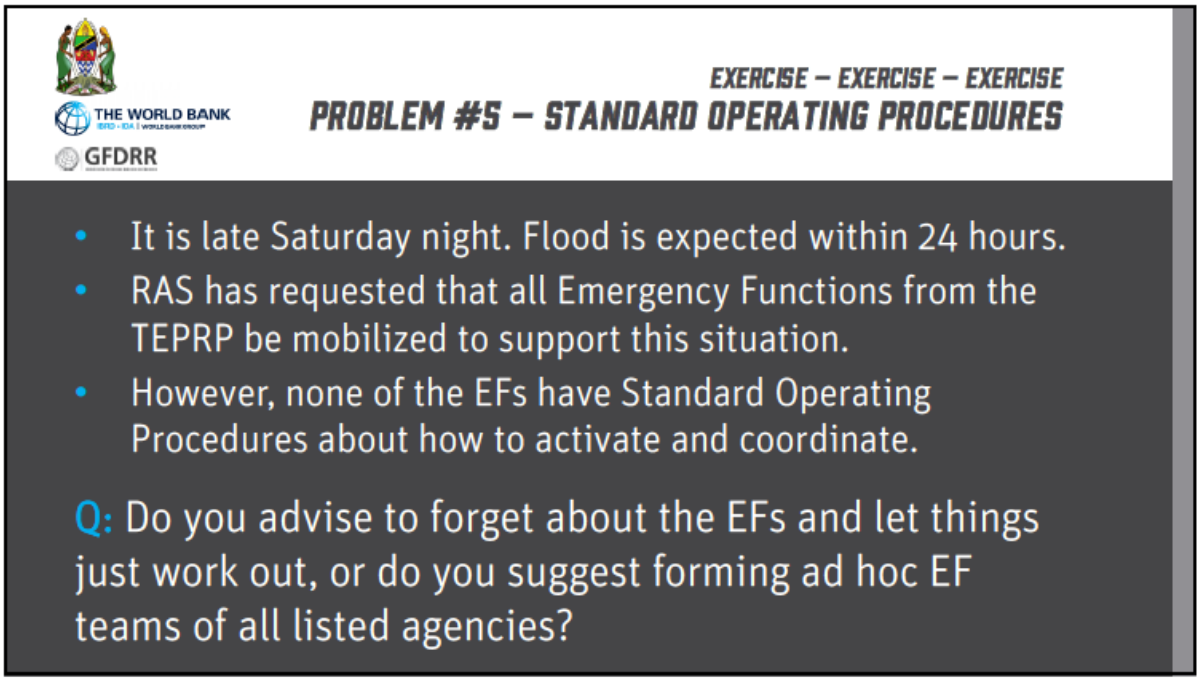
BREAK
WORKSHOP:
LESSONS LEARNED FROM THE 2014 AND 2016 KILOSA FLOODS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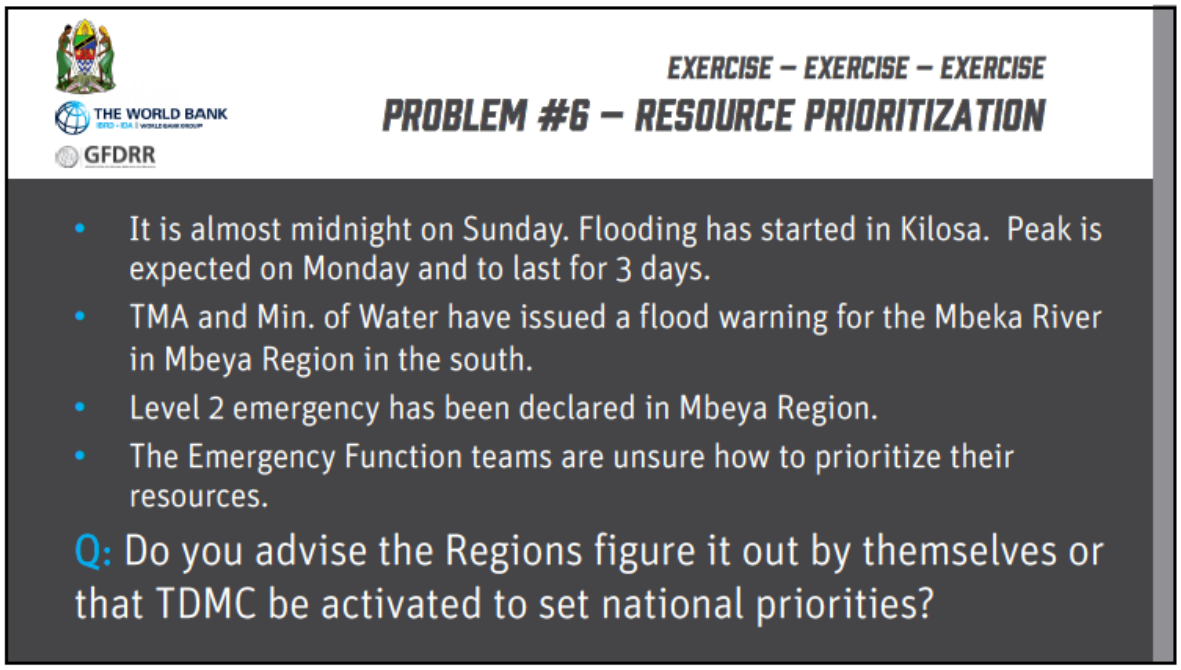
EXERCISE – EXERCISE – EXERCISE
PROBLEM #5 – STANDARD OPERATING PROCEDURES
• It is late Saturday night. Flood is expected within 24 hours.
• RAS has requested that all Emergency Functions from the TEPRP be mobilized to support this situation.
• However, none of the EFs have Standard Operating Procedures about how to activate and coordinate.
Q: Do you advise to forget about the EFs and let things just work out, or do you suggest forming ad hoc EF teams of all listed agencies?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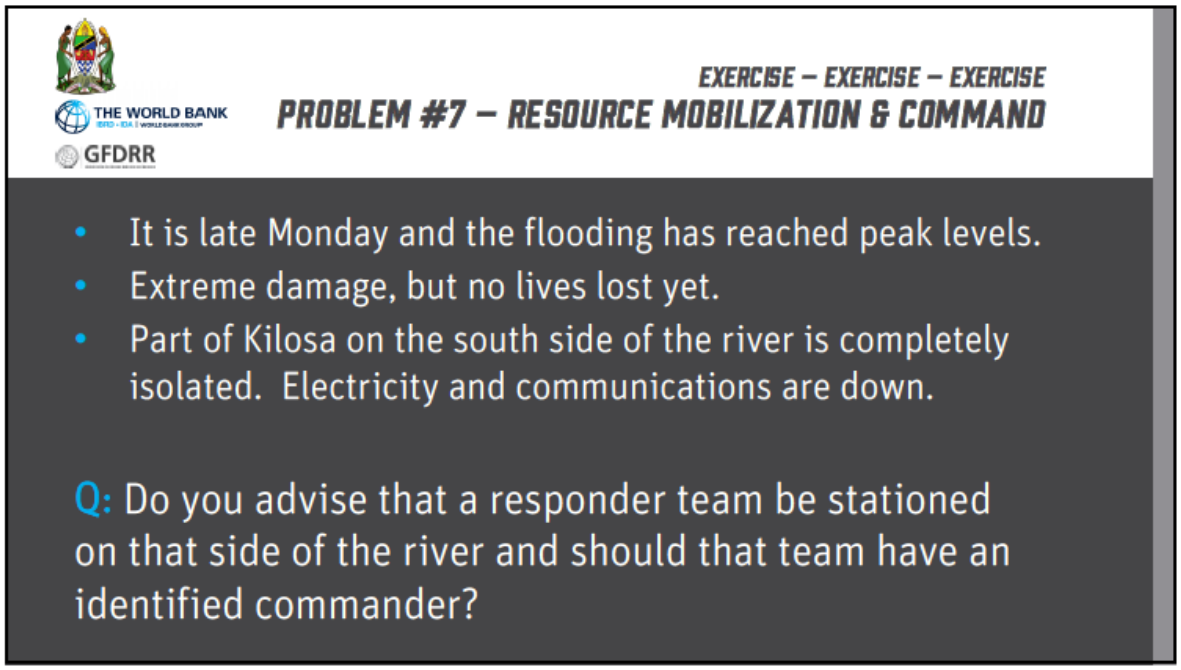
EXERCISE – EXERCISE – EXERCISE
PROBLEM #6 – RESOURCE PRIORITIZATION
• It is almost midnight on Sunday. Flooding has started in Kilosa. Peak is expected on Monday and to last for 3 days.
• TMA and Min. of Water have issued a flood warning for the Mbeka River in Mbeya Region in the south.
• Level 2 emergency has been declared in Mbeya Region.
• The Emergency Function teams are unsure how to prioritize their resources.
Q: Do you advise the Regions figure it out by themselves or that TDMC be activated to set national priorities?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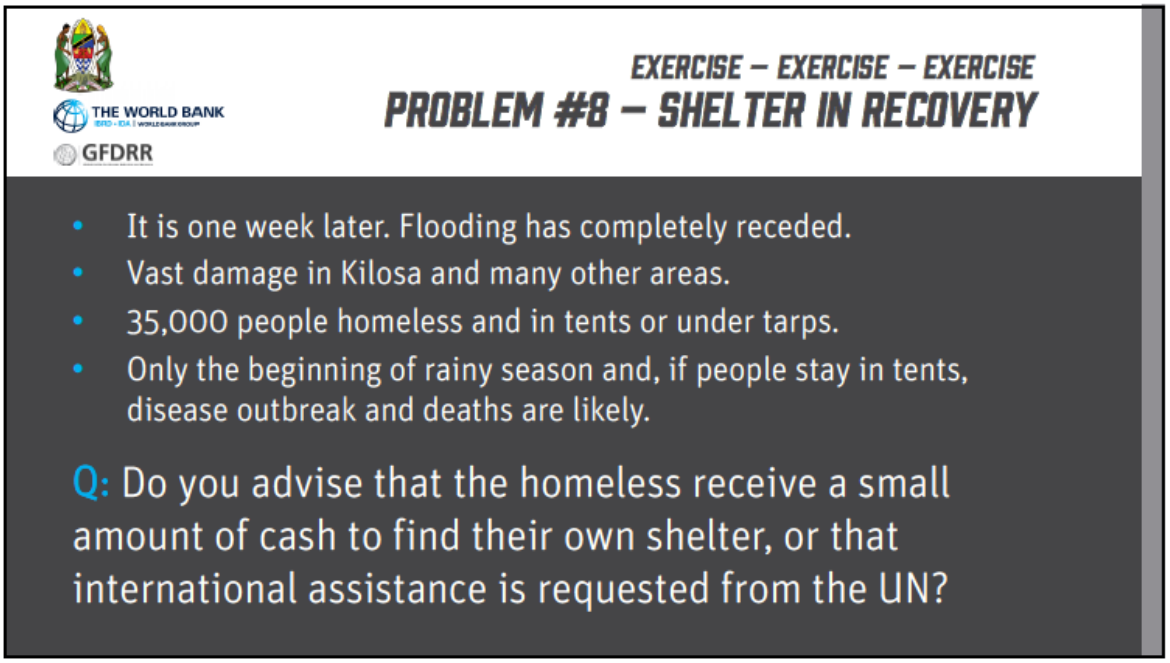
EXERCISE – EXERCISE – EXERCISE
PROBLEM #7 – RESOURCE MOBILIZATION & COMMAND
• It is late Monday and the flooding has reached peak levels.
• Extreme damage, but no lives lost yet.
• Part of Kilosa on the south side of the river is completely isolated. Electricity and communications are down.
Q: Do you advise that a responder team be stationed on that side of the river and should that team have an identified commander?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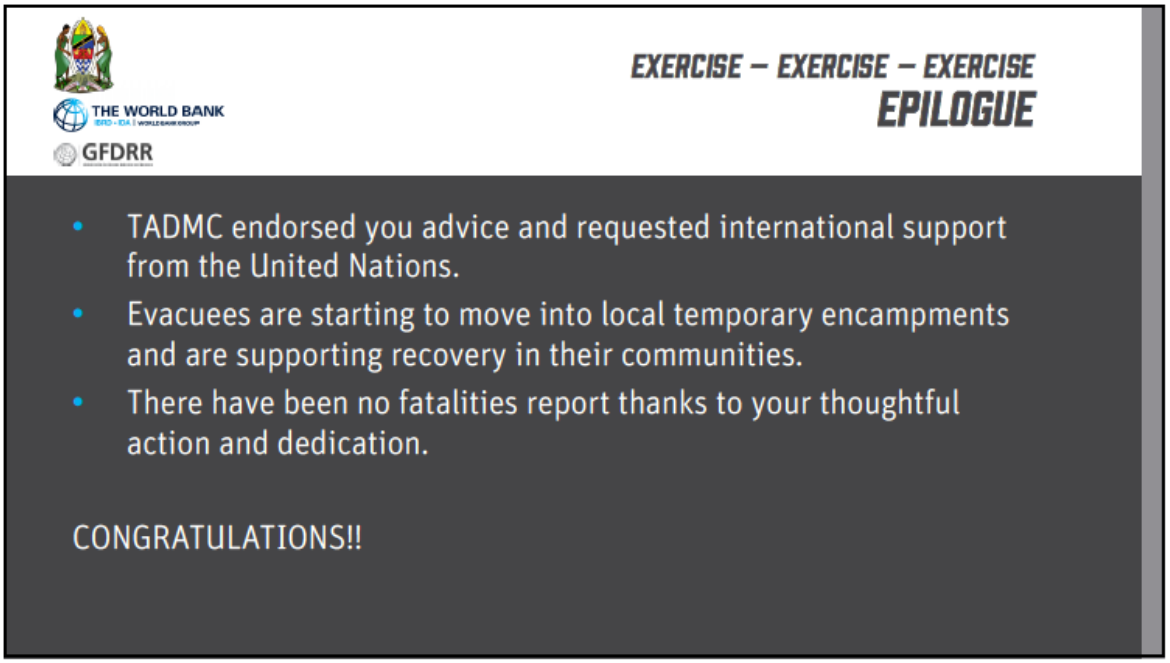
EXERCISE – EXERCISE – EXERCISE
PROBLEM #8 – SHELTER IN RECOVERY
• It is one week later. Flooding has completely receded.
• Vast damage in Kilosa and many other areas.
• 35,000 people homeless and in tents or under tarps.
• Only the beginning of rainy season and, if people stay in tents, disease outbreak and deaths are likely.
Q: Do you advise that the homeless receive a small amount of cash to find their own shelter, or that international assistance is requested from the UN?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EXERCISE – EXERCISE – EXERCISE
EPILOGUE
• TADMC endorsed you advice and requested international support from the United Nations.
• Evacuees are starting to move into local temporary encampments and are supporting recovery in their communities.
• There have been no fatalities report thanks to your thoughtful action and dedication.
CONGRATULATIONS!!


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END EXERCISE


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FACILITATED DISCUSSION:
EXERCISE DEBRIEF

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NEXT STEPS AND EVALUATION

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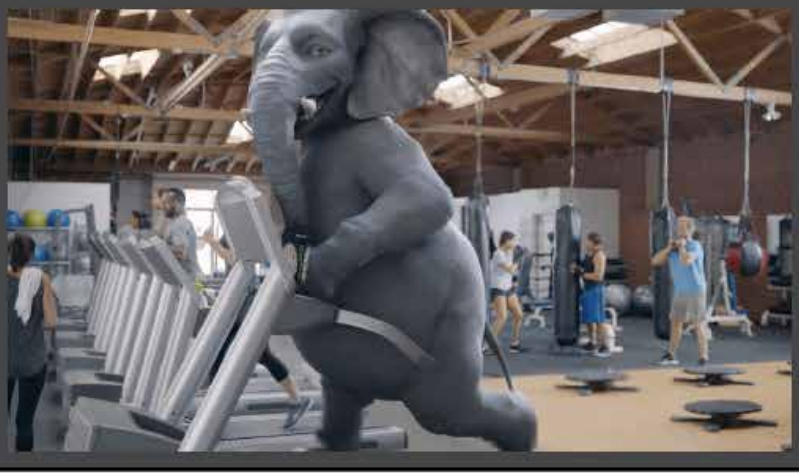
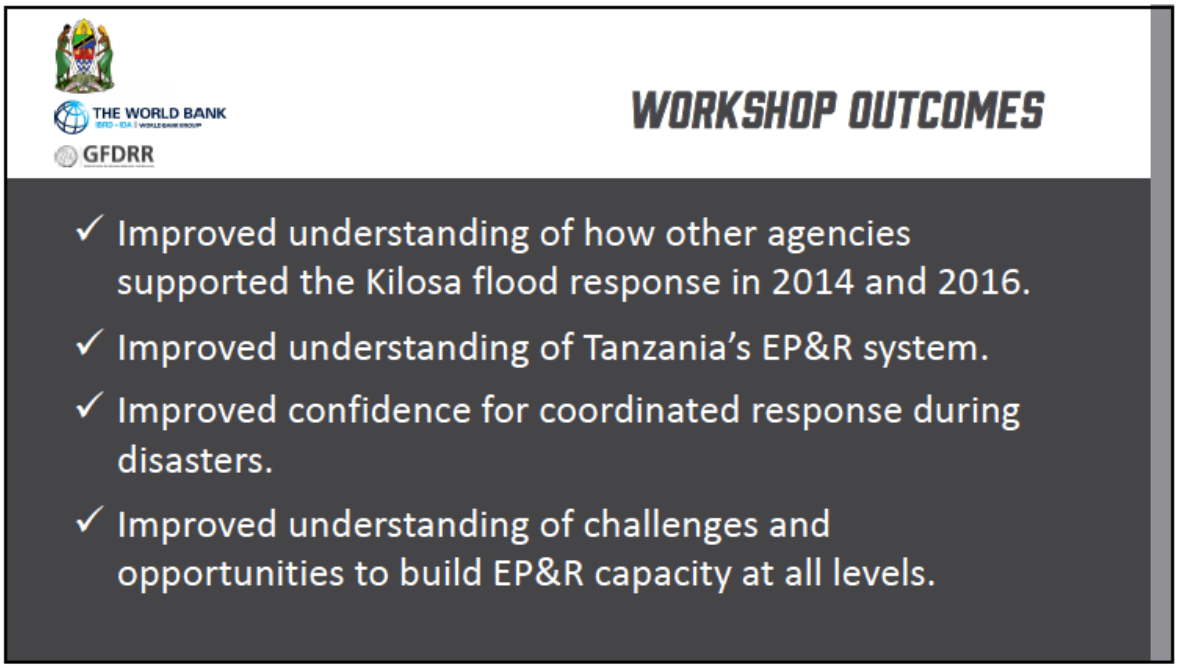
WORKSHOP AGENDA

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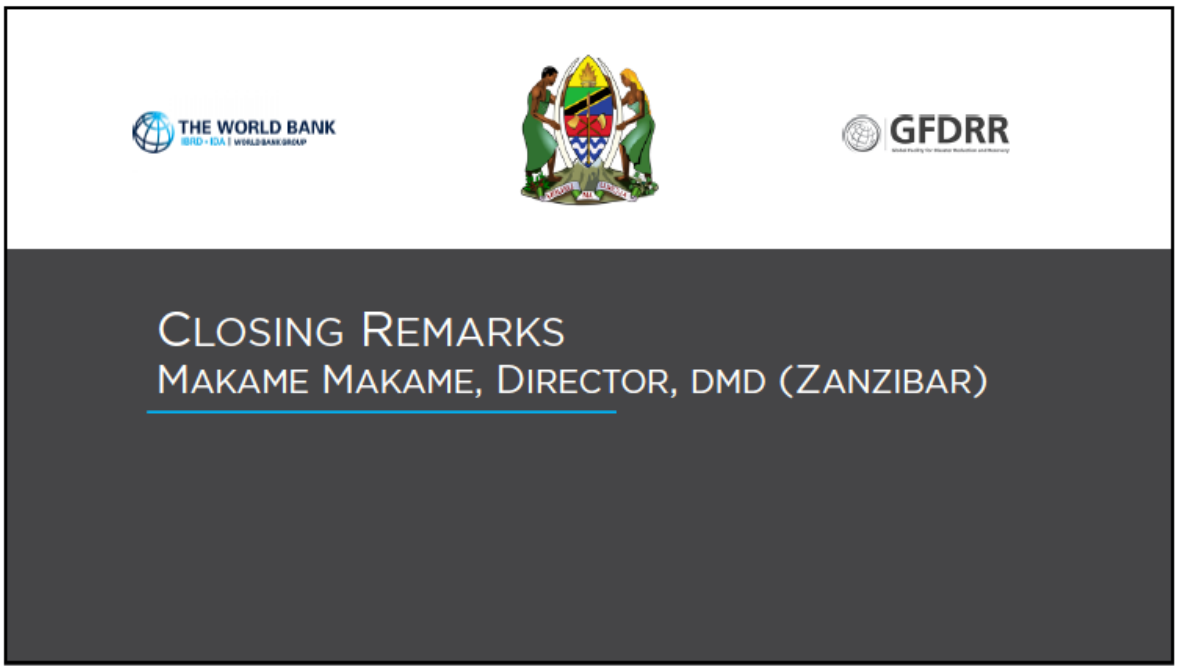
WORKSHOP OUTCOMES
✓ Improved understanding of how other agencies supported the Kilosa flood response in 2014 and 2016.
✓ Improved understanding of Tanzania's EP&R system.
✓ Improved confidence for coordinated response during disasters.
✓ Improved understanding of challenges and opportunities to build EP&R capacity at all levels.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CLOSING REMARKS
MAKAME MAKAME, DIRECTOR, DMD (ZANZIBAR)


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CERTIFICATE AWARD CEREMONY


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ASANTENI SANA!
WORKSHOP:
LESSONS LEARNED FROM THE 2014 AND 2016
KILOSA FLOODS

9.10 WORKSHOP TABLETOP EXERCISE SCENARIO AND PROBLEM SETS

Master Scenario

It is early March 2020; a Friday and it is 11:00am. A very strong El Nino has created higher-than-normal rainfall for several weeks across various regions in Tanzania, including Morogoro, Dodoma and Mbeya. The soil is saturated across the regions and the Mkondoa River (Morogoro), Wami River (Dodoma) and Mbaka River (Mbeya) are all completely full; the water is getting close to the top of the river banks across the river basin for each of these rivers. Thankfully, so far there has been no flooding, no requirement for evacuations and no major damage from rainfall has been reported in any of these areas.

INJECT 1 - EARLY WARNING SYSTEMS

A rainfall warning report has just been issued by TMA that, in two days, a major rain system is expected to slowly pass through Morogoro and surrounding regions in the Mkondoa river basin and then move onward through Dodoma region in two days. TMA indicates that the storm will bring over 150mm of rain in a 24-hour period across the affected area. You know that both of TMA's current radar stations are not working and that the forecast may not be very accurate as a result. As well, the Ministry of Water and Irrigation has not yet issued a river flood warning.

You know this represents a lot of rain and may result in possible flooding for the Morogoro and Dodoma Regions, but you're not certain of the timing and likelihood as there has been no river flood warning issued yet.

> Q: In addition to the warning you will issue regarding urban flooding for low-lying areas, should a river flood warning be issued now to the people in these regions, or should you wait for the official warning message from Ministry of Water and Irrigation? What are your reasons for your choice? Regardless of when the river flood warning message is issued, what should be the very clear message to the public to go with this warning?

INJECT 2 – SOCIAL MEDIA MANAGEMENT

It is now 1:00pm. You decided to wait to issue the river flood warning until there was official confirmation from the Ministry of Water and Irrigation about river flooding. They have the technical expertise and critical information. Thanks to a recent project which upgraded their river monitoring gauges and river flood forecasting models, you're confident that Ministry of Water and Irrigation will soon issue a very accurate river flood forecast. You didn't want to start a possible evacuation, and need to manage the costs and consequences, without factual confirmation from the ministry.

Unfortunately, a small group of people on Facebook began circulating messages in the Dodoma Region. They were sure catastrophic life-threatening flooding was going to start by noon tomorrow because they watched a YouTube video about something like this that happened in Uganda a couple of years ago. As a result, this false message spread very fast within several communities and a significant ad hoc evacuation has started with about 1000 people already moving.

> Q: Should you allow the evacuation to continue just in case and hope that the Facebook group was correct, or should you counter the Facebook message with the facts from the Tanzania Meteorological Agency (TMA) warning and try to stop, or reduce the evacuation? What are your reasons for your choice? Regardless of your choice, do you think having someone continue to monitor Facebook and other social media sites so that you can correct inaccurate information would be helpful?

INJECT 3 – RESPONSE LEADERSHIP/STRUCTURE

It is now 5:00pm. You decided to correct the Facebook information online and also quickly engaged the communities through the local police and informal networks to calm the situation. Thankfully you were able to prevent the unnecessary early evacuation. However, Ministry of Water and Irrigation has just issued a river flood warning for Morogoro region based on the data from TMA and data from their own recently improved network of river monitoring stations. The river levels are anticipated to be higher than the 2009 Kilosa flood and arrive in Morogoro region in the late afternoon/early evening on Sunday. It will take a week for the river levels to stabilize below a flood level. While the Wami River in the Dodoma region may experience some flooding, it is expected to be localized and do only limited damage as most other areas of the Wami river basin will not receive so much rain.

As a result of this river flood warning from Ministry of Water and Irrigation, the District Commissioner and Regional Commissioner have agreed and declared a Level 2 emergency in anticipation of the situation

getting out of control this Sunday. The Regional Commissioner has called a meeting of the Regional Safety and Security Committee to manage the situation. However, the Disaster Management Act (2015) is clear that leadership during the Level 2 emergency rests now with the Regional Administrative Secretary.

> Q: Should you advise the Regional Administrative Secretary to ensure that the emergency response process aligns with the law, or should you suggest that the response should be handled as it has been in the past regardless of the new law?

INJECT 4 – SITUATIONAL AWARENESS

It is now noon on Saturday and the flood is still expected to arrive late on Sunday afternoon. Based on your advice, the Regional Administrative Secretary spoke with the Regional Commissioner about the leadership situation. Both agreed that it was best for the response to align with the law. They also agreed that the Regional Commissioner would standby to support the RAS with implementing what was decided, to unlock resources for the response and to speak with the media to provide reassurance to the public, helpful safety messages and encouragement to those that would soon be responding on the scene throughout the region.

The public, the media, elected officials at all levels, as well as international development partners and the private sector have been calling and emailing the RAS constantly seeking information and updates on the situation. As well, various government agencies have been trying to gather any information they can find about the weather and river conditions as well as what response is taking place.

> Q: Do you advise that the RAS continue to try and manage these information requests on his own, or do you engage the National Emergency Operations Center for support? You think the National EOC can do the best job to gather all the event information from various participating agencies and formulate a common situation report each day that can be used by everyone to ensure a common picture of the event. However, you know the RAS is used to gathering the information by himself through dozens of informal, direct connections to various people and agencies. Which approach do you choose and why?

INJECT 5 – CAPACITY FOR EMERGENCY FUNCTIONS

It is late Saturday night and you engaged the NEOC a few hours ago to provide support for situational awareness. They have since provided a daily briefing cycle that will be used throughout the emergency to ensure a consistent and timely flow of information. Everyone now knows when they can expect the daily update and where it is coming from. This will ensure responders have the information needed for their daily operational plans and that the media receives accurate information for reporting.

The RAS, as the lead for the emergency, has asked that all of the national Emergency Functions listed in the TEPRP stand-up their operations in preparation for the arrival of the flood in Morogoro Region tomorrow. However, none of the Emergency Functions have clear procedures in place at the Regional or National level for their activation process, nor do they know who is supposed to be doing what once they get together.

> Q – Do you decide to forget about the Emergency Functions and just figure it out as the flood develops or do you form ad hoc teams for each EF comprised of all listed member agencies and led by the listed EF lead? What are the reasons for your decision?

INJECT 6 – PRIORITIZATION OF RESOURCES

It is almost midnight on Sunday and the flooding has started. You advised that the EFs should be used as intended and that ad hoc EF teams should be formed by the identified EF leads and that based on the situation, the EFs should ensure they have the appropriate resources in place for the expected high levels of evacuations, injuries and possible fatalities. This approach has paid off as it has made the management of the emergency across multiple incident sites spread across multiple districts much easier and the flow of accurate emergency information much faster.

The Ministry of Water and Irrigation has shared that water levels are expected to climb until late Monday, remain at their peak for three days and then start to drop. As well, the Ministry of Water and Irrigation has also issued a second flood warning for the Mbeka River in Mbeya Region due to existing river conditions and the rapid approach of an intense weather system that will include 120mm for rain and create a flash flood of the Mbeka River overnight. This flood is expected to be severe, but less intense and

subside more quickly than the situation in the Morogoro Region. The public have been notified and evacuations are already underway. A Level 2 emergency has been declared for the Mbeya Region as well. The Emergency Function leads are unsure how to prioritize their resources as they don't have enough for the expected requirements in both Morogoro and Mbeya Regions.

> Q: Do you let each Region sort out their needs independently or do you advise that the NEOC and Tanzania Disaster Relief Committee (TanDREC) should consider the resource/relief requests from both regions, prioritize those resources based on the best available information, and inform both Regional Disaster Management Committees about what resources they can expect to receive, and when? What are the reasons for your decision?

INJECT 7 – TECHNICAL COMMUNICATION CAPACITY

It is now late Monday and river flood has reached peak levels. You advised that the NEOC and TanDREC consider and prioritize resources for the two affected regions. As a result, both regions were able to plan appropriately for the resources that could be provided by the government and were also able to make clear requests to the private sector and aid organizations for resources.

As expected, river levels are significantly higher than the 2009 Kilosa Flood. The embankment protecting Kilosa has failed in several areas causing significant damage to infrastructure, agriculture and livestock. Thanks to the advanced early warning about the flood, no lives have been lost yet. Mobile communications are not available due to damaged cell phone towers from several landslides caused by the heavy rains and disruption to cell phone tower primary and backup electrical supply. The flood has washed out the bridge at Kilosa as well as the rail bridge upriver from Kilosa and the bridge crossing the Miyombo river south of Kilosa. The small road linking Kilosa to Pwaga has also been washed out from heavy rain. As a result, the areas of Kilosa south of the Mkondoa river have been completely isolated – no phones, and no ground access.

The Tanzania Police have requested their helicopter to be stationed in Kilosa until a temporary bridge can be installed. This will ensure any immediate relief supplies and medical emergencies can be treated.

> Q: There are a significant number of people stranded in the south side of Kilosa. Despite the lack of communication capacity, do you station a combined team of police, TRCS, Tanzania Fire and Rescue Forceand medical personnel on the isolated side of the river? As well, do you suggest identifying one clear commander for this multi-agency response team? What are the reasons for your decision?

INJECT 8 – SHELTERING OF EVACUEES

It is the following Friday and the flood has completely receded. All water and hygiene facilities in Kilosa have been destroyed and there is significant damage visible. A temporary bridge has been established to the south side of the Mkondoa River and mobile communications are back to normal. As a result of the flood, over 35,000 people are homeless. It is only the start of the rainy season and most people only have tents or tarpaulins for shelter. You know that if these evacuees are not supported, there will almost certainly be significant outbreaks of disease, leading to preventable deaths.

> Q: Do you provide people with a small amount of cash to find their own semi-permanent shelter or do you advise a request for international assistance to provide rapid semi-permanent shelter in the Kilosa area, but in areas that are well-drained and away from further possible flooding? What are the reasons for your decision?

CLOSING NOTE

Your proposal to request international assistance from the United Nations was endorsed by the Tanzania Disaster Relief Committee (TanDREC). As a result, evacuees were placed into temporary encampments and were able to be directly involved in the recovery of their community. This increased community psycho-social welfare and provided economic stimulous for those who lost their agricultural or livestock livelihood for this year. Best of all, there have been no recorded outbreaks of infectious disease. The community will take time to recover, but the future is promising.

It is now past the rainy season and the flood threat has passed for Tanzania. Because of your thoughtful action, prioritized improvements to the EP&R system, and collaboration during response, no lives were lost during this year's Kilosa flood disaster.

CONGRATULATIONS on finishing the exercise!

8.11 WORKSHOP EVALUATION TEMPLATE

Workshop Evaluation

Name:

Agency:

Extremely Successful	Very Successful	Successful	Somewhat Successful	Not successful

1. **Overall, how successful was the Tanzania Emergency Preparedness & Response (EP&R) Lessons Learned Exercise (LLE) workshop?**

If you selected "Not Successful", please indicate why:

2. **With 5 being the highest and 1 being the lowest, how would you rate the following after the Tanzania EP&R LLE workshop?**

	5	4	3	2	1
I have better knowledge of EP&R principles	O	O	O	O	O
I have better understanding of Tanzania's EP&R system	O	O	O	O	O
I have better understanding of solutions for EP&R capacity improvement	O	O	O	O	O

3. **Do you think this type of workshop is a good practice to improve EP&R capacity?**

Yes	No
O	O

Please Explain:

4. **What did you like about the workshop?**

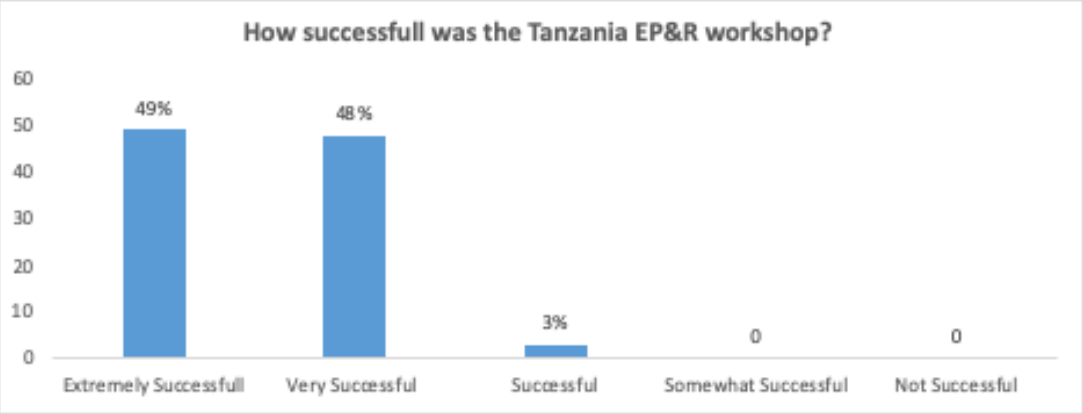
5. **What would you want to see more of in future LLE Workshops?**

6. **If you would like to share a quote that can be used for communication ends (e.g. in online articles, reports, etc.) please share it here with your name and title:**

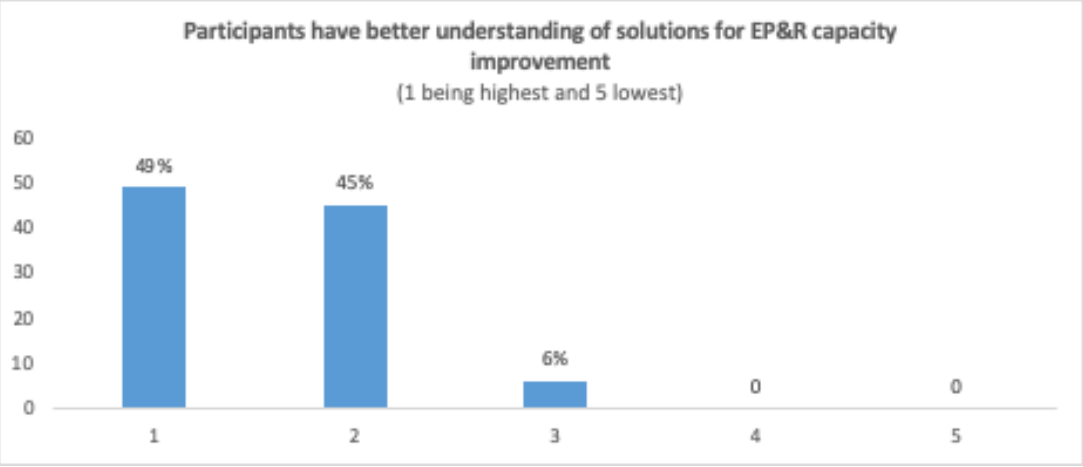
Quote:

8.12 WORKSHOP EVALUATION RESULTS

An evaluation form was circulated at the end of the Tanzania EP&R LLE workshop to gather participants' feedback, generating 31 responses. 97% of the respondents found the workshop as either extremely or very successful.



In addition, all (100%) respondents indicated that they would attend a similar workshop in the future. Suggestions for additional activities for future LLE workshops included: (i) longer workshop time for extended training sessions; (ii) looking at different types of disaster events; or (iii) more frequent workshops to increase knowledge.



Based on the evaluation form, participants self-evaluated specific areas of improvement, with 1 being the highest and 5 the lowest score. 94% of the participants chose either 1 or 2 on the fact that they believe to have gained a better understanding of solutions for EP&R capacity improvement following the LLE workshop. Similarly, 94% of the participants had a better knowledge of EP&R principles and 97% expressed a better understanding of Tanzania's EP&R system, by either self-evaluating 1 or 2.

Participants particularly praised the delivery model as well as the table-top exercise which was perceived as very relevant given the country context. Selected quotes of the Tanzania EP&R LLE workshop:

"*The EP&R LLE workshop was an eye-opening event, which was the first of its kind, involving a wide variety of key stakeholders. Such initiatives are highly encouraged in the future.*"
Bashiru Taratibu, Assistant Director, Tanzania Disaster Management Department.

"*Emergency response is not a one person or agency mission; it is a collaborative mission which needs a group working together to achieve a desired goal of saving lives.*"
Victor Katambala, Humanitarian Affairs Manager, World Vision Tanzania

"United we stand, separated we fall down."
Lt. Col. Chisant Vicent Ngua, Tanzania People's Defence Forces

"Information-sharing is key for effective rescue following a disaster event."
Obadia Kibona, Senior Environment Specialist, Tanzania Ministry of Water and Irrigation

"Our problems depend on our solutions and relies on our efforts."
John Kiriwai, Tanzania Disaster Management Department

FINAL REPORT

Lessons Learned Exercise for EP&R in Tanzania

Strengthening Emergency Planning and Response in Tanzanian Cities

(P16159)

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