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September ..9.., 2022

COMPREHENSIVE TRAINING REPORT

Disaster Risk Reduction and Climate Change Adaptation

for Caribbean Community and Central American Integration System

Member Countries

SUPPORTED BY

THE NON-ALIGNED MOVEMENT CENTRE FOR SOUTH-SOUTH TECHNICAL COOPERATION

THE MINISTRY OF FOREIGN AFFAIRS OF THE REPUBLIC OF INDONESIA

INDONESIA'S NATIONAL DISASTER MANAGEMENT AGENCY

THE METEOROLOGICAL, CLIMATOLOGICAL, AND GEOPHYSICAL AGENCY

IMPLEMENTED BY

FACULTY OF EARTH SCIENCES AND TECHNOLOGY

INSTITUT TEKNOLOGI BANDUNG

August 8 – 12, 2022, Virtual

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PREFACE

Since governments and scientists in various countries declared a climate emergency in 2016, the world has faced a variety of negative effects from climate conditions, one of which is natural disasters, which cause losses to the economic and social fibres of communities in the Caribbean and Central America.

The World Meteorological Organization (WMO) submitted a public report titled "State of the Climate in Latin America and the Caribbean" in 2021, demonstrating how extreme weather and climate change are causing natural disasters to occur more frequently than ever in the region. Extreme weather and climate change cause mega-drought, extreme rainfall, land and marine heatwaves, and glacier melts, with consequences felt from the Amazon to the Andes, from the Pacific to the Atlantic oceans, and all the way to Patagonia.

As a result, these natural disasters cause damage to ecosystems, food and water security, and people's health and well-being in the Caribbean Region and Central America.

Recognizing the risk of disaster, the Non-Aligned Movement Centre for South-South Technical Cooperation (NAM CSSTC) collaborated with Institut Teknologi Bandung (ITB) to develop capacity building activity training on "Disaster Risk Reduction and Climate Change Adaptation for CARICOM and SICA Member Countries," with the goal of increasing disaster mitigation capacity, strengthening disaster resilience, and ensuring sustainable social and economic development.

The training for capacity building and training officer/staff in a national disaster management authority, officer/staff in the development and implementation of a disaster zone management methodological framework, disaster management analyst/officer/staff, and academia from CARICOM and SICA member countries and territories.

The objectives of the training were: (i) To improve disaster management authorities' and academia's disaster mitigation capacity; (ii) To promote the adoption of disaster risk reduction techniques and knowledge; (iii) To promote the adoption of climate change adaptation measures; (iv) To build disaster resilience in disaster prone areas of CARICOM and SICA member countries; (v) To contribute in ensuring the achievement of sustainable social

and economic development; and (vi) To disseminate the recent trends on climate change and disaster management.

The presentations drew attention and appreciation, as did the participants' insightful comments. The training was successfully organised virtually from August 8 to 12, 2022.

Taking this opportunity, I would like to express my heartfelt gratitude to ITB, the Ministry of Foreign Affairs, Indonesia's National Disaster Management Agency, the Meteorological, Climatological, and Geophysical Agency of the Republic of Indonesia, and all participants for their active and constructive contributions to the training.

Amb. Diar Nurbintoro

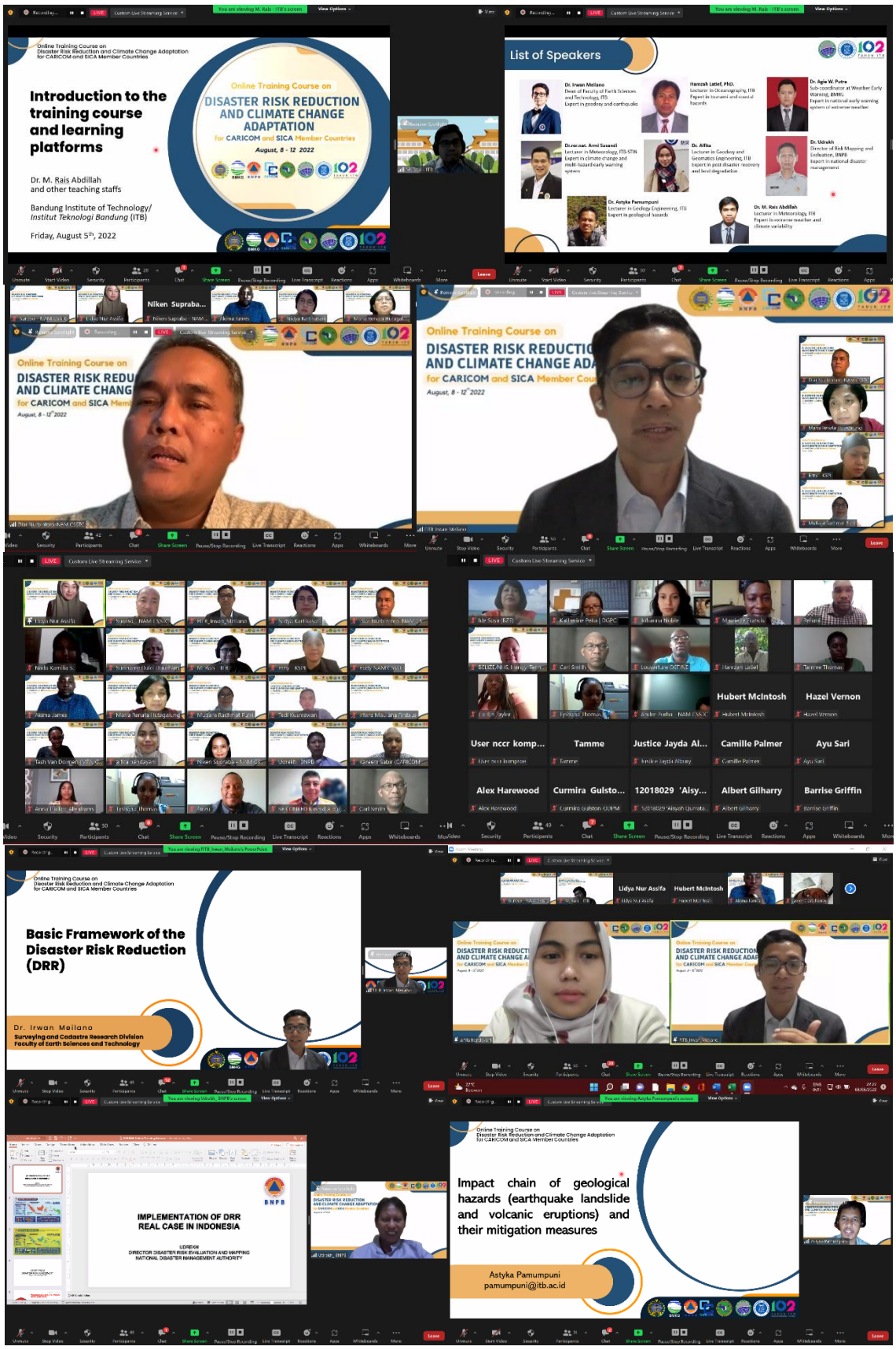
Acting Director

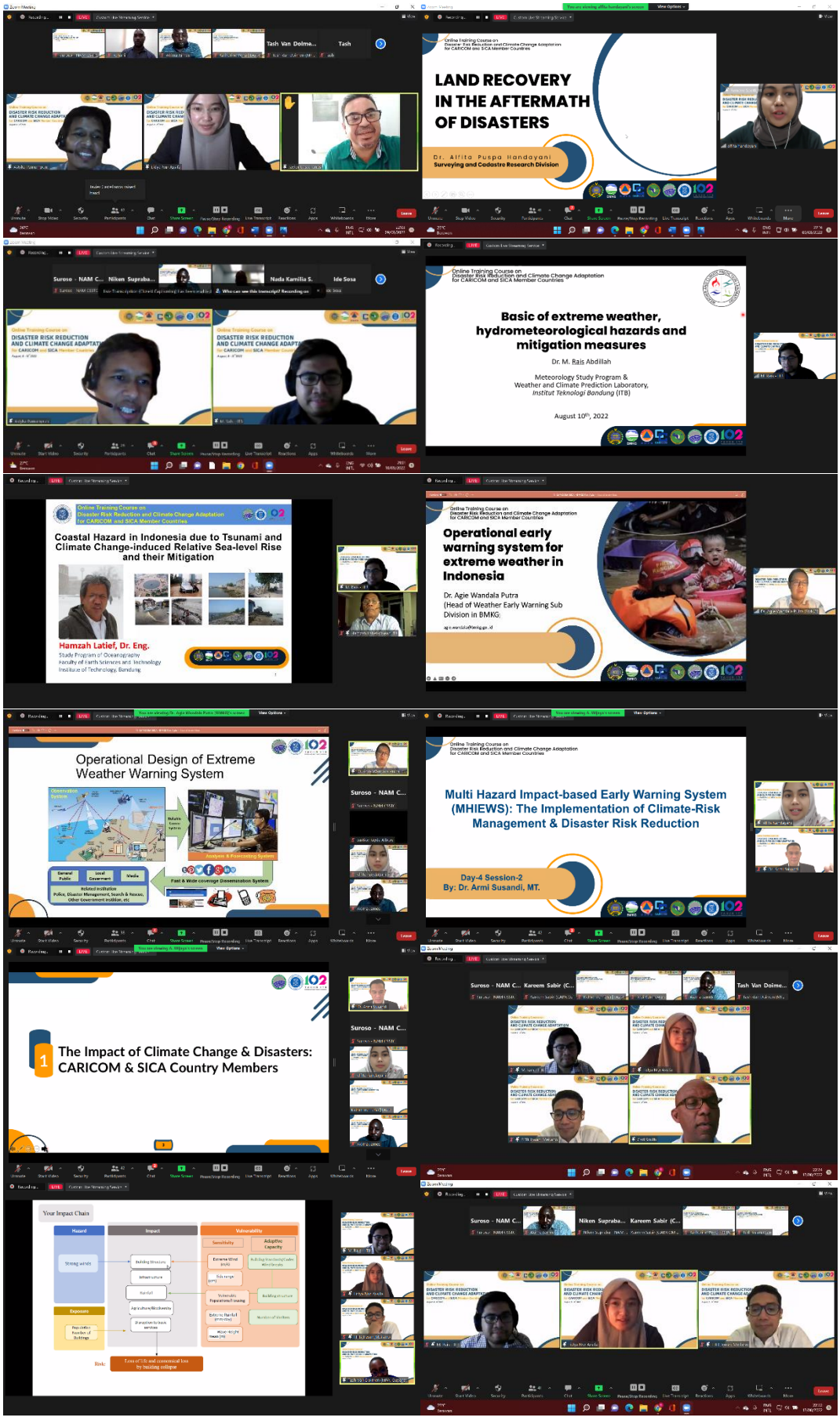
Non-Aligned Movement Centre for South-South Technical Cooperation

ABBREVIATION

CARICOM	Caribbean Community
DRR	Disaster Risk Reduction
FDRS	Fire Danger Rating System
INDMA	Indonesia's National Disaster Management Agency
ITB	Institut Teknologi Bandung
MCGA	The Meteorological, Climatological, and Geophysical Agency of the Republic of Indonesia (*also known as BMKG – Badan Meteorologi, Klimatologi dan Geofisika*)
MOFA	The Ministry of Foreign Affairs of the Republic of Indonesia
NAM CSSTC	Non-Aligned Movement Centre for South-South Technical Cooperation
NSDI	National Spatial Data Infrastructure (NSDI)
SDGs	Sustainable Development Goals
SICA	Central American Integration System
SLR	Sea-Level Rise
SPI	Standardised Precipitation Index
WMO	World Meteorological Organisation

PHOTOGRAPHS FROM THE TRAINING




LAND RECOVERY IN THE AFTERMATH OF DISASTERS
Dr. Alfita Puspa Handayani
Surveying and Cadastre Research Division
Basic of extreme weather, hydrometeorological hazards and mitigation measures
Dr. M. Rais Abdillah
Meteorology Study Program &
Weather and Climate Prediction Laboratory,
Institut Teknologi Bandung (ITB)
August 10th, 2022
Coastal Hazard in Indonesia due to Tsunami and Climate Change-induced Relative Sea-level Rise and their Mitigation
Hamzah Latief, Dr. Eng.
Operational early warning system for extreme weather in Indonesia
Dr. Agie Wandala Putra
(Head of Weather Early Warning Sub Division in BMKG)
Operational Design of Extreme Weather Warning System
Multi Hazard Impact-based Early Warning System (MHIEWS): The Implementation of Climate-Risk Management & Disaster Risk Reduction
Day-4 Session-2
By: Dr. Armi Susandi, MT.
1 The Impact of Climate Change & Disasters: CARICOM & SICA Country Members
Your Impact Chain

ORGANISATION OF THE TRAINING

Objectives

(i) To improve disaster management authorities' and academia's disaster mitigation capacity;
(ii) To promote the adoption of disaster risk reduction techniques and knowledge;
(iii) To promote the adoption of climate change adaptation measures;
(iv) To build disaster resilience in disaster prone areas of CARICOM and SICA member countries;
(v) To contribute in ensuring the achievement of sustainable social and economic development; and
(vi) To disseminate the recent trends on climate change and disaster management.

Date of Training

August 8 – 12, 2022

Venue

Virtual Meeting Platform; ITB Learning Management System Edunex.

Implementing Agency

Faculty of Earth Sciences and Technology, ITB.

Supported by

Non-Aligned Movement Centre for South-South Technical Cooperation

Ministry of Foreign Affairs of the Republic of Indonesia

Indonesia's National Disaster Management Agency

Meteorological, Climatological, and Geophysics Agency of the Republic of Indonesia

Discussion Summary of Training

"Disaster Risk Reduction and Climate Change Adaptation for CARICOM and SICA Member Countries"

Virtual, August 8 – 12, 2022

I. Introduction

With disaster risk experienced by countries in the Caribbean and Central America, whose risk level is nearly the same as Indonesia's, there is a need for an exchange of knowledge regarding disaster risk reduction and climate policies and lessons between Indonesia and countries in the Caribbean and Central America. An adaptation so that every developing country is better prepared to deal with the ever-changing dynamics of disaster risk. A training course occurred for 5 days with three key sections: (i) DRR of geological hazards; (ii) DRR of extreme weather and coastal hazard; (iii) Early warning system and climate change information system.

The training for capacity building and training officer/staff in a national disaster management authority, officer/staff in the development and implementation of a disaster zone management methodological framework, disaster management analyst/officer/staff, and academia from CARICOM and SICA member countries and territories, was held virtually on August 8 to 12, 2022. It was implemented by the Faculty of Earth Sciences and Technology, ITB.

II. Objectives of the training

The training's overarching goals were to increase disaster mitigation capacity, strengthen disaster resilience, and ensure long-term social and economic development.

The specific objectives of the training were:

(i) To improve disaster management authorities' and academia's disaster mitigation capacity;

(ii) To promote the adoption of disaster risk reduction techniques and knowledge;

(iii)To promote the adoption of climate change adaptation measures;

(iv) To build disaster resilience in disaster prone areas of CARICOM and SICA member countries;

(v) To contribute in ensuring the achievement of sustainable social and economic development; and

(vi) To disseminate the recent trends on climate change and disaster management.

III. Training Moderators and Participants

The training was moderated by Dr. Muhammad Rais Abdillah, S.Si., M.Sc., Dr. Alfita Puspa Handayani, S.T., M.T., Dr. Astyka Pamumpuni, S.T., M.T. and Ms. Lidya Nur.

The training was attended by 34 participants from:

No.	Institution	Country
1.	Argyle Meteorological Service	St. Vincent and the Grenadines
2.	CARICOM	Guyana; Barbados
3.	CCCCC	Belize
4.	Department/Office of Disaster Preparedness and Emergency Management	The Bahamas; Jamaica; Trinidad and Tobago
5.	Directorate-General of Civil Protection	El Salvador
6.	Disaster Management Unit, OPM	The Bahamas
7.	Ministry of Environment	Haiti
8.	Ministry of Foreign Affairs and International Cooperation	Guyana
9.	Ministry of Natural Resources	Belize
10.	National Climate Change Office	Belize
11.	National Coordination Center for Disaster Management (NCCR)	Suriname
12.	National Emergency Management Agency	The Bahamas
13.	National Emergency Management Organisation	St. Lucia; Belize

No.	Institution	Country
14.	National Office of Disaster Services	Antigua and Barbuda
15.	Office of the Prime Minister	The Bahamas
16.	SE CONRED	Guatemala
17.	Sustainable Development Unit SVG	St. Vincent and the Grenadines

IV. Trainers/Facilitators

The list of experts presented during the training were as follows (*in alphabetical order*):

No.	Name	Designation
1.	Dr. Agie Wandala Putra, Ah. MG, S.Si., M.Sc.	Weather Early Warning Sub Coordinator at Indonesia's Meteorological, Climatological, and Geophysical Agency
2.	Dr. Alfita Puspa Handayani, S.T., M.T.	Lecturer of Faculty of Earth Sciences and Technology of ITB
3.	Dr. *rer. nat.* Armi Susandi, MT	Founder of PT. Inovastek Glomatra Indonesia/Co-founder and Commissioner of PT. Swarna Semesta Energi/Intelligent Team of Hydrometeorological Disaster at Indonesia's National Disaster Management Agency and Meteorological, Climatological, and Geophysical Agency
4.	Dr. Astyka Pamumpuni, S.T., M.T.	Lecturer of ITB/Seismic Hazard Researcher of Medco E&P, Sulawesi
5.	Mr. Hamzah Latief, PhD (Eng), MS.	Lecturer of Faculty of Earth Sciences and Technology of ITB/Senior Researcher on Centre for Disaster Mitigation of ITB (Board for Tsunami)
6.	Dr. Irwan Meilano, ST, M.Sc.	Dean of Faculty of Earth Sciences and Technology of ITB
7.	Dr. Muhammad Rais Abdillah, S.Si., M.Sc.	Lecturer of Faculty of Earth Sciences and Technology of ITB
8.	Mr. Udrekh, S.Si., M.Sc., Ph.D.	Director of Risk Mapping and Evaluation of Indonesia's National Disaster Management Agency

Lectures

The training was opened by Dr. Irwan Meilano, ST, M.Sc., Dean of the Faculty of Earth Sciences and Technology ITB. Dr. Irwan welcomed the participants and expressed gratitude for the collaboration between NAM CSSTC and MOFA in his speech. He explained how the increase in natural disasters around the world, particularly earthquakes, tsunamis, and floods, had a negative impact on people from lower economic groups, resulting in deaths and infrastructure damage, and that it was therefore necessary to increase disaster risk reduction capacity.

In addition to Dr. Irwan, Amb. Diar Nurbintoro from NAM CSSTC, Mrs. Maria Renata Hutagalung from the Directorate of International Development Cooperation, and Mrs. Nidya Kartikasari from the Directorate of American and European Intraregional and Interregional Cooperation, MOFA also warmly welcomed all participants to the training and provided some perspectives on the training, including the plan to conduct onsite training in 2023 as a continuation of the virtual training.

A total of eight presentations/lectures were given, two each day, as shown below.

DAY 1:

Lecture 1: Basic Framework of the DRR

Specific key contents addressed in this lecture include:

- Key terminology in DRR;
- Global targets of the Sendai Framework on DRR;
- DRR and SDGs;
- Disaster risk estimation (earthquake and tsunami).

Questions and Answers Session

Question: What is the difference between vulnerability and risk?

Answer: Calculations are performed in risk, for example, to calculate financings. There is also information on the difference between the previous year and the current year. The calculation is performed using a stochastic or probabilistic model.

Lecture 2: Implementation of the DRR (real case in Indonesia)

Specific key contents addressed in this lecture include:

- Disaster map;
- Disaster risk assessment;
- Disaster management planning;
- Planning before disaster recovery.

Questions and Answers Session

Question: What parameters were used to create the risk assessment map?

Answer: Discussion with the local government, field survey to calculate capacity and probability, and assessment tools with a lot of equations to get some information.

DAY 2:

Lecture 3: Impact chain of geological hazards (earthquake, landslide, and volcanic eruptions) and their mitigation measures

Specific key contents addressed in this lecture include:

- Hazard, risk, and disaster;
- Tectonic and geological hazards;
- Geological hazards and analysis (earthquake, volcanic, landslides, and tsunami).

Questions and Answer Session

Question: What are some of the mitigation measures, particularly for landslides, because it's something very unique and we're aware that the hazard exists, but we'd like to learn more about these mitigation measures.

Answer: Control how people build houses near landslide prone areas so that no one is injured when a landslide occurs. Road traffic should also be controlled so that the road is not affected by a falling rock. The main factor used for mitigation is usually location analysis.

Lecture 4: Land recovery in the aftermath of disasters

Specific key contents addressed in this lecture include:

- Land records (the concept of land, dynamics of human & land relationship, cadastral system, cadastral system and land management, land management and disaster, disaster risk management, land risk management model);
- Enhancing resilience with land information system (land administration and damage assessment after a disaster, tenure insecurity after a natural disaster, land issue on disaster, geospatial land data, land information system, land information system concept);
- National Spatial Data Infrastructure (NSDI) (Haiti and New Zealand, success story: New Zealand, menu of options for urban resilience investments from World Bank);
- Land responses to promote disaster resilience (build on community-based initiatives, take a flexible tenure approach, adopt strategic and flexible planning – land-use and construction policies, take a pro-poor approach to land administration, focus on vulnerable groups).

Questions and Answers Session

Question: What is the connection between the disaster, the land department, and the census department? Is there a good relationship on free data sharing?

Answer: There is a single data sharing policy that all institutions in Indonesia follow in order to assess risk.

One institution may use a large-scale map, such as the detail map, whereas another institution may not. Because every institution has its own data acquisition, it varies depending on the institution. If there is a single policy, and all institutions follow that policy, all of this data sharing will be done effectively for disaster management.

Question: How do you fund reconstruction and disaster relief efforts? Is there any special funding or how does it work?

Answer: Funding is required to fund disaster mitigation budgeting. As a result, following the disaster, it is critical to consider how we will fund reconstruction.

One scheme for establishing disaster catastrophe calculation is to do value capture on the difference between the land value before the infrastructure and the land value after the infrastructure.

DAY 3:

Lecture 5: Basic of extreme weather, impact chain of hydrometeorological hazards and their mitigation measures

Specific key contents addressed in this lecture include:

- Basic concept of extreme weather and atmospheric phenomena;
- Hydrometeorological hazards (flood, drought, windstorm);
- Impact of climate change on extreme weather;
- DRR.

Questions and Answers Session

Question: I was just wondering if the hydrological drought is solely based on the SPI index for the hydrological drought or if there is a parallel water monitoring network that is used to validate the incidences of hydrological drought?

Answer: In the rural area, we should usually have just a kind of, for example, groundwater map. The groundwater is perhaps from a distant area that may have a wetter weather climate, or not.

Lecture 6: Coastal hazard in Indonesia due to tsunami and climate change-induced relative sea-level rise and their mitigation

Specific key contents addressed in this lecture include:

- Tsunami (tectonic setting, history of tsunami, level of tsunami hazard in Indonesia, tsunami modelling, tsunami risk assessment, role of vegetation in reduce tsunami);
- SLR induced by climate change (ocean parameter induced by climate change, oceanography parameter and hazard cumulative scenarios, coastal vulnerability index, coastal hazard maps and several case studies);
- Climate change adaptation on the coastal sector.

Questions and Answers Session

Question: What must be done in order to reduce the impact of the tsunami?

Answer: Before we build the sea wall, we usually analyse the cost and benefit, as well as how much money we spend to build the sea wall and how effective it is not only to protect the people behind the wall but also to study what the effect is.

What we have to offer, we try to upgrade the knowledge of people behind the sea more, so that is why we need to build a very good tsunami immune system.

DAY 4:

Lecture 7: Operational system for early warning of extreme weather in Indonesia

Specific key contents addressed in this lecture include:

- Hydrometeorology hazard;
- Shifting paradigms in BMKG Indonesia;

- Multi-hazard early warning system and how to make it;
- Operational design of extreme weather warning system;
- Weather forecast;
- Integrated external model;
- Operational workflow;
- Innovative strategies for forest fire prevention;
- FDRS;
- Common alert protocol;
- Tropical cyclone Seroja.

Questions and Answers Session

Question: What is the hydrology office's role?

Answer: In Indonesia it is called the National Meteorological, Climatological and Geophysics Agency (MCGA). We use the hydrological modelling that they provide, so when we use flood modelling statistics, we use the information from the MCGA.

Question: How useful is demographic population data for your modelling?

Answer: It is useful for weather modelling as well as identifying areas of vulnerability and exposure. In the area of the weather modelling, it is provided by MCGA, but for the vulnerability and the exposure area, it is provided by another agency and another ministry.

Lecture 8: Implementation of multi-hazard early warning system and climate change information system

Specific key contents addressed in this lecture include:

- The impact of climate change and disasters: CARICOM & SICA member countries;
- Towards a comprehensive climate risk & multi hazard impact-based early warning system;

- A lesson learned from Indonesia & simulation of MHIEWS in CARICOM & SICA region;
- Prototype of multi-hazard impact-based early warning system in SICA/CARICOM.

Questions and Answers Session

Question: Please describe the students' roles in managing and monitoring the early warning systems installed in their communities, as well as how their participation is integrated into the national system.

Answer: Students can participate in the field visit to observe the situation, such as the heavy rain forecast for particular area. For example, say October, but based on our system, they can start in September because we have rain starting in September, so I believe the partnership is possible.

The most recent one we applied for is for a student in one of Indonesia's southern regions who uses it for preparation.

Conclusion of the discussion

- Calculations are performed in risk, for example, to calculate financings.
- Discussions with local governments, field surveys to calculate capacity and probability, and assessment tools with a lot of equations to get some information are some of the parameters used to create a risk assessment map.
- Controlling how people build houses near landslide prone areas is one of mitigation measures for landslides so that no one is injured when a landslide occurs.
- One scheme for establishing disaster catastrophe calculation is to do value capture on the difference between the land value before the infrastructure and the land value after the infrastructure.
- In the rural area, we should usually have just a kind of groundwater map to validate the incidences of hydrological drought.

- Before we build the sea wall, we usually analyse the cost and benefit, as well as how much money we spend to build the sea wall and how effective it is not only to protect the people behind the wall but also to study what the effect is.
- Student can participate, for example, in the heavy rain forecast for particular area.

OTHER ACTIVITIES

Preliminary test and Final/Post-test

Participants were given a preliminary test on the first day of the activity in the form of a multiple-choice questions compiled by ITB to identify the participants' knowledge base prior to the training. On the fifth day, the final/post-test questions were identical to the preliminary test questions. This method compares pre-test and post-test scores to determine whether or not the training has a positive impact on the participants.

Hands on activities: Mapping impact chain of particular hazards

Participants were expected to participate in a hands-on activity on how to make an impact chain based on hazard characteristics and vulnerability in their countries. Participants were divided into four groups, each of which worked on a different hazard.

The performance report on other activities is described in the ITB short report.

V. Evaluation Results

Participants were asked to complete a questionnaire at the end of the training regarding their impressions and assessments of the training's implementation. The questionnaire activity was completed by 82% of the total participants, yielding the following results.

Section 1: Pre- and Post-Activity Thoughts							
No.	Criteria	**AVG**	Min %				Max %
			1	2	3	4	5
1.	Participant involvement in developing the programme concept	**4**	7.14	10.71	21.43	39.29	14.29
2.	Completion of information in the General Information document	**4**	0	3.57	14.29	39.29	35.71

Section 1: Pre- and Post-Activity Thoughts

No.	Criteria	**AVG**	Min %				Max %
			1	2	3	4	5
3.	Ability to meet programme objectives	**4**	0	0	17.86	35.71	39.29

Comments on General Information document:

- Very useful, very good and very complete General Information;
- The information provided was intended to help us understand the general concept of climate change in Indonesia and how well we can adapt or upgrade changes in the Caribbean as needed;
- The general information document was well-prepared, but there is a need to make target group information more visible in terms of eligibility and background of those who should attend.

Section 2: Activity Material

No.	Criteria	**AVG**	Min %				Max %
			1	2	3	4	5
1.	Empowerment	**4**	0	0	17.86	42.86	32.14
2.	The material's suitability for the activity's theme	**4**	0	0	3.57	46.43	93.29
3.	The material's compatibility with the description in General Information	**4**	0	0	7.14	46.43	35.71
4.	Material delivery clarity	**4**	0	3.57	14.29	32.14	42.86
5.	Volume of material	**4**	0	0	17.86	46.43	25
6.	The value of training handouts	**4**	0	3.57	17.86	42.86	28.57

Comments on date and time:

- The time and date were appropriate because there were no time constraints;
- The time allotted to complete the Quiz was insufficient; 20 to 25 minutes would have been more appropriate;
- The time and date were perfect fit for the geographical area, and the timing was convenient for me because it did not interfere with my day-to-day work;
- The schedule worked well for me because the first two hours of my day were dedicated to training, but it seemed like there was very little time per session for each topic.

Section 2: Activity Material

No.	Criteria	**AVG**	Min %				Max %
			1	2	3	4	5

Comments on expected training materials to be included:

- Risk financing mechanisms integration;
- The disaster phase and the early recovery;
- Disaster mitigation;
- More time spent developing the impact chain;
- A detailed history of Indonesian climate change and the severe consequences of those changes.

Comments on hands-on activities:

- Hands-on activities were beneficial;
- I just think we needed a little more time;
- I believe a break between presentations would be more conducive to participants digesting the wealth of information shared by the presenters;
- It was initially difficult to gain access to the link; however, face-to-face practical sessions would have provided a better understanding;
- The hands-on activities made it easier to remember what was taught;
- Hands-on activities were intriguing and made you think;
- The hands-on activities were excellent; however, we will need to repeat these activities in order to become proficient at them.

Section 3: Technological Resources

No.	Criteria	**AVG**	Min %				Max %
			1	2	3	4	5
1.	Zoom virtual room management	**5**	0	0	7.14	32.14	46.43
2.	Administration of e-learning/Edunex	**4**	0	3.57	17.86	28.57	42.86
3.	Administration of WhatsApp Groups	**5**	0	0	0	42.86	42.86

In the fourth section, each facilitator was evaluated, resulting in a total of 224 incoming data for each indicator and the following results.

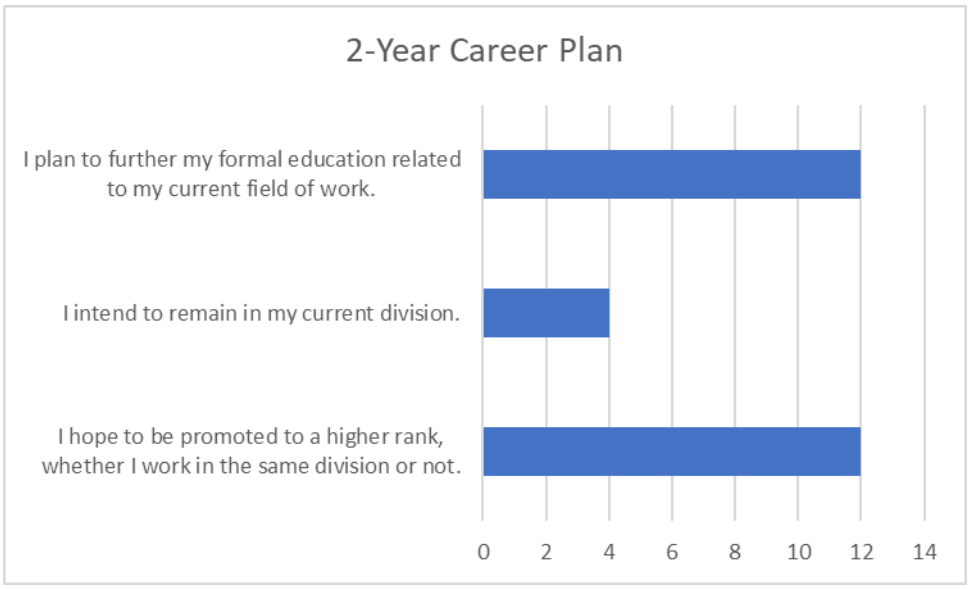
Section 4: Facilitator							
No.	Criteria	**AVG**	Min %				Max %
			1	2	3	4	5
1.	A desire to learn from the same facilitator in the future	**4**	0	1.34	15.63	44.20	38.84
2.	Motivation for participants to engage	**4**	0	3.13	12.50	41.07	43.30
3.	Comprehensive level of discussion	**4**	0	0.45	15.18	40.63	43.75
4.	Impression of the facilitator's abilities	**4**	0	0	5.36	45.54	49.11
5.	Level of facilitator readiness	**4**	0	0.45	10.27	40.18	49.11
6.	The novelty of the introduced concept	**4**	0	3.13	13.84	51.34	31.70

In terms of the overall evaluation, participants stated that the following were the best aspects of the training:

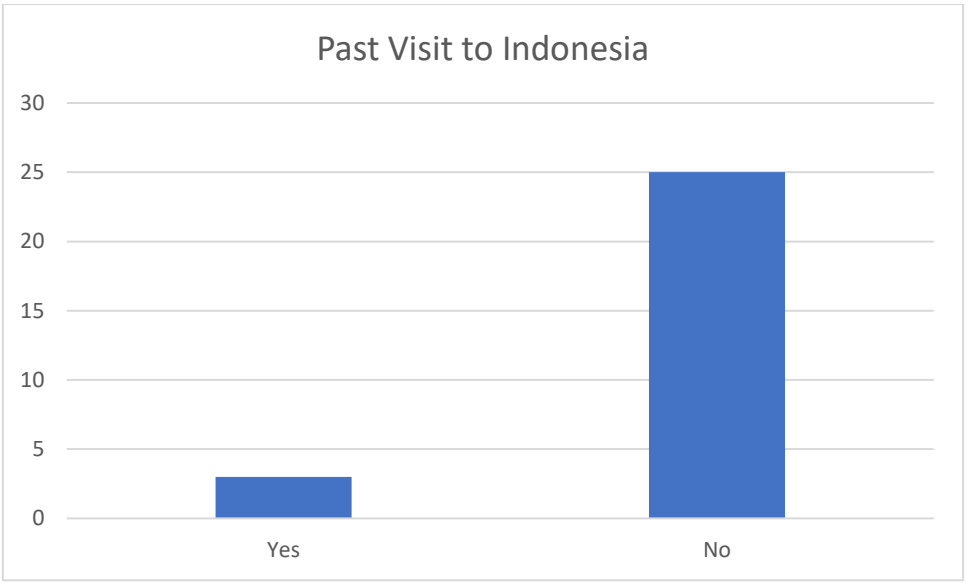
- Information on various disasters;
- The ability to learn from best practices;
- Land recovery in disaster aftermath;
- Early warning system for multiple hazards risk assessment
- The readily available resources;
- The geological hazard's impact chain and other mitigation measures;
- An overview of various types of early warning systems and methodologies;
- Tutorials and presentations to be the most valuable aspect of the training;
- Infographic that aids in better understanding of concepts related to climate change in Indonesia.

VI. Considerations for Training Implementation in 2023

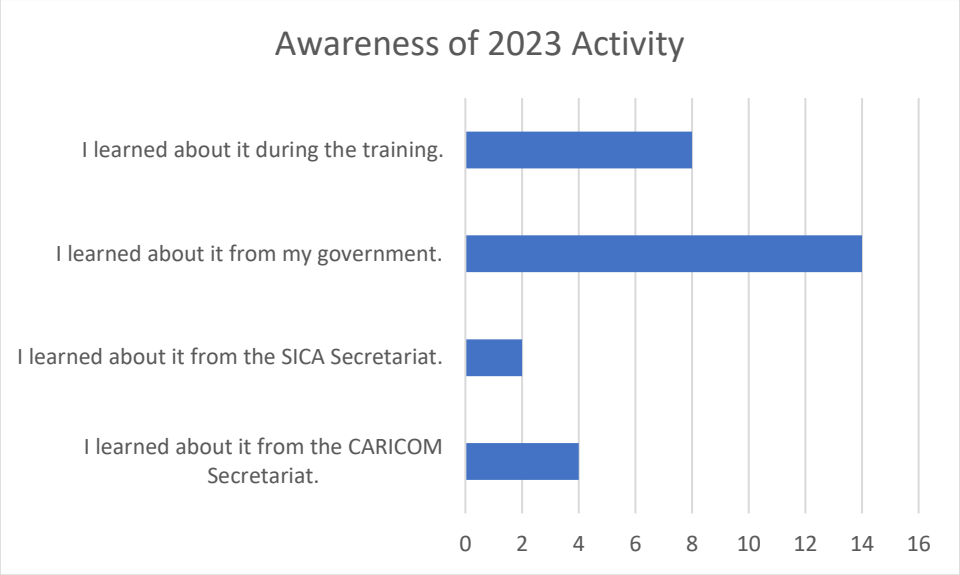
In addition to providing feedback on the training, participants were asked to complete a questionnaire that will be used to collect date for the organizing agency's activity preparation in 2023.



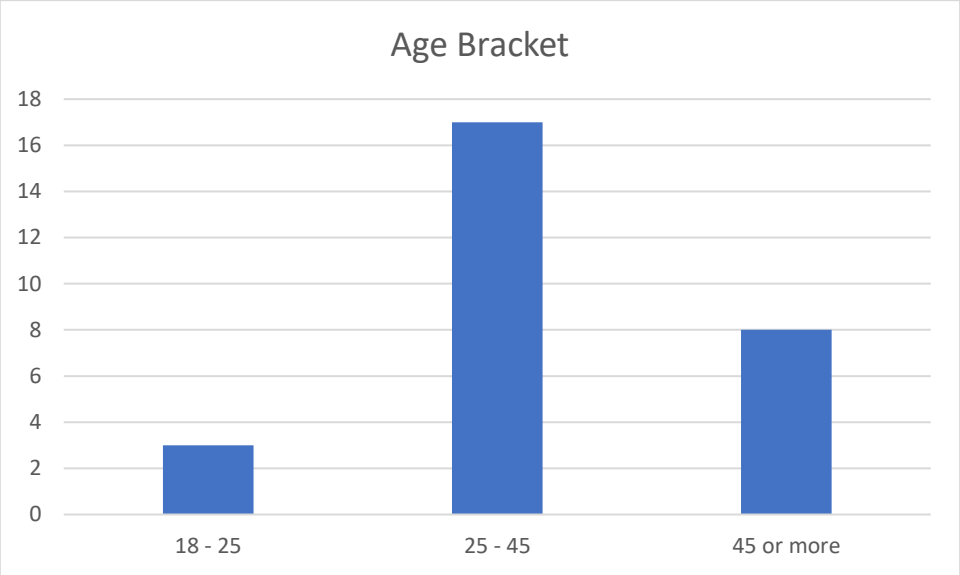
12 participants wanted to be promoted, even though they are assigned to different job duties.



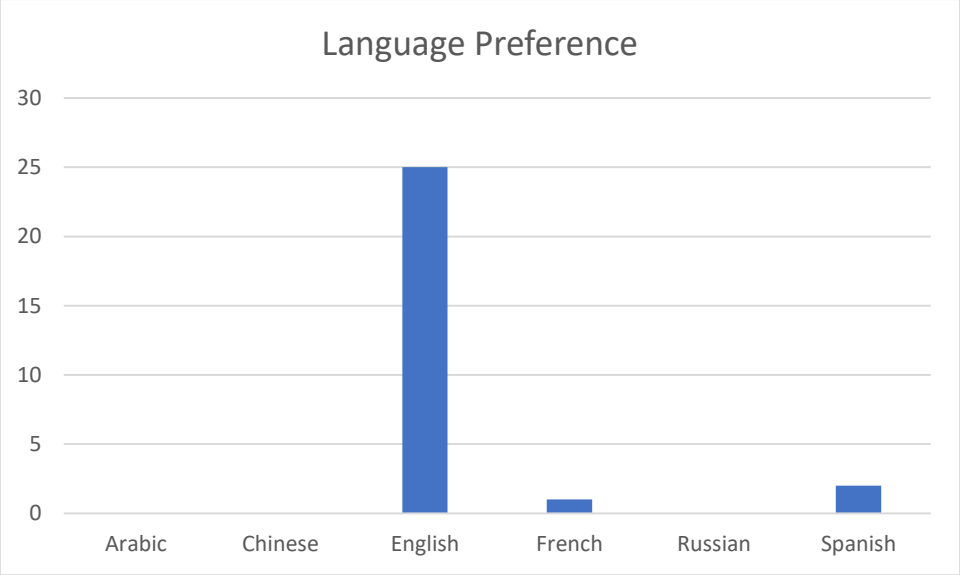
Three of the participants had previously visited Indonesia.



The majority of participants learned about the continuation from virtual to face-to-face training in 2023 from their government.



The majority of the participants are in their prime years for career advancement and ensuring the long-term viability of knowledge.



The majority of the participants chose English as their training language.

ANNEX 1.

AGENDA

Pre-event (Friday, 5 August 2022)

Topic	Time (UTC+7)	Agenda
Introduction	21.00-21.15	Short introduction between the committee, speakers, and participants
Testing the course platform	21.15-21.30	Explanation of the course and its learning platform (Edunex)
	21.30-22.00	Participants try to log in and utilize some features in Edunex
Discussion	22.00-22.30	Discussion

Main event (Monday-Friday, 8-12 August 2022)

Day	Topic	Time (UTC+7)	Agenda	Speaker
1	Opening of the Online Course and Basic Framework of the Disaster Risk Reduction (DRR)	21:00 - 21:40	Remarks and Speech:	
			1) Acting Director for NAM CSSTC	Amb. Mr. Diar Nurbintoro
			2) Director of International Development Cooperation – the Ministry of Foreign Affairs of the Republic of Indonesia	Mrs. Maria Renata Hutagalung
			3) Director of American and European Intraregional and Interregional Cooperation	Mrs. Nidya Kartikasari
			4) Dean of Faculty of Earth Science and Technology (FITB), ITB	Dr. Irwan Meilano, ST, M.Sc.
			5) Virtual photo opportunity	
		21:40 - 22:00	*Pre test*	
		22:00 - 22:30	Presentation 1: Basic Framework of the Disaster Risk Reduction (DRR)	Dr. Irwan Meilano, ST, M.Sc. (ITB)
		22:30 - 23:00	Presentation 2: Implementation of the DRR (real case in Indonesia)	Dr. Ir. Udrekh, S.E., M.Sc. (BNPB)
2	DRR of geological hazards and increasing Community Resilience	21:00 - 22:00	Impact chain of geological hazards (earthquake, landslide, and volcanic eruptions) and their mitigation measures	Dr. Astyka Pamumpuni, S.T, M.T. (ITB)
		22:00 - 23:00	Increasing Community Resilience through Geospatial Data and Land Administration	Dr. Alfita Puspa Handayani, ST., MT (ITB)

Day	Topic	Time (UTC+7)	Agenda	Speaker
3	DRR of extreme weather and coastal hazard	21:00 - 22:00	Basic of extreme weather, impact chain of hydrometeorological hazards and their mitigation measures	Dr. M. Rais Abdillah (ITB)
		22:00 - 23:00	Coastal hazard due to tsunami and induced by climate change and their Mitigation	Hamzah Latief, M.Si., Ph.D. (ITB)
4	Early warning system and climate change information system	21:00 - 22:00	Operational system for early warning of extreme weather in Indonesia	Dr. Agie Wandala Putra, M.Sc (BMKG)
		22:00 - 23:00	● Implementation of multi-hazard early warning system and climate change information system ● Prototype of multi-hazard impact-based early warning system in SICA/CARICOM	Dr. rer. nat. Armi Susandi (ITB, BIN)
5	Hands on activities, final test, and closing	21:00 - 22:30	Hands on activities: Mapping impact chain of particular hazard(s)	All speakers
		22:30 - 22:50	*Final test*	
		22:50 - 23:00	Closing remarks by Dean of FITB-ITB	Dr. Irwan Meilano, ST, M.Sc.

ANNEX 2.

LIST OF PARTICIPANTS

Full Name	Name of Organisation/Institution	Country
CARICOM		
Marriette Juielta Francis	National Office of Disaster Services	Antigua and Barbuda
Tamme Sandra Thomas	National Office of Disaster Services	Antigua and Barbuda
Javier Orlando Castellanos	National Emergency Management Organization	Belize
Johanna Jaziel Pacheco	National Climate Change Office	Belize
Ide Dolores Dominic Ide Sosa	National Climate Change Office	Belize
Francis MICHIEL Arzu	Ministry of Natural Resources	Belize
Tennielle Williams	National Hydrological Service, Ministry of Natural Resources, Petroleum and Mining	Belize
Kareem Jamal Sabir	Caribbean Community (CARICOM) Secretariat	Guyana
Tash Van Doimen	Ministry of Foreign Affairs and International Cooperation	Guyana
Louverture OSTINE	Ministry of Environment	Haiti
Anna Tucker-Abrahams	Office of Disaster Preparedness & Emergency Management	Jamaica
Camille Beckford Palmer	Office of Disaster Preparedness and Emergency Management	Jamaica
Amraan James	National Emergency Management Organisation	St. Lucia
Rehani Isidore	National Emergency Management Organisation	St. Lucia
Tyshana Racquel Thomas-McNichols	Sustainable Development Unit SVG	St. Vincent and the Grenadines
Dulci Lydia Dulci Lydia Duurham	National Coordination Center For Disaster Management (NCCR)	Suriname
Gillio Komproe	NCCR	Suriname
Barrise Griffin	Disaster Management Unit, OPM	The Bahamas
Caitlin Taylor	NEMA	The Bahamas
Carl Francis Smith	Department of Disaster Preparedness and Emergency Management	The Bahamas
Hubert Thomas McIntosh II	Office of The Prime Minister, Department of Emergency Preparedness & Response	The Bahamas
Justice Jayda Albury	National Emergency Management Agency	The Bahamas

Full Name	Name of Organisation/Institution	Country
SICA		
Katherine Elizabeth Pena Nunfio	DirecciÃ³n General de ProtecciÃ³n Civil	El Salvador
Luis Antonio Montenegro	Direccion General de Proteccion Civil	El Salvador
Rashid Ricardo Alquijay	SE CONRED	Guatemala
Alfredo Díaz Waight	SecretarÃ-a Ejecutiva de la CONRED	Guatemala

ANNEX 3.

SHORT REPORT OF ITB

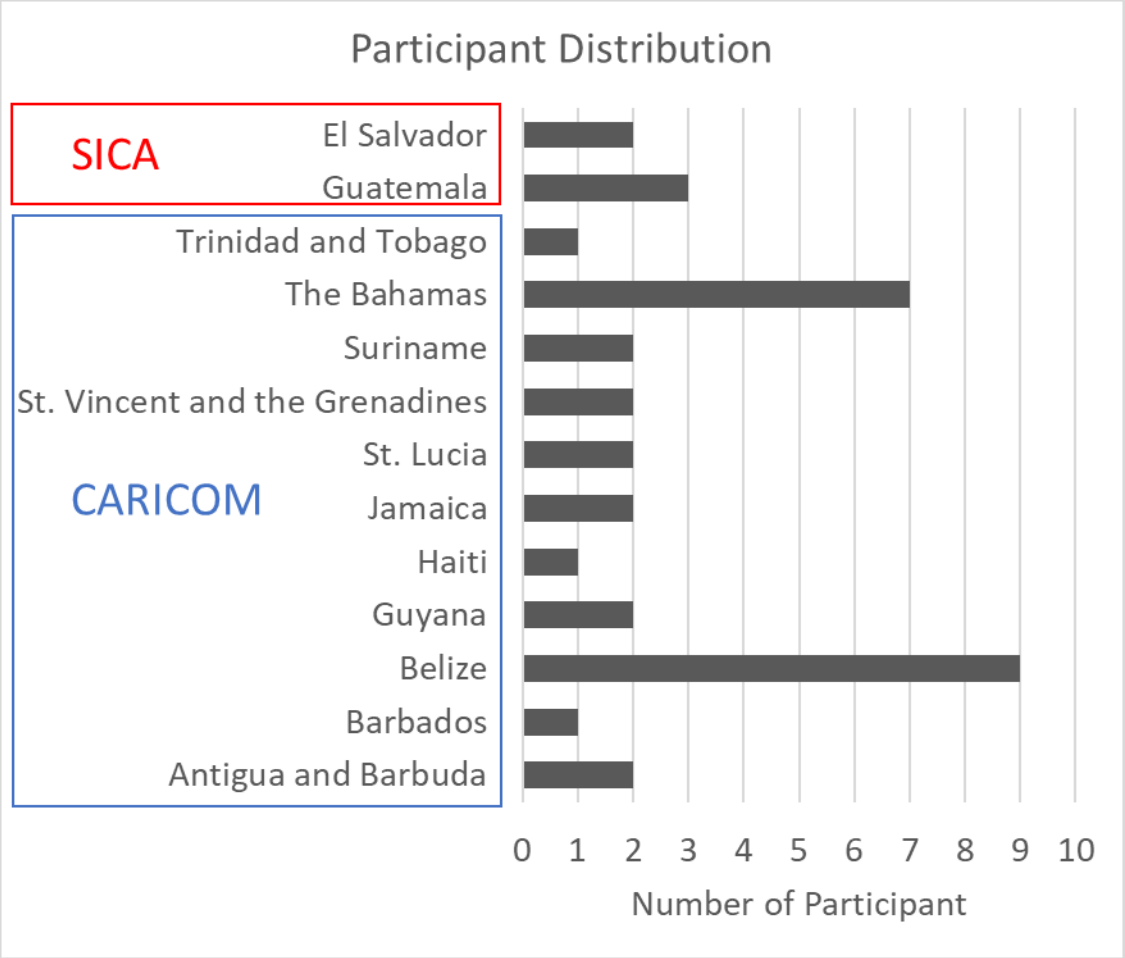
A Short Report for

"Online Training Course on Disaster Risk Reduction and Climate Change Adaptation for CARICOM and SICA Member Countries"

8-12 August 2022

ITB & NAM-CSSTC

Registered Participant



Data source: NAM-CSSSTC

The highest number of participant : **Belize (9)**

The lowest: **Haiti, Barbados, Trinidad and Tobago (1)**

Attendance of Participant

Prefix	First Name	Middle Name	Last Name	Country	Attendance						
					Pre-Event	Day 1	Day 2	Day 3	Day 4	Day 5	%
CARICOM											
Miss	Marriette	Juielta	Francis	Antigua and Barbuda							100.00
Miss	Tamme	Sandra	Thomas	Antigua and Barbuda							100.00
Mr.	ALEX	Justin Travis	HAREWOOD	Barbados							66.67
Mr.	Albert		Gilharry	Belize							83.33
Mr.	Javier	Orlando	Castellanos	Belize					Weather-related technical difficulties		100.00
Miss	Crystal	Cristy	Malic	Belize							83.33
Mr.	Lionel	Ernest	Smith	Belize							83.33
Miss	Heazel	Louise	Vernon	Belize							83.33
Mrs.	Johanna	Jaziel	Pacheco	Belize							100.00
Miss	Ide	Dolores Dominic	Ide Sosa	Belize							100.00
Mr.	Francis	MICHIEL	Arzu	Belize							100.00
Miss	Tennielle		Williams	Belize							83.33
Mr.	Kareem	Jamal	Sabir	Guyana							100.00
Miss	Tash		Van Doimen	Guyana					Only attended half of the event		91.67
Mr.	Louverture		OSTINE	Haiti							100.00
Mrs.	Anna		Tucker-Abrahams	Jamaica							100.00
Mrs.	Camille		Beckford Palmer	Jamaica							100.00
Mr.	Amraan		James	St. Lucia							100.00
Mr.	Rehani		Isidore	St. Lucia							100.00
Mr.	Gregory	Cato	gregorycato	St. Vincent and the Grenadines							83.33
Mrs.	Tyshana	Racquel	Thomas-McNichols	St. Vincent and the Grenadines							100.00
Miss	Dulci	Lydia	Dulci Lydia Duurham	Suriname							100.00
Mr.	Gillio		Komproe	Suriname							100.00
Miss	Barrise		Griffin	The Bahamas							100.00
Miss	Caitlin		Taylor	The Bahamas							100.00
Mr.	Carl	Francis	Smith	The Bahamas							100.00
Mr.	Jerreth		Ford	The Bahamas							0.00
Mr.	Hubert	Thomas	McIntosh II	The Bahamas							10.00
Miss	Justice	Jayda	Albury	The Bahamas							100.00
Mr.	John	James	Pintard	The Bahamas							83.33
Mrs.	Curmira		Gulston-Calderon	Trinidad and Tobago							83.33
SICA											
Mr.	Alfredo	Díaz	Waight	Guatemala							66.67
Miss	Katherine	Elizabeth	Pena Nunfio	El Salvador							100.00
Mr.	Luis	Antonio	Montenegro	El Salvador							100.00
Mr.	Eduardo	Luis	Aguilar Flores	Guatemala							0.00
Dr.	Rashid	Ricardo	Alquijay	Guatemala							100.00

During main event (Day 1 – Day 5):

- **32 people (88.89%)** were present **all days**
- **2 people (5.56%)** were present only **3 days**
- **2 people (5.56%) never attend the event**
- Other: **1 people** reported internet issue due to weather (but still attending) and **1 people** was detected leave early during a meeting

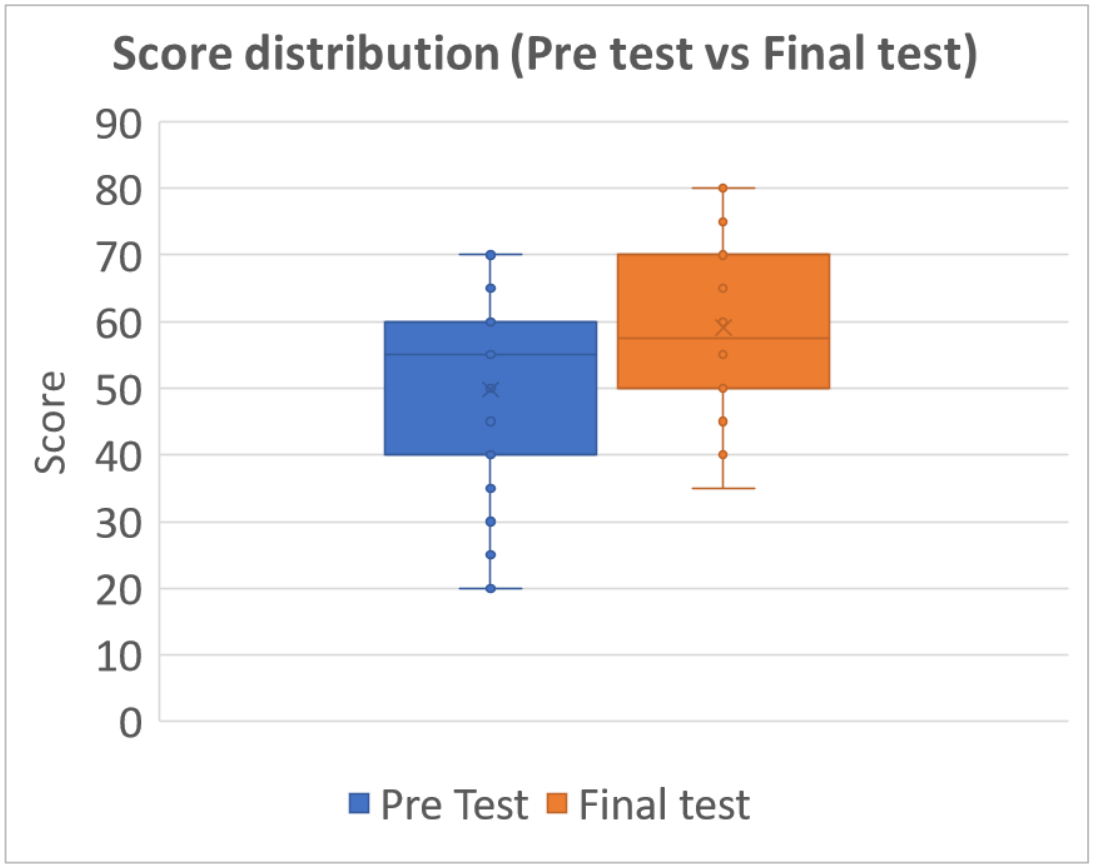
Data source: NAM-CSSSTC

Attendance of Speaker

Day	Topic	Time (UTC+7)	Agenda	Speaker	Notes
1	Opening of the Online Course and Basic Framework of the Disaster Risk Reduction (DRR)	21:00 - 21:40	Remarks and Speech:		MC: Lidya
			1) Acting Director for NAM CSSTC	Amb. Mr. Diar Nurbintoro	
			2) Director of International Development Cooperation – the Ministry of Foreign Affairs of the Republic of Indonesia	Mrs. Maria Renata Hutagalung	
			3) Director of American and European Intraregional and Interregional Cooperation	Mrs. Nidya Kartikasari	
			4) Dean of Faculty of Earth Science and Technology (FITB), ITB	Dr. Irwan Meilano, ST, M.Sc.	
			5) Virtual photo opportunity		
		21:40 - 22:00	*Pre test*	Dr. Muhammad Rais Abdillah	
		22:00 - 22:30	Presentation 1: Basic Framework of the Disaster Risk Reduction (DRR)	Dr. Irwan Meilano, ST, M.Sc. (ITB)	Moderator: Dr. Alfita
		22:30 - 23:00	Presentation 2: Implementation of the DRR (real case in Indonesia)	Dr. Ir. Udrekh, S.E., M.Sc. (BNPB)	
2	DRR of geological hazards	21:00 - 22:00	Impact chain of geological hazards (earthquake, landslide, and volcanic eruptions) and their mitigation measures	Dr. Astyka Pamumpuni, S.T, M.T. (ITB)	Moderator: Lidya
		22:00 - 23:00	Increasing Community Resilience through Geospatial Data and Land Administration	Dr. Alfita Puspa Handayani, ST., MT (ITB)	
3	DRR of extreme weather and coastal hazard	21:00 - 22:00	Basic of extreme weather, impact chain of hydrometeorological hazards and their mitigation measures	Dr. M. Rais Abdillah (ITB)	Moderator: Dr. Astyka and Dr. M. Rais
		22:00 - 23:00	Coastal hazard due to tsunami and induced by climate change and their Mitigation	Hamzah Latief, M.Si., Ph.D. (ITB)	
4	Early warning system and climate change information system	21:00 - 22:00	Operational system for early warning of extreme weather in Indonesia	Dr. Agie Wandala Putra, M.Sc (BMKG)	Moderator: Dr. Alfita
		22:00 - 23:00	•Implementation of multi-hazard early warning system and climate change information system •Prototype of multi-hazard impact-based early warning system in SICA/CARICOM	Dr. rer. nat. Armi Susandi (ITB, BIN)	
5	Hands on activities, final test, and closing	21:00 - 22:30	Hands on activities: Mapping impact chain of particular hazard(s)	All speakers	MC: Lidya
		22:30 - 22:50	*Final test*	Dr. M. Rais Abdillah	
		22:50 - 23:00	Closing remarks by Dean of FITB-ITB	Dr. Irwan Meilano, ST, M.Sc.	

- All speakers successfully attended the course according to their schedule

Test results



- The preliminary and final test results indicate the improvement of participants' knowledge before and after the course
- Overall, their scores are increased by +18.67%

Test statistic	Pre-test	Final-test
No. of participant	27 (75%)	34 (94%)
min	20	35
max	70	80
mean	49.8	59.1
median	55.0	57.5

Data source: Edunex

Certification Eligibility

- Based on the attendance rate and test results, 34 out of 36 participants are eligible for the certificate.
- 2 participants are not eligible because of zero attendance.

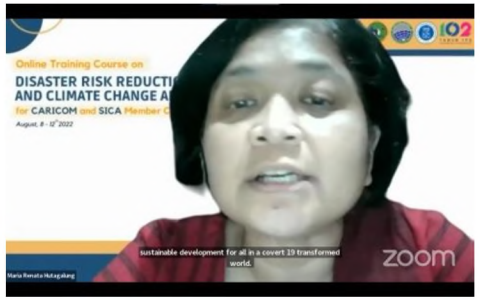
Note and Evaluation

- Most participants can speak English fluently
- Some sessions received a lot of questions but the time was very short
- Problems existed while conducting online test due to internet issue
- The practice session more effectively reveals the basic knowledge of participants because they gave presentation. Most of them still cannot clearly distinguish the parameters of hazard and vulnerability → need to be addressed in future offline session

Some photos taken during the course

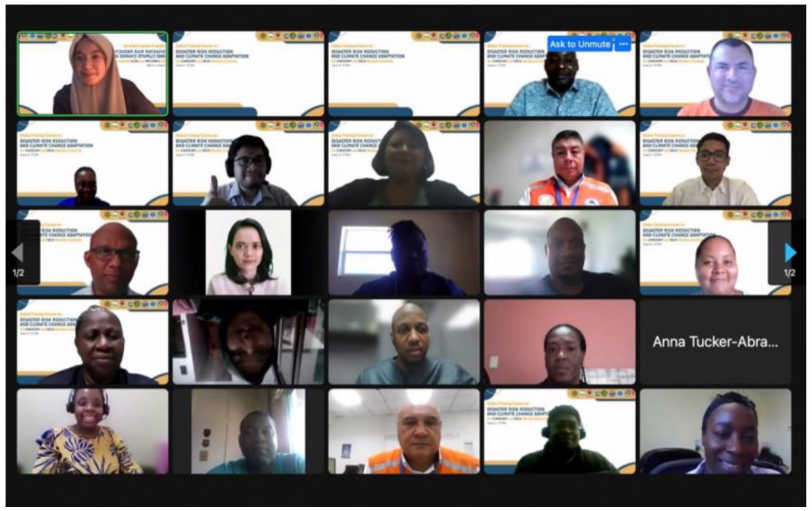
First day

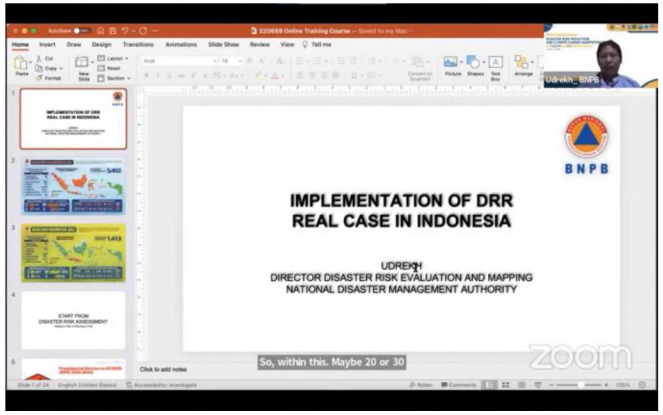
Online Training Course on
DISASTER RISK REDUC
AND CLIMATE CHANGE
for CARICOM and SICA
Today, as we work towards a brighter

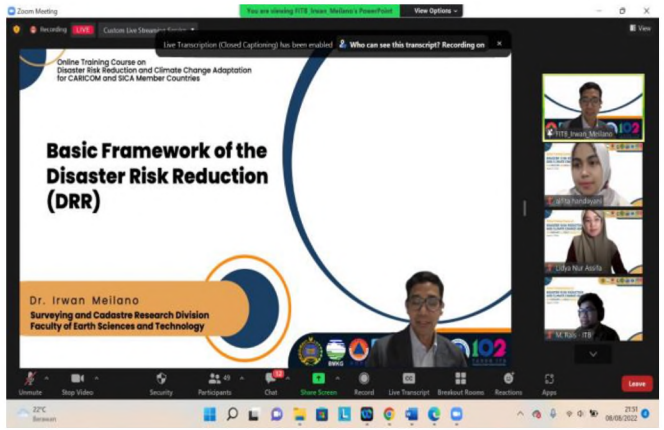

Online Training Course on
DISASTER RISK REDUCTI
AND CLIMATE CHANGE A
for CARICOM and SICA
sustainable development for all in a covert 19 transformed world.
zoom

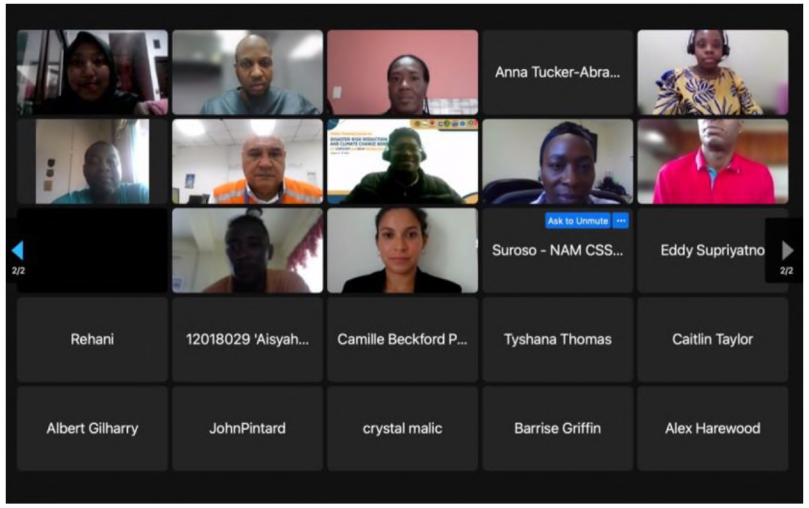
Online Training Course on
DISASTER RISK REDUCTION
AND CLIMATE CHANGE ADA
for CARICOM and SICA
Okay.

Online Training Course on
DISASTER RISK REDUCTIO
AND CLIMATE CHANGE ADA
for CARICOM and SICA
thousands of death.


Ask to Unmute
Anna Tucker-Abra...


BNPB
IMPLEMENTATION OF DRR
REAL CASE IN INDONESIA
UDREKH
DIRECTOR DISASTER RISK EVALUATION AND MAPPING
NATIONAL DISASTER MANAGEMENT AUTHORITY
So, within this. Maybe 20 or 30
zoom

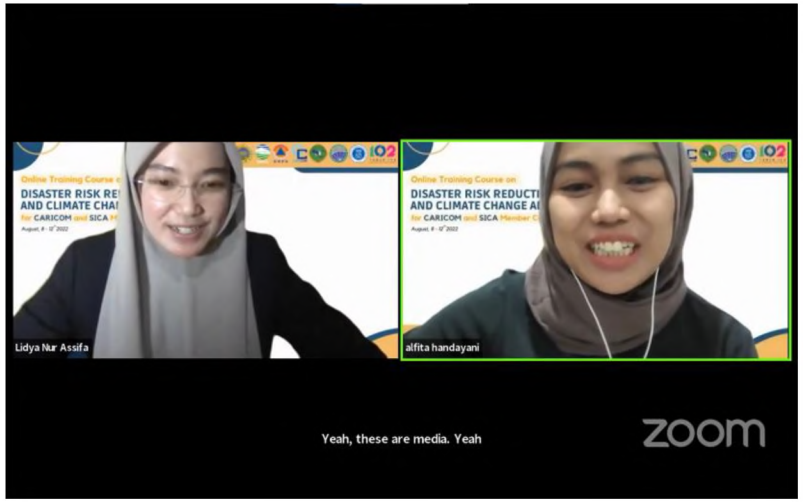

Online Training Course on
Disaster Risk Reduction and Climate Change Adaptation
for CARICOM and SICA Member Countries
Basic Framework of the
Disaster Risk Reduction
(DRR)
Dr. Irwan Meilano
Surveying and Cadastre Research Division
Faculty of Earth Sciences and Technology


Anna Tucker-Abra...
Ask to Unmute
Suroso - NAM CSS...
Eddy Supriyatno
Rehani
12018029 'Aisyah...
Camille Beckford P...
Tyshana Thomas
Caitlin Taylor
Albert Gilharry
JohnPintard
crystal malic
Barrise Griffin
Alex Harewood

Second day

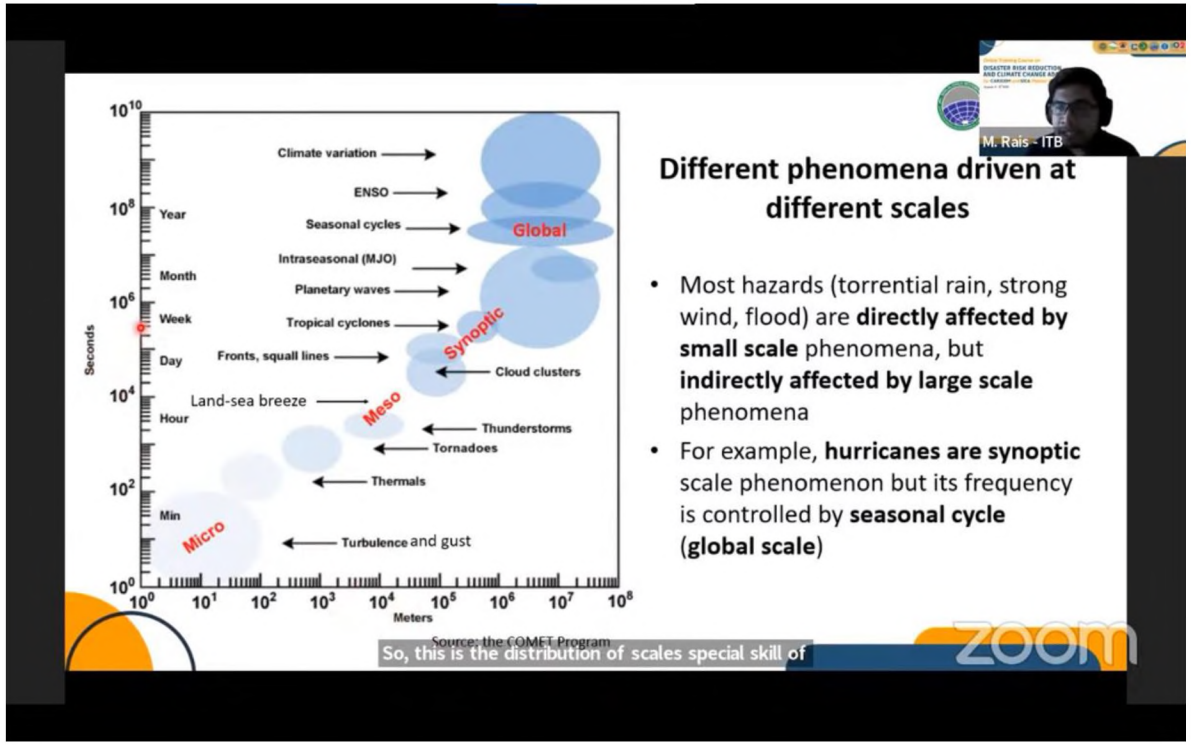
Lidya Nur Assifa
Astyka Pamumpuni
So, this was is yours. Thank you, Jessica
zoom

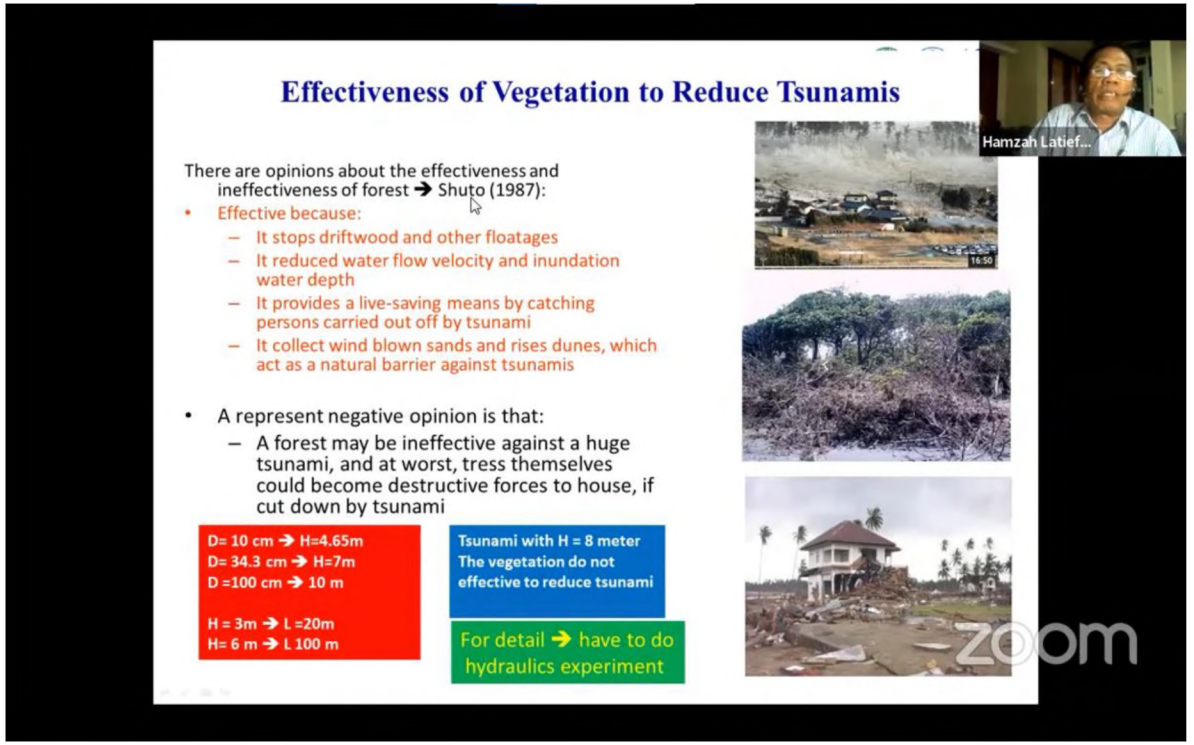
BENCANA TAHUN 2018
BNPB
1 JANUARI 2018 - 31 DESEMBER 2018
Disaster in Indonesia 2018
3.397
KERUSAKAN AKIBAT BENCANA TAHUN 2018
370.153
RUMAH RUSAK
2.984
FASILITAS PENDIDIKAN RUSAK
287
FASILITAS KESEHATAN RUSAK
1.503
DAMPAK BENCANA TAHUN 2018
10.417.179
So sorry this is for effect.
(National Agency for Disaster Countermeasure)


Lidya Nur Assifa
alfita handayani
Yeah, these are media. Yeah
zoom

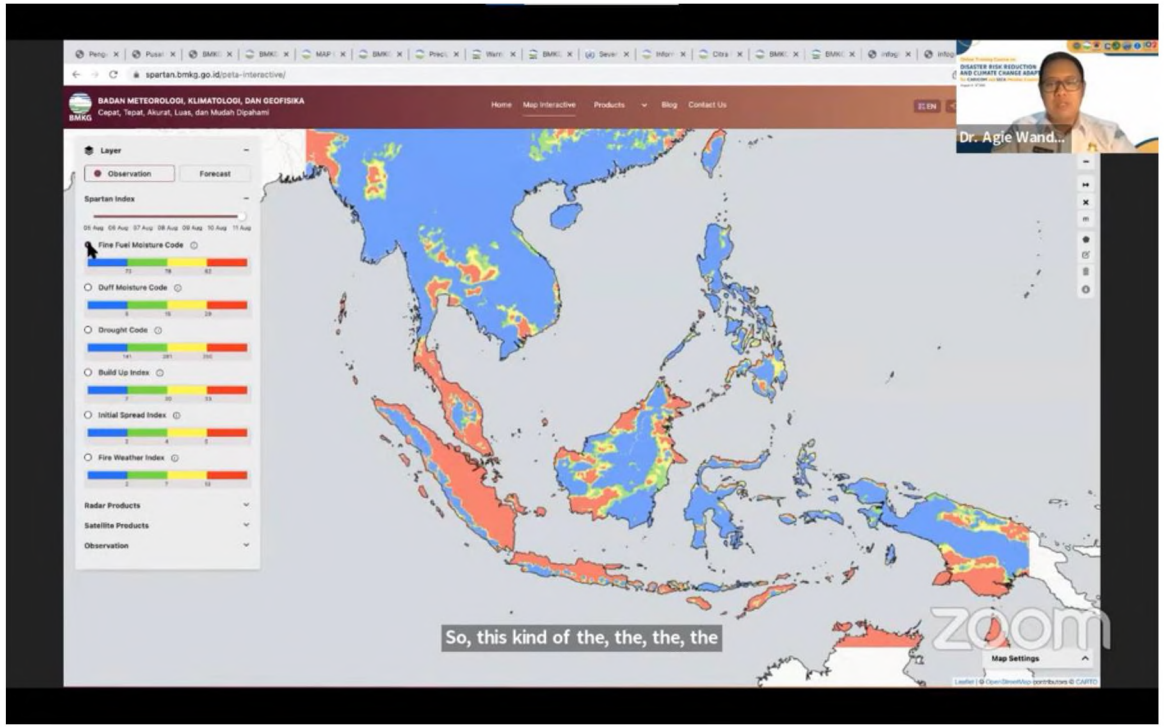
Land Administration and Damage Assessment After a Disaster
alfita handaya...
Figure 9, Dump of damaged land records after the Tsunami Disaster in Aceh, Indonesia
And then what we have only one
2007)

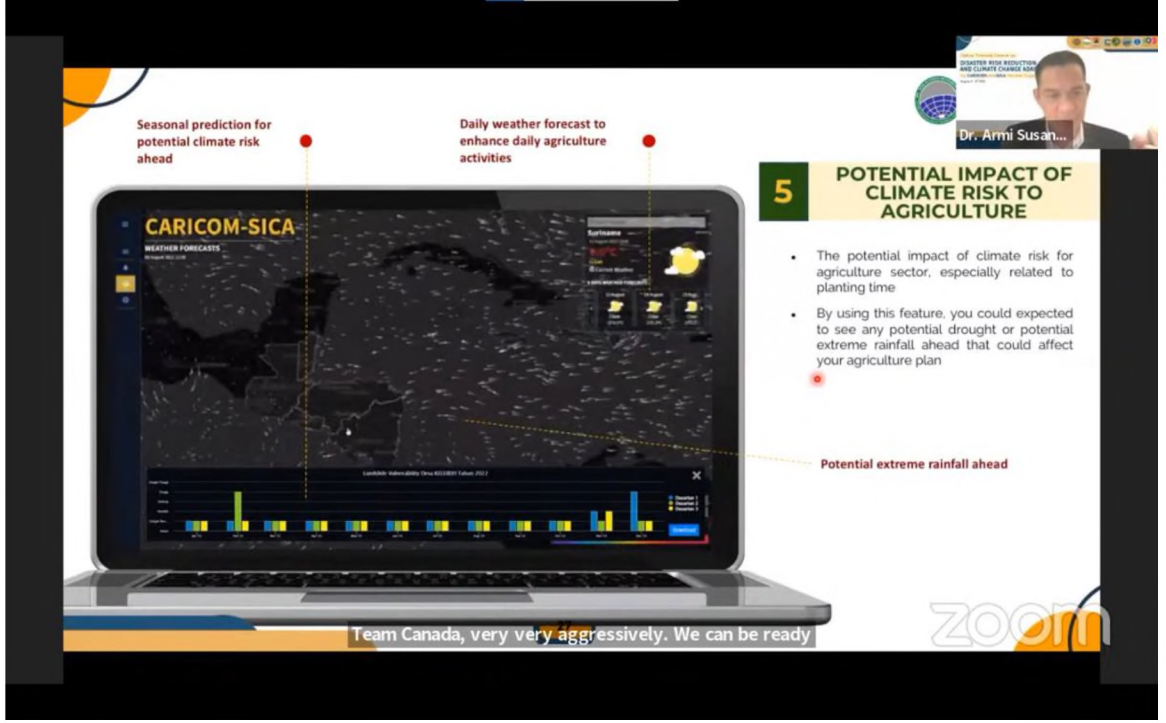
Third day

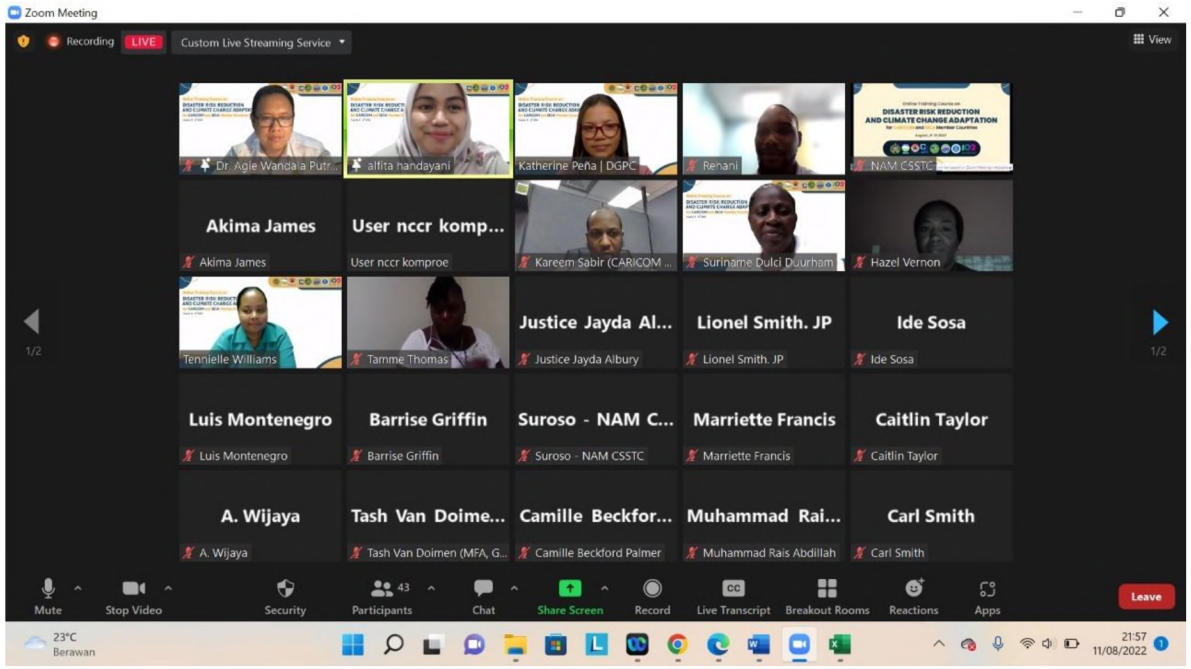

M. Rais - ITB
Different phenomena driven at different scales
Climate variation
ENSO
Seasonal cycles
Intraseasonal (MJO)
Planetary waves
Tropical cyclones
Fronts, squall lines
Land-sea breeze
Cloud clusters
Thunderstorms
Tornadoes
Thermals
Turbulence and gust
Global
Synoptic
Meso
Micro
Year
Month
Week
Day
Hour
Min
Seconds
Meters
Source: the COMET Program
• Most hazards (torrential rain, strong wind, flood) are directly affected by small scale phenomena, but indirectly affected by large scale phenomena
• For example, hurricanes are synoptic scale phenomenon but its frequency is controlled by seasonal cycle (global scale)
So, this is the distribution of scales special skill of
zoom


Hamzah Latief...
Effectiveness of Vegetation to Reduce Tsunamis
There are opinions about the effectiveness and ineffectiveness of forest → Shuto (1987):
• Effective because:
– It stops driftwood and other floatages
– It reduced water flow velocity and inundation water depth
– It provides a live-saving means by catching persons carried out off by tsunami
– It collect wind blown sands and rises dunes, which act as a natural barrier against tsunamis
• A represent negative opinion is that:
– A forest may be ineffective against a huge tsunami, and at worst, tress themselves could become destructive forces to house, if cut down by tsunami
D= 10 cm → H=4.65m
D= 34.3 cm → H=7m
D =100 cm → 10 m
H = 3m → L =20m
H= 6 m → L 100 m
Tsunami with H = 8 meter
The vegetation do not effective to reduce tsunami
For detail → have to do hydraulics experiment
zoom

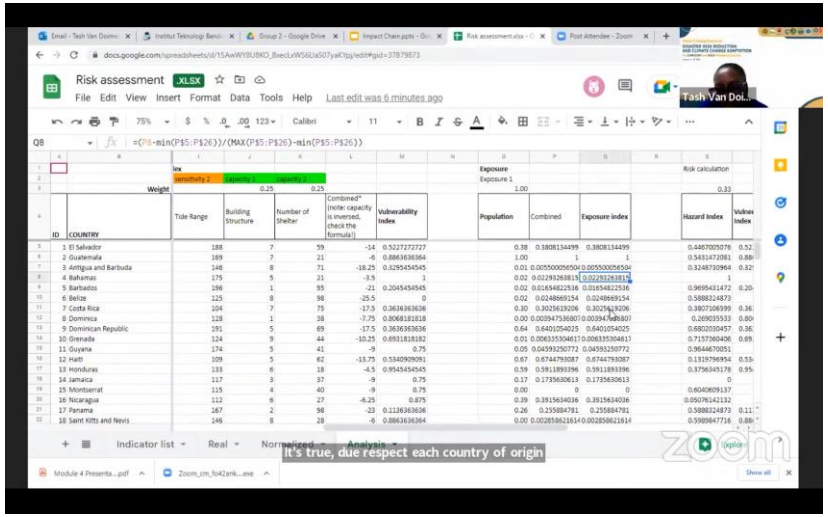
Fourth day

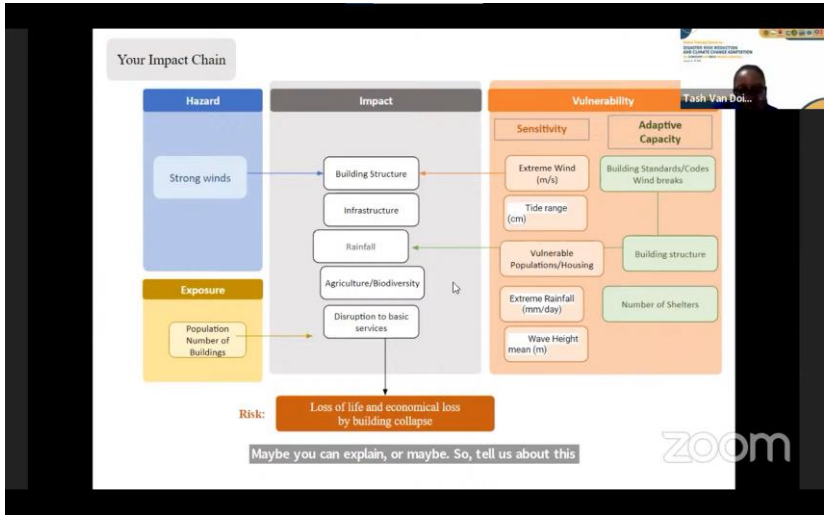

BADAN METEOROLOGI, KLIMATOLOGI, DAN GEOFISIKA
Dr. Agie Wand...
So, this kind of the, the, the, the
zoom

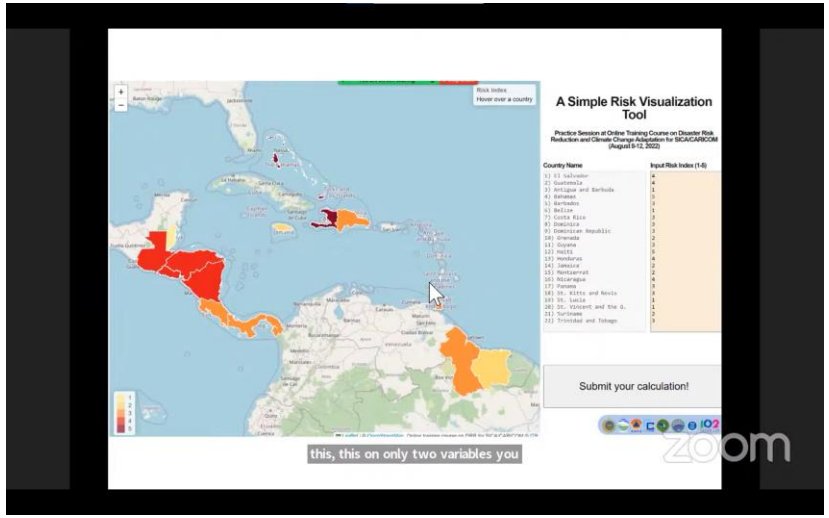

Seasonal prediction for potential climate risk ahead
Daily weather forecast to enhance daily agriculture activities
Dr. Armi Susan...
CARICOM-SICA
WEATHER FORECASTS
5
POTENTIAL IMPACT OF CLIMATE RISK TO AGRICULTURE
The potential impact of climate risk for agriculture sector, especially related to planting time
By using this feature, you could expected to see any potential drought or potential extreme rainfall ahead that could affect your agriculture plan
Potential extreme rainfall ahead
Team Canada, very very aggressively. We can be ready
zoom


Zoom Meeting
Recording
LIVE
Custom Live Streaming Service
View
Akima James
User nccr komp...
Katherine Peña | DGPC
Renani
NAM CSSTC
Kareem Sabir (CARICOM ...
Suriname Dulci Duurham
Hazel Vernon
Tennielle Williams
Tamme Thomas
Justice Jayda Al...
Lionel Smith. JP
Ide Sosa
Luis Montenegro
Barrise Griffin
Suroso - NAM C...
Marriette Francis
Caitlin Taylor
A. Wijaya
Tash Van Doime...
Camille Beckfor...
Muhammad Rai...
Carl Smith
Mute
Stop Video
Security
Participants
Chat
Share Screen
Record
Live Transcript
Breakout Rooms
Reactions
Apps
Leave

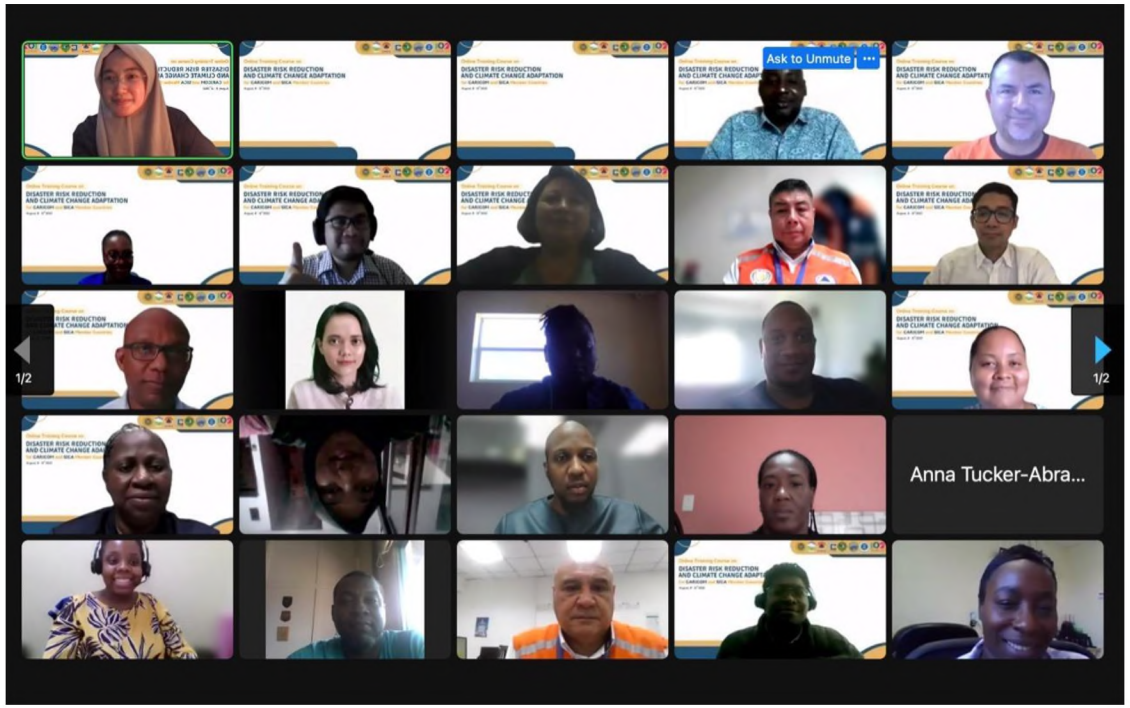
Fifth day (last)
Hands-on/Practice Session

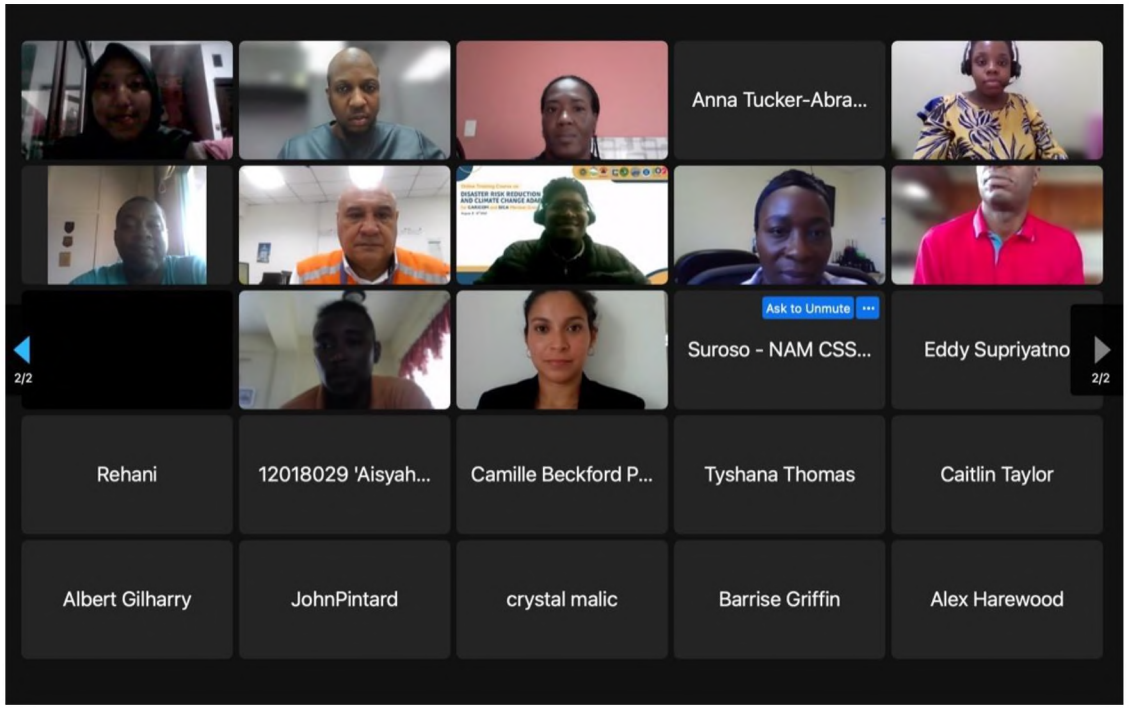






Closing


Ask to Unmute
1/2
1/2
Anna Tucker-Abra...


Anna Tucker-Abra...
Ask to Unmute
Suroso - NAM CSS...
Eddy Supriyatno
2/2
2/2
Rehani
12018029 'Aisyah...
Camille Beckford P...
Tyshana Thomas
Caitlin Taylor
Albert Gilharry
JohnPintard
crystal malic
Barrise Griffin
Alex Harewood

Video recording (organized by NAM)

- Day 1: https://www.youtube.com/watch?v=HNmCkFNZmxE
- Day 2: https://www.youtube.com/watch?v=BbGTBYrJp8M
- Day 3: https://www.youtube.com/watch?v=XHLvRCcVlZc
- Day 4: https://www.youtube.com/watch?v=-i7lUml5q_k
- Day 5: https://www.youtube.com/watch?v=l_DVvv-pkGs