Strengthening Disaster Preventon Approaches in East Africa (STEDPEA)

REPORT ON TRAINING WORKSHOPS ON

Artificial Intelligence for Disaster Risk Reduction in Uganda.
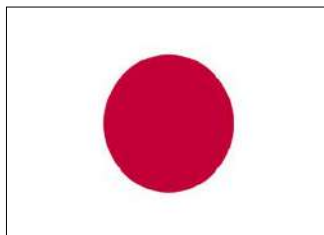
2021 - 2022

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Acronyms

AI	Artificial Intelligence
APP	Application
ASG	Assistant Secretary General
COVID-19	Corona Virus Disease of 2019
DDMC	District Disaster Management Committee
DPMOPM	Disaster Preparedness and Management Office of Prime Minister
DLG	District Local Government
DPD	Disaster Planning Department
DRR	Disaster Risk Reduction
EPPAD	Education Planning Department
ICT	Information Communication Technology
MoES	Ministry of Education & Sports
NBS	National Broadcasting Station
NITAU	National Information Technology Authority - Uganda
NPA	National Planning Authority
OPM	Office of the Prime Minister
RDC	Resident District Commissioner
SG	Secretary General
SMS	Short Message Service
STEDPEA	Strengthening Disaster Prevention in Eastern Africa
TV	Television
TOTs	Training of Trainers / Trainers of Trainees
UBOS	Uganda Bureau of Standards
UNATCOM	National Commission for UNESCO
UNDP	United Nation Development Programme
UNESCO	United Nations Educational, Scientific and Cultural Organization.
UNICEF	United Nations Children's Fund,
UNITWIN	University twinning and networking scheme.

Foreword

I am happy to introduce to the readers this report about the training process undertaken in introducing the use of artificial intelligence (AI) for prevention of disasters to officials involved in managing disasters in the ministries, agencies, departments and the local governments.

There are very encouraging signs of AI innovation and development in Uganda and the government has already put in place an inter-ministerial taskforce hosted at the Ministry of Information, Communication Technology (ICT) and National Guidance. Even as there is an enormous potential for AI development, there are also challenges in terms of infrastructure availability as well as human and institutional capacity gaps to develop and govern AI to optimize benefits and minimize harms.

Building upon the recommendations of UNESCO report on Steering AI and Advanced ICTs for Knowledge Societies, the lessons from this project are important for bridging the information gap concerning the strategic priorities, policy measures, developmental challenges, human and institutional capacity needs, and legal frameworks. Whereas the advances in artificial intelligence create vast new opportunities, they also increasingly impact on the way in which people, governments, and organizations interact with one another and take part in work and society. That is why UNESCO's forty first General Assembly in November 2021 adopted the first ever global agreement on the Ethics of Artificial Intelligence called the *Recommendation on the Ethics of Artificial Intelligence*. The Recommendation aims to realize the advantages AI brings to society and reduce the risks it entails. It ensures that digital transformations promote human rights and contribute to the achievement of the Sustainable Development Goals, addressing issues around transparency, accountability and privacy, with action-oriented policy chapters on data governance, education, culture, labour, healthcare and the economy.

In the course of the various sessions of training in the different parts of the Country, it became clear that policy initiatives for AI governance need strengthening especially by provision of legal and regulatory frameworks as well as the need to foster and enhance capacity for AI governance. The lessons learnt from the training are very useful in pointing the way forward for the next stage of application of AI. It also helps to inform the initiation of focused in-depth national specific support to further advance on some of the recommendations of this report for successful use of the AI technology especially the Chatbot technology.

It is in consideration of all the above that I hereby recommend this report for wider circulation in the country and in-depth reading by all the stakeholders involved in promoting AI in the Country.

Rosie Agoi
SECRETARY GENERAL

Acknowledgement

Uganda National Commission for UNESCO (UNATCOM) wishes to thank all those who made the implementation of the project: Strengthening Disaster Prevention Approaches in Eastern Africa (STEDPEA) successful here in Uganda. In the first place, we wish to thank the Director, UNESCO Regional Office for Eastern Africa and the Government of Japan for the funding support. Of special mention is Dr Samuel Tetteh Partey, overall coordinator of the project in the Region. We thank the team of Master Trainers namely: Dr John Okunzi and Dr Flavour Excellence both lecturers of Information Communication and Technology (ICT) at Kyambogo University, Dr. Mercy R. Amiyo and Dr. Peter Nabende both lecturers of ICT at Makerere University, Ms. Pamela Komujuni and Mr. Okello Simon Peter both staff in the Directorate of Disaster Preparedness and management in the Office of The Prime Minister of Uganda under the National Emergency Coordination Centre (NECOC) for their excellent training skills. UNATCOM also thanks Ms. Juliet Engole of the Planning Department in the Ministry of Education and Sports for the secretarial skills as rapporteur.

Special appreciation goes to the Permanent Secretaries of the various Ministries, the Directors of the Agencies, heads of Departments, Chief Administrative Officers of the District Local Governments, the Town Clerks of the Cities and Municipalities and the heads of the various Civil Society Organizations for releasing their staff to undertake the training at the various venues countrywide.

Within the National Commission, the team including the Programme Officer for Sciences Ms. Pauline Achola, the Senior Information Scientist Ms. Angela Atukunda, the Senior Accounts Assistant Ms. Stella Okker Linda and the Accounts Assistant Mr. Denis Mayambala all under the leadership of the Assistant Secretary General Dr. Dominic Venture Mundrugo-Ogo Lali did very commendable work in ensuring that the entire project implementation was effectively coordinated and managed right from the planning to the execution of the training process. In all these, the greatest of all the gratitude goes to the Secretary General of UNATCOM Ms. Rosie Agoi, who effectively played her role as the overall supervisor of the project. The individual efforts of all the other staff of UNATCOM are hereby acknowledged for the various contributions each of them made towards the success of this project.

Finally, we thank the various photographers and media personnel for the excellent coverage during the trainings in the five different. venues.

Executive Summary

This report is about the national training conducted in the country to build capacity for disaster prevention in Uganda. It is a response to the many disasters experienced over the past decade. With high sensitivity and limited adaptive capacity, weather-related and geological hazards have resulted to many events such as the floods, landslides, flush floods, droughts, earthquakes, tremors, volcanism and wildfires in most parts of Uganda have caused deaths of hundreds of thousands and displaced close to five million inhabitants. One way of enhancing the overall awareness and responsiveness is to combine citizen science and modern technologies to bridge the gap. Technological advancement and innovation have created new opportunities for enhancing disaster resilience and risk reduction. The project aimed at supporting the development and integration of science-evidenced measures such as artificial intelligence (AI) innovations, citizen science and gender-responsive actions into strategies and action plans for disaster risk reduction in schools, communities and public sector institutions in Eastern Africa. Among several outcomes, the project implementation targeted the state and non-state institutions use and apply artificial intelligence in disaster response. In all, 240 trainees benefited from the project.

The project was a partnership between UNESCO and Japanese partners *(Weathernews Inc. and LINE Cooperation)* developed an Al Chatbot Smartphone Application for DRR that enables users to receive early warning on future disasters and allow them to report any damage *(with pictures and georeferenced information)* when disasters occur. The data is processed by AI to generate a map so that relief agencies and government can utilize it for identifying the most impacted locations that need urgent rescue. Throughout all the six different trainings, the participants raised many issues ranging from internet, data, and applicability of the app. The categories of disasters, fears about coordination problems from reporters and the involvement of the department of disaster preparedness in the Office of the Prime Minister.

Among the recommendations proposed were that **d**isasters be categorized according to various sectors e.g., Education**,** where a specific application be developed for Disaster reporting and response in the country without relying on the external application to which the government has no control over, the various institutions concerned with disaster prevention and management should work together at all times e.g., Uganda Police, Office of the Prime Minister, UNATCOM and others, the institution (s) responsible for managing the AI Chatbot, filtering and authenticating the information shared on the platform should be clearly stipulated and given the mandate to ensure that the AI Chatbot serves the purpose for which it was designed. The application should be customized and adopted by Uganda as a disaster reporting platform and then uploaded to Ug Hub by NITA-U such that it is easily accessed and managed. It was also recommended that the application should be user-friendly to enable reporting of simultaneous events. It should also enable getting events in real-time, allow for uploading of videos, real-time editing to add and subtract information and provide for follow-up of the disaster reports sent. There is need for up-to-date maps for accurate and quick response for team arrivals to the scene of disaster. The app should also be able to operate off-line and should be made simpler to provide prompts for action. Also participants urged to come up with more innovations and new technology that can be applied in the field of Disaster response and management.

1.0 Background

During the last decades, climate change and other pressures have amplified risks and widened the range of detrimental events that cause devastation of human life, property, biodiversity, and cultural heritage worldwide. Eastern Africa is no exception. With high sensitivity and limited adaptive capacity, weather-related and geological hazards have resulted in too many events such as the floods in Kenya and Rwanda, the frequent, nearly annual occurrence of landslides, flush floods, droughts, earthquakes, tremors, volcanism and wildfires in most parts of Uganda have caused deaths of hundreds of thousands and displaced close to five million inhabitants[1], Furthermore, cases of drought in the Greater Horn of Africa and the 5.9 magnitude earthquake that hit North West Tanzania are among some of the recent disasters whose impacts are still being felt in the region. The high frequency of calamitous events and the often-poor official response seems to have created a deficit of trust between citizens and national authorities. A lack of disaster preparedness and technology has also challenged the regions for decades.

One way of enhancing the overall awareness and responsiveness is to combine citizen science and modern technologies, which would help bridge the distance, in time and space, between citizens and authorities in those crucial first few moments following the disasters. Among the recommendations in the Ugandan study was to adopt communication strategies and early warnings using various media channels to enable communities' awareness and resilience[2]. Technological advancement and innovation have created new opportunities for enhancing disaster resilience and risk reduction. Developments in artificial intelligence (AI), big data – and innovations in areas such as robotics and drone technology are transforming many fields, including disaster risk reduction and management. In Eastern Africa, these technological innovations are limitedly used hampering efforts for the development and implementation of sustainable disaster risk reduction (DRR) and preventive solutions. For quick and efficient response, as well as for recovery after any natural or artificial catastrophe, one of the most important things are accurate and reliable spatial data in real or near real-time. It is essential to know the location as well as to track and analyse passive and active threats to quickly identify the possible dangers and hazards

The UNESCO Regional Office for Eastern Africa is therefore implementing a project aimed at supporting the development and integration of science-evidenced measures such as artificial intelligent (AI) innovations, citizen science and gender-responsive actions into strategies and action plans for disaster risk reduction in schools, communities and public sector institutions in Eastern Africa. Among several outcomes, the project implementation is expected to enable state and non-state institutions use and apply artificial intelligence in disaster response.

The United Nations Educational, Scientific and Cultural Organization *(UNESCO)* in collaboration with Japanese partners *(Weathernews Inc. and LINE Cooperation)* developed an Al Chabot Smartphone Application for DRR to help citizens interact with local authorities to better prepare, respond and recover from disasters. The chatbot enables users to receive early warning on future disasters and allow them to report any damage *(with pictures and*

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1   *UNATCOM (2014): Geohazards Vulnerability and Risk Profiles in Uganda: Early Warning, Disaster Preparedness and Risk Reduction Measures, published by Uganda National Commission for UNESCO (ISBN:9789970-400-08-9).*
2   *ibid*

georeferenced information) when disasters occur. The data is processed by AI to generate a map so that relief agencies and government can utilize it for identifying the most impacted locations that need urgent rescue.

On 30th June 2021, UNESCO organized training for master trainers from Kenya, Rwanda, South Sudan, Tanzania, and Uganda. These Master trainers were to in turn facilitate planned in-country trainings in collaboration with UNESCO Offices and National Commissions in the respective countries.

1.1   Rationale/purpose

Looking at the number of disasters that have occurred in the world, one could argue that after Southeast Asia, Eastern Africa is one of the most disaster-prone regions in the world. Nature has been unkind to countries in the region and the physical and human damage has been significant. Both weather related and geological hazards have happened in unexpected scale simultaneously such as flooding caused by cyclone in and tremors.

A lack of disaster preparedness and technology has challenged the regions for decades. Few events such as the ongoing drought in the Greater Horn of Africa region and the 5.9 magnitude earthquake that hit North West Tanzania are some of the recent disasters whose impacts are still being felt in the regions. The high frequency of calamitous events and the often-poor official response seems to have created a deficit of trust between citizens and national authorities.

One way of enhancing the overall awareness and responsiveness is to combine citizen science and modern technologies that would help bridge the distance, in time and space, between citizens and authorities in those crucial first few moments following the disasters. Technological advancement and innovation have created new opportunities for enhancing disaster resiliency and risk reduction. Developments in artificial intelligence *(AI),* Big Data – and innovations in areas such as robotics and drone technology are transforming many fields, including disaster risk reduction and management. In Eastern Africa, these technological innovations are limited use hampering efforts for the development and implementation of sustainable disaster risk reduction *(DRR)* and preventive solutions.

1.2   Workshop Venues, Dates and Programme

The workshops were held in six training centres in the regional cities namely at Lake View Hotel, Mbarara city Western Uganda, Wash & Wills Hotel in Mbale City for Eastern Uganda, Churchill Courts Hotel in Gulu city for Northern Uganda and Silver Springs Hotel, Kampala Capital City for Central and Bunyoro Sub-regionon. Two separate training sessions were provided for officials from the Ministries, Departments and Agencies from the headquarters and regions.

The first round training for the Local Governments took place from 3rd to 15th September, 2021 after series of preparatory meetings between the National Commission Officials and the Master Trainers between 23rd August to 2nd September 2021. The second round of workshops was from 21st-22nd nd October 2021 also in Silver Springs Hotel in Kampala. The last was at the Ministry of Information, Communication, Technology and National Guidance.

A workshop programme consisting of five sessions was developed for use in all the various training centres and is attached as *Annex I.*

1.3   Targeted Participants for the National Training.

A total of two hundred and two (202) participants (Trainers of Trainees) were invited of which One hundred and thirty five (146) were to be from the Disaster Management Committees (DDMCs) of all the District and City Local Governments, nine (9) were to be drawn from nine ministries namely: Office of Prime Minister, Disaster Management Department and the Ministries responsible for Water and Environment, Agriculture, Animal Industry and Fisheries, Information, Communication, Telecommunication & Guidance, Energy and Mineral Resources, Tourism, Wildlife & Antiquities, Works and Transport, Education and Sports and Science, Technology and Innovations. Five (5) Officials for training were invited from the Government Agencies namely: National Environment Management Authority, National Water and Sewerage Corporation, National Forestry Authority, Uganda National Meteorological Authority and Uganda Wildlife Authority. From twenty selected Universities, twenty (20) participants were invited while twenty (20) others were invited from the Non-governmental and Civil Society Organizations. Others were from the Press and Media Houses across the Country.

The regional distribution of the above targeted population in the training centres were planned to be as follows: forty-six (46) in the Northern Region, forty-eight (48) in the Eastern Region, thirty five (35) in the Western Region, Sixty Four (64) in the Central Region consisting of forty nine (49) in Buganda and fifteen (15) from Bunyoro Sub-regions.

A total of eighty-eight (88) participants from Districts and Ministries (See Annex V) attended the joint training workshop on "Artificial Intelligence for Disaster Risk Reduction in Uganda". These were from MDA's and various districts across the country who missed the first regional trainings

The participants were drawn from different categories as mentioned hereunder:
- (i)   Ministry of Education, and Sports (MoES)
- (ii)   Ministry of Agriculture and Fisheries
- (iii)   Ministry of ICT &National Guidance
- (iv)   Kyambogo University,
- (v)   Kampala Capital City Authority (KCCA)
- (vi)   Office of the Prime Minister (OPM),
- (vii)   District Local Governments (DLGs) that missed regional Trainings
- (viii) Civil society Organizations
- (ix)   UNATCOM, Secretariat staff; and the press.

1.4.   COVID-19 Measures and the impact on numbers of Trainees.

The project implementation period coincided with the partial lockdown in Uganda as a result of the COVID-19 crisis. Owing to the aforementioned situation during the training period, permission had to be sought from the Resident District Commissioners (RDCs) in every District who gave approval only upon assurance of conducting the training in strict compliance with the COVID-19 Standard Operating Procedures (SOPs) prescribed by the Ministry of Health with approval of the WHO. As a result, the numbers of participants were restricted to only 20 to 30 participants (although some participants still attended despite advise to stay away). In the original plan, each regional training centre was to train up to 50 participants which were refused by the Authorities. In the end, this forced the project organizers had to restrict the numbers close to the prescribed numbers leading to not achieving the target within the set training period.

2.0 Proceedings of the training Workshops

METHODOLOGY

The training workshop in each region was broken down into five (5) sessions. These included an introduction session, two knowledge sessions and two (2) practical sessions and a closing session as broken down in table in Annex I. The detail of each training session is described in this section.

The first Session involved the registration of participants, introduction of participants, welcome remarks and presentation of objectives of the training, a presentation of an overview of the project, expectations from the participants, and opening remarks from the Secretary General of the Uganda National Commission for UNESCO).

Each training session started with registration of all participants, Prayers and introduction of participants. Participants at the time of introductions also gave their expectations about the training workshop. The Training Coordinator who doubles as the Assistant Secretary General, Dr. Dominic Venture Mundrugo-Ogo Lali then gave welcome remarks and objectives of the training before presenting the project overview. This then was followed by the Official Opening Remarks from the Secretary General, Uganda National Commission for UNESCO, Ms. Rosie Agoi.

The second Session: This had two parts. Part one (Application of Artificial Intelligence (AI) in disaster Management) involved an introduction to the training by the master trainers, and a presentation of the applications of artificial intelligence in the different phases of disaster management. Part two (Application Set-up: Line Download, Installation and Registration to STEDPEA project on AI Disaster Chatbot) was aimed aimed at practically ensuring that all participants or trainees had downloaded the LINE social media app and registered the STEDPEA project as their friend on AI chatbot.

The fourth Session 4 (Practical use of the AI Disaster Chatbot Application): This was a practical session whose aim was to both demonstrate to participants and train participants in the use of the LINE social media app and the STEDPEA AI disaster chatbot that has different disaster related functions for reporting about disasters and accessing disaster related information. The earlier session constituted only the first part of the practical training; that is the focus of the training was mainly on the use of the different functions of the STEDPEA add on in the LINE social media app.

The fifth Session had two parts. Part one (Use of AI Chatbot to answer Questions) sought to demonstrate how the AI Chatbot can be used to respond to questions submitted by a user. This depends on the questions stored in its question back. Part 2 (Introduction of the Chatbot for Managers) was focused on the administrator/manager role in the STEDPEA AI chatbot add on. Part three of this session (Feedback and Discussion) was focused on receiving feedback from the trainees, answering any questions that had not been answered regarding the project and training, and receiving recommendations from the trainees.

The final part (Conclusion): At the end of each training, a vote of thanks was given by a representative of the trainees and from the representative of master trainers. Remarks were

then made by a representative from UNATCOM and the session was closed by the area Local Government official and the final closing speech by the Secretary General of the National Commission for UNESCO.

2.1   Session One: Introductory

2.1.1.   Presentations by Project Coordinator/Assistant Secretary General,

At the start of all the workshops, the participants were welcomed by the Assistant Secretary General *(ASG)* of UNATCOM and Coordinator of the Project, **Dr. Dominic Venture Mundrugo-Ogo Lali**. He then presented the following at all the trainings:

2.0.0.1. Project Objectives

The overall expectation of the trainings was to enable state and non- state institutions use and apply artificial intelligence in disaster response.

The specific objectives were outlined as follows;
1)   To enhance the overall awareness and responsiveness to the problem of disasters in the country.
2)   To promote the use of a combination of citizen science and modern technologies to bridge the distance, in time and space, between citizens and authorities in the crucial first few moments following the disasters.
3)   To build capacity in adoption of communication strategies and early warnings using Artificial Intelligence for communities' awareness and resilience, and quick and efficient response and recovery after any natural or artificial catastrophe.
4)   To enable State and non-state institutions use and apply Artificial Intelligence in disaster response.
5)   To build the capacities of relevant national stakeholders on the use and application of AI-based chatbot in disaster response.

The trainings aimed to achieve the following outcomes upon completion;
• Emergency preparedness and response (EPR) capacities for stakeholders enhanced.
• Guidance on use of Artificial intelligence (AI) for emergency dissemination mechanism and response provided.
• Disaster preparedness and management skills by the managers enhanced.

The ASG/UNATCOM, Dr Dominic VML in one of the presentations explaining UNESCO's role in Disaster Management.

2.0.0.2.   Welcome and Opening Remarks: Secretary General (SG), UNATCOM,

Secretary General/UNATCOM, Ms. Rosie Agoi addressing trainees at one of the training venues

In her welcome remarks at each training centre, the Secretary General *(SG)*, UNATCOM, Ms. Rosie Agoi saluted the invited regional, district and city officials including the Resident District Commissioner/District Chairperson or their Representative as per the particular participation that varied from location to location, the District Disaster Management Committees Representatives and other District Officials in various respective capacities as trainees, the Resource. Persons/Facilitators/Master Trainers, team of Officials from Uganda National Commission for UNESCO others from the Press and other Media establishments.

She pointed out at the very outset that this was a very important training in building capacity of districts and other institutions including non-governmental and civil society organizations' as a strategy for strengthening disaster prevention approaches in the country. She noted that the initiative envisions developing the next generation disaster management specialists through the use of Artificial Intelligence technology that is consistent with the current fourth industrial revolution.

The Secretary General informed the trainees about UNESCO as a specialized agency of the United Nations founded in 1945 to contribute to the construction of peace, human development and dialogue through education, the sciences, culture, communication and information. UNESCO contributes to world peace and development through its five functions: Laboratory of ideas and foresight, Standard setter, Clearing house, Capacity-building and Catalyst of International cooperation. She elaborated how each of these functions were exercised. She then outlined UNESCO's four fields of competence namely Education, Science, Culture and Communication & Information and the five programmes namely: Education, Natural Sciences,

Social and Human Sciences, Culture and; Communication and Information.

In the Natural Sciences Sector under which the project was being implemented, she pointed out the current theme as: *"Science for peace and sustainable development"* with many activities among which relevant to the training were:

➢ Building institutional capacities in science and engineering;
➢ Fostering international science collaboration for earth systems, biodiversity, and disaster risk reduction;

The above focus areas are supplemented through specialized intergovernmental programs. She pointed out that UNESCO carries its mission through a global network of field offices, regional bureaus and institutes in over 195 Countries, the National Commissions for UNESCO and 8 Associate members.

About the Uganda National Commission for UNESCO (UNATCOM), the implementer of this project on behalf of UNESCO, the SG said that it was established in 1963, just a year after Uganda's independence and joining the membership of UNESCO, in accordance with Article VII of the UNESCO Constitution. The role of the National Commission is to ensure the promotion and implementation of UNESCO's mandate in Uganda, engage partners at national, local, regional or international level and work with a worldwide network of National Commissions. Our core functions are: Consultation, Liaison, Information, Programme formulation, implementation, monitoring and evaluation.

The UNATCOM Vision of Uganda is "A learning, cultured, informed and peaceful nation" with the mandate of contributing to the attainment of peace, justice, respect for human rights, freedom and security in Uganda through its programmes. The Mission is to provide intellectual leadership, engage Ugandans to participate in and influence UNESCO programmes and activities and, to contribute to peace and sustainable development. The Strategic Goals include raising public awareness of UNESCO's goals and ideals, linking national priorities with these goals and ideals, engaging intellectual and cultural resources and capacities of Ugandans in UNESCO activities and providing support services in the fields of research and development in UNESCO fields of competence.

In the Natural Science Sector under which this training falls, the Strategic Objective is: *To Support the strengthening of national capacity in Science, Technology, Engineering and Innovation (STEI) policies and management of natural resources and ecosystems for sustainable development*. This training is part of the fulfilment of the above strategic objective as it is to build the capacities of relevant national stakeholders on the use and application of technology in disaster response. As a country, Uganda has been faced with various weather-related and geological hazards in form of landslides in Mt Elgon and Rwenzori areas, flush floods (Kasese, Kampala and other areas), droughts, earthquakes, tremors, lightning and wildfires in most parts of Uganda. Most of these have caused many deaths and displaced hundreds of inhabitants as per the study done by the National Commission in 2013/14 biennium.

She pointed out the clear lack of disaster preparedness and absence of technology that have challenged our Country for decades and informed the participants that the training would introduce them to a technology that is aimed at supporting the development and integration

of science-evidenced measures of artificial intelligent (AI) innovation into strategies and action plans for disaster risk reduction in schools, communities and public sector institutions in Uganda.

She thanked UNESCO and the Government of Japan for the project which is in partnership with the Japanese institutions (Weathernews Inc, LINE Corporation and the National Research Institute for Earth Science and Disaster Resilience) that developed the AI-based chatbot to enable immediate rapid reactions, before, during and after disasters in Eastern Africa. She said that the National Commission for UNESCO was happy to have been entrusted with the implementation of this training programme aimed at building the capacity of our relevant national stakeholders.

She then introduced and thanked the Master Trainers who are ICT experts drawn from Makerere and Kyambogo Universities and Office of Prime Minister, Disaster Preparedness Department, for accepting to facilitate the trainings in various parts of the Country regionally. She thanked the Staff of UNATCOM for the coordination work and thanked   participants who turned up for the training. She informed the participants that they were being trained as Trainers for their respective District Disaster Management Committees that they would get back to train.

She concluded by urging all to pay very close attention, participate actively in the practical exercises of the training and make the necessary feedback including recommendations for taking this project forward.

Finally, she declared the training workshop officially opened and wished all successful training and learning.

2.0.0.3. Overview of the Project on Training in Artificial Intelligence for Disaster Risk Reduction in Uganda

The introduction presented the situation in Eastern Africa that is characterized by both weather-related and geological hazards that have happened in unexpected scales. Many events such as of the frequent or nearly annual occurrence like landslides, flush floods, droughts, earthquakes, tremors and wildfires that affect most parts of Uganda and have usually caused deaths of many and displaced thousands of inhabitants were listed. Furthermore, cases of drought in most parts of Uganda, earthquakes along the Albertine belt and lightning countrywide were mentioned as   some of the recent disasters whose impacts had been greatly felt in the region.

The high frequency of such calamitous events and the often-poor official response seemed to have affected the trust between the citizens and national authorities in the country. Of concern here was the lack of disaster preparedness and appropriate technology for early warning and early response that has also been a challenge for decades.

Emphasis was made of the vital role of UNESCO as a multi-sectoral Agency operating at the interface between education, natural science, the social sciences, culture and communication in constructing a global culture of disaster preparedness and mitigation. It was mentioned that UNESCO is closely involved in a conceptual shift in thinking away from post-disaster reaction to pre-disaster action whereby effort is put on adequate warning and mitigation measures

to save lives (humanitarian perspectives) and considerations that "an ounce of prevention is usually worth a pound of cure" (economic perspectives). UNESCO's membership on the global network of UN agencies, inter-governmental groups, and non-governmental or civil society organizations called International Strategy for Disaster Reduction (ISDR), its strong commitment to the then Hyogo Framework for Action (2005-2015), the leadership in the UN Decade of Education for Sustainable Development (UNDESA, 2005-2014), as a second strategic instrument for reducing and mitigating disasters were all highlighted in the above regard. Attention was further drawn to the fact that disaster reduction requires partnerships as necessity to draw together stakeholders from all levels of society, across different regions, sectors and disciplines. Governments, academic and scientific communities, non-governmental organizations and international organizations, along with the communities at risk and the media were therefore all essential contributors in building a culture of resilience.

At this juncture, UNESCO's contribution to studies on disasters that have continued to improve early warning systems and effective utilization of communication technologies for alerts about impending disasters was pointed out.

UNESCO's support to Uganda National Commission for UNESCO(UNATCOM) as Participation Project in 2013/14 to profile the hazardous situations in various parts of Uganda and map out the hot spots of disasters and propose early warning measures that resulted into a publication entitled: *Geo-hazards Vulnerability and Risk Profiles in Uganda: Early Warning, Disaster Preparedness and Risk Reduction Measures, published by Uganda National Commission for UNESCO (ISBN: 9789970-400-08-9) was also applauded.* Among the recommendations in that study was to adopt communication strategies and early warnings approaches using media channels to enable communities' awareness and resilience (UNATCOM, 2014).

The opportunity presented by technological advancement and innovation like artificial intelligence (AI), big data, robotics and drone technology that are transforming many fields could revolutionize disaster risk reduction (DRR) and management. These innovations would facilitate quick and efficient response and recovery from any natural or artificial catastrophe by provision of accurate and reliable spatial data in real or near real-time as they provide knowledge of the locations to enable tracking and analysis of threats, quicker identification of dangers and hazards.

Uganda being one of the countries with very limited technological innovations should consider itself lucky as technologies which are limitedly used, hampering efforts in development & implementation of sustainable DRR and preventive solutions are being introduced. It was therefore hailed as timely that The UNESCO Regional Office for Eastern Africa, Nairobi, partnering with Japanese institutions (WeathernewsInc, LINE Corporation and the National Research Institute for Earth Science and Disaster Resilience) initiated the AI-based chatbot to enable immediate rapid reactions, before, during and after disasters in Eastern Africa. The current prototype was good for the training. The collaboration with the National Commissions in the beneficiary countries (Kenya, Rwanda, Uganda), to implement the training workshops assisted by trained Master Trainers who are experts in ICT were hailed as sustainable endeavors. The presentation concluded that this was a capacity building endeavor for all the relevant national stakeholders that had been invited with key expected outcome that it would *enable both state and non-state institutions use and apply artificial intelligence in disaster response.*

3.0. The Technical Training Proceedings

3.1. Participants Expectations about the Training Workshops.

3.1.1. Participants Expectations in Western Region (Mbarara city)

Thirty-Five (35) Participants had been invited for the training. Out of the number, the actual participants who turned up were twenty-eight *(28). The attendance list is in the Annex II.*

The participants presented their expectations of the training workshop as follows: -
(i)   To know how Artificial intelligence would be applied
(ii)   To know how AI would be integrated into the day to day activities
(iii)   To know how the application of AI would be used to predict disaster risks
(iv)   To know where AI application had ever been conducted
(v)   To understand more about AI;
(vi)   To learn how districts that lacked committees on disaster risk reduction would be helped to establish them.
(vii)   To share the need for capacity building opportunities with others;
(viii)   To follow up in understanding the causes of disasters and what lessons have been learnt
(ix)   To understand what special inputs were in plan and coming on board to enable bringing stakeholders on board.
(x)   Expected to expand on knowledge on Disaster Risk Reduction *(DRR);*
(xi)   Expected to put in place a forum for DRR;
(xii)   Expected to get out enriched with capacity building skills in handling disasters; and,
(xiii)   Expected to acquire knowledge for bridging the gap on research in universities and also the lack of forum to discuss the researches carried out.

3.1.2. Participants' Expectations in Eastern Uganda, Mbale City

Forty-Eight (48) participants had been invited for the training. Out of the invited number, the actual participants who turned up were thirty five (35) . The attendance list is in the Annex III
Some of the expectations of the participants were:
(i)   Good presentation that would enable understand what Artificial Intelligence (AI) chatbot is all about.
(ii)   To know what to do when disaster happens.
(iii)   To get clear understanding and knowledge on Artificial Intelligence
(iv)   To know how to predict and respond quickly to disaster as it happens.
(v)   How to link it to GDPs
(vi)   To understand tools used for disaster risk response
(vii)   Understand the application AI Chatbot and how to use it
(viii)   Learn everything about Disaster Risk Reduction (DRR)
(ix)   Appreciate disaster risk reduction training and to learn how to respond to disasters.
(x)   To get more information on disaster management and response
(xi)   To know why the government takes long to respond to disasters
(xii)   To get general knowledge about disaster and how to respond quickly.
(xiii)   To learn more about artificial intelligence and how to use the app to mitigate disaster
(xiv)   To know more about disaster re-occurrence in the country

(xv) Why this training and the solution or app has come today when it should have been there long ago to rescue the people.

(xvi) To put into action appropriate means to manage disaster reduction challenges in our district as a matter of urgency. This is because the district of Bududa is one of those with a lot of challenges and most disasters.

3.1.3. Participant Expectations in the Northern Region (Gulu City).

Forty-Six (46) Participants had been invited for the training. The actual participants who turned up were twenty-nine *(29). The attendance list is in the Annex IV*

The following were some of the expectations:

i. To have a deeper understanding on the use of smart devices for disaster reporting and analysis

ii. Go back with all the tools to undertake the AI work including smart phones to help in disaster reporting

iii. There are District Disaster Management Committees (DDMCs) structures in place but they are not functional, and hence expect the project to support the committees become more functional such that issues of disaster reporting and risk reduction are handled at the Local Government levels.

iv. Understanding the tool, how it works, how to use it to predict and also apply it to disaster prevention and Disaster Risk Reduction

v. Understand more about Artificial intelligence, its role and how it works and why it is important for us to apply it especially now that disasters are threatening.

vi. Use the training to strengthen reporting capacity in light of frequent disasters in Otuke

vii. The AI chatbot should be user friendly, to enable the trainees to disseminate same training to local structures to enhance capacity.

viii. Hear success stories on application of this tool and challenges of using AI

ix. Understand linkages between AI and local knowledge in DRM

x. Understand the role of government in regulating the use of AI Chatbot.

xi. Learn how the application can facilitate integration of DRR strategies in the district Development plans, how local governments can plan and budget for AI, and how to link AI to District Disaster Contingency Plans.

xii. Learn new knowledge and response strategies as far as disaster response is involved, and update disaster management plans in place using AI

xiii. Learn how to use the AI software to produce maps for disasters and produce disaster forecasts

xiv. Understand whether AI chatbot can work in areas with poor network coverage like Madi okollo.

3.1.4. Expectations of participants from Central Region and and Bunyoro Sub-region (Kampala city)

Though a total of sixty-four (64) participants had been earmarked for this training location, the SoPs due to COVID-19 could not allow this to happen. The maximum allowed was thirty-six (36). Initially, the Resident City Commissioner had instructed only 20 should attend, but thanks to the Hotel management that got a much bigger room, the extra sixteen (16) were able to join the rest. That locked out twenty-eight (28) participants from the training.

Participants stated their expectations of the training workshop among which were the following: -

(i)   To know the functionality of the disaster committees at the district levels
(ii)   To see how AI is going to strengthen the efforts against disaster risk reduction
(iii)   To learn how to detect disasters in order to avert them to help our communities;
(iv)   To know how to reduce on the risk of disasters through human intervention;
(v)   To inform the Organizers about the lack of disaster committees at the district local government;
(vi)   To understand how AI works in disaster risk reduction and what is required to curb disasters;
(vii)   To know how in comparison to the intelligence in security, the AI works for disaster reduction;
(viii) To know how AI can be applied in early warning to take action and address disasters;
(ix)   To learn more about AI in reducing disasters;
(x)   To learn software skills in managing risks;
(xi)   To equip us with skills to deal with disasters;
(xii)   To understand how to incorporate AI into disaster management policy;
(xiii) To see how modern technology tools can be utilized to detect disasters;
(xiv)   To understand and learn how to use technology for activities related to roads construction and flooding;
(xv)   To understand how to use AI to strengthen capacity to mitigate disasters
(xvi)   To learn and understand AI and to learn to train others;
(xvii) To learn more about tools in managing disasters;
(xviii) To understand key sustainable strategies in managing disasters;
(xix)   To get the necessary skills and knowledge to extend to others.

The moderator then invited participants for a health break of thirty minutes after which the second session began.

3.1.5. Expectations from Participants from Ministries, Departments and Agencies

The expectations were to know about the following:

i.   The functionality of the committees at the district levels
ii.   How the AI strengthens the way we are working on disaster risk reduction
iii.   How to detect disasters in order to avert them to help our communities
iv.   How to reduce on the risk of disasters through human intervention
v.   How AI works in disaster risk reduction and what is required to curb disaster
vi.   How AI can be applied as an early warning to take action and address disasters
vii.   How to incorporate AI into the disaster management policy
viii.   How modern technology tools can be utilized to detect disasters

3.2. Session Two: Introductory technical Presentation on the AI Technology.

3.2. 1. Training Methodology

The training at all the five regional training locations used mixed methods to deliver the content to the participants, as follows;

▪   Power point presentations by facilitators to introduce key topics and concepts on disaster risk management, definitions of hazard, disaster, vulnerability, risk, disaster assessment and reporting, etc. The aim was to familiarize the participants with some of

the common terminology that they would be using in the application of the AI Chat bot. Some power-point presentations were also made to introduce and explain about the AI Chat bot, the key requirements, Basic Operations, system functions documentations and troubleshooting.

- Practical demonstrations of the operations and application of the AI Chat bot
- Individual trainee participation (hands-on-practice) on the installation and use of the AI Chat bot application, using trainee Smart Phones and tablets and guidance from the Master trainers. This method was to ensure that trainees acquire the necessary hands-on skills on using the AI Chat bot to build in them capability and confidence for later cascading of the knowledge and skills to the other stakeholders back in their districts.
- Scenario-building was done by the participants focusing on common disasters in their respective jurisdictions and application to the AI chatbot tool. This method enabled the trainees use real-life situations to acquire skills instead of using abstract scenarios.

The facilitators introduced the participants to artificial intelligence chatbot on basic operation: download of the line, display menu, display keyboard, friends' registration, and confirmation of terms of service.

The participants were then given instructions of installing the APP "Line". Annex VII attached.

3.2.2. Trainers' Objective
The Training Objective was to provide knowledge and skills to Trainees to be able to use the AI Chatbot Tool Method of: -
(i) Presentations and Demos;
(ii) Hands on;
(iii) Discussions; and,
(iv) Training Manual

3.2.3. Expected Outcomes.
At the end of the Training, Trainees should be able to
(i) Download and Install AI Chatbot Tool
(ii) Understand the basic operations
(iii) Register friends and regions
(iv) Set Locations and Report Disaster
(v) Share Weather Information
(vi) Use the manual and other FAQ

3.2.4. Key Requirements
The key requirements for the training were: -
(i) Smart phones *(Android phones or iPhones)* with cameras
(ii) Internet
(iii) Power to charge phones/laptopts
(iv) Laptop *(optional)*
(v) Basic skills to operate a smart phone (navigations and downloading etc.

Participants in one of the training sites listening attentively to the presentations by the Trainer

3.3.   Session Three: Detailed Technical Training on AI Chat Bot.

3.3.0   Introduction

The presentation highlighted introduction; Training Objective, Expected Outcomes and Method; Kay Requirements; Basic Operations; Registrations; System Functions *(e.g. Regional Registration, Disaster Reporting, Reports etc.);* Documents and Troubleshooting.

Each Master trainer immediately introduced the participants to Artificial Intelligence Chatbot and what it does. The master trainer emphasized that the AI Chatbot is designed to simulate human-like conversations to share and manage Disaster Information (Prevention & Response) on: Climate related (Floods, drought, landslides, earthquakes etc); Human related (Accidents, Epidemics, Mass hunger and starvation etc.); Security (Terrorism, war scenarios, etc). Also explained is why AI Chatbot Tool is important

(i)   Enhance disaster response time
(ii)   Enable all citizens communicate with local authorities on disaster
(iii)   Enables disaster response team to respond
(iv)   Enable pre-disaster information and predict based on historical data
(v)   Enables reporting and sending live or real time pictures
(vi)   Enables sending of geo-location for tracking and getting support
(vii)   Enables access to disaster inform (e.g. food aid, evacuations etc.)

Participants were also taken through the following by the Master Trainers;

i.   Basic Operation: How to download the Line app, how to work with display Menu, Keyboard etc. (Friends Registration, Confirmation of Terms of Service)
ii.   Practical Application
iii.   Weather Information
iv.   Set and register Locations information
v.   Disaster Reporting
vi.   Checking Reports
vii.   Share Weather Information
viii. Use the manual and other FAQ

Participants were taken through the following by the Master Trainers;

(a)   What AI Chatbot Tool is;
(b)   Basic Operation: download of the Line, Display Menu, Display Keyboard (Friends Registration, Confirmation of Terms of Service, Questions & Answers;)
(c)   Practical Application;
(d)   Weather Information;
(e)   Checking Reports.

Dr. John Okuonzi (KyU), one of the Master Trainers explaining about the AI Chatbot

a)   What is AI Chatbot Tool?
The AI chatbots is designed to simulate human-like conversations to share and Manage Disaster Information *(Prevention & Response)* on: Climate related *(Floods, drought, landslides, earthquakes etc)*; Human related *(Accidents, Epidemics, Mass hunger and starvation etc.)*; Security *(Terrorism, war scenarios, etc).*

Why AI Chatbot Tool?

The Chatbot AI Tools can be used to:-

(i)   Enhance disaster response time

(ii)   Enable all citizens communicate with local authorities on disaster

(iii)   Enables disaster response team to respond

(iv)   Enable pre-disaster information and predict based on historical data

(v)   Enables reporting and sending live or real time pictures

(vi)   Enables sending of geo-location for tracking and getting support

(vii)   Enables access to disaster inform *(e.g. food aid, evacuations etc)*

3.6   Downloading and Installing Line

While downloading and installing Line the participants should:-

(i)   Open Play store on your phone *(android phones)* or app store (Iphones)

(ii)   Search for the app called "LINE"

(iii)   You'll see "LINE *(image above):* Free calls and messages"

(iv)   Click Install

(v)   After Installing loop for the app on your phone

(vi)   Open the app by clicking/ tapping on it

(vii)   Click sign up

(viii) Insert your phone number that is in that particular phone/device you're using for this particular exercise.

(ix)   A verification code will be sent to your phone in a text message

(x)   The device should be able to insert the code automatically once its sent to your phone, alternatively you can insert it manually

(xi)   Insert your name

(xii)   Create the password for your account and press okay.

(xiii) Refer to Document 2 *(How to use AI chatbot)* on how to add STEDPEA PROJECT

Practical Demonstration sessions on the AI Chatbot app. Followed guided by the Master trainers

A Section of trainees in Mbarara. One (standing extreme left) raising a question during the session.

A participant scanning the QR code during practical session on how to use AI Chatbot application

The practical process of downloading and installing the app. Is attached in the Annex … Thereafter participants were introduced to the Chatbot for Managers

A participant being guided by Dr. Nabende a Trainer during the practical Session

A Trainer assisting one of the trainees at the training centre in Mbarara, Western Uganda.
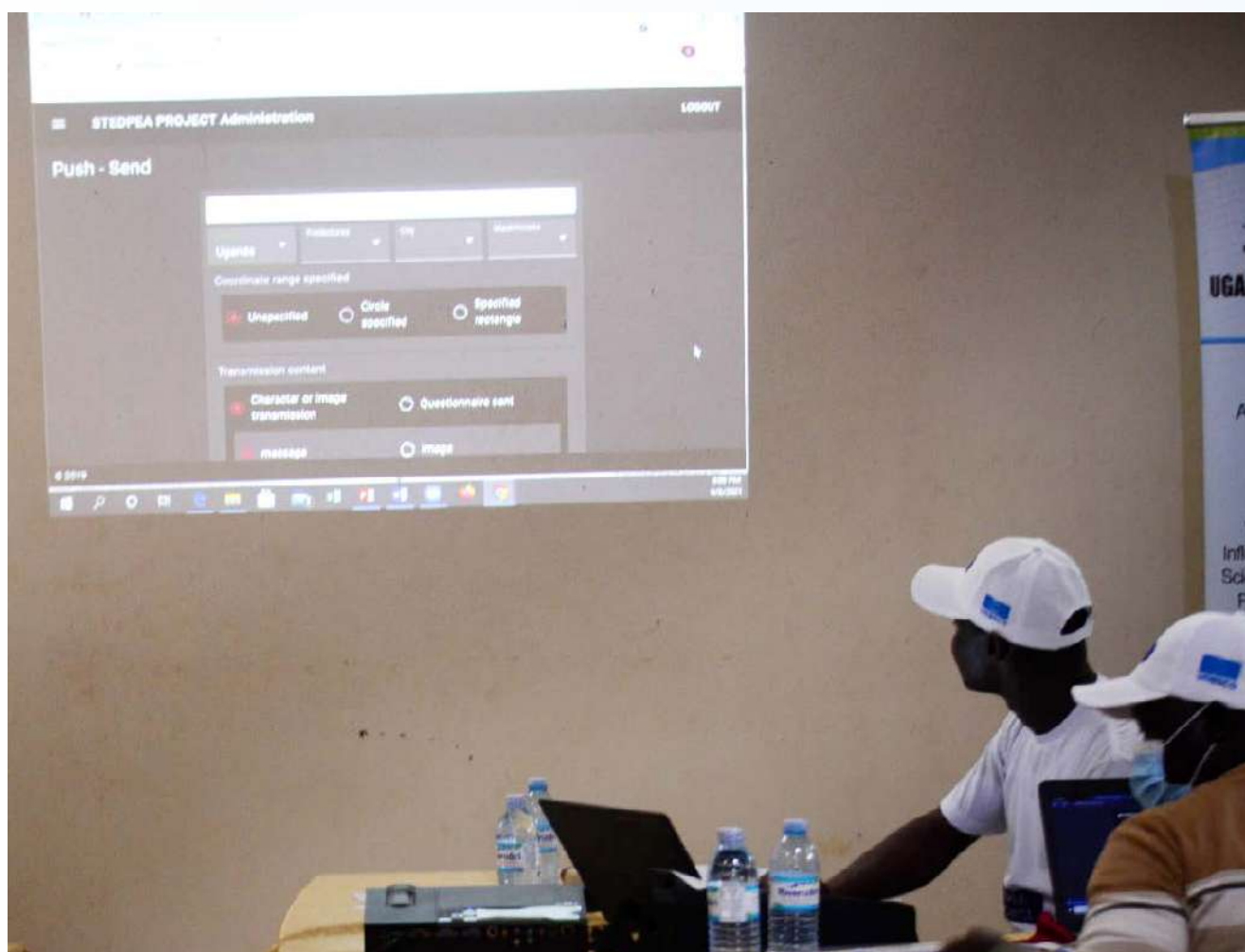
A Session on the Chatbot Manager being presented to participants by a Master Trainer Simon Peter Okello in Gulu, Northern Uganda.

3.3.   Outcomes of the Technical Training.

At the end of the Training, Trainees were able to:
- ➢ Download and Install AI Chatbot Tool
- ➢ Understand the basic operations
- ➢ Register friends and regions
- ➢ Set Locations and Report Disaster
- ➢ Share Weather Information
- ➢ Use the manual and other FAQs

3.4.   Reactions by Participants by Region

3.4.1.   Reactions by Participants in Western Region(Mbarara city)

3.4.1.1. After the facilitators presentation the participants had lots of questions to ask for clarity on issues arising that included among others to: -

(i)   Customize the app. for users from different sections, local governments, universities, metrological stations etc. this can be through including provisions for a short questionnaire interface for additional information depending on user needs; and,

(ii)   Necessitate UNESCO to establish servers localized at regional levels to facilitate access for users;

The participants also had issues raised which required to be included in the AI tool these were: -

(a)   Handy reporting formats customized;

(b)   Interface for data summaries for extraction for research purposes;

(c)   Issues of how long the data should be stored, verified and authenticated; and,

(d)   The app should show data per category of disaster and location e.g district.

(iii)   Quality assurance should be brought on board to determine which information is right;

(iv)   When issues were raised how long does the responses take?

(v)   Is there a way information can be collected from the field and then reported later in the day because of lack of network?

(vi)   The need to advocate for mitigation rather than responses and yet there is insistence on reporting;

(vii)   Is there a way of localizing data for Uganda like soil data, geology etc?

(viii)   How do you collaborate on issues of AI?

(ix)   Is this training the end? What is the roadmap, when did it start, what are its objectives and where are we going from here?

(x)   The fact that you can't teach someone without ensuring sustainability should be considered;

(xi)   Is it possible to create clubs at the universities to help curb disasters?

(xii)   Can this app use satellite images?

(xiii)   Can the app go further in translation and can the app recognize images?

(xiv)   What if the manager has ten thousand *(10,000)* messages to respond to at once how is this handled?

(xv)   Is it possible to respond to one hundred *(100)* messages of the same type of questions at once?

(xvi)   In the practical aspect of handling disasters, the magnitude of the disaster varies. Has this been factored in the technology?

(xvii)   How do we prioritize the lifesaving aspect of disasters?

(xviii) When the Chatbot administrator is overwhelmed how do we cater for this?

(xix)   After one has solved the issues, can the messages be deleted immediately?

(xx)   Is it possible to know the person sending information on disasters?

(xxi)   The fact that some districts don't have disaster management committees should raise the need to alert Office of the Prime minister to fast track this;

(xxii)   There is need for a regional forum on AI;

(xxiii) There is need for a hot spot program for districts affected by disaster;

(xxiv) Is it possible for UNESCO to go beyond skills and provide gadgets like Ipads and tablets for use by institutions because most people can't afford them?

(xxv)   There is need to design programmes that can take you out there. Are there avenues/ opportunities?

Participants at one of the training centres consulting on the performance of their different Smart Phones.

3.4.1.2. Responses to participant's concerns

A)   Responses by the Master Trainers: -

(i)   The response to issues raised should be attended to immediately. The implementation of the response in dealing on the disaster is dependent on the extent of the damage caused;

(ii)   The section of web version which is for the manager – log in you are presented a list so you should be able to respond to any issues raised;

(iii)   In some cases there are implementation solutions by using short messaging service *(SMS)*;

(iv)   The need for collaboration of developers to improve the app has been noted;

(v)   Statistics chart – the summary of disasters can be categorized into how many are for flooding, landslides, etc

(vi)   The best way is to allow the app developers to bring in other service providers like the police in case anything goes wrong they can help;

(vii)   There is the use of the menu or try again;

(viii) The response to questions depends on what you input. It needs to be put into the system;

(ix)   We are required to address the very urgent disasters first;

(x)   The tool should provide the option for cascading to attend to the priority;

(xi)   Everyone has a particular IP address but it's not possible to know the person sending messages on disasters although they are all identified;

B)   Clarifications by UNATCOM

(i)   The Office of the Prime Minister *(OPM),* National Planning Authority *(NPA),* Uganda

Bureau of Statistics *(UBOS),* UNATCOM work through collaboration, not in isolation; UNESCO, represented in the Country by UNATCOM works through networks of ministries, departments and agencies with member states. There are special programmes for Universities called UNESCO Chairs in all the areas of competence education, culture, heritage, natural sciences etc; there is University twinning and networking scheme *called UNITWIN through which* universities in the developing world twin with universities in the developed world to empower the former.

(ii)　So far, Gulu University is the only university with a functional UNESCO chair in Uganda; Two other Universities in Uganda have teamed up with others in Nigeria and another country under the UNITWIN Arrangement.

(iii)　UNESCO helps to build capacity for cities. Now that Uganda has ten new cities, the City Officials could express interest in the membership of the various UNESCO networks of cities.

(iv)　As UNESCO and UNATCOM work through committees, these committees are good avenues for sharing information with others.

(v)　Participants need to come together and form a regional forum that caters for disasters arising;

3.4.2. Feedback from trainees in Northern Region (Gulu City)

The participants' responses were as follows:

(i)　The tool is user friendly and covers key aspects of Disaster reporting and response and the AI chatbot is applicable to user needs.

(ii)　There was a general feeling of a lack of sustainability plan for the technology (AI chatbot) after the project funding period expires needs to be clarified to ensure continuity.

(iii)　In Reports, the tool should provide details (Name and Contact) of the user for the Authority further management.

(iv)　The image download should be segregated by File name and associated report.

(v)　The prefecture system of administration does not apply to Uganda instead we have Districts, Cities/Municipalities/ Town council, Parish and Village.

(vi)　The practical approach to the training enhanced learning and knowledge acquisition and participants acquired new knowledge on AI software use.

(vii)　Need to train more participants from district lower-level governments and partners.

(viii)　Participants felt the workshop was very relevant since it enhanced their capacities to handle disaster management in their respective roles.

(ix)　Participants benefited from interactive engagements with fellow trainees especially on the hands-on / practical sessions.

(x)　A lot of material was compressed in a short time which they felt was insufficient for the optimal learning. Needed more days to increase time for practical sessions.

(xi)　Logistical provisions for the trainees were inadequate and inconveniencing e.g. lack of provision for fuel and drivers and making participants travel by public means which exposes them to COVID-19.

(xii)　The facilitators were very knowledgeable, supportive and full of facts. The entire training team was friendly, gentle and soft spoken and this was appreciated.

(xiii)　The content and purpose of the training was appropriate although the internet connection was slow to optimize learning.

(xiv)   The AI chatbot is internet and network based which makes it difficult to use by users in areas of poor network coverage.

(xv)   Some participants had phones which were not smart enough to load and use the application and this constrained their learning.

(xvi)   The training had practical sessions which allowed interaction with facilitators and the AI chatbot.

(xvii)   Requested availability of facilitators to support District / City/ CSO trainings at the district local on AI chatbot, and provision of opportunities to build capacity of locals to learn more about AI chatbot and customise it for other reports.

3.4.3. Reactions by Participants from Central Region and Bunyoro (Kampala city)

The participants in this location of training raised observations to the presentations as indicated below: -

(i)   Definition of the word disaster

(ii)   In the view of the conversation what can be reported and what can't be reported?

(iii)   Reporting needs more training on what to report and how to report?

(iv)   In the case of multiple disasters happening at the same time on which some work has been done in Uganda as presented by UNATCOM, on disaster prone areas. Is it then possible to install all that information on the system so that when disasters occur it's easier to curb and avert these disasters?

(v)   What assurance do we have that the Al chatbot is not accessed by unauthorized persons and the information exaggerated? Note that government is very sensitive on how the disasters are reported and they normally require reporters to go through an official channel before disclosure.

(vi)   Reports produced must be accurate. How is this being handled for benchmarking purposes?

(vii)   Is there a roadmap because sometimes good initiatives come like this, but end up on the shelf? Is the app sustainable? What assurance is there?

(viii)   Do we have a bigger plan on the systems already set up by OPM on linkages for managing disasters?

(ix)   There are no funds allocated for management of the disaster committees at the local governments how do we mobilize funds to ensure that the AI technology application is put into operation?

(x)   How do we harmonize Disaster management committees at the local governments like OPM has done?

3.4.3.1 Responses to concerns raised by participants

i.   By the ISDR definition, a disaster is a serious disruption of the functioning of a community or a society causing widespread human, material, economic or environmental losses which exceed the ability of the affected community or society to cope using its own resources (**ISDR**, *2021). According to the National Disaster Prevention & Management Policy, disaster has been defined as "the occurrence of a sudden or major misfortune which disrupts the basic fabric and normal functioning of a society or community." (National DPM Policy, 2011). Thus a* disaster is a catastrophe that can cause harm, is beyond an individual's capacity to handle and needs help to address it.

ii.   Disasters can also be opportunities for investment in capacity building

iii.   In order to address a disaster there is need to look at the context of the disaster. What is

a disaster in Uganda may not be a disaster in another country so the coping mechanism and capacity to handle the disaster varies;

iv.   When looking at disasters it's important to look at the scale, gravity/extent of the disaster;

v.   There are so many hazards that turn into disasters to cause loss of human life and also degrade the environment;

vi.   The loss of crops and animals is also a disaster as well as domestic crimes in the villages;

vii.   Disasters have an impact on human life e.g. accidents because of loss of life. After the disaster you need help, rest since it impacts on your life and the environment, causes chaos, traffic jam that can tantamount to disaster;

viii.   There is need to examine all information well for accuracy before release to the public. So, always pay attention to quality checks for right information;

ix.   Being able to record historical information on disasters on the system in the different regions for consistency in reporting is important;

x.   Once information reported is not accurate in a particular region, questions will be asked why that particular alarm of a disaster in an area it has never happened;

xi.   There is need to form a taskforce to mobilize funding for disaster management committees;

xii.   Considering the CoVID-19 pandemic, there is need to set up specific platforms for disaster management issues

xiii.   There is need to advocate for district disaster preparedness grants that can be looked at to support the District committees.

3.4.4. Feedback from the Trainees in Eastern Region Mbale City)

The trainees were very excited that they had:

i.   Acquired new Knowledge on AI and Chatbot what exactly the two terms meant.

ii.   Learnt how to use AI Chatbot app to make rapid response to disaster risks.

iii.   They promised to go and train their colleagues in their respective districts and institutions.

iv.   They were able to make a number of suggestions of how to improve the app.

v.   They were very happy with the logistics provided during the workshop.

vi.   A number of Challenges faced during the training that include: slow internet, incompatible gadgets like ipads with the app. Some users not fully conversant with the smart phones, and restricted number of participants due to the COVID-19 SOP's

3.4.5. Feedback from the Participants from Ministries, Departments and Agencies (Annex)

i.   Internet and smart phone based approach may not be accessible or convenient for the people who are in position to detect disasters. In the rural set up, there is no internet and smart phone Access. Urged Government to take action in regards to this. In some areas where disasters occur such as in Mt. Elgon and Mt. Rwenzori, there is no reliable network, these pose challenges in the use of the technology.

ii.   The selected representatives for training are too few as there was/were only one or two people from each district and Ministry, which is not representative of the entire population. Therefore, there is need for more training on how to use this app by various stakeholders.

iii.   The AI Chatbot should be taken forward by government especially OPM, not to

end only on this training by UNESCO because it's very important in minimizing disaster response and reduction. The trainings can be done through partnerships

iv. There were concerns of who the stakeholders of the app are. Issues of information security were raised as in who receives the information first before it is disseminated. Since in Uganda there are protocols to be followed before sharing any kind of information.

v. Difference between Disaster, Risk and Hazards needed to be understood

vi. What is the Mechanism in place for sharing information up to the grass root after the disasters have been reported?

vii. Whether the app "line" can be used by everyone.

3.4.6. Feedback from the training at the Ministry of Information, Communication Technology and National guidance (MoICT&NG) in Kampala

This group consisted of a total of 28 participants composed of ICT officers drawn from the following institutions

i) Ministry of Education, and Sports (MoES)
ii) Ministry of ICT &National Guidance
iii) National Information and Technology Authority-Uganda
iv) Uganda Prisons Services
v) Office of the Directorate of Public Persecution
vi) Uganda Institute of Information and Communication Technology
vii) UNATCOM, Secretariat staff

3.5   RESPONSES

1. Response from Office of Prime Minister

An Official from Office of the Prime Minister, Mr. Okello Simon Peter clarified on what the difference between hazard, risk and disaster as follows:

A hazard is something with the potential to cause harm. A hazard has the potential to cause death, injury, damage or other loss. A hazard could be a substance, machines, activity, method of work or process. Hazards are identified when risk assessment is carried out.

A risk is the chance that somebody could be harmed by the hazard. A risk calculates how likely it is that someone will be hurt, and how severely. The risk is assessed based on the severity of the harm and the likelihood of harm occurring.

On the issue of the small sample size of the participants, OPM is to partner with UNATCOM to carry out more trainings through the country if the resource envelope allows.

2. Response by the Assistant Secretary General, UNATCOM

Dr. Dominic V. Mundrugo-Ogo Lali responded to the issues raised by participants as follows:

I. He emphasized that the National Commission does not work alone, but works

through Government MDAs and other beneficiary institutions. He further noted that UNESCO and UNATCOM do not implement government-related activities. Their focus is mainly in supporting studies that contribute to compliance with standards or influencing policy issues and general capacity building.

II.   He requested members of the Disaster Management Committees trained to cascade the information downwards in the districts and sub counties. This is because the members of District Disaster Management Committees have been trained as trainers to also train other people in their districts.

III.   Dr. Dominic Mundrugo-Ogo Lali further encouraged participants to come up with concepts/proposal and submit to Uganda National Commission for UNESCO for forwarding to UNESCO for support in areas that are within UNESCO's mandate and priority in the periods concerned.

3 Remarks From Participants Representative Mr. Abarinda Vianney, Kazo District Natural Resource Officer.

Mr. Abarinda appreciated the trainers, the organizers of the training and the participants for attending the training. He noted that participants have gained a lot from the training and it actually tickled their minds to come up with various ways to deal with Disaster response and reporting. Mr. Abarinda further requested the organizers to roll the training down to communities where disasters are likely to happen such that the AI Chatbot is utilized as planned. He further requested that participants of this training be added onto one WhatsApp group for further discussions and learning about the AI Chatbot.

3.6. Remarks from Mr. Kirungi Raymond, Disaster Preparedness Officer, Office of the Prime Minister (OPM).

Mr. Kirungi greeted participants and appreciated the UNESCO and UNATCOM team for organizing a series of trainings on application of Artificial Intelligence in Disaster Risk Reduction across the country. He further noted this project has supplemented and definitely triggered something in the officials from the Office of the Prime Minister. He expressed his gratitude and appreciated UNESCO and Japanese Institutions for coming up with this innovative technology known as AI Chatbot and urged participants to embrace it, share the knowledge and skills gained from the training with their colleagues on the District Disaster Management Committees.

Mr. Kirungi further requested the UNATCOM team to work closely with the Ministry of Disaster Preparedness to organize a training for the OPM staff about this technology such that they can work well with district disaster management committees in the area of disaster response and reduction.

3.7. Feedback from the training at the Ministry of Information, Communication Technology and National guidance (MoICT&NG) in Kampala
3.7.1. TRAINING DATE AND VENUE
The workshop was held on 14th March 2022 at the Ministry of ICT and National Guidance in Kampala.

3.7.2. COMPOSITION OF PARTICIPANTS

A total of 28 participants (See Annex VI) attended the training workshop on "Artificial Intelligence for Disaster Risk Reduction in Uganda". Participants were composed of ICT officers drawn from the following institutions

(i)   Ministry of Education, and Sports (MoES)
(ii)   Ministry of ICT &National Guidance
(iii)   National Information and Technology Authority-Uganda
(iv)   Uganda Prisons Services
(v)   Office of the Directorate of Public Persecution
(vi)   Uganda Institute of Information and Communication Technology
(vii)   UNATCOM, Secretariat staff

3.7.3. DISCUSSIONS

After the presentations, training and hands on interactions with the applications, Key issues were observed and discussed and a number of recommendations were made by participants as follows;

i.   Categorization of Disasters
       It was observed that disasters are of various nature and there is need to put categories of disasters on the application for easier reporting and timely response.

ii.   Management of the Platform/ Application.
       It was observed with concern that the institution (s) responsible for management of the application should be identified and the structure put in place involving all the stakeholders.

iii.   Application of "Line" application Vs Development of the new App for the country. It was discussed that if the infrastructure by NITA-U allows, a new application specifically for disaster reporting can be designed as opposed to relying on the external party.

iv.   Authenticity of Information shared by the public.
       It was observed with concern that the accuracy of information shared on the platform is an issue to be addresses as the application is open to the public, anything can be shared by anyone. Therefore mechanisms to ensure that the information share accuracy and authentic should be put in place to ensure smooth operation of the application.

3.7.4. RECOMMENDATIONS

i.   Disasters should be categorized according to various sectors e.g., Education
ii.   An application specifically for Disaster reporting and response should be developed for the country without relying on the external application to which the government has no control over.
iii.   Various Institutions concerned with Disaster prevention and Management should be involved at all times e.g., Uganda Police, Office of the Prime Minister etc.
iv.   The Institution (s) responsible for managing the AI Chatbot, filtering and authenticating the information shared on the platform should be clearly stipulated and given the mandate to ensure the AI Chatbot serves the purpose for which it was designed.
v.   All trainees should be issued with certificates such that they can train other individuals in their various Institutions thus creating awareness about the AI Chatbot in the country.
vi.   The application should be customized and adopted by Uganda as a disaster reporting platform and then by uploaded to Ug Hub by NITA-U such that it is easily accessed and managed.

4.0 Compiled Feedback by Master Trainers at the various Training Centres

(i)   Wanted participants to know that the sessions they passed through impart a lot of skills and knowledge as participants have been able to learn from each other.

(ii)   Appreciated participants and expressed gratitude for their participation; commitment, attentiveness and being interactive through the entire sessions.

(iii)   Urged all participants to pick interest in technology and encouraged them to be innovative and come up with innovative technologies just like the AI Chatbot that they have been introduced to since the world is now in an information technology era.

(iv)   Appreciated fellow master trainers for a job well done during the regional training and for accepting to share the knowledge and skills for betterment of the country in regards to application of Artificial Intelligence in Disaster Risk Reduction.

(v)   Noted that the facilitators were from Information communication technology and management (ICT&M) field and were identified and sponsored to undertake the Master Trainers' course by UNESCO inorder to conduct the National training that they were concluding the planned cycle;

(vi)   Desired that the participants know that a number of studies have been undertaken on disasters and we have reached a point on what can work for any situation;

(vii)   Highlighted the fact that every time one went through the manual it built confidence;

(viii)   Appreciated participants for making the training happen and wanted them to know that the Master Trainers would continue to be available when required and hoped that their expectations were all met.

(ix)   Enquired from the participants how many of them were confident that they could train someone else. 75% of the participants responded by show of hands that they were already confident to train someone else; while the other 25% said they needed more practice before they could claim full confidence.

(x)   Indicated that sometimes you never know how much knowledge you have until you get an opportunity to train;

(xi)   Underscored that the interesting this about being a trainer you will always get a solution for any issues raised by participants;

(xii)   Stressed the fact that as a team we will endeavor to reduce the risks of disaster in the country;

(xiii)   Suggested that we look at the attributes and see how they could be incorporated into the AI chatbot;

(xiv)   Recommended that one of the ways of curbing the disaster is by scoping it;

(xv)   Wanted to know how do we scope your reachability;

(xvi)   There is need to know about project management so that we can see how to manage disasters in our Ministries Departments and Agencies *(MDAs);*

(xvii)   Noted that we can create small committees to help avert disasters;

(xviii) Thanked all participants and wished them a fruitful afternoon.

(xix)   Appreciated UNATCOM and UNESCO for giving the trainers chance to participate in the training and appreciated them for embracing technology because it is the way to go in order to solve most of the challenges that the world if grappling with lately.

(xx) In Conclusion, participants were requested to transfer the knowledge and skills gaining from the training to other people in their districts such that the AI Chatbot is utilized is expected.

(xxi) The Lessons learnt by the Trainers were shared as below:
  ➢ Allow moments of silence for participants to comprehend the steps to follow.
  ➢ Training with clarity of purpose achieves a lot
  ➢ Giving instructions with a very simple and clear language makes trainees to learn fast
  ➢ The room design matters to allow for easy interactions of participants
  ➢ Letting your trainees know they are progressing well enhances enthusiasm and confidence in them.
  ➢ Teach learners how to teach themselves and others by imparting skill of learning by practice.
  ➢ Keeping in mind how adults learn best.
  ➢ Script feedbacks and follow-ups
  ➢ Understanding the audience and their diversity
  ➢ Teach by doing not only presentation.
  ➢ The app is not static it requires updating as concerns are raised.

Dr. Mercy Rebecca Amiyo one of the Master Trainers responding to questions by the trainees

5.0 Wrap Up and Way Forward

The rapporteurs of the workshops presented a summary of the presentation by Master trainers and the practical application of the AI chatbot that had been discussed and agreed on by participants.

4.1. Recommendations of Participants compiled from all the Workshops

As a way forward participants recommended as follows: -

I.   The application should be made user-friendly to enable reporting of simultaneous events at ago.

II.   The app should enable the user click or go to a location and see what is happening there real-time.

III.   The app should allow for uploading of videos, the aspect of real-time editing to add and subtract info. And provide for follow-up of the disaster reports sent.

IV.   The app should add the aspect of merging the system with OPM disaster system.

V.   The maps should be updated to capture detailed information of locations for accurate and quick response team arrivals to the scene of disaster.

VI.   The app should be able to operate off-line.

VII.   The "LINE" app should be made simpler, it should provide prompts for action.

VIII.   The district and ministry officials that have been trained should be facilitated with up to date gadgets. Which budget should be used for this kind of activity/provision of those gadgets?

IX.   Updated and detailed information of the response teams should be available in the database.

X.   All stakeholders involved in disaster management such as the police, other government agencies and communities where disasters are likely to happen should be brought on board such that disaster response is enhanced and many lives and property could be saved.

XI.   More training and capacity building of all stakeholders in disaster response and management should be taken by government through partnerships.

XII.   Participants were also urged to come up with more innovations and new technology that can be applied in the field of Disaster response and management.

XIII.   Government subsdises internet costs and also try to roll out network accessibility across the country to enable optimal utilization of the AI Chatbot introduced by UNESCO.

XIV.   Participants of the training to be added onto one WhatsApp group for further discussions and learning about the AI Chatbot

XV.   Immediately after reporting or sending the disaster report there should be an automatic response with information of the nearest response team and alert to response team to respond.

XVI.   The UNATCOM secretariat incorporates the concerns of the stakeholders for the development of the app for the developers to improve the app;

XVII.   There should be full involvement of the Ministry for Disaster Preparedness, Response and Management, Office of the Prime Minister in the operations of the technology;

XVIII. A clear and detailed roadmap be drawn for application of the technology after the end of the training period. This should include plan for roll-out to all Ministries, Departments and Agencies and the Lower Local Governments including the necessary technical and financial support needed.

6.0 Compiled Remarks by Assistant Secretary General, UNATCOM/Project Team Leader on issues raised by Participants at various Training Centres

(i)   Participants were reminded that the project was specifically for trainers of trainees (ToTs) who were expected to train their district committee members upon return to stations;

(ii)   The master trainers had imparted the skills and knowledge and it remained the turn of the ToTs to go and train the teams in their institutions;

(iii)   The districts without disaster committees should consider this as an opportunity to establish those committees

(iv)   The re-deployment of new CAOs hindered the process of knowing the situation in the districts since most of them were new and were not aware of the existence of the disaster management committees

(v)   Most times, even if the disaster committees of Districts existed, they remained inactive until a disaster occurs, which shouldn't be the case;

(vi)   Wanted the participants to know that guidelines exists for the formation of disaster committees in Districts and Institutions;

(vii)   Desired participants to ensure they impart the skills and knowledge they have acquired to the members of their disaster committees back home. For the civil society and NGOs representatives from their headquarters, the knowledge should be imparted to the people who go to the field;

(viii) A tool would be developed and profiles drawn per institution for tracking progress of the ToTs make back home.

(ix)   The task of UNESCO/UNATCOM is to ensure follow up of all the ToTs on the ground to ensure that the knowledge has been cascaded to others and there was proper management and functionality of the institutional disaster committees. Participants agreed on follow up to take place in the 2nd week of November 2021 starting with Mubende district considering all things remained constant in the face of the COVID 19 pandemic. UNATCOM would draw up a programme and send to the local governments ahead of time for follow up purposes.

(x)   For the participants who missed the training due to circumstances that were not of their making, UNATCOM would lobby with UNESCO to ensure they are trained so that no district, ministry or agency is left behind.

(xii)   Participants were urged that in case of any challenges, they should keep communication open.

(xiii) UNATCOM already took note on the non-functionality of the district committees and will be able to engage OPM on the way forward;

(xiv)   UNATCOM would also follow up the request by representative of OPM to work closely with the Ministry for Disaster Preparedness to organize a training for the OPM staff about this technology such that they can work well with district disaster management committees in the area of disaster response and reduction.

XV)   Disasters should be categorized according to various sectors e.g., Education

XVI)   An application specifically for Disaster reporting and response should be developed for the country without relying on the external application to which the government has no control over.

XVII) The application should be customized and adopted by Uganda as a disaster reporting platform and then by uploaded to Ug Hub by NITA-U such that it is easily accessed and managed

XVIII) Various Institutions concerned with Disaster prevention and Management should be involved at all times e.g., Uganda Police, Office of the Prime Minister etc.

XIX) The Institution (s) responsible for managing the AI Chatbot, filtering and authenticating the information shared on the platform should be clearly stipulated and given the mandate to ensure the AI Chatbot serves the purpose for which it was designed.

XX) All trainees be issued with certificates such that they can train other individuals in their various Institutions thus creating awareness about the AI Chatbot in the country.

7.0 Closing remarks by Secretary General, UNATCOM

The Secretary General, UNATCOM Ms Rosie Agoi in her closing remarks: -

(i)   Acknowledged the participation of all those present and observed protocol;

(ii)   Expressed sincere appreciation to all participants for their participation and contributions towards the success of the Training Workshops;

(iii)   Wanted participants to know that the Training workshops provided an excellent opportunity for them to interact and learn how to use the app for reporting disasters in their districts and gain more knowledge in AI;

(iv)   Declared the workshop closed.

8.0 Compiled Evaluation of Trainings by Participants at all the Centres

At the end of each training workshop, an evaluation questionnaire was distributed to participants to assess the proceedings of the workshop that included overall workshop experience, workshop management, workshop material and participants' comments/ suggestions on what transpired during the workshop.

8.1 Evaluation

71% of the participants were in agreement that the training workshop increased their knowledge about disaster risk reduction and Artificial intelligence. 63% of the participants agreed that they received training materials on time and the questions and concerns were addressed appropriately. 58% of the participants noted that the content presented was useful. 54% of the other participants thought that the pre-workshop notification and communication was appropriate, the workshop goals were clearly stated, and the knowledge of trainers was appropriate.

Furthermore, 50% of the participants were in agreement that the stated goals of the workshop were relevant, the amount of time spent in interactive learning was adequate, the Organization of the workshop was good, the expectations of the workshop were met, the workshop was well paced within the allocated time, were comfortable with the teaching materials presented in this workshop and the workshop logistics was appropriate.

In addition, 46% of the participants said the presentation of materials were appropriate and the trainers were approachable. While 42% the workshop protocols were clearly stated.

8.2 What Participants liked in the training

Participants commented/suggested on workshop proceedings about what they liked as detailed below: -
(i)   Training in use of appropriate modem;
(ii)   Practical learning on how to report on disasters;
(iii)   Friendly facilitators, training material given and uniform provided;
(iv)   The application that will make the reporting easy and faster;
(v)   New scientific approach of reporting disasters;
(vi)   The information provided was relevant and the trainers were knowledgeable;
(vii)   Trainers explain artificial intelligence very well;
(viii)   Every topic taught was touching;
(ix)   Trainers were rich with knowledge;
(x)   The new opportunities for AI in space and related technology that can be used in disaster risk reduction and analysis;
(xi)   Understanding how AI chatbot is used;
(xii)   The tool is relevant to the disaster situation;
(xiii)   Liked the general organization of the workshop. Provision of all materials on time;
(xiv)   Infrastructure solutions supplies and diversity of invitations;
(xv)   The workshop was educative inspiring and we learnt a lot;
(xvi)   The flow of events on the programme and the learning environment;
(xvii)   The well prepared manual on how to use AL chatbot;

(xviii) The hands on and practicability;
(xix)   New approach towards controlling disasters;
(xx)   Training of participants on disaster management;
(xxi)   The training concept was timely;
(xxii)   Participants were engaging and interactive with facilitators; and,
(xxiii) Facilitation materials was quality appropriate and adequate.

8.3   What the participants did not like about the workshop processes

(i)   The STEDPEA project and use of technology in reporting were new and seemed to be on and off as there was no indication that the project would continue in the country;
(ii)   Inadequate time allocated for the trainings;
(iii)   The internet challenges that interrupted from time to time;
(iv)   Participants interactions were limited due to time and COVID-19 fears;
(v)   The delivery of content needed a lot of time;
(vi)   The app still has gaps such as entry point for customization to add details about disasters and lack of interface for short questions;
(vii)   No information on how the software was designed.
(viii)   Limited number of participants from certain regions;
(ix)   Some mobile phones were incompatible with the app used;
(x)   The fact that the application is not well aligned with the data in various Ministries, Departments and Agencies.

8.4   Suggestions on the ways in which could be improved

(i)   Increase contact time to more days to ensure participants gain full knowledge of AI;
(ii)   The need for timely communication;
(iii)   Providing more free data bundles to trainers and provision of smart phones or ipads to participants as part of the package;
(iv)   Use other channels of communication to districts apart from emails for mobilisation;
(v)   Ensure follow up workshops and organize quarterly workshops or refresher trainings for continued capacity building;
(vi)   AI was covered adequately, but there is need to provide more time for practice
(vii)   Involve more stakeholders to fine-tune the app and make it more practical for different users
(viii)   Roll out to more stakeholders like sub county and parish leaders;
(ix)   Plan with digital teams in advance;
(x)   Organize more trainings in disaster-prone districts;

8.5   Would you attend a similar workshop in future?

Yes because the workshop was helpful in as far as online reporting is concerned.

8.6   Overall how do you rate the workshops?

(i)   The workshops were well organized and good;
(ii)   On scale of 1 – 10, the ratings are an average of 8 out of 10.

9.0. Follow Up with The Directorate for Disaster Preparedness and Management in The Office of Prime Minister

A follow up meeting was held between staff in the department of Disaster Preparedness and Management, Office Prime Minster (DPMOPM) and Uganda National Commission for UNESCO (UNATCOM) on the proposed training of the staff of the former on application of AI in disaster risk reduction on 26th/11/2021. The OPM side was led by Ms. Catherine Ahimbisibwe, Acting Commissioner, Department of Disaster Preparedness and Management, OPM accompanied by Mr. Titus Muhoofa -Senior Disaster Officer, while the UNATCOM side was led by Dr. Dominic Mundrugo-Ogo Lali, the Assistant Secretary General (ASG) accompanied by Ms. Pauline Achola- Programme Officer for Sciences and Ms. Angela Atukunda, Senior Information Scientist.

The meeting reviewed the earlier cooperation between UNATCOM in the implementation of a UNESCO-funded project on Geo-hazards vulnerability assessment and mapping of disaster hot spots for early warning. The UNATCOM team informed the Acting Commissioner that the AI Chatbot training was organized under a project on Strengthening Disaster Prevention Approaches in Eastern Africa (STEDPEA) implemented by UNESCO Regional Office for Eastern Africa and Uganda National Commission for UNESCO (UNATCOM) with support and funding from the government of Japan. Further information is that the AI project aimed at supporting the development and integration of science-evidenced measures, citizen science and gender-responsive actions into strategies and action plans for disaster risk reduction in schools, communities and public sector institutions in Eastern Africa.

The DPMOPM team was further informed that the participants in all the trainings had recommended that DPMOPM be fully brought on board to be part of the application of the technology for purposes of effective coordination. In addition, the planned training to be given to staff of DPMOPM is essential such that AI Chatbot administrator account can best be made operational by responding to the issues being sent to the system by members of the District Disaster Management Committees (DDMC) that were trained in order to have the system fully operational and also to get suggestions and recommendation from OPM on how the system can be improved to meet their needs. Further information provided to the DPMOPM staff was that during the regional trainings, a lot of issues were raised concerned OPM and its participation in the training, responding and managing the system. This raised the need for specific training for the DPMOPM staff and agree on the mechanism on how UNATCOM can work with the department of Disaster Preparedness.

In response, the Commissioner on behalf of DPMOPM appreciated the UNATCOM team for taking initiative and sought to understand what guided the app "Chatbot" and how the system works. She also informed the meeting that her background is information science and remote sensing. She requested the team from UNATCOM to have a look and read the National Risk and Vulnerability for Uganda that can be accessed via NECOC website and it's the document guiding all actions.

After taking the team through the principles of the AI Chabot Smartphone Application for DRR, its origin and the partnering of the Japanese Company with UNESCO to experiment the application in East Africa that has in the recent past recorded many cases of disasters, the UNATCOM team concluded that the application would help citizens interact easily with local authorities to better prepare, respond and recover from disasters.

At the end of the discussions, the DPMOPM informed the team from UNATCOM that the Department was busy implementing other projects and therefore could only find time for the training after December 2021. As a way forward, the meeting agreed that training of OPM disaster preparedness and management staff should include the Top management so that a specific official would be assigned to manage the system. One official Mr. Titus Muhofa was assigned to follow up with the management team and give feedback to UNATCOM team regarding appropriate date for the training. Unfortunately, the DPMOPM team never found time to participate in the planned training.

10.0. Conclusion

The trainings were successfully conducted in all the regional training centres with most trainees promising to transfer the knowledge acquired to their counterparts to improve disaster risk reduction in the country. This would be consolidated if the recommendations above got implemented.

The training of the staff responsible for Disaster Preparedness, Management and Refugees remained to be done. Hopefully when done, coordination of disaster management especially preparedness courtesy of warning that would be generated from the various messages received from across the country.

*Some of the Participants Who Attended Training in Mbale.*

Annex I: Training Workshop Programme for each Region

Time	Agenda and Responsible Person
8:30am-9:10am	**Session I:** i. Registration of all participants ii. Introduction of Participants iii. Welcome Remarks and Objectives of the Training iv. Project Overview *v. Opening Remarks: Secretary General, Uganda National Commission for UNESCO (10min)*
9:10am-10:00am	**Session II: Introductory Presentation by the Master Trainers** **(a) Basic Operation: download of the Line, Display Menu, Display Keyboard** (b) Friends Registration (c) Confirmation of Terms of Service (d) Questions & Answers
10:00 – 10:30am	**HEALTH BREAK**
10:30-11:30am	**Session III: Practical Application of Skills Learnt** **Menu 1: Regional Registration** a) Regional Registration b) Sending Location Information c) Changing Registration Area d) Question and Answers
11:30am-1:00pm	**Menu 2: Disaster Reporting** i) Enter detailed information ii). Register of Location Information iii) Disaster Location Map and final confirmation Responses/Answers and Wrap up by the Consultants (30 min) **Menu 3: Weather Information** **i) Register Location Information (Menu 1)** **ii) Get weather information** **Menu 4: Check Reports around you** i. Open the Map ii. Report the details **Menu 5.6**: Check Manual and Terms of Service Remarks from Trainers
1:00-2:00 pm	**LUNCH BREAK**

2:00-3:30pm	**SESSION IV:** Use of AI Chatbot to answer Questions
	a) Menu 5: How to deal with Problems
	    i) Follow (Manual Steps 1,2,3)
	    ii) Feedback from Participants and Responses
	    iii) Discussions of Emerging issues and Way Forward
	b) Introduction of the Chatbot for Managers
	Follow the steps in the Manual as spelled out.

3:30-4:00pm	**Concluding Session** i) Vote of Thanks ii) Final: Closing Remarks from UNATCOM/UNESCO

Annexes:

List of Participants for the Training Workshops by the Regions
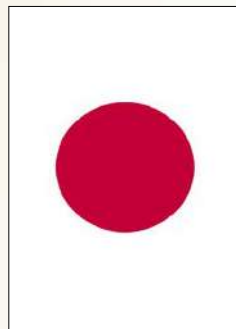
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Annex II

Registration of participants for The Strengthening Disaster Prevention Approaches in East Africa (STEDPEA)
"Training Workshop on Artificial Intelligence for Disaster Risk Reduction in Uganda"
WESTERN UGANDA MBARARA CITY

Sn	Participants	Institution/District	Telephone Contact	Email	Signature
1	RODGERS MUTYEBERE	FORT PORTAL	0782338403	mutyrodgers@gmail.com	
2	Dr. BUSINGE PHELIX MBABAZI	KABALE DISTRICT KABALE UNIVERSITY	0782823607	pmbusingo@kab.ac.ug	
3	AMPURIRE JANE	RUBANDA DISTRICT L. GOVT	0772492749	Amumpairejane5@gmail.com	
4	MUHAMUZA TOM	FORT PORTAL CITY	0776277238	tomadteen@gmail.com	
5	AKANKWASA EUNICE	KISORO DLG	0774243152	Akankwasaeunice@gmail.com	
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7	AKATWIJUWA ROGERS	KABALE	0772670508	akarogers@gmail.com	
8	KATUSHABE MOSES	KAMWENGE	0777345980	katushabemoses@gmail.com	
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10	PETER NABENDE	KAMPALA, FACILITATOR	0772618968	Peter.nabende@mak.ac.ug	
11	MWAVU ROGERS	MUST / MBARARA	0773426328	mwavu@must.ac.ug	
12	MUHANGI NELSON	MBARARA CITY	0772958104	muhanginelson@gmail.com	

| Sn	Participants	Institution/District	Telephone Contact	Email	Signature
13	AGABA POSOTS NESMESUS	RUKUNGAKI DLG	0772604325	agavik@hotmail.com	
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17	MIHINDO TADEO MATHWESE		0772926991	muhindotadeva@gmail.com	
18	ABEINE SMITH	MBARARA	0750153957		
19	HALEM KAGOZE	URBAN TV	0753034506	hkagoze@gmail.com	
20	MUHUMUZA AMBROSE	NBS TV	0700144751	amahumuza33@gmail.com	
21	EVANS ATWIRE	NEWUSUJU	0787085646	eatwire@unesco.un	
22	STELLA HINDA	UMATCOM	0772578546	sokkel@unesco.un	
23	ENGOLE JULIET	MOES / EPPAD	0757024275	Jengole2012@gmail.com	
24	BATEEZI BEMARA	RUBENZI DLG	0700638627	Bentez90@gmail.com	
25	ADOLF AYOREKA	TV WEST / MBARARA	0774550868	adolfayoreka@gmail.com	
26	MUKHLAZI LUKE	0772393589		Likemukalazi@gmail.com	
27	KATENDE MIKE	0781081090		k.mike@gmail.com	
28	DR. DOMINIC MUNDRUGO-OGO LALI	0772540415		dmurevugolaki@gmail.com dmundrugolali@gmail.com	

Annex III

NAMES OF THE PARTICIPANTS IN THE EASTERN REGION CITY OF MBALE

S/N	Name	District
1	Dr Dominic Coordinator	UNATCOM Kampala
2	Dr. Excellence Favor - Trainer	Kyambogo University
3	Dr. Okuonzo John - Trainer	Kyambogo University
4	Ms. Alupo Bernadette	Bukedea
5	Ms. Abia Violet	Ngora
6	Ms. Tiwaaku Florence	Iganga District
7	Musambi Isaac	Luuka
8	Nabusamu Felix	Mbale
9	Okuda Robert Kennedy	Kotido
10	Ngiro James	Napak
11	Nasambwa Samsaon	Bududa
12	Masika Elijah Ndinyo	Bukwo
13	Tenywa David Kazungu	Bugiri
14	Bakaki Samuel	Kamuli
15	Wanyoto Emma - Media	(Open Gate FM)
16	Lounio Derrick Phinehas	Moroto
17	Ms. Kimono Christine	Manafwa
18	Nambwila Barnabas	Namisindwa
19	Wandabwa Innocent	Bulambuli
20	Makwata Moses	Kween
21	Kabise Shaban Mande	Budaka
22	Chemange Awadhi	Kapchorwa

S/N	Name	District
23	Ogogol Rajab	Kumi
24	Tahalangaku Isima - Media	(Baba TV)
25	Matembu Gerald Media	(NBS)
26	Paul Watala - Media	New Vision
27	Fred Wambere - Media	Daily Monitor
28	Were Lamisa	Butaleja
29	Mayegu Isaac	Mbale
30	Ms. Judith Amusugut	Mbale
31	Ngolobe Jimmy	Busia
32	Nyere Juma Hassan	Soroti University
33	Ms. Ainyo Annet Grace	Kyambogo University
34	Ms. Atukunda Angela	UNATCOM Kampala
35	Ms. Stella Linda	UNATCOM
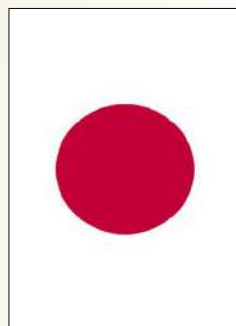
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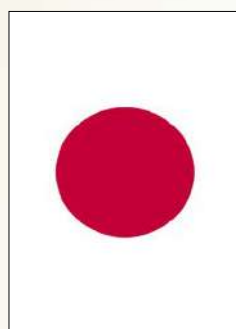
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Annex IV

LIST OF PARTICIPANTS FOR STRENGTHENING DISASTER RISK PREVENTION APPROACHES

1. TRAINING WORKSHOP IN GULU FOR NORTHEN REGION"

S/No	Names of Participants	District/Instituions	Tel Contsct	E-mail Contact
1	Onyanga Patrick	Otuke DLE	0774478860	Oyangapatrick24@gmail.com
2	Iteo John Bosco	Karenga DLE	0774451208	Iteobosco2015@gmail.com
3	Dawaru Mary	Arua city	0775036871	Mdawaru @gmail.com
4	Odabo John	Ceford / Arua	0777371289	Jodabo3@gmail.com
5	Openjura Godwin	Zombo DLE	0778535858	godwinopenjura@yahoo.com
6	Jacob Nhial Oboi Char	YSAT-Uganda Arua	0788923106	nhial@youthsat.org
7	Odama Tom	Koboko	0774521694	Odamatom2015@gmail.co
8	Opio Samuel Baker	Lamwo DLE	0772424236	opiosamuelbaker@gmail.com
9	Kitara Jackson Daniel	New vision Wan lutotu	0774849526	
10	Maisha Godfrey	Ma'di Okollo	0704620886	godfreymaisha@gmail.com
11	Anek Joyce Ognee	Pader DLE	0782845515	ajoyceongee@gmail.com
12	Okot David Pakono	Gulu university	0783473795	d.p.okot@gu.ac.ug
13	Onzimon Henry Pastone	Obongi DLE	0782782521	Pastone20000@gmail.com
14	Anguzu Robert	Terego DLE	07782248586	Rbmakokna@gmail.com

S/No	Names of Participants	District/Instituions	Tel Contsct	E-mail Contact
15	Polycap Kalokwera	NTV Uganda	0779997172	Kalokwerapolycap256@gmail.com
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Annex V

United Nations
Educational, Scientific and
Cultural Organization

United Nations Commission for UNESCO

Registration of Participation for The Strengthening Disaster Prevention Approaches in East Africa (STEDPEA)
"Training Workshop on Artificial Intelligence for Disaster Risk Reduction in Uganda" CENTRAL REGION KAMPALA CITY

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Annex VI

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Annex VII:

Presentation on downloading and installing the AI chatbot app

Sample presentation by Dr. John Okuonzi, Master Trainer from Kyambogo University

A SAMPLE OF THE AI CHAT BOT TRAINING MATERIALS FROM ONE OF THE MASTER TRAINERS
Master Trainer: Dr. Okuonzi John (Director ICT, Kyambogo University)

Outline

- Introduction
- Training Objective, Expected Outcomes and Method
- Key Requirements
- Basic Operations
- Registrations
- System Functions (e.g. Regional Registration, Disaster Reporting, Reports etc.)
- Documents and Troubleshooting,

Introduction

☐ **What is AI Chatbot Tool?**

The AI chatbots to is designed to simulate human-like conversations to share and Manage Disaster Information (Prevention & Response) on:

☐ Climate related (Floods, drought, landslides, earthquakes etc)
☐ Human related (Accidents, Epidemics, Mass hunger and starvation etc.)
☐ Security (Terrorism, war scenarios, etc.)

About AI

☐ **Why AI Chatbot Tool?**

Chatbot AI Tools can be used to .

1. Enhance disaster response time
2. Enable all citizens communicate with local authorities on disaster
3. Enables disaster response team to respond
4. Enable pre-disaster information and predict based on historical data
5. Enables reporting and sending live or real time pictures
6. Enables sending of geo-location for tracking and getting support
7. Enables access to disaster inform (e.g. food aid, evacuations etc)

Introduction Cont....

☐ **Training Objective.**

Provide Knowledge and Skills to Trainees to be able to use the AI Chatbot Tool

☐ **Method**
☐ **Presentations and Demos**
☐ **Hands on**
☐ **Discussions**
☐ **Training Manuals**
☐ **Expected Outcomes.**

At the end of the Training, Trainees should be able to

☐ **Download and Install AI Chatbot Tool**
☐ **Understand the basic operations**
☐ **Register friends and regions**
☐ **Set Locations and Report Disaster**
☐ **Share Weather Information**
☐ **Use the manual and other FAQs**

Key Requirements

- Smart phones (Android phones or iPhones) with cameras
- Internet
- Power to charge phones/laptops
- Laptop (optional)
- Basic skills to operate a smart phone

(navigations and downloading etc.)

Downloading and Installing Line

1. Open Play store on your phone (android phones) or app store (Iphone)
2. Search for the app called "LINE"
3. You'll see "LINE (image above): Free calls and messages"
4. Click Install
5. After Installing loop for the app on your phone
6. Open the app by clicking/ tapping on it
7. Click sign up

Downloading and Installing Line...

8. Insert your phone number that is in that particular phone/device you're using for this particular exercise.
9. A verification code will send to your phone in a text message
10. The device should be able to insert the code automatically once its sent to your phone, alternatively you can insert it manually
11. Insert your name
12. Create the password for your account and press okay.
13. Refer to Document 2 (How to use AI chatbot) on how to add STEDPEA PROJECT

1. Basic Operations
2. Registration into the STEDPEA PROJECT Group

Confirmation of Terms of Services

Check the terms of service. If you use this AI chatbot, you are agreeing to the terms of use.

Location Registration

Tap "Location Setting" of the menu at bottom of the screen.

Sending Location Information

- Scroll the map and align the pin where you want to register it.

Tap "Share location"

Prince Ndawula Cl, Kira Town, Uganda

Read 18:07

Uganda Central RegionKira Town registered at the above address. thank you for registration. touch the menu icon at the bottom left of the screen to return to the menu screen

18:07

Locations

Prince Ndawula Cl, Kira Town, Uganda

Sending Location Information

Scroll the map and align the pin where you want to register it.

Tap "Share location"

Prince Ndawula Cl, Kira Town, Uganda

Read 18:07

Uganda Central Region Kira Town registered at the above address. thank you for registration. touch the menu icon at the bottom left of the screen to return to the menu screen

18:07

Locations

Ev's snack point

Conbary Resort

Prince Ndawula Cl, Kira Town, Uganda

Miracle'S Saloon And Boutique

Sapphire Urban School

Mulawa Trading Center

ldawula Cl, Kira Town, Uganda

Change of Regional Registration

- NB: You can register a new location
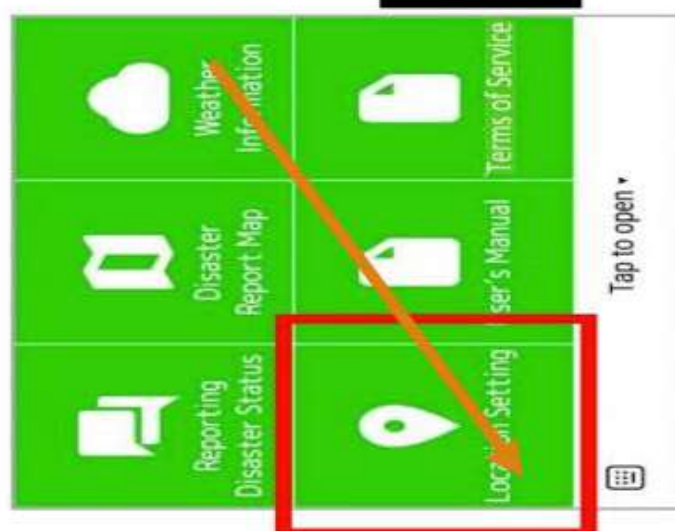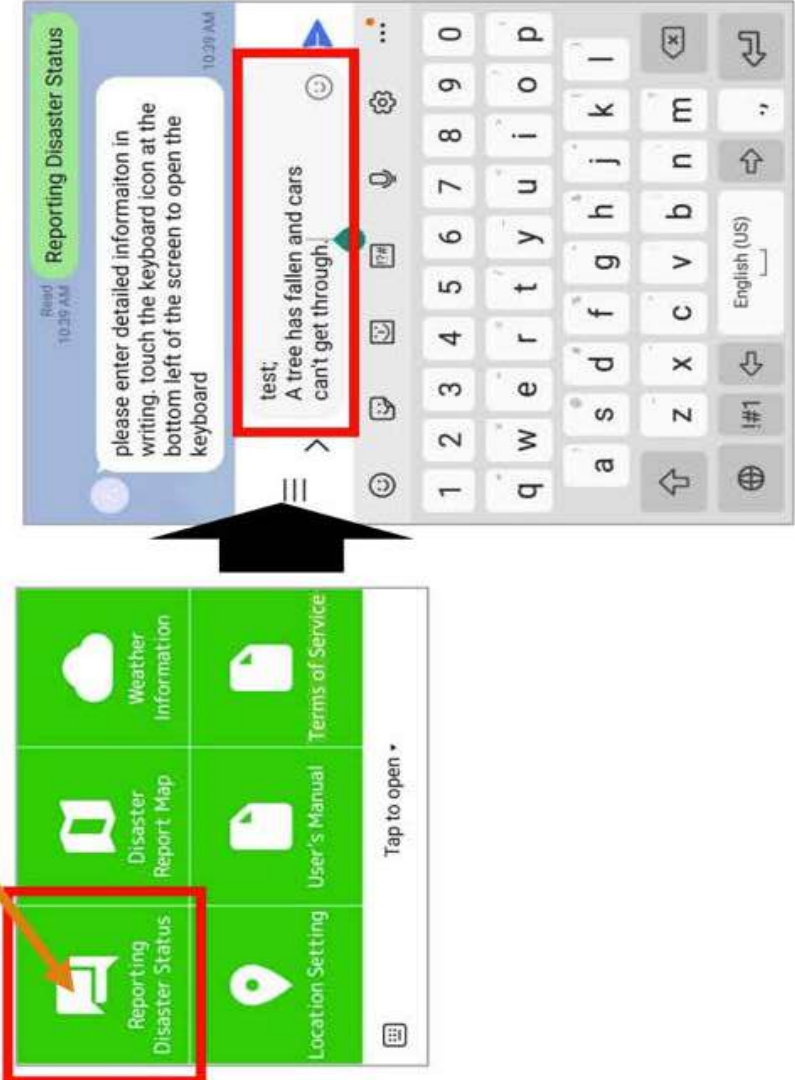
If you want to change the registration area, tap "Location Setting" again and follow the same steps.

Disaster Reporting

- Tap here to start the process.

Tap "Reporting Disaster Status".

Please enter detailed information in a sentence.

The keyboard will open up when you touch the keyboard icon in the lower left corner of the screen.

□ **NB: You can report disaster and provide detailed information**

Disaster Reporting

location.

- Tap "Share location"..

< **Locations**

Prince Ndae...la Cl, Kira Town, Ugan...

Ev's snack point

Conbary Resort

Miracle'S Saloon And Boutique

Sapphire Urban School

Mulawa Trading Center

Google

Reporting Disaster Status

Read
10:16 AM

please enter detailed informaiton in writing. touch the keyboard icon at the bottom left of the screen to open the keyboard

test;
A tree has fallen and cars can't get through.

Read
10:21 AM

10:17 AM

then, send a disaster location

please select from the following items

send location

don't send

10:21 AM

10. Disaster Reporting

Tap "send location".
Scroll the map to align the pin with report location.

Tap "Share location"..

11. Disaster Reporting

▶ Tap **"send location".**

▪ Tap "Share and Send location "...

- **Tap "send location".**
- **Scroll the map to align the pin with report location.**
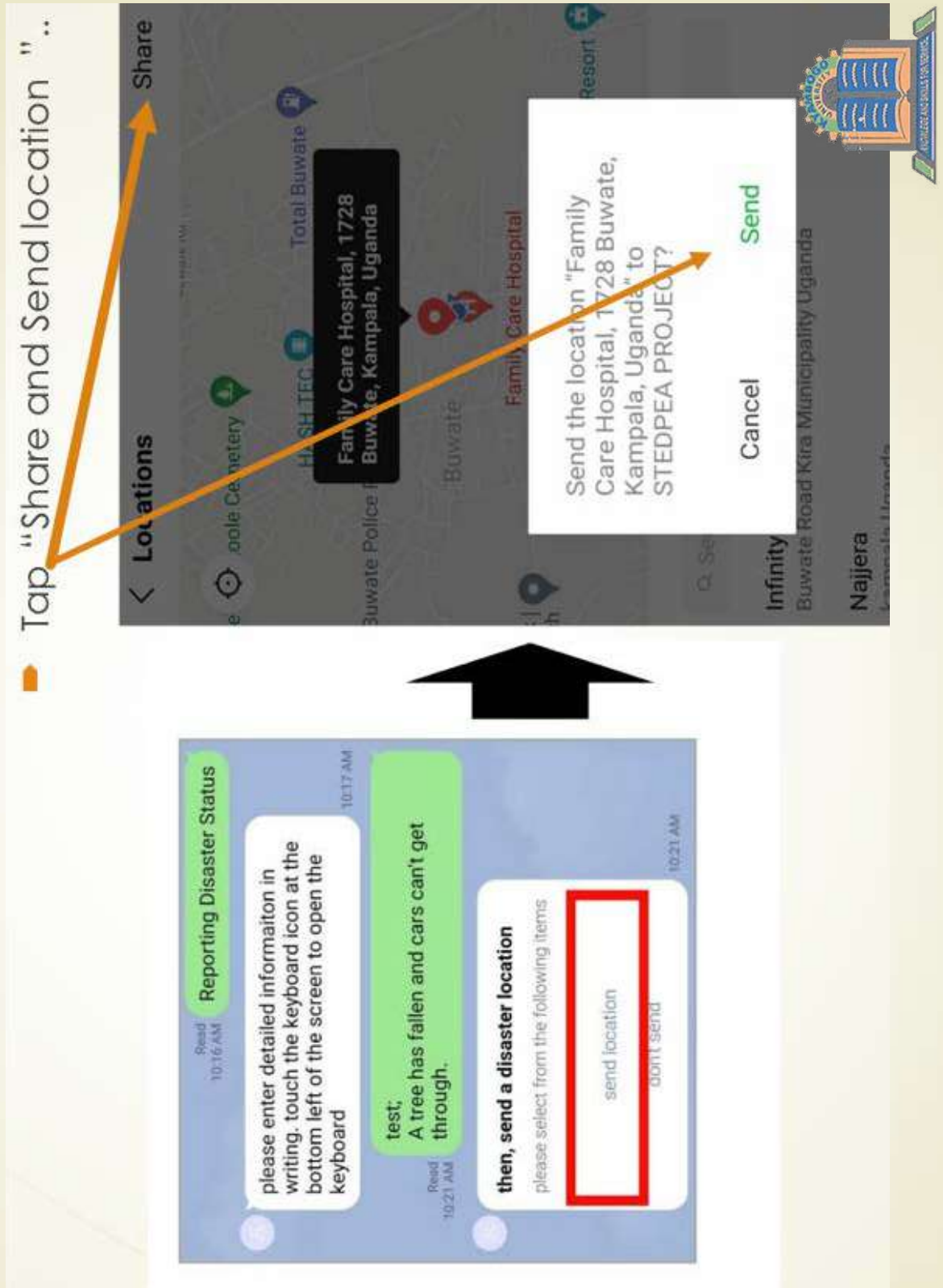
12. Sending a Disaster Photo

- **After sending the Disaster Location" system launches a dialogue box or window to send a disaster photo.**

if it is important.

Family Care Hospital, 1728
Buwate, Kampala, Uganda

Read
18:29

then, send a photo of disaster
location

please select from the following items

camera launch

camera roll

without a photo

18:29
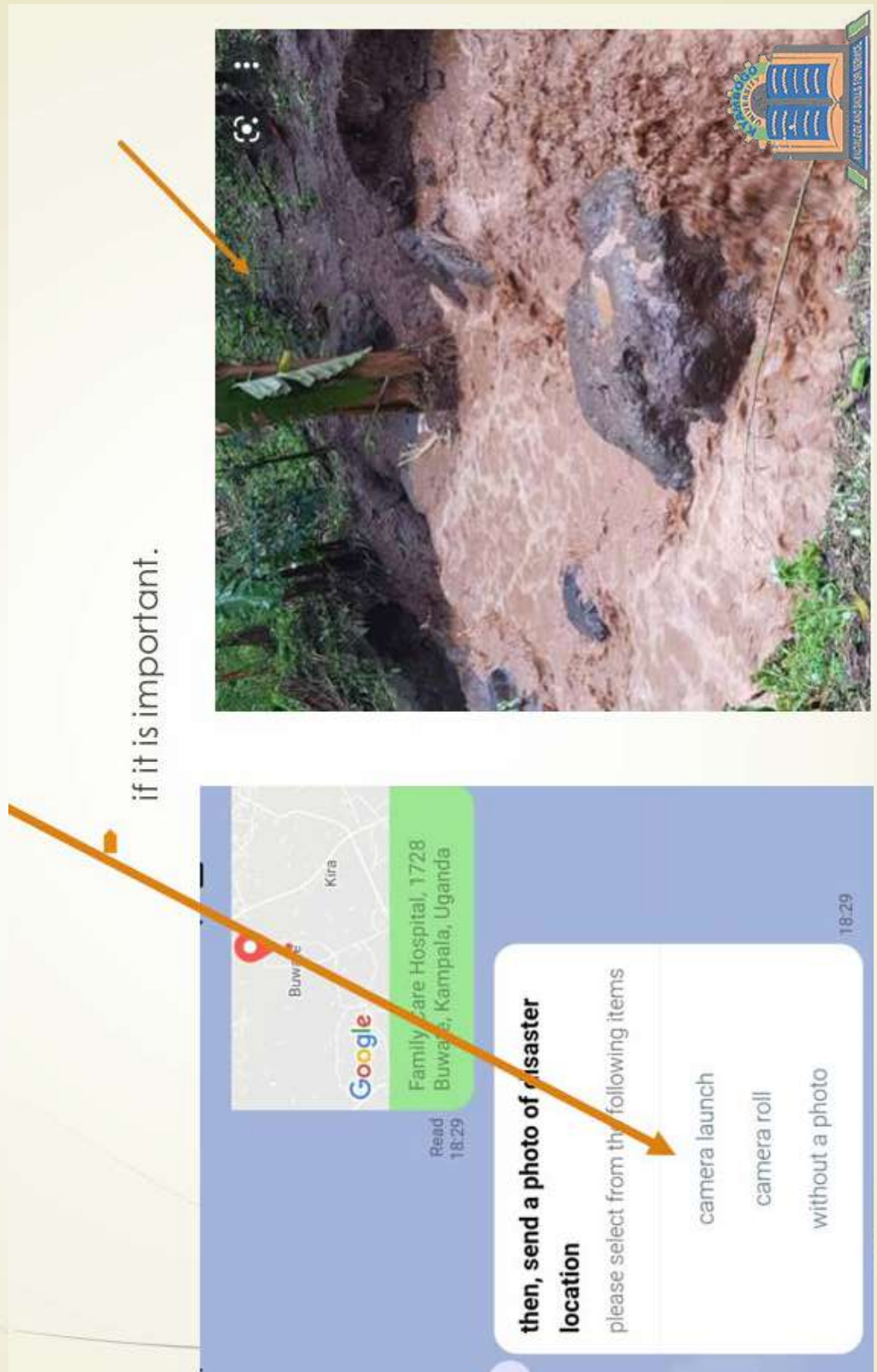
You can
Launch the camera to take a disaster photo

13.   Confirming a Disaster Information

register disaster informaiton with the following infromaiton?

[disaster information]
Test report

[location infromation]
Family Care Hospital, 1728 Buwate, Kampala, Uganda

register disaster information

start over

exit without registering

The systems launches a disaster registration dialogue box or window:

If there are no mistakes in the contents, tap "register disaster information" Or send without a photo".

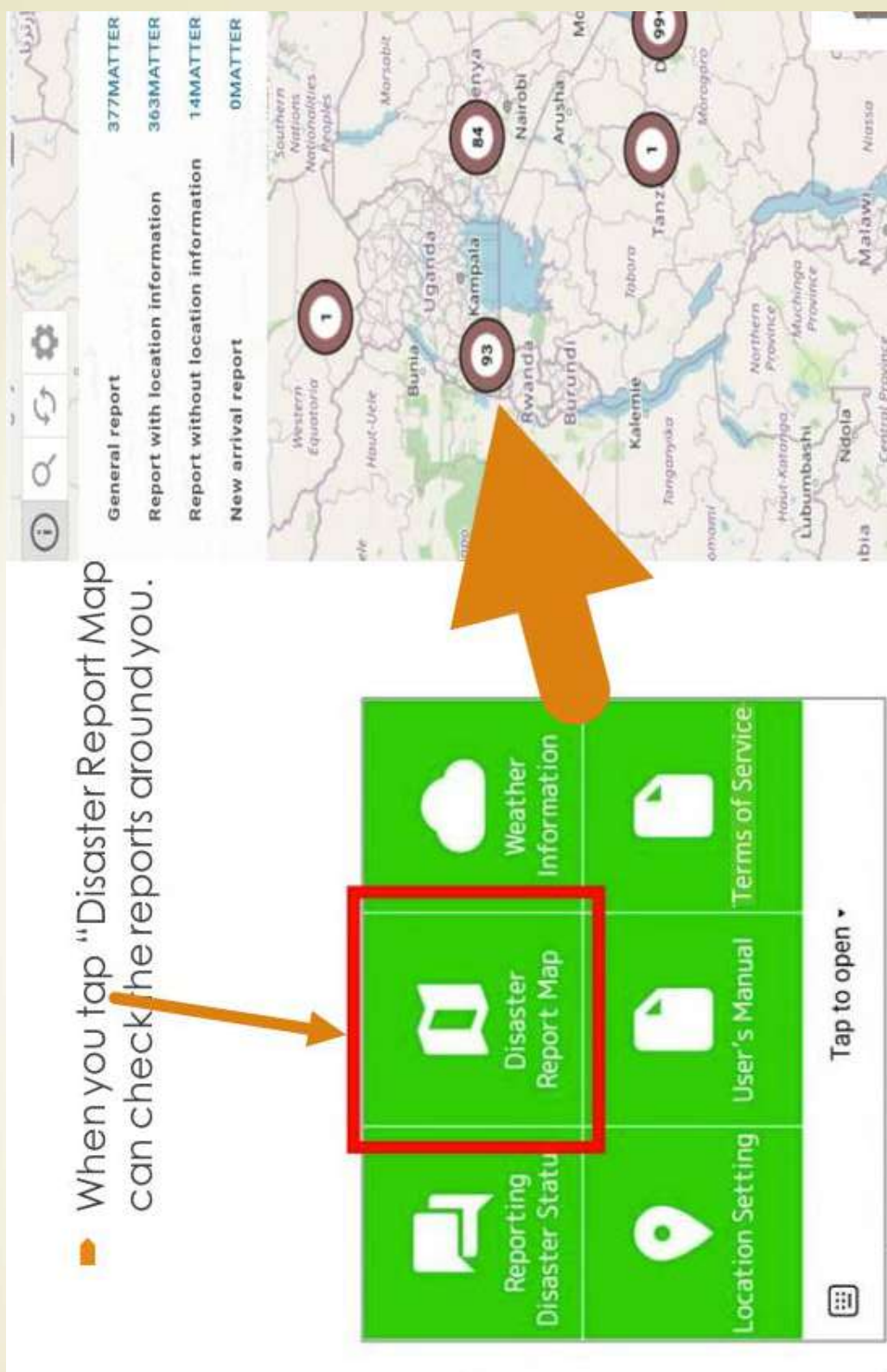## 14. Weather Information

- To check weather information, ensure that you have registered your location as explained earlier:

- You can get weather information of the registered area when you

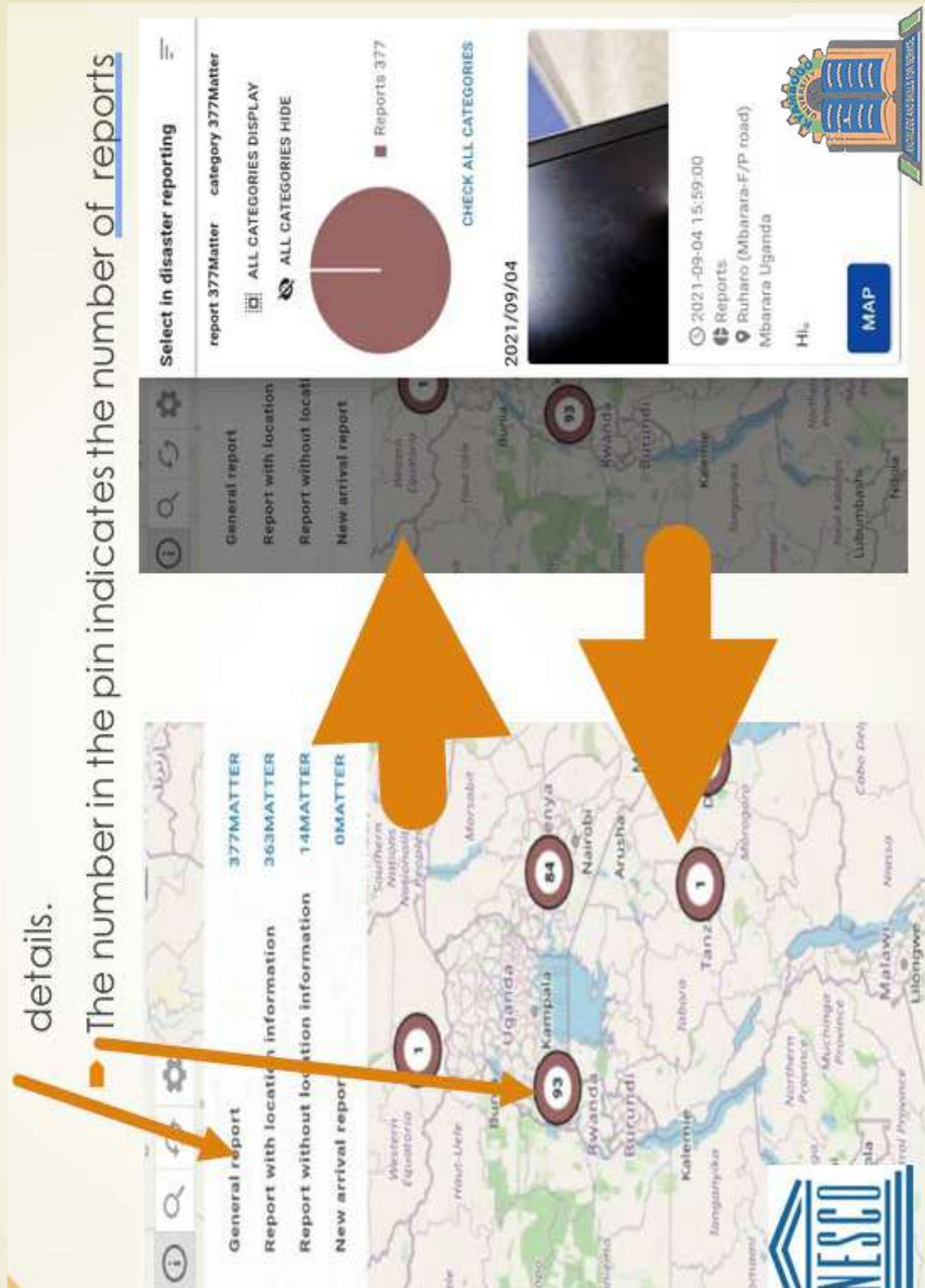- tap "Weather Information".
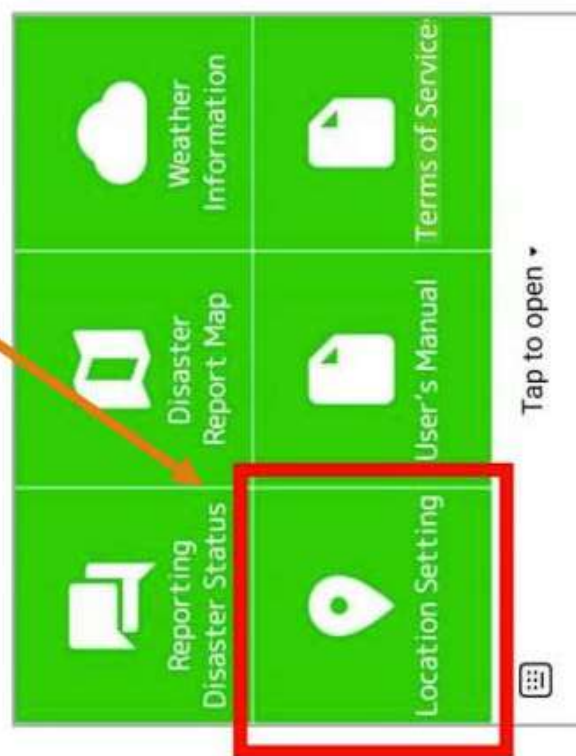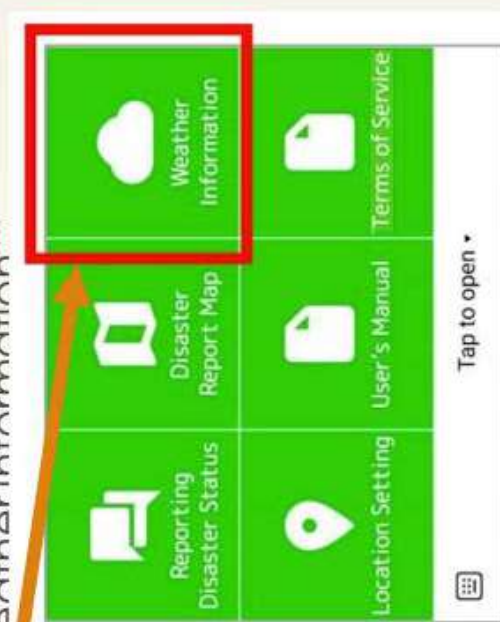
15. Checking Disaster Report

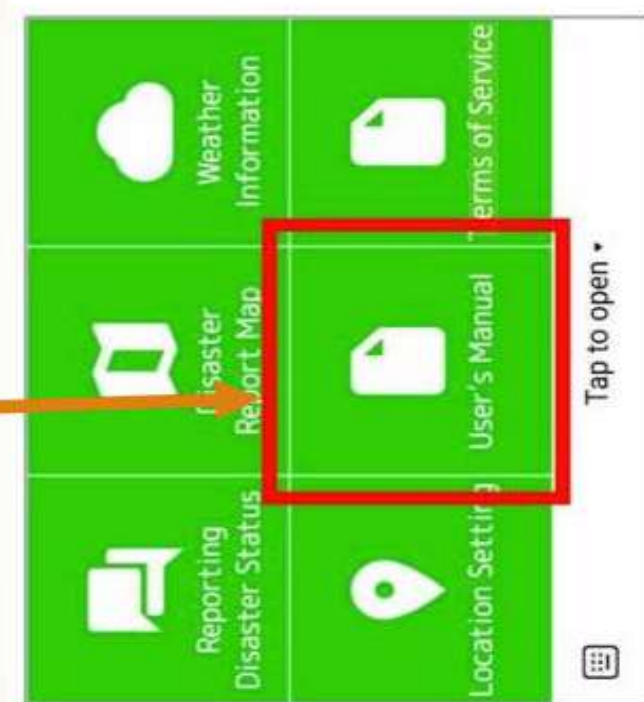- When you tap "Disaster Report Map" can check the reports around you.

16. Detailed Disaster Report

➤ **When you tap the reports pin, you can check disaster reports details.**

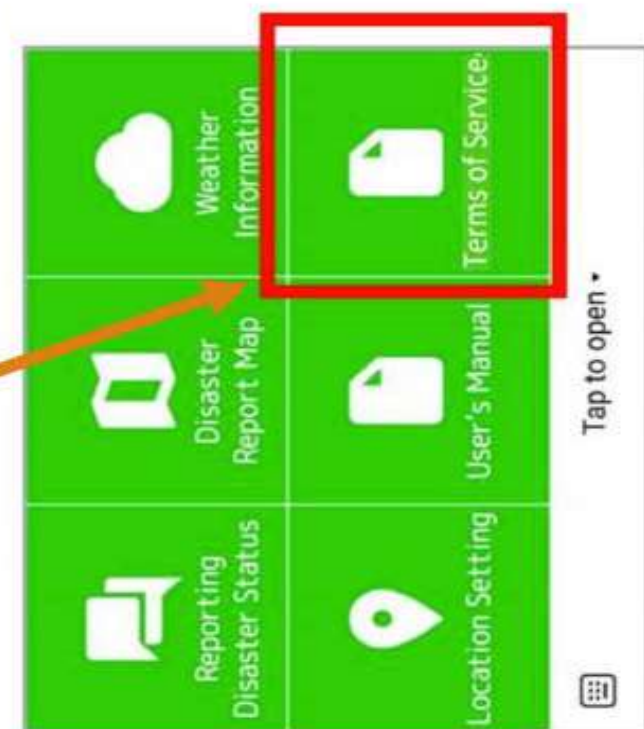The number in the pin indicates the number of reports

17. Using the Manual and Terms of Services

1. When you tap "User's Manual", you can check how to use this AI chatbot.

2. When you tap "Terms of Service", you can check terms of service.

18. **AI Chat Bot Help Assistant**

➤ **If you have any questions about disaster relief, the AI chatbot will answer. In that case, it is necessary to specify the name of the country as in the example.**

Volunteer rescue in Uganda

Read 19:55

[this is a test] Kampala city is coordinating for dispatching volunteers. If you need volunteers for your restoration, please contact Kampala city, phone number is 000000000. For further information, please refer to the URL bellow; https://www.kcca.go.ug /Health

Health - KAMPALA CAPITAL CIT...
Kampala Capital City Authority (KCCA) is responsible for the operations of t...

: WORI
IDA I WORLD

19:55

Where is a disaster shelter in Uganda

Read 12:39

[this is a test] The Kampala city provides the shelter list for displaced people by the disaster. For further information, please refer to following URL; https://www.kcca.go.ug/

KAMPALA CAPITAL CITY AUTHO...
Kampala Capital City Authority (KCCA) is responsible for the operations of t...

12:39

19. Blocking and Un-blocking Accounts

1. If something is wrong, you can choose to block the account and cancel it.

- Tap top right of the screen and tap "Block".
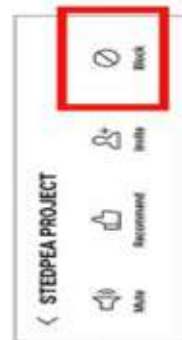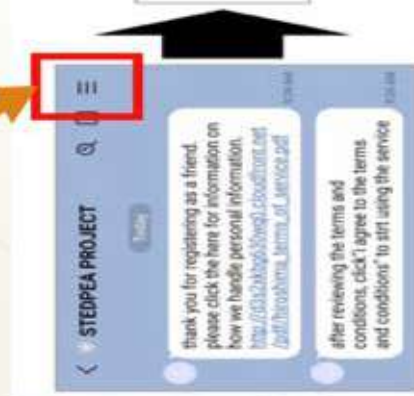
2. If the issue is resolved, you can choose to unblock it

- Tap "Unblock" and cancel it.

Tap "Unblock" and cancel it.

3. You may choose to operate the account again

- Please try again from the beginning...

20. End and Discussions

M&E Evaluation Questionnaire

Report on Training Workshops on Artificial Intelligence for Disaster Risk Reduction in Uganda.

75

Participants from Ministries working on their smart phones downloading the LINE app.

A Master Trainer, Dr Peter Nabende guiding a participant to access the chatbot

A Master Trainer, Dr Peter Nabende making remarks at the training centre in Mbarara, Western Uganda.

Participants following the training on paper and smart phone.

Participants practicing on their smart phones

A Master Trainer, S.P. Okello guiding a participant in Gulu.

A Screen on Smart Phone showing a page in the process of accessing the chatbot after downloading the LINE app.
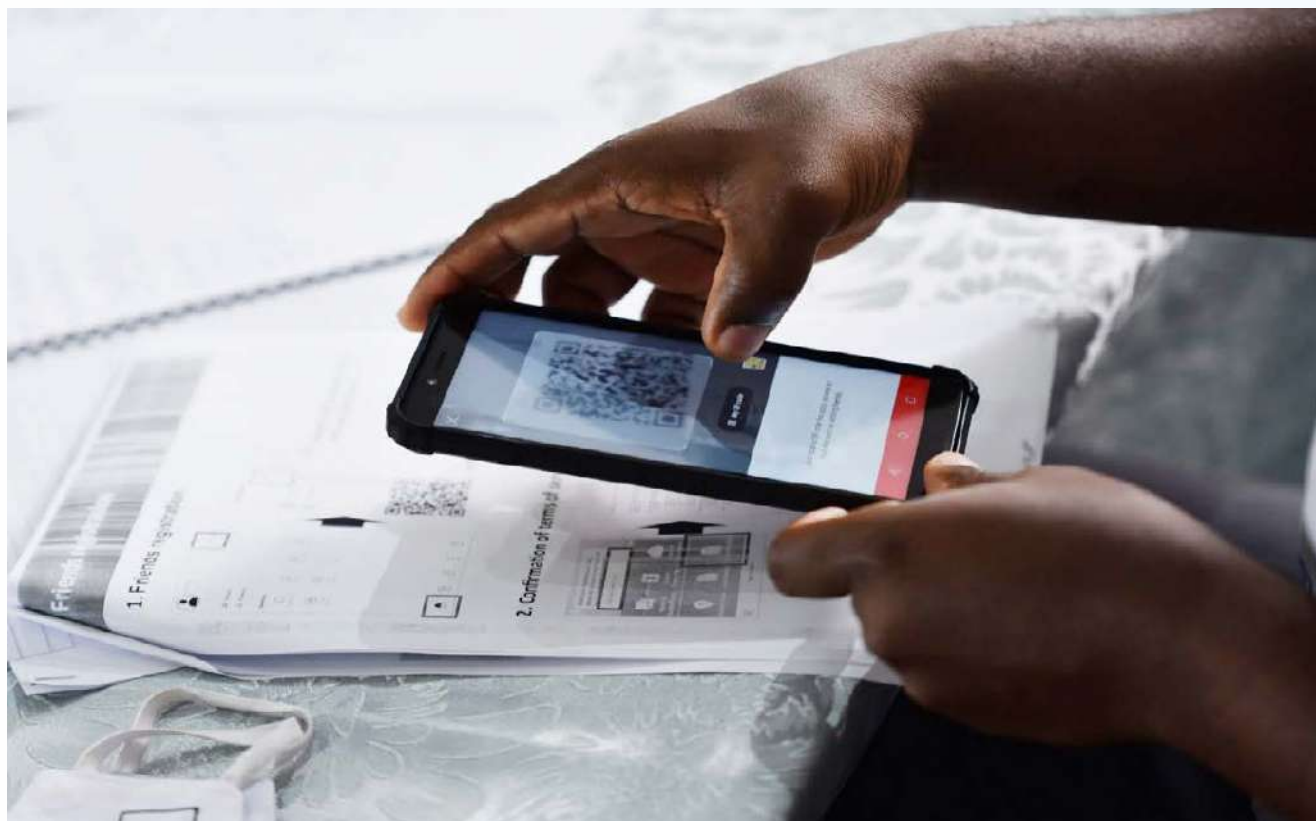

A Master Trainer, Dr. Mercy Amiyo guiding a participant in operating the LINE app.

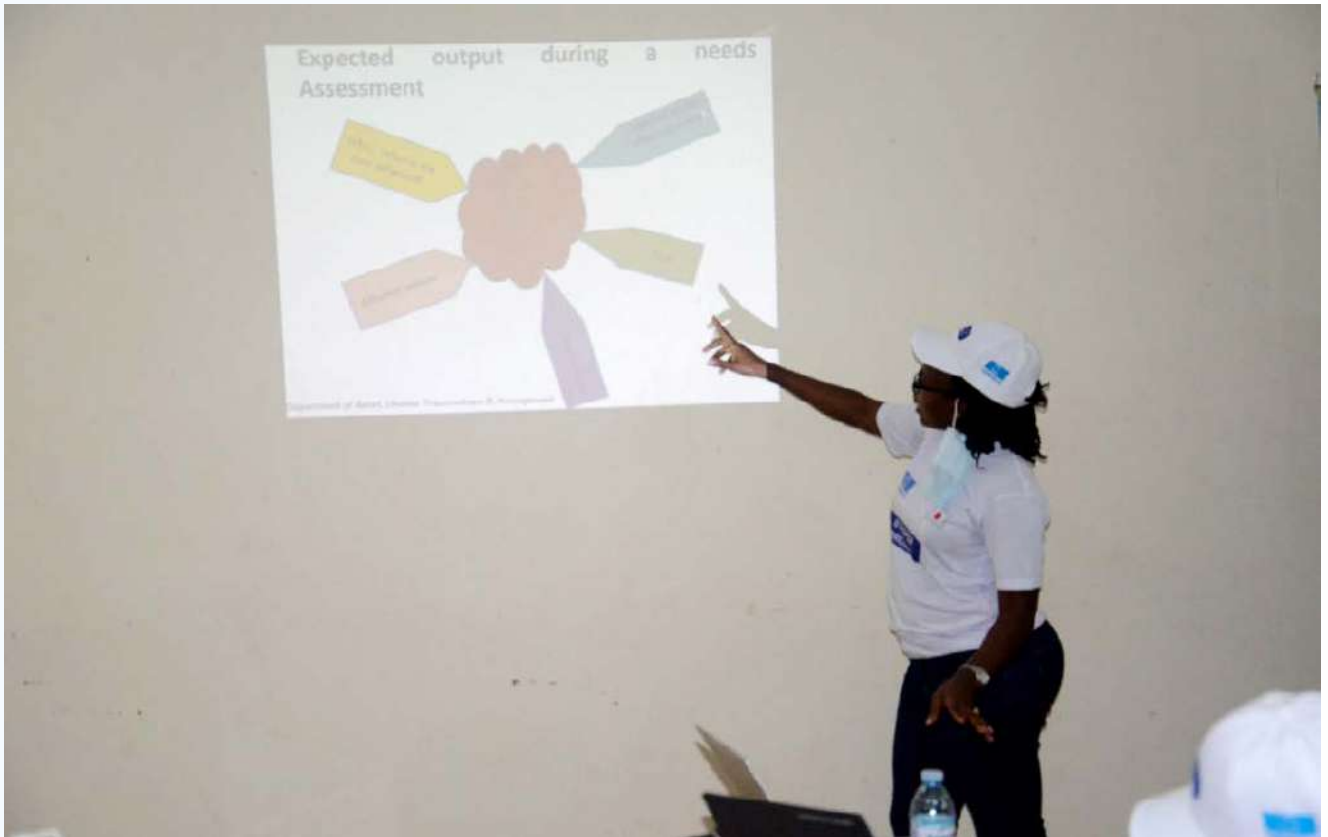A Training session in process.

A Master Trainer, Dr. Mercy Amiyo explaining about the training.

A participant scanning the QRS Code from a printed material

A Master Trainer guiding a participant in one of the training centres in Mbale

A Master Trainer, Pamela explaining about needs assessment during disaster situations.

Participants in Gulu sharing about application of the Chatbot technology.

A Group photo of part5icipants from Government Ministries, Departments and Agencies

A section of participants

A representative from Uganda Prisons Service giving a vote of thanks on behalf of other participants

Presentation by ASG, Dr. Dominic V. Mundrugo-Ogo Lali on the role of UNESCO in the
Response to Disasters