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Health Supply Chain Simulation Exercises in Malawi

Assessment and recommendations

July 2024

Takeda

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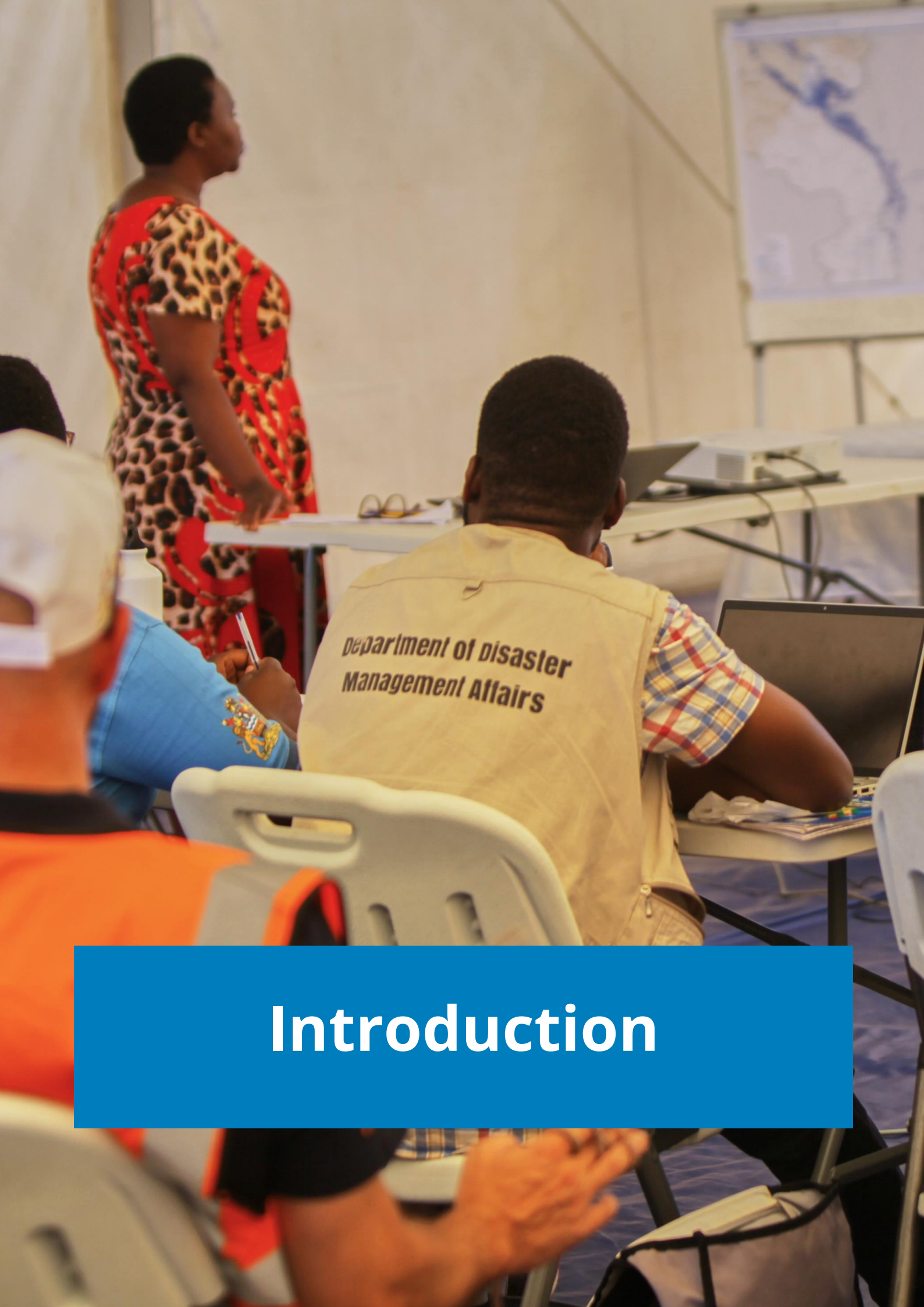
Contents



Introduction

I. Introduction

Public health emergencies often profoundly impact the health security of the countries facing them. Strong local logistics capacities can help reduce the consequences of such emergencies, by ensuring that the supplies and resources required for the response are available at the right time in the right place. Supply chain preparedness measures, including pre-positioning health supplies and equipment or training logistics emergency responders, are considered a major asset in the management of and response to health emergencies.

The United Nations World Food Programme (WFP) has a long-standing experience in emergency response around the world. Its logistics expertise and footprint enable large-scale emergency responses in some of the world's most remote and complex operating environments. As such, WFP Supply Chain is regularly called upon to support the response to complex health emergencies, such as the COVID-19 pandemic or Ebola and cholera outbreaks. While WFP's core mandate remains the delivery of food assistance in emergency contexts, WFP has been working in collaboration with a wide range of humanitarian actors over the past two decades as part of Sustainable Development Goal 17 ("Partnerships for the goals"), contributing to emergency response and preparedness efforts across sectors. WFP's approach to capacity strengthening and emergency preparedness in the health space focuses on niche areas of supply chain management where WFP has proven expertise. Aligned with national health priorities, WFP shares the tools, methodologies and best practices from its experience in food logistics, adapted and tailored to meet local health needs.

In 2022, WFP signed a Memorandum of Understanding (MoU) with the Ministry of Health (MoH) of Malawi to help strengthen public health supply chains and enhance preparedness efforts. As part of this MoU, WFP collaborated with the MoH and the Department of Disaster Management Affairs (DODMA) to conduct two Health Supply Chain Simulation Exercises (SimExs) in July 2022 and August 2023. These multi-stakeholder exercises brought together a group of participants and facilitators from various organizations specialised in health supply chain or emergency response in Malawi and aimed to test and strengthen the logistics response capabilities of Malawi's logistics actors. Both exercises were developed and implemented by the MoH and DODMA with WFP's support and tailored to the context of Malawi to practise the logistics response in the first phases of a simulated emergency. An extensive consultation process with key health supply chain stakeholders in the country helped to define the content and scenarios of the SimExs. A thorough assessment process was also developed before the SimExs and applied during and after the SimExs to evaluate the impact of these exercises on the skills and capabilities of the participants and facilitators.

This report aims to share the results and findings of the assessment of the two SimExs conducted and provide recommendations for using this approach again in Malawi or other geographies. The findings and recommendations are intended to help key actors understand their function in future emergency responses in Malawi.

Assessment objectives

The assessment aimed to understand the impact of the two SimExs on the knowledge and skills of the participants and facilitators for a set of pre-defined capabilities, as well as the impact on the processes of their respective organizations. The assessment also aimed to evaluate the extent to which the knowledge and skills acquired during the SimExs are being applied by participants and facilitators during health emergency responses or in routine preparedness activities since the first SimEx in 2022.

The capabilities targeted were defined through a thorough consultation process with various stakeholders in Malawi and agreed upon before the start of each exercise. The capabilities targeted for the second SimEx in 2023 built on those from the first SimEx in 2022 and remained centred on four broad areas identified: Planning, Coordination, Information Sharing and Decision-Making. The second SimEx included an element of Training of Trainers (ToT), ensuring that the exercise could be replicated in the future by those who joined it. More details on the capabilities targeted are available in part III of this report.

Key recommendations and practical next steps were gathered during and after the two exercises, following a consultative and consensus-driven process. Whilst it is very difficult to directly attribute cause and effect and isolate the impact of the SimExs, this report aims to capture the reflections of key actors on the improvement of Malawi's logistics response capabilities since the first SimEx in 2022. The recommendations are also aligned with the findings from the After Action Reviews that were conducted by the Government of Malawi following the 2023 cholera and tropical Cyclone Freddy emergencies. The assessment findings and recommendations are detailed in part IV of the report and provide a sound basis for opportunities to conduct similar SimExs in Malawi or other geographies in the future.

Assessment methodology

A rigorous evaluation methodology was followed during and after each SimEx.

DURING THE SIMEX

During the SimEx, each team of participants had two observers who were responsible for observing the participants' behaviours and practices and evaluating those against a predefined observation matrix. In addition, a mentor was assigned to each team and tasked with observing and guiding the team towards good practices. To assess an evolution in the competency level of behaviours and practices, each practice was expected to be observed at least twice during the week for each team according to the pre-mapping of competencies to be observed on each day.

A debrief and lessons learned session was held on the last day of each SimEx, involving both participants and facilitators and focusing on the participants' reflections. An online survey was also shared with both participants and facilitators, assessing their level of satisfaction with various aspects of the training on the last day of each exercise.

AFTER THE SIMEX

Three weeks after the SimEx, a debrief session was conducted with the observers and mentors, focusing on the evaluation methodology and observations to assess the achievement of the training objectives. A debrief session with the facilitators was also held a month after the training, focusing on lessons learnt and successes.

Six months after the delivery of the second SimEx and as part of a continuous monitoring and evaluation process, WFP additionally conducted a level 3 assessment to evaluate the training's impact on the capabilities of the participants and facilitators, as well as on their organizations. Various assessment approaches were considered for this post-SimEx assessment, including Key Informant Interviews (KII); Focus Group Discussions (FGDs); Knowledge, Attitude, and Practice (KAP) surveys; and Self-Assessments. KIIs and FDGs were deemed the most relevant and suitable methods to ensure an in-depth and reliable data collection process.

Nine facilitators from nine different organizations who attended one or both SimExs were interviewed for the KIIs. These individuals have a range of two to 34 team members reporting directly to them and have on average 16 years of experience in supply chain or disaster management. They have all previously been involved in an emergency response within Malawi. Three groups of two to three participants from five organizations who attended the SimExs took part in the FGDs. These individuals have on average seven years of experience in supply chain management, and 67 percent of them had previously been involved in an emergency response. All interviews were conducted online over four full days. The respondents were asked to discuss and rate their perceived improvement on each one of the capabilities measured and provide examples. The respondents were also asked to reflect on the enablers and barriers towards the implementation of the knowledge and skills gained during the SimExs. The data processing began during the interviews as the research team read non-verbal cues and identified initial keywords and attributes. A coding process was then completed which involved the systematic labelling and categorising of segments of data according to themes and concepts - in this case, key capabilities. A visualisation method called Word Cloud was used for the coding process and analysis.

Project and country background

II. Project and country background

Emergency preparedness and response in Malawi

Malawi is particularly prone to adverse climate hazards that include dry spells, seasonal droughts, intense rainfall and flash floods. Tropical Cyclone Idai in 2019, Tropical Storm Ana in 2022 and Tropical Cyclone Freddy in 2023 are recent examples of such climate hazards.

The country also experiences recurrent health emergencies. Cholera for example has been endemic in Malawi since 1998 with seasonal outbreaks reported during the rainy season from November to May. The latest cholera outbreak in 2022 was the deadliest outbreak of cholera in the country's history according to WHO*.

*https://www.who.int/emergencies/disease-outbreak-news/item/2022-DON435

DODMA is the Government agency responsible for both coordinating and directing the implementation of disaster risk management programmes as well as national disaster response efforts. In the context of the response to a health emergency, DODMA works in close collaboration with the MoH as the lead of the Health Cluster. The health supply chain falls under the responsibility of the Health Technical Support Services (HTSS), a Directorate of the MoH responsible for the management and supply of drugs and other medical supplies, provision of diagnostic services, maintenance of infrastructure and acquisition and maintenance of equipment. The HTSS collaborates with various stakeholders including the Central Medical Store Trust (CMST) to ensure that all public health facilities have adequate health supplies for the response. The health supply chain is furthermore supported by the Transport and Logistics Cluster led by the Ministry of Transport and Public Works (MoTPW) which provides supply chain and logistics coordination for disaster preparedness and response.

Several coordination structures are leading the response at the district level, with the multisectoral Emergency Operations Committee led by the Ministry of Local Government, the District Commissioner (DC) and the District Public Health Emergency Operations Centre (DEOC) led by the Director of Health and Social Services, and several Technical Committees focusing on topics such as supply chain and logistics.

WFP and the Government of Malawi

WFP has been supporting emergency responses and providing food assistance in Malawi for more than two decades. Over the past few years, WFP also collaborated with the Government to improve Malawi's emergency preparedness and response capacities. In 2021, DODMA and WFP partnered for the establishment of a Humanitarian Staging Area (HSA) in Nsanje District, southern Malawi, as part of an initiative to increase access, ensure operational continuity and strengthen national resilience during crises. The HSA is an operational hub which can be activated at the onset of emergencies impacting the Lower Shire Valley Districts of Nsanje and Chikwawa. It also provides a space for training opportunities.

As part of the MoU between WFP and the MoH from 2022 onwards, a range of capacity strengthening and emergency preparedness activities have been jointly designed and implemented to help strengthen public health supply chains and enhance preparedness efforts, with funding from Takeda Pharmaceutical Limited Company (Takeda). Over the past three years, the MoH and WFP have collaborated on:

1. Supply chain planning and visibility dashboards;

2. Storage equipment and warehousing best practices;

3. Two health supply chain SimExs, the subject of this report.

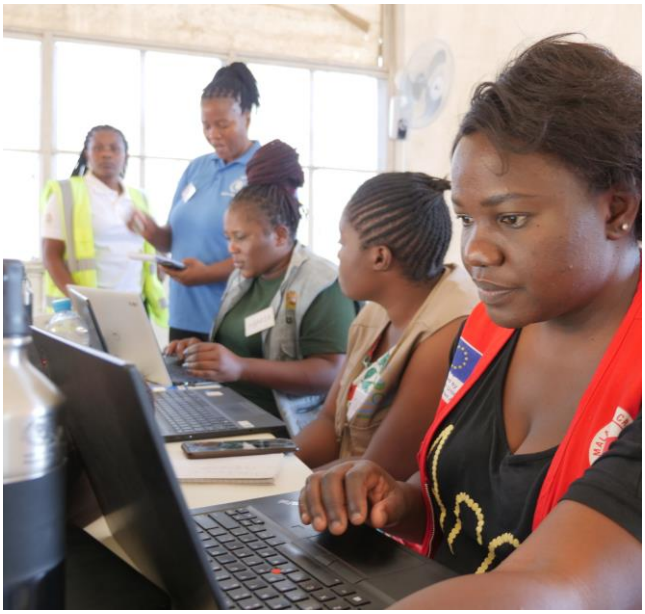
Malawi's coordination mechanisms were the focus of the first SimEx held in 2022. These mechanisms were put to the test at the beginning of 2023 during Tropical Cyclone Freddy and cholera emergencies. A second SimEx was conducted in August 2023, bringing new learning components identified during the response to the 2023 emergencies.

"The Government of Malawi is laying out the Master Supply Chain Transformation plan (2021-2026) to strengthen supply chain operations and to make the public health sector more resilient. We look forward to collaborating with WFP and Takeda so that all Malawians can get access to medicines and supplies efficiently and rapidly". **Godfrey Kadewere, Director of Health Technical Support Services at the Ministry of Health of Malawi.**

The Humanitarian Staging Area in Nsanje.

Simulation Exercises deep dive

III. Simulation Exercises deep dive



Multi-stakeholder consultation and planning process

Before the delivery of the first SimEx in 2022, several activities were carried out to identify the supply chain gaps that the SimEx would seek to bridge. Scoping and preparatory missions allowed the identification of gaps between the current and the desired knowledge, skills, and attitudes. These missions helped to define the capabilities targeted and design the scenarios of the SimExs. The methodology used to identify the learning needs and objectives created clear fundamentals on which the first exercise was built.

By mid-2023, the health stakeholder community reflected on the efficacy of the response to Cyclone Freddy and the concurrent cholera outbreak as well as the potential of conducting a second SimEx. A two-stage, multi-stakeholder engagement strategy was put in place to ensure that the second SimEx would address current learning needs and build on first-hand experiences from responders to the 2023 emergencies. The consultation process confirmed that all stakeholders endorsed the value of the SimEx, its process and methodology as well as the four capabilities targeted. The consultation also helped to identify specific topics that were found to be valuable additions to the 2023 scenario, including the use of common tools during an emergency response - for example, Malawi's Disaster Risk Management Information System (DRMIS) and the Logistics Cluster Information Exchange platform (LogIE). The need to involve a mix of central and district-level participants was also highlighted and it was agreed that participants from additional districts should be considered for the 2023 SimEx.

SimEx methodology

Simulation exercises are an often-used learning technique that is underpinned by a unique didactic methodology. WFP uses a variety of simulation approaches to train both internal teams and representatives from various external organizations via the WFP-led Logistics Cluster to improve coordination between actors in humanitarian crises. WFP leveraged this expertise to support the coordination and facilitation of the two SimExs in Malawi.

The SimExs followed the core Adult Learning Principles and best practices of continuous learning for adults. Adult Learning Principles state that adults are autonomous learners: they undertake training for many, varied reasons and come to training with a wealth of experience. The exercises specifically aimed to trigger the motivation of participants to develop an increased understanding of coordination mechanisms. The exercise sought to support and empower learners, recognising that they will engage with learning on their terms. During the SimEx, learners were exposed to simulated real-life situations where they were able to attempt tasks and activities, re-adjust in response to inputs and guidance, and then adapt their approach to achieve the desired outcomes. The training designers made efforts to create an environment where previous experiences could be applied and used as a learning resource. This approach is embedded in the 70/20/10 framework (70 percent learning by doing, 20 percent from peers, 10 percent course learning). Wherever possible, the SimEx created a "real world" learning environment, enabling the creation of networks and peer-to-peer learning. A flexible approach to the simulation exposed the participants to situations in which they could try different approaches to solving problems and issues. The participants were allowed to fail and to try again. Real-time feedback was provided by the facilitators and mentors. This model of simulation exercise represents the 70 percent on-the-job training.

Watch the video here to learn more about Simulation Exercises.

Watch the videos below for some of the highlights from the two SimEx held in Malawi.

SimEx 2022: here
SimEx 2023: here

SimEx capabilities

The objective of the SimExs was to test and strengthen the response capabilities of Malawi's health and humanitarian logistics actors. Specific capabilities were identified through consultations with various health supply chain stakeholders – many of whom are key responders during real emergencies in Malawi. The capabilities targeted by the two SimExs were: Planning, Coordination, Information Sharing and Decision-Making.

CAPABILITY 1: PLANNING

Planning effectively for an emergency involves developing joint plans based on the needs identified, coordinating with other functions within the organization and externally with other organizations and starting preparedness activities on time to be able to respond more quickly when an emergency hits.

CAPABILITY 2: COORDINATION

Coordination involves the efficient organization of resources, activities, and stakeholders to respond to and manage a crisis. It involves aligning efforts, sharing information, and collaborating with various stakeholders, clearly defining, and implementing roles and responsibilities and matching one stakeholder's needs with another's capacity. The nature of public health emergencies requires coordination and collaboration among local, regional and national capabilities, as well as with technical partners supporting government

entities during emergency responses, including but not limited to Non-Governmental Organizations (NGOs) and United Nations (UN) agencies. Coordination is thus an essential component of emergency response management.

CAPABILITIES 3 AND 4: INFORMATION MANAGEMENT AND DECISION-MAKING

Information management and decision-making refer to the processes and systems used to collect, organise, analyse, and disseminate high-quality information to support decision-making in the preparedness and response phases of an emergency. Information management can be categorised into two main phases: a first phase of information development – including data collection, data analysis, development and dissemination of information products – and a second phase of using information for decision-making. The success of a response depends on the effectiveness of the information management systems used to provide reliable and quality sources of data that help draw the right conclusions. During health emergencies, efficient decision-making is essential (even with little or inadequate information), as an effective response is time-sensitive and is key in alleviating the impact of a disease outbreak.

SimEx scenarios

During the consultation process, various potential scenarios were discussed with all stakeholders, from entirely fictional to very realistic scenarios. It was ultimately deemed important by all stakeholders to closely replicate real-life events, such as recent tropical cyclones Freddy, Idai and Ana.

The scenario that was re-enacted involved a cyclone hitting Malawi, resulting in significant flooding in Nsanje, Chikwawa and Mulanje districts. In the latter stages of the simulation, the situation was exacerbated by a rapidly evolving cholera outbreak. A realistic and dynamic environment was offered to the participants to foster individual and group learning and part of the SimEx took place at the HSA in Nsanje. Over an intense week, the participants were encouraged to plan and implement a complex operational response under pressure, while subjected to real-life constraints. The high-level flow and narrative of the training week were as follows:

- Day 1: Preparedness mapping and early warning (moving to readiness);
- Day 2: Response readiness: the emergency is declared and the teams are deployed;
- Day 3: Response activation: baseline assessments, supply chain and operational planning;
- Day 4: Adjustment of the response to the cholera outbreak;
- Day 5: Supply chain ramp-up: drones, media presence, presentation to senior leaders from key national stakeholders;
- Day 6: Presentation of 90-day and 180-day response plans and debriefing.

The shifting around of the scenario (from cyclone to cholera outbreak) was very complex and hence life-like. The teams physically travelled hundreds of kilometres and changed locations multiple times during the SimExs, which made the simulation feel more real. The Government authorities played an active role in the design and implementation of both SimExs,. WFP supported and facilitated the planning, design, and progress of the SimExs whilst leading the assessment process.

SimEx participants and facilitators

The first SimEx included a total of 13 participants and 15 facilitators. The diversity of both participant and facilitator groups ensured that the scenario felt close to a real-life situation. The variety of technical and functional backgrounds, including Health & Disaster response management sectors, sub-national structures and NGO representatives also added dynamics.

The facilitators were successfully involved in the selection of the organizations invited to join the first SimEx and this selection process was repeated for the second SimEx. The second SimEx brought together 24 participants and 35 facilitators (including 13 WFP facilitators and support staff) from 19 organizations specialised in a wide range of health supply chain or emergency response expertise, including Government agencies, UN agencies such as WFP, UNICEF, WHO and UNDP; regional actors such as the Africa Centres for Disease Control and Prevention (Africa CDC) and Madagascar's Disaster Management Authority (BNGRC); as well as numerous critical (I)NGO partners such as the Malawi Red Cross Society, World Vision, Village Reach and Médecins sans Frontières (MSF).

Including a more diverse range of participants with various experiences and involving additional participants from the district, such as pharmacists, was a focus for the second SimEx, given that district-level staff are the main actors on the ground during an emergency response.

Organizations who attended the SimEx in 2022 and/or 2023:

- Africa Centres for Disease Control and Prevention (Africa CDC)
- Africa Drone and Data Academy (ADDA) and Malawi University of Science and Technology (MUST)
- Bureau National de Gestion des Risques et des Catastrophes (BNGRC)
- Central Medical Stores Trust (CMST)
- Cooperazione Internazionale (COOPI)
- DREAM
- Kühne Logistics University (KLU) - Center For Humanitarian Logistics and Regional Development (CHORD)
- Department of Climate Change and Meteorological Services (DCCMS) from the Ministry of Natural Resources and Climate Change
- Department of Disaster Management Affairs (DODMA)
- Health Cluster
- International Federation of Social Workers
- Malawi Defence Force (MDF)
- Malawi Red Cross Society (MRCS)
- Médecins San Frontières (MSF)
- Ministry of Health (MoH)
- Ministry of Transport and Public Works (MoTPW)
- Save the Children
- Swoop Aero
- United Nations Office for Disaster Risk Reduction (UNDRR)
- United Nations Development Programme (UNDP)
- United Nations International Childrens Emergency Fund (UNICEF)
- VillageReach
- World Food Programme (WFP)
- World Health Organization (WHO)
- World Vision

Assessment findings

IV. Assessment findings

The assessment findings are presented below for each of the four capabilities practised during the SimExs: Planning; Coordination; Information Management and Decision-Making. In addition to these four capabilities, an additional fifth capability was identified during the assessment - Supply Chain Management - for which the findings are also presented below.

Overall, following both SimExs, the respondents reported having observed an 81 percent average increase in the four capabilities after the training.

Planning

This capability was assessed by asking the respondents to reflect on the extent to which their confidence and their team's confidence in planning has improved since the SimExs.

Overall the respondents felt that their ability to plan effectively had improved by an average of 81 percent across both interviewee groups. They reported that the SimEx had helped to:

- Provide visibility on available organizational capacities – for instance, some stakeholders became aware of WFP's warehouses in Blantyre, close to disaster-prone areas, and have since then started using these to pre-position their stocks.
- Provide visibility on who is doing what through stakeholders' mapping. The SimExs brought clarity on the organizations involved in conducting interagency assessments on the ground, as well as how to utilise drones, which were not regularly utilised in the past, in conducting such assessments.
- Provide a higher level of understanding of how to prioritise and adapt activities to the needs of affected populations.
- Improve forecasting and procurement before the rainy season thanks to the need assessment exercise (reported by 67 percent of the respondents).

"There has been a significant shift from having no plan to having an emergency preparedness and response strategy". SimEx participant, Village Reach.

"Following the SimEx, our timeliness has improved, we now do things on time - getting ready for disasters before time, carrying out assessments on the ground, analysing the situation, and not just waiting for the government to provide information". SimEx participant, World Vision.

Most respondents expressed that in their view, planning activities are performed more effectively by and among organizations following the SimExs:

- 62 percent of the respondents reported that they had developed more comprehensive preparedness and response plans in 2023 and 2024, in due time before the rainy season, versus previous years, leading to an improved response speed to emergencies. Joint plans for activities have been drafted, ultimately avoiding duplication of efforts. A participant from a UN agency explained that following the SimEx, his organization has prepositioned supplies in regional hubs, ensuring a quick deployment to affected regions in Malawi within 72 hours in case of emergencies.
- Greater efforts are being made to attend existing committee planning meetings, which has enabled a more proactive approach to emergency preparedness.
- There has been an improvement in tracking the levels of stocks of supplies in health facilities around the country in 2023 and 2024, thanks to the visibility dashboards created by WFP. As a result, the availability of supplies and medicines before the start of the rainy season in November 2023 was improved.

The respondents noted that a few gaps remain: the number of emergency preparedness activities conducted is still relatively low. There are challenges with getting buy-in from some organizations for the pre-positioning of items and for them to participate in joint planning activities.

ENABLERS AND BARRIERS

The respondents highlighted several enablers that they perceived had permitted the application of this capability.

- The support and commitment from senior leadership and supervisors.
- The participation of various organizations in the committee and stakeholder meetings and the existence of planning structures and committees at the organizational level.
- The availability of useful planning tools such as visibility dashboards or national contingency plans.
- The insights and lessons learnt from the SimExs.

"The simulation exercise provided valuable insights and enhanced our planning capabilities, especially in terms of understanding the needs and vulnerabilities in different situations and also because of the fact that now we can even talk of pre-positioning". SimEx participant, MoTPW.

"At the moment we are not panicking because we had already planned and now things are just moving smoothly". SimEx participant, MoH.

In addition to these enablers, the respondents highlighted some elements that hindered the application of the skill:

- Limited funds to implement preparedness plans and preposition commodities.
- The impact of the national currency's exchange rate affecting procurement efficacy.
- Operational barriers such as late delivery of items from suppliers and inadequate storage space.

- Human resource challenges such as insufficiently trained personnel, unavailability of staff to attend committee planning meetings and lack of buy-in from some stakeholders.

Coordination

This capability was assessed by asking the respondents to reflect on the extent to which their confidence and their team's confidence in effective coordination with other actors has grown since the SimExs. The respondents reported a 74 percent average increase in their ability to effectively coordinate with other actors since the SimExs. One facilitator from DODMA, for example, reported being deployed to Chikwawa to coordinate emergency response activities in 2023 and successfully addressing some of the challenges faced during the emergency response in 2022.

Overall, the respondents remarked that the SimExs had helped to:

- Establish connections between stakeholders, enabling them to engage with preparedness and response focal points in other organizations more easily and directly and share information.
- Create a platform for key stakeholders from different organizations to work together as a team and develop better connections and information sharing (an improvement noted by 78 percent of the respondents).

67 percent of respondents reported that coordination among stakeholders had improved following the SimExs:

- Some feel more confident in their coordination efforts through their active participation in cluster and stakeholders' meetings, helping to ease and streamline the decision-making process before and during emergencies. One of the respondents saw the SimEx as an eye-opener on the need for sharing accurate information as quickly as possible for better coordination and decision-making.
- Several participants observed improved coordination through the more regular and structured use of existing WhatsApp groups for information sharing.
- Several respondents observed an improvement in internal coordination among departments, which led to faster staff mobilization in times of emergencies. The respondents also remarked that routine or long-term developmental projects were less impacted by the prioritisation of emergency responses and reported better follow-up on issues of procurement and distribution.
- At the Government level, several respondents mentioned they had observed improvements in the coordination between the central and district levels, with a better understanding of how to work with one another and involve the District Council (DC).

ENABLERS AND BARRIERS

The respondents identified a few enablers for the improvement of coordination skills, including:

- The leadership of the Government in promoting strong stakeholder engagement and alignment.
- Practical support from supervisors to ensure attendance at stakeholder meetings – with IT equipment handed over for virtual attendance- and encouragement to participate in direct communication channels like WhatsApp.
- Greater involvement and commitment from non-traditional actors such as the private sector, partially driven by coordinated stakeholder mapping exercises.

Some challenges however continue to exist with the respondents mentioning the following barriers:

- Some organizations are still working in siloes and not proactively sharing information on the activities they are engaged in.
- A lack of buy-in from some stakeholders and interagency conflicts make collaboration difficult.
- Insufficient human resources, limited capacity, high turnover and organizational changes and restructuring result in the reduced continuity of knowledge gained during the training.
- Unavailability of staff to attend coordination meetings and poor internet connectivity.
- Operational challenges related to unsolicited donations.
- Practical follow-ups to ensure better coordination with the district level.

"Defining roles and responsibilities within the organization has really helped us to improve in terms of coordination. We are able to plan together and avoid overlaps in terms of running activities concurrently and delays and focus our support on the emergency." SimEx participant, MRC.

"The SimEx itself served as a platform for staff from different organizations (DODMA, MoH, and NGOs) to work together, fostered teamwork and practical learning, transcending organizational boundaries". SimEx participant, MoH.

"We have been able to coordinate with each organization for assigned activities which has led to speedy deliveries, for instance when we delivered essential medicines and medical supplies across regions within five days." SimEx participant, CMST.

Information Management and Decision-Making

These capabilities were assessed by asking the respondents to reflect on the extent to which their confidence and their team's confidence in Information Management (IM) and Decision-Making to make timely decisions and mobilize resources based on the information gathered, analysed and shared has grown.

Overall, an average 68 percent increase in the ability to manage information and make decisions based on data was reported. The respondent mentioned that the SimEx has helped to:

- Raise awareness of the information available across the health stakeholder community in Malawi. For example, the dashboards developed by WFP have enhanced data visibility and motivated teams to make more informed decisions based on improved data quality. Few participants knew about these dashboards before the SimExs.
- Advocate for the use of different common tools, processes and procedures endorsed by DODMA and the MoH. The SimEx participants were able to familiarise themselves with those tools during the SimEx including the Purchase Request Form; the Service Request Form; the Stock Release Form; the Health and Warehouse Assessment Forms; the Sitrep template; the Stock Card template; the DRMIS platform and its LogIE component. LogIE, which enables the community to share information more easily on accessibility and road networks, was repeatedly referenced by the respondents as an example of how better use of technology can enhance response capabilities.

The respondents also reported that in their view, information sharing has improved among and within organizations and the data shared is of better quality.

- The respondents perceived being more aware of the right channels to access quality information and have a better understanding of what needs to be done during an emergency in terms of data collection and sharing. Data collection and processing, and the flow of information from the field level to the District Council are reported to have improved.
- 72 percent of the respondents highlighted that there has also been noticeable progress in analysing and utilising the information shared via the various platforms for more informed and timely decision-making.
- Greater attendance to stakeholder meetings (even virtually) to share and obtain information available. Moreover, the availability and more structured use of existing social platforms like WhatsApp has made information sharing faster and is believed to enable swifter responses.
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- The respondents remarked that in their view, a more streamlined approach towards tracking indicators across projects within organizations could be introduced so that their overall contribution to the national level indicators could be highlighted better.

ENABLERS AND BARRIERS

Several enablers were repeatedly mentioned by the respondents:

- Greater attendance at stakeholder and cluster meetings resulting in improved coordination among actors.
- More regular and structured use of existing platforms like WhatsApp to improve communication with staff on the ground providing real-time information,
- More organizations now appearing to proactively seek information. For example, designated Information Management Officers have now been instated in Government entities to manage and share information.
- The availability of more up-to-date systems providing more reliable information.
- The use of data collection tools to ensure data is in one place, and the willingness of team members to receive and engage with shared information.

Naturally many challenges remain. Respondents highlighted the following barriers:

- Many IM platforms remain dormant during times of normalcy, which translates into a low level of consistent information sharing and difficulty scaling up to timely, complete and accurate information sharing for decision-making during emergencies.
- The level of familiarity and therefore the use of some IM tools (e.g. the LogIE component of the DRMIS tool) remains limited.
- The skilled staff at the local level remains limited.
- Too much information is available resulting in confusion and duplications. A continued lack of centralised information platforms is observed, resulting in systems working in isolation.

"With the confidence gained from the SimEx and effective resource mobilization, decision-making in supply chain management has become significantly smoother. We now handle logistics decisions with ease, and the ability to predict outcomes has notably increased - whether it's moving goods or determining what's needed and where, resulting in more efficient and resilient operations". SimEx facilitator, MoTPW.

Supply Chain Management

Much of the SimEx focused on Supply Chain Management. As such, this fifth additional capability was assessed during the assessment process, by asking the respondents to reflect on the extent to which their organization's Supply Chain Management is more reliable, predictable and resilient to disruptions in terms of inventory management practices and contingency measures since the SimExs.

The respondents reported an increase of 87 percent in average in their supply chain management skills. The respondents reported that the SimExs helped to improve the awareness of their organization of other organizations' logistics capabilities.

67 percent of respondents reported that in their view, their organization's Supply Chain Management is more resilient since the SimExs, as per below:

- An increased focus is placed on logistics-related activities and engagement with the logistics departments in planning for preparedness and response activities. It is felt that supply chain management has become significantly smoother and the ability to predict outcomes has notably increased, resulting in more efficient and resilient operations with the right commodities in the right place at the right time.
- Procurement and prepositioning activities were undertaken earlier compared to previous years. One respondent reported that his organization was prepositioning stock before anticipated emergencies for the first time.
- Greater efforts are made to share information leading to logistics improvements.
- 39 percent of respondents highlighted that the mapping of and increased engagement with stakeholders that can support last-mile delivery to the community has resulted in greater use of diverse modalities including motorbikes, bicycles, boats and drones to ensure delivery of health commodities to hard-to-reach areas.
- 28 percent of respondents highlighted the use of the supply chain planning dashboards developed by WFP, saying it has helped greatly in providing visibility on national stock status as well as in managing average monthly consumptions.

Following the SimEx, most organizations further acknowledged the importance of supply chain management in emergencies and intend to continue their focus on preparedness measures such as prepositioning and simulation exercises to increase the capacities and capabilities of stakeholders to respond to emergencies.

"Following the SimEx, we've made substantial progress in establishing a committee that undergoes training with DODMA and WFP. This committee now plays a key role in overseeing disaster issues, logistics, and coordination with various stakeholders. The awareness and involvement of team members have significantly increased" **. SimEx facilitator, MoTPW.**

Recommendations and conclusions

V. Recommendations

The assessment undertaken concluded that the SimExs had a positive impact on the respondents' confidence in the four capabilities targeted. The respondents reported an **81 percent** average increase in the four health emergency preparedness practices following the training. Below are some of the key recommendations that came out of the research:

1. **Integration of SimExs in the national portfolio for emergency preparedness and response activities**: the positive outcomes observed in the assessment findings strongly suggest integrating the SimEx as a reoccurring event in the national portfolio for emergency preparedness and response. This integration should include diverse stakeholders from various health stakeholder organizations to drive enhanced collaboration and coordination.

2. **Emphasis on comprehensive planning**: the findings highlighted the importance of planning for emergency preparedness and response. To further enhance this capability, the research findings suggest that all organizations prioritise the development of joint plans and need assessments, engage in regular stakeholder and committee planning meetings, and utilise available planning tools such as dashboards and national documents. Additionally, some efforts should be made to address the remaining gaps in conducting planned emergency preparedness activities and obtaining buy-in from all stakeholders.

3. **Strengthening coordination mechanisms:** coordination between stakeholders is crucial for efficient health emergency responses. The results of the assessment make it clear that it is beneficial for all organizations to foster teamwork, networking, and information sharing through existing platforms such as WhatsApp groups and stakeholder and committee planning meetings. The research strongly highlights the need to address and overcome challenges such as interagency conflicts, limited human resources, organizational restructuring and unclear roles and responsibilities to further improve coordination efforts.

4. **Enhancing information management and decision-making**: the respondents all agree that their organizations should focus on improving information-sharing processes and enhancing data quality to support informed decision-making during emergencies. They believe this can be achieved by utilising data collection tools and streamlining information platforms. The respondents also raised the challenges of limited use of information management tools during times of normalcy, maintaining familiarity with common tools, processes and procedures and overcoming the provision of information that is not timely or accurate.

5. **Optimising Supply Chain Management**: the assessment highlights the general perception that supply chain management plays a critical role in emergency preparedness and response. The respondents believe that their organizations should continue prioritising logistics-related activities and engaging supply chain departments in planning and coordination efforts. Insufficient storage space, limited resources, and delays in procurement processes are some of the challenges the research highlights for attention.

VI. Conclusions

The assessment findings underscore the significance of the SimExs in strengthening emergency preparedness and response capabilities at the individual and organizational levels. Through the SimExs, respondents reported notable improvements in their knowledge and skills in planning, coordination, information management, decision-making, and supply chain management. These improvements have translated into more efficient crisis management practices, including timely response, better resource allocation, and enhanced collaboration among stakeholders.

The implementation of the recommendations from the two SimExs has helped to further strengthen organizational preparedness and response mechanisms in Malawi. However, challenges such as limited resources, coordination barriers, and information-sharing gaps persist and require ongoing attention.

In conclusion, the SimEx serves as a valuable methodology for building resilience and readiness in the face of emergencies. Continued investment in simulation-based training, along with the implementation of the recommendations identified, is essential for ensuring effective emergency preparedness and response at both organizational and national levels.

WFP and the MoH of Malawi are grateful for Takeda's continuous support for the activities highlighted in this report.

"The SimExs highlighted the importance of including simulation-based training in our contingency planning, and budgeting and ensuring every District is able to attend." SimEx facilitator, MoH.

"As a result of my previous experience and the SimEx, emergency preparedness and response has been made one of the key areas of focus in my organization in Malawi, which we never really had as an area of priority". SimEx facilitator, Village Reach

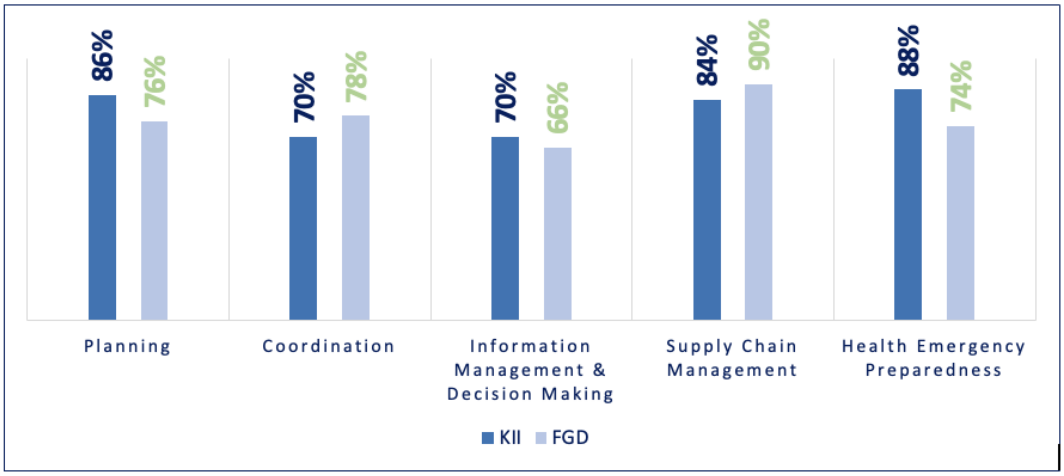
Acronyms

Africa CDC	Africa Centres for Disease Control and Prevention
BNGRC	National Office for Risk and Disaster Management, the operational arm of the National Council for Risk and Disaster Management of Madagascar
CO	WFP Country Office
CMST	Malawi Central Medical Store Trust
DC	District Commissioner
DEOC	District Emergency Operation Centre
DODMA	Malawi Department of Disaster Management Affairs
DRMIS	Disaster Risk Management Information System
EOP	Emergency Operations Plan
FGDs	Focus Group Discussions
HSA	Humanitarian Staging Area
HTSS	Health Technical Support Services (Directorate of the Ministry of Health Malawi)
IM	Information Management
KAP	Knowledge, Attitude, and Practice surveys
KII	Key Informant Interviews
LogIE	Component of the DRMIS
MDF	Malawi Defence Force
MSF	Médecins Sans Frontières
MoH	Ministry of Health
MoTPW	Ministry of Transport and Public Works
MoU	Memorandum of Understanding
NGO	Non-Governmental Organization

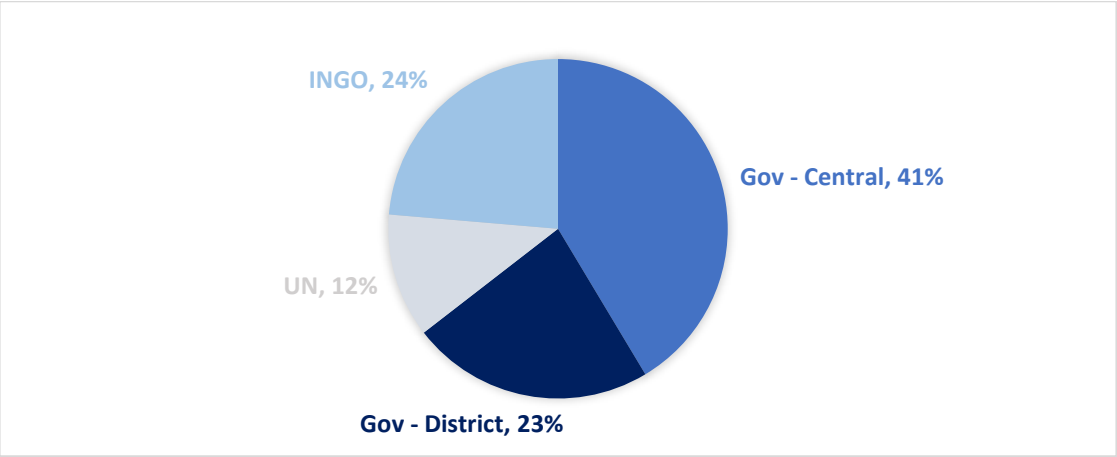
SimEx	Simulation Exercise
ToT	Training of Trainers
UNDRR	United Nations Office for Disaster Risk Reduction
UNICEF	United Nations International Children's Emergency Fund
WFP	United Nations World Food Programme

Annexes

Annex 1: Scores attributed to the improvement observed following the SimEx training



Annex 2: Disaggregation of respondents by organization



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