Workshop on Strengthening Early Warning Early Action for the Vulnerable Communities in APEC

APEC Emergency Preparedness Working Group

February 2025

Asia-Pacific
Economic Cooperation

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Produced by
Doan Thi Tuyet Nga
Viet Nam Disaster and Dyke Management Authority

For
Asia-Pacific Economic Cooperation Secretariat
35 Heng Mui Keng Terrace
Singapore 119616
Tel: (65) 68919 600
Fax: (65) 68919 690
Email: info@apec.org
Website: www.apec.org

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Content

I. BACKGROUND INFORMATION

Project Objectives

In recent years, extreme weather patterns frequently happen with more severity in many parts of the world, in which people are facing more impacts than ever. These impacts are increasing partly because of population growth, urbanization and environmental degradation. According to the UN, over the past 50 years, there have been more than 11,000 weather, climate and water-related disasters that have killed more than 2 million people, which is equivalent to one natural disaster every day, killing 115 people. Nowadays, Early Warning Early Action is also considered to be an effective response approach to minimize the impacts of natural disasters on the people and property.

Not all disasters can be prevented, but their impacts can be reduced by taking early actions based on forecasts, early warnings and timely coordination between governments, high-risk communities and related agencies. However, according to the assessment of the World Meteorological Organization (WMO), there are still many gaps in the network of weather monitoring and multi-disaster early warning in the Asia-Pacific region. In addition, the capacity of some vulnerable communities to respond to natural disasters is still limited, leading to loss of life and property every time a disaster occurs.

In order to respond to natural disasters more effectively, the project is aimed to improve capacity and strengthen resilience capacity to disasters and climate change for vulnerable communities through the sharing of knowledge, best practices and experiences among APEC economies, related agencies and organizations. Taking timely actions based on early warning early action will contribute to ensuring the sustainable development of the region against natural disasters and climate change. The project shall engage regional stakeholders to strengthen the capacity of APEC economies to utilize early warning actions effectively and strengthen resilience and responsiveness to disasters and effects of climate change.

Workshop Objectives

This Workshop seeks to obtain sharing of APEC member economies and stakeholders on the necessity of anticipatory actions in the proactive preparedness to mitigate the damages caused by natural disasters; sharing on the applying practices for Early Warning Early Action, seeking for both developed and developing economies; discussion on the benefits and challenges of the ongoing practices and possible solutions; and discuss on the ideas of developing a cooperative network on disaster early warning early action in the area. A collection of documents and presentations presented by speakers at the Workshop will be shared with participants.

The workshop is a two-day hybrid event held by the coordination between the VDDMA and the APEC Emergency Preparedness Working Group (EPWG) and led by experts that will facilitate active panel discussion and deliver concrete outcomes focusing on approach of utilizing best practices of Early Warning Early Actions against natural disaster events in the Asia-Pacific region. The presentations and the panel discussions focused on 04 tentative topics including:

- Sharing of workshop participants on the trends and impacts of natural disasters in the context of climate change.
- Identification of shortcomings, limitations and gaps in Early Warning Early Action against natural disasters.
- Sharing of lessons learned to strengthen the capacity of the APEC member economies.
- Proposing of effective solutions and practices.

II. DATE AND LOCATION

- Date: 08:00-17:30 GMT+7, 24 - 25 June 2024
- Location: Da Nang city, Viet Nam

III. WORKSHOP PROCEEDINGS

1. Welcoming and Opening Remarks

At the opening remarks, Director General Pham Duc Luan of VDDMA emphasized that natural disasters are becoming more extreme and unpredictable, causing significant damage to human lives and properties, affecting socio-economic development, and increasing the pressure on disaster risk management approaches. The theme "Early Warning and Early Action" has been echoed by the United Nations and many academic and forecasting organizations worldwide as a consistent orientation over the years to raise awareness among economies about early warning, forecasting, and preparedness to respond to natural disasters.

Recognizing that one of the biggest challenges in ensuring sustainable economic and social development in APEC is to reduce natural disaster risks, VDDMA, MARD, the line agency on disaster management of Viet Nam's central government – as the Viet Nam focal point in the APEC EPWG, has coordinated with the APEC Secretariat and economies to organize the Workshop "Strengthening Early Warning and Early Action for Vulnerable Communities in the APEC Region". The workshop aims to share professional and technical information on natural disaster risk management among APEC economies.

2. Session 1. Trends and Impacts of disasters in the context of climate change

Moderator: Dr. Trinh Quang Toan – Viet Nam Academy for Water Resources

<u>Presentations</u>

a) Presentation 1: Viet Nam's Disaster Risk Management System and Changing patterns of disaster under the impact of climate change

Speaker: Mr. Pham Doan Khanh - VDDMA.

Key points collected:

Moderator: Elaborate on the incorporation of emerging technologies such as artificial intelligence (AI), Big Data, and their application in natural disaster management in Viet Nam.

Speaker Pham Doan Khanh*:* The Viet Nam Disaster Management Authority (VDDMA) was noted as the government's primary agency in responding to natural disasters. Its focus includes guiding and advising leaders on policy documents and integrating new technologies into natural disaster management strategies. It was highlighted that the VDDMA's Viet Nam Disaster Monitoring System (VNDMS), which leverages modern technologies, has made significant contributions to disaster risk management in the economy.

It was mentioned that Viet Nam is committed to fostering international collaboration. A notable example is the project between Viet Nam and Japan, titled “The Huong River Basin Integrated Management System in Thua Thien Hue Province.” This project, now operational, enhances natural disaster response and reservoir management. Over recent years, the system has demonstrated its effectiveness in advising relevant authorities on reservoir operations, thereby contributing to flood control in the basin.

Additionally, it was discussed that economies within the ASEAN region, including Malaysia; the Philippines; and Viet Nam, have increasingly adopted advanced scientific and technological methods for rainfall prediction, forecasting, and early warning capabilities. This collaborative approach has significantly bolstered early action measures to mitigate the impact of natural disasters. The application of science and technology in disaster forecasting is now recognized as a prominent trend across the region.

b) Presentation 2: Ha Long Ministerial Statement on the Strengthening of ASEAN Anticipator Actions in Disaster Management

Speaker: Ms. Dam Thi Hoa - VDDMA

Key points collected:

- Marvin Kristian B. ARIAS, the Philippines*:* elaborated on issues of data sharing during natural disasters in Viet Nam and within the ASEAN region. Additionally, what are the current forecast-based activities in Viet Nam, and how can we apply these practices to disaster prevention work in the Philippines?

- Speaker Dam Thi Hoa: In alignment with the Viet Nam Disaster Risk Management (DRM) Law, the local Committee for Disaster Prevention and Control (NSCNDPC) and its standing office – the Viet Nam Disaster and Dyke Management Authority (VDDMA), regularly update their website. This platform provides critical information such as plans, situation reports, and daily updates on natural disasters. The NSCNDPC collaborates closely with various ministries, including the Ministry of Information and Communications and the Ministry of Transportation, all operating under the Central Committee’s administration. Based on forecasting information from the Center for Hydro-meteorological Forecasting (NCHMF) under the Ministry of Natural Resources and Environment, which is also a member of the central committee, disaster

response activities and related orders are issued in accordance with the law. Local provinces affected by disasters carry out response work, and the NSCNDPC disseminates synthesized information through the mass media and updates it on their website.

Impact-based forecasting is crucial for deploying early actions based on accurate forecasts and supporting other response activities such as relief and rescue. The NCHMF in Viet Nam provides accurate long-term forecasts; however, short-term forecasts require additional resources for improvement. This includes updating advanced warning systems and incorporating new technologies. Accurate forecasts enable advisory authorities to issue early warnings and develop more effective response plans, thereby enhancing coordination among relevant stakeholders.

- Moderator: In Viet Nam, disaster management involves a unique division of responsibilities across different ministries. The Ministry of Natural Resources and Environment (MONRE) is tasked with forecasting and issuing bulletins, while the Ministry of Agriculture and Rural Development (MARD), which includes the Viet Nam Disaster and Dyke Management Authority (VDDMA), provides advice on natural disaster response. This division necessitates robust coordination and information sharing between the ministries to ensure effective disaster management.

Viet Nam has been actively enhancing impact-based forecasting to better predict affected areas. By improving forecasting capacity, including the adoption of advanced warning systems and new technologies, Viet Nam aims to significantly bolster its natural disaster response efforts. Accurate and timely forecasts enable advisory authorities to issue early warnings and develop more effective response plans, thereby improving coordination among relevant stakeholders and enhancing overall disaster resilience.

c) Presentation 3: Institutional framework for early action to reduce natural disaster risks
Speaker: Mr. Le Quang Tuan - Thuy Loi University

Key points collected:
The moderator inquired whether any agency or unit could access and use the Viet Nam Disaster Monitoring System (VNDMS) and contribute to its development or advancement.

Speaker Le Quang Tuan affirmed that multiple agencies could access the system. He noted that local governments, for instance, not only directly engaged in disaster response but also contributed valuable information to the system.

The moderator then asked for an elaboration on how early actions were incorporated into the institutional and policy framework in Viet Nam.

Speaker Le Quang Tuan explained that extensive research had been conducted, and guiding documents had been produced and integrated into the institutional framework on an economy-wide scale. He highlighted that one of the key challenges was the effective utilization of real-time data and forecasts, as well as the deployment of integrated resources for natural disaster

response activities. He emphasized the importance of the central government developing legal thresholds to establish action frameworks, enabling localities to create corresponding legal frameworks and effectively utilize state or local budget resources for disaster management.

Dr. Do Hoai Nam asked how the approach of early warning and early actions could be promoted.

Speaker Le Quang Tuan responded that Viet Nam was in the process of completing its legal and policy frameworks to facilitate and promote the application of real-time and near real-time data for early warning and early actions.

Shiomi Yumi from the Asian Disaster Reduction Center inquired about the challenges and difficulties in collecting disaster information and synthesizing cooperation between central agencies and local authorities in Viet Nam.

Speaker Le Quang Tuan identified one of the significant challenges as the need to verify updated information from local provinces, such as the number of affected people and details about damages, especially in urgent circumstances. He also pointed out the challenge of the information-sharing process during natural disasters, with numerous stakeholders involved and a large volume of information being shared. He stressed the need for a unified and efficient process to ensure effective communication and coordination. Additionally, he noted that financial limitations posed a significant challenge in natural disaster management activities, a common issue in other developing economies as well. He emphasized that ensuring adequate funding and resources was essential for improving disaster response and management capabilities.

d) Presentation 4: The Philippines Disaster Risk Reduction and Management System and National DRR Plan 2020-2030
Speaker: Marvin Kristian B. Arias - MCDRM Office - Department of Civil Defense, The Philippines.

Key points collected:
Le Quang Tuan from Thuy Loi University inquired about the Philippines' experience in natural disaster management at the economy-wide level.

Speaker Marvin Kristian B. Arias explained that the Philippines had established a comprehensive disaster management system operating from the central to local levels. At the local level, local disaster management agencies were responsible for implementing disaster response measures and regulations, acting as the first responders when natural disasters occurred to ensure prompt and effective action. At the central level, central agencies focused on enhancing the disaster response capacity of local agencies and regulating them to ensure effective administration of disaster risk management.

Ms. Dam Thi Hoa from VDDMA asked for more information about the arrangement of non-food items based on the Philippines' experience, particularly regarding the timely provision of these items during natural disasters.

Speaker Marvin Kristian B. Arias shared that the Philippines developed annual relief plans based on the predetermined or usual needs of areas affected by natural disasters. They also established rapid disaster response teams, arranged financing, and pre-positioned resources to ensure they could be provided promptly when needed. This proactive approach allowed them to respond swiftly and effectively to the needs of affected communities during natural disasters.

e) Presentation 5: Initiatives to strengthen natural disaster management - Sharing early warning information. Initiative to strengthen natural disaster management - Sharing early warning information.
Speaker: Nazaruddin Sharaai - National Disaster Management Authority - Defense Office, Malaysia.

Key points collected:
Dr. Do Hoai Nam - Viet Nam Academy for Water Resources: According to the presentation, approximately 5 million messages were sent to the community during natural disaster response. How many people received these messages, and what measures are in place for those who did not receive the message?

Speaker Nazaruddin Sharaai: In real situations, messages are sent in the event of major natural disasters such as floods and storms by our government's disaster management agencies. Dedicated agencies are established to advise on information warnings and notifications about areas affected by natural disasters. For instance, when sending flood warning information, the risk level for each area is clearly stated, followed by analysis and decision-making. The information is then relayed to the working group, and specific decisions are made, including immediate actions to respond to floods, evacuation areas, and other administrative measures for each specific flood level. Disaster management operations are conducted according to planned procedures. Typically, information dissemination occurs swiftly throughout the day, ensuring that all individuals in the affected area receive the necessary notifications.

Panel Discussions

Panelists:

- Mr. Le Quang Tuan - Thuy Loi University
- Mr. Pham Doan Khanh - Viet Nam Disaster and Dyke Management Authority
- Ms. Dam Thi Hoa - Viet Nam Disaster and Dyke Management Authority
- Mr. Marvin Kristian Arias - MCDRM Office - Department of Civil Defense, Philippines
- Mr. Nazaruddin Sharaai - National Disaster Management Authority - Defense Office, Malaysia

Key notes:
Mr. Pham Doan Khanh: In the context of climate change, natural disasters have become more frequent and intense over the past 50 years. Global warming, droughts, rising sea levels,

and increased storm activity pose significant challenges. Viet Nam, too, faces the impact of climate change, with extreme natural events affecting people's lives. In the coming years, several regions in Viet Nam, including the Mekong Delta, will grapple with serious flooding, impacting aquaculture industries. To address these challenges, Viet Nam has developed a comprehensive Strategy on Disaster Risk Reduction for the period up to 2030, with a vision extending to 2050. This strategy outlines eight key solution areas applicable to all regions, such as enhancing community capacity, strengthening solutions to improve resilience, developing inclusive plans, applying science and technology, and promoting international cooperation on disaster risk management to strengthen the mobilization of resources from partners. The strategy emphasizes finding appropriate solutions with a primary focus on prevention and effective response, harmonizing structural and non-structural measures to minimize the impacts of natural disasters and environmental effects.

Mr. Marvin Kristian B. Arias: Sharing the Philippines' experience on integrating natural disaster prevention and control into the socio-economic development strategy, the Philippines has an active disaster prevention system with close coordination from central to local levels and a legal system that supports prevention, response, and capacity building for each strategy. the Philippines builds suitable priority programs and emphasizes improving community capacity through participation. When people have the necessary knowledge and response skills, they help minimize the damage caused by natural disasters. Strengthening communication at all three stages—before, during, and after a natural disaster—ensures that activities are conducted appropriately and at the right time. After a natural disaster, damage and impact assessments are conducted, requiring the participation of many relevant parties. Attention to infrastructure is crucial, as these systems help protect people from natural disaster impacts. The Philippines has issued a set of natural disaster standards for construction to improve the capacity to protect people's lives and property. The 2021-2028 Natural Disaster Management Plan includes disaster prevention policies and plans from central to local levels, with no overlap and harmonious coordination between agencies. Strengthening the participation of civil and community parties and integrating climate change factors into the planning process are very important.

Mr. Nazaruddin Sharaai: Sharing Malaysia's difficulties and experiences in improving information transmission and the sharing process, we need to update or improve information communication systems during natural disasters and build technical agencies to deploy the task. The information is verified by supporting agencies, and recommendations are given based on natural disaster events. We focus on the warning information system to warn people as quickly as possible. TECOP (Malaysia) company must improve this system and its coordination with agencies and the community.

Ms. Dam Thi Hoa: How to improve Early Warning Early Actions according to the Ha Long joint declaration on Disaster Management in 2023, in which Viet Nam and ASEAN members have taken the initiative to strengthen Early Warning Early Actions. Key pillars have been approved to develop anticipatory action plans with ASEAN members. At the same time, this year, we will complete an important phase in the ASEAN Agreement on Disaster Management and Emergency Response (AADMER), preparing for the 2026-2030 period, with Early Warning Early Action as a priority in the upcoming AADMER work.

Mr. Le Quang Tuan: Sharing insights on whether Viet Nam's current institutional frameworks are consistent with the regional institutional framework, there needs to be appropriate policy mechanisms for the implementation of AADMER work to be smooth, supporting coordination between internal agencies. Financial issues remain, such as how to use the available Disaster Management Fund for anticipatory actions against natural disasters. The compatibility of Viet Nam's policy framework with the regional framework is complete, and, conversely, the regional policy and institutional framework is also suitable for Viet Nam.

Mr. Pham Doan Khanh: Discussing lessons learned from other economies, especially Viet Nam, in natural disaster management, Viet Nam is building a natural disaster monitoring system, coordinating and connecting information from different authorities, such as forecast information from the economy's Centre for Hydro-Meteorological Forecasting regarding weather forecasting and the Department of Fisheries regarding monitoring fishing ships. When natural disasters occur, Viet Nam uses aggregated information, such as natural disaster data and ship data, and overlaps data layers to support decision-making, minimizing damage caused by natural disasters.

3. Session 2. Challenges and Gaps in Early Warning Early Action

Moderator: Le Quang Tuan – Thuy Loi University

Presentations

a) Presentation 1: Early Flood Detection and Warning Based on Extreme Precipitation Index in the Central Region of Viet Nam
Speaker: Do Hoai Nam - Viet Nam Academy for Water Resources

For the implementation of early flood detection in the Central region of Viet Nam, the parameter system is very flexible and can be easily adjusted to suit the actual situation, depending on each flood warning measurement. While the model itself provides a lot of information that may contain errors, we have regularly updated both the data and the system to minimize risks associated with flooding. The system can accommodate up to six updates per day, which is a strategic approach to limit errors and mitigate flood-related risks.

b) Presentation 2: Early Warning for Salinity Intrusion in the Mekong Delta River
Speaker: Nguyen Nghia Hung - Viet Nam Institute for Water Resources Research

At the beginning of the flood season, relevant agencies meet with local authorities and community members to review the previous year's lessons and make proposals for the upcoming year. Since farmers cannot immediately change their crop structure, solutions such as adjusting the harvesting calendar are necessary to protect crops and reduce the impacts of salinity intrusion on the livelihoods of people in the region.

c) Presentation 3: Implementation of Disaster Risk Reduction Measures in Viet Nam - Solutions to Promote Early Warning and Early Actions
Speaker: Nguyen Tuan Anh - Institute for Water Resources Economics and Management

One of the key challenges in supporting localities to develop natural disaster prevention and control plans is the resources required to build an early warning system, which necessitates significant public investment and system management. Additionally, developing management skills to operate the system requires a plan to mobilize substantial human resources.

d) Presentation 4: Protecting Our Future: Urgent Actions Against Environmental Impacts on Children
Speaker: Ly Phat Viet Linh - Program Officer of UNICEF in Viet Nam

Children represent our future generation, and it is essential to protect the environment for them to grow safely. Disaster risk reduction programs not only focus on children but also target support and capacity building for families, parents, and schools, contributing to a better living and learning environment for children. An example from Indonesia demonstrates the importance of such initiatives; during the 2019 earthquake and tsunami, the knowledge and skills imparted to children helped minimize the loss of life, a practice we aim to continue implementing.

Moderator: Could you please share more about the impact of natural disasters on vulnerable groups such as children and women?

Speaker Norlida binti Mohd Dom: We have prioritized including vulnerable groups, such as children and women, in our research and project implementations. Recognizing that these groups are disproportionately affected by natural disasters, we have undertaken several initiatives to better understand and mitigate these impacts.

We have conducted comprehensive assessments to evaluate how natural disasters specifically affect these vulnerable populations. This includes examining factors such as displacement, access to essential services, and the psychological impacts of disasters. Our findings have highlighted the need for tailored early warning systems that consider the unique needs of these groups.

In addition to assessments, we have implemented targeted projects aimed at enhancing the resilience of vulnerable communities. For example, we have developed community-based early warning systems that involve local stakeholders in the planning and execution phases. This participatory approach ensures that the systems are culturally appropriate and effectively address the specific vulnerabilities of children and women.

<u>Panel Discussions</u>

- Mr. Do Hoai Nam - Viet Nam Academy for Water Resources
- Mr. Nguyen Nghia Hung - Southern Institute of Water Resource Research
- Mr. Nguyen Tuan Anh - Institute for Water Resources Economics and Management
- Mr. Ly Phat Viet Linh - Program office of UNICEF in Viet Nam
- Ir. Dr. Nolida binti Mohd Dom, Director of National Flood Forecasting and Warning Centre, Department of Irrigation and Drainage

Key notes

Mr. Do Hoai Nam: Rainfall is a challenging and highly variable data point to forecast, particularly in a tropical monsoon climate region like Viet Nam. Accurate rainfall forecasts are essential for effective disaster response, and reducing forecast errors significantly is critical. Early warnings based on accurate rainfall data ensure that communities are well-informed and prepared for potential disasters through timely alerts. In Central Viet Nam, the steep and short terrain leads to rapid flood onset and recession, necessitating quick and precise forecasts. Therefore, the forecast time is very short, and providing the earliest possible forecasts is crucial. Currently, research is ongoing to improve the accuracy of forecasting and early warning systems. Additionally, detailed disaster risk maps are being developed to identify vulnerable areas and enhance preparedness and response strategies.

Mr. Nguyen Nghia Hung: Addressing funding issues is vital for developing an effective early warning system from the central level to the local level. In several provinces in Viet Nam, such as Quang Tho and Quang Minh communes, real-time early warning systems have been established to disseminate warning information. These systems are managed hierarchically and systematically from central to local levels, ensuring coordinated efforts and sustainable financing. The involvement of local communities in the implementation and operation of these systems is crucial, as it ensures that the warnings are relevant and actionable. Ongoing research and the development of disaster risk maps for Central Viet Nam are key components of improving the accuracy and effectiveness of these systems.

Mr. Nguyen Tuan Anh: The participation of local communities in disaster risk management plays a crucial role. Practical evaluations have shown that engaging residents and stakeholders in the planning and execution phases significantly enhances the success of early warning systems. Regular meetings and feedback mechanisms foster a collaborative approach, allowing for continuous improvement based on community input. This inclusive planning process empowers residents, ensuring they are well-prepared to respond to early warnings. Capacity-building programs and training further equip local authorities and communities with the necessary skills to manage and respond effectively to disasters.

Mr. Ly Phat Viet Linh: Rainfall data is very difficult to predict accurately, making community preparedness crucial. Communities must be ready to act, respond, and recover from disasters. For UNICEF, the focus is not on the high accuracy of the data but on transforming raw data into actionable information for communities. For example, when rain and winds are forecasted to reach level 12, it is essential to convey the severity and appropriate response measures to the community. Regarding climate change mitigation and adaptation, we recognize that climate change impacts various aspects of society. Therefore, close collaboration is necessary to implement effective actions. This is a long-term endeavor. I firmly believe that humanity will find solutions to mitigate the impacts of climate change on our lives, despite the challenges and the lengthy process involved. I have great faith in this.

Ir. Dr. Norlida binti Mohd Dom: Regarding forecasting and warnings, if the data is available, we can process and disseminate forecast bulletins to relevant stakeholders. They then have time to receive the early warning and make sufficient preparation. For instance, there might be a 7-day forecast and a 2-day warning period. During this time, the data provided can either be

accurate or require enhanced precision. The closer we get to the event, the more accurate the data becomes. We base our actions on this data, with decisions driven by historical data from past disaster events. Therefore, we need a system or experience to calibrate the data, addressing the gaps in real-time data to operate the current system effectively.

4. Session 3: Best Practices and Lessons Learned

Moderator:

- Dr. Nguyen Nghia Hung – Southern Institute of Water Resource Research
- Dr. Do Hoai Nam – Viet Nam Academy for Water Resources

Presentations

Presentation 1: Lessons Learned in Promoting the Anticipatory Action Project in Viet Nam: Advantages and Disadvantages
Speaker: Ms. Nguyen Thi Thanh Van - UN Food and Agriculture Organization (FAO)

Presentation 2: Study on Landslide Causes and Planning Solutions for the Mountainous Areas – Case Study of Quang Nam Province
Speaker: Mr. Hoang Ngoc Tuan – Viet Nam Academy for Water Resources (VAWR) – Central and Highland Base

Ir. Dr. Norlida Binti Mohd Dom: Understanding soil index parameters is essential as they include factors such as soil texture, composition, and moisture content. Heavy rainfall in upstream areas increases surface runoff, carrying sediments and debris downstream, leading to changes in soil stability and increased landslide risk in downstream regions. Soil index parameters help predict and manage these risks by providing data on soil erosion potential, sediment transport, and water quality impact. Accurate forecasting and timely dissemination of this information to relevant stakeholders are critical for effective disaster risk management and mitigation strategies.

Mr. Hoang Ngoc Tuan: We use parameters in the GEO SLOPE software, including soil cohesion, internal friction angle, and permeability. These parameters are integrated into a comprehensive model that simulates soil behavior under various conditions, such as heavy rainfall and increased runoff. By analyzing these parameters, we can predict potential landslide areas and implement preventive measures. This data-driven approach enhances our preparedness and response strategies, ultimately reducing the impact of natural disasters on communities.

Presentation 3: Utilization of State-of-the-Art Communication Technologies for Community-Based Disaster Risk Management (CBDRM) and Emergency Management
Speaker: Ms. Shiomi Yumi - Asian Disaster Reduction Center (ADRC)

Dr. Do Hoai Nam: In the event of a large-scale disaster with significant destructive power, infrastructure is severely affected, leading to power and internet outages. How can we manage and respond effectively under such conditions? Additionally, with the vast amount of

information being shared through various media channels, are there any challenges in managing this information overload?

Speaker Shiomi Yumi: For large-scale disasters, it is crucial to establish and quickly restore essential survival systems. The power grid and communication systems need swift restoration. Although it may take time, smart devices like smartphones can still operate. Information sharing should be selected and prioritized, and the timing of its dissemination should be strategic to enhance effectiveness. This approach helps manage the information flow and ensures critical information reaches the right people at the right time.

Presentation 4: Best Practices and Lessons Learned from the Tier 3 Oil Spill Cabinet Simulation in May-June 2024
Speaker: Ms. Anya Tinajero Vego - Director for Humanitarian Aid, Mexican Agency for International Development, Ministry of Foreign Affairs, Mexico

5. Session 4: Effective Solutions and Capacity Building

***Moderator*:** Dr. Mr. Do Hoai Nam – Viet Nam Academy for Water Resources

Presentations

Presentation 1: Preparedness to Respond – Lessons Learned in Cash-Based Approach for Early Action
Speaker: Ms. Nguyen Hien Thi - Catholic Relief Services (CRS)

Ms. Pham Hong Nga - Thuy Loi University: Regarding Information and Communication Technology (ICT) in disaster management, when should the system be established (before, during, or after the disaster occurrence)?

Speaker Nguyen Hien Thi: When the ICT in disaster management is established in Viet Nam, CRS will be there to support the Viet Nam authorities in promoting ICT. The ICT system should be developed in a comprehensive and integrated manner to support all Disaster Risk Management (DRM) practitioners. This community needs an overall picture of the DRM system in Viet Nam to quickly identify the damages and needs after each disaster event. This integrated approach ensures timely and accurate information dissemination, enhancing the overall effectiveness of disaster response efforts.

Presentation 2: Lessons Learned for Early Warning and Early Action Worldwide and Buy-In Experience of Viet Nam
Speaker: Dr. Trinh Quang Toan - Viet Nam Academy for Water Resources

In this presentation, Dr. Trinh Quang Toan highlighted the importance of early warning and early action systems worldwide and how Viet Nam can learn from global experiences. Emphasizing the integration of local knowledge and international best practices, the presentation covered strategies to enhance the effectiveness of early warning systems and promote community resilience.

Presentation 3: Guidance Note on GESI Responsive Anticipatory Action
Speaker: Ms. Luong Nhu Oanh - UNWomen Viet Nam

Ms. Anya Tinajero Vega, International Development Cooperation Agency, Mexico: To share more about the crucial role of women in disaster response. Evaluate the participation of women in disaster management at the community level.

Speaker Luong Nhu Oanh: The involvement of women in disaster management is significant at various levels. Enhancing the role of women and improving the effectiveness of gender-focused activities is essential. For instance, in community meetings, they emphasize the role of women and encourage their participation up to 50%. Women's involvement contributes to the project's effectiveness and popularity, ensuring that disaster response strategies are inclusive and comprehensive.

Presentation 4: Role of Community-Based Disaster Risk Management (CBDRM) in End-to-End Disaster Risk Management for Critical Infrastructure: A Case Study of Viet Nam - New Zealand Dam Safety Project
Speaker: Ms. Pham Hong Nga - Thuy Loi University

Shiomi Yumi (ADRC): Japan has many similarities with Viet Nam's CBDRM systems. Currently, issues related to dam safety management and operation, as well as hydropower reservoirs, are prominent. How can we harmonize the interests of different stakeholders in reservoir operations to ensure mutual benefits?

Speaker Pham Hong Nga: The Viet Nam government has established a highly effective disaster management system. Over the years, dam owners and other stakeholders have enhanced the safety and security of water resources and flood discharge processes, focusing on solutions to reduce downstream flooding. Continuous improvements and increased effectiveness of the system ensure that stakeholders' interests are harmonized, and mutual benefits are achieved. The collaboration between Viet Nam and New Zealand on the Dam Safety Project showcases the importance of international cooperation and knowledge sharing in disaster risk management.

<u>Plenary Discussions for Session 3 and Session 4</u>

Shiomi Yumi (ADRC) expressed that she had learned a lot from the workshop, particularly about the involvement of stakeholders and the community in all Disaster Risk Management (DRM) processes. She highlighted the crucial role of government engagement and intended to apply the knowledge and lessons learned when she returned to her organization. She realized that communication and information dissemination were critical factors for early warning. Additionally, she emphasized the vital role of the community and the importance of enhancing awareness, communication, and public education. The integration of these elements ensured a holistic approach to disaster preparedness and response.

Ms. Nguyen Thi Thanh Van from FAO noted that the speakers had introduced many effective decision-making support tools and systems with high applicability for early actions. She

mentioned that their projects focused on providing financial support to affected people after disasters and that their approach was impact-based. She also stated that they conducted studies on the impact of cash and voucher assistance. She expressed hope that the Viet Nam Disaster and Dyke Management Authority (VDDMA) would soon share their research on cash and voucher assistance with all stakeholders. She emphasized that the Ha Long Ministerial Statement on Anticipatory Actions was a crucial step in promoting anticipatory actions in Viet Nam and ASEAN. She acknowledged that anticipatory action was a no-regret approach, even if disasters did not occur after the support was provided, underscoring the importance of preparedness and resilience-building.

Ms. Nguyen Hien Thi from CRS highlighted the importance of the involvement of non-governmental organizations and the private sector alongside the government for the readiness to implement early action activities. She noted that good practices needed to be promoted with the support of relevant authorities. She mentioned that the VDDMA had signed a memorandum of understanding with CRS to support the development of Standard Operating Procedures (SOPs), and they had agreed on the procedures. She added that they had conducted extensive training on cash voucher assistance as they were part of the CASH working group. She emphasized that the Ha Long Ministerial Statement on Anticipatory Action was a significant step forward and that anticipatory action was a relatively new approach. She noted that they had conducted extensive training at both central and local levels to ensure effective implementation.

Dr. Trinh Quang Toan from the Viet Nam Academy of Water Resources discussed the importance of learning from past disasters. He noted that there were two approaches: learning from historical events and understanding their impacts. He emphasized that impact-based forecasting was effective when there was good data on the impacts of past disasters. This data-driven approach allowed for better preparedness and more effective early warning systems.

Dr. Nguyen Nghia Hung from the Southern Institute of Water Resource Research shared his insights on information dissemination and communication before and during disasters. He explained that early action meant taking measures before any disaster occurred and emphasized the importance of identifying the beneficiaries of early action. He raised the challenge of disseminating warnings and ensuring they reached end users when the internet was down during a disaster. He suggested using satellite signals, traditional signals like fire or smoke, loudspeakers, or mobile alerts, noting that there were various ways to communicate warnings during disasters, and each method should be tailored to the community's needs and circumstances.

Ms. Luong Nhu Oanh from UNWomen in Viet Nam emphasized the importance of Community-Based Disaster Risk Management (CBDRM). She highlighted the need to establish indicators that informed the public about dam safety and related warnings. She noted the importance of financial resources for early action and the need to clearly outline and demonstrate the potential impacts to persuade the government to invest in early action. Regarding community feedback mechanisms, she pointed out that early warnings broadcast on television 7 to 3 days in advance might not reach individuals with hearing impairments and

suggested using sign language as a solution. She emphasized that community feedback was vital to assess the effectiveness of early action projects during disasters, ensuring inclusivity and comprehensive preparedness.

Dr. Hoang Ngoc Tuan from the Viet Nam Academy for Water Resources (VAWR) – Central and Highland Base noted that the research results from Quang Nam had been promoted as a showcase for further replication. He mentioned that provinces in Central Viet Nam were already implementing these research findings and expanding them to mitigate the impacts of landslides. This proactive approach highlighted the importance of scientific research in enhancing disaster resilience.

Ms. Pham Hong Nga from Thuy Loi University expressed that they had learned a lot from other speakers and participants about early action. She emphasized the importance of improving and applying these lessons when they returned home to benefit from the shared knowledge. She noted that Viet Nam had made significant progress in terms of institutional and policy frameworks but highlighted the need for continuous improvement and enhancement. She pointed out the importance of having emergency response plans for dams and reservoirs to ensure the safety of communities and infrastructure.

Ms. Anya Tinajero Vega from the International Development Cooperation Agency, Mexico, shared her observations that there were many tools available for risk prevention. She highlighted the importance of science and technology, as well as drills and exercises, in disaster management. She emphasized the importance of understanding the needs and capabilities of the community. She shared an experience from a past disaster in Mexico, where they lost internet access three hours after an earthquake, and underscored the importance of sharing experiences to gain new insights and learn from each other. She noted the need to strengthen connections with social networks and reputable agencies for information dissemination.

Dr. Do Hoai Nam from the Viet Nam Academy for Water Resources acknowledged the importance of having cash available before a disaster and emphasized the need for funding for reconstruction. He highlighted the importance of objective evaluations and studies to enhance the effectiveness of their projects. A balanced approach that combined immediate financial support with long-term reconstruction funding ensured comprehensive disaster management and resilience.

IV. WORKSHOP SUMMARY

The workshop titled “Strengthening Early Warning Early Action for Vulnerable Communities in APEC,” held in Da Nang, Viet Nam, was a pivotal event focused on enhancing disaster preparedness and response among APEC member economies. This two-day hybrid event, coordinated by the Viet Nam Disaster and Dyke Management Authority (VDDMA) and the APEC Emergency Preparedness Working Group (EPWG), brought together experts, policymakers, and stakeholders to discuss and share best practices in early warning and early action against natural disasters.

The primary objectives of the workshop were to underscore the necessity of anticipatory actions for proactive preparedness to mitigate the damages caused by natural disasters, share practices for Early Warning Early Action (EWEA) among both developed and developing economies, discuss the benefits and challenges of ongoing practices, explore possible solutions, and develop ideas for a cooperative network on disaster EWEA in the APEC region. The workshop featured a series of presentations and panel discussions focusing on four main topics:

- Trends and impacts of natural disasters in the context of climate change.
- Identification of shortcomings, limitations, and gaps in EWEA against natural disasters.
- Sharing of lessons learned to strengthen the capacity of APEC member economies.
- Proposing effective solutions and practices.

The workshop identified several gaps in current EWEA practices, including insufficient funding and resources for short-term forecasting and advanced warning systems, a lack of integration between different disaster management agencies and stakeholders, and limited access to technology and expertise in some APEC economies.

Experts shared successful case studies from various APEC economies, highlighting the importance of community engagement, capacity building, and the use of innovative technologies. For instance, the use of mobile applications for real-time disaster alerts and the implementation of community-based disaster risk management programs were discussed as effective strategies.

To address the identified gaps, participants proposed several solutions, including enhancing funding and resource allocation for EWEA initiatives, promoting cross-border collaboration and knowledge sharing among APEC economies, investing in technology and infrastructure to improve forecasting accuracy and response times, and developing comprehensive training programs for disaster management professionals.

The workshop “Strengthening Early Warning Early Action for Vulnerable Communities in APEC” successfully brought together a diverse group of stakeholders to address critical issues in disaster risk management. By sharing knowledge, identifying gaps, and proposing actionable solutions, the workshop laid the groundwork for improved disaster preparedness and response in the Asia-Pacific region. The establishment of a cooperative network on disaster EWEA is expected to further strengthen these efforts, ensuring that vulnerable communities are better protected against the impacts of natural disasters.

Annex 1: WORKSHOP AGENDA

DAY 1	**08h30-17h30 on 24 June**
08:00-08:30 08:30-08:35 08:35-08:40	Registration Opening Remarks Photo session
08:35-12:00	**Session 1: Trends and Impacts of Natural Disasters in the Context of Climate Change**
Overview of Topic:	● Explore the changing patterns of natural disasters (such as typhoons, floods, droughts, and earthquakes) in the Asia-Pacific region. ● Discuss the impact of climate change on the frequency, intensity, and distribution of disasters. ● Share case studies and lessons learned from recent events
Presentations	● **Pham Doan Khanh** - VDDMA – Viet Nam DRM System and Changing patterns of disaster under the impact of climate change ● **Dam Thi Hoa** -VDDMA – Ha Long Ministerial Statement on The Strengthening of ASEAN Anticipatory Actions in Disaster Management ● **Le Quang Tuan** – Thuy Loi University: Institutional framework for anticipatory action to ensure disaster risk reduction ● **Mr. Marvin Kristian B. Arias, EnP., MCDRM Office of Civil Defense, Republic of the Philippines:** The Philippines' Disaster Risk Reduction and Management System and the National DRRM Plan 2020-2030. ● **Mr. Nazaruddin Sharaai, Malaysia-** National Disaster Management Agency (NADMA), Prime Minister's Department - Improvement Initiatives In Disaster Management - Early Warning Dissemination
Tea Break	
Moderator **Panel Discussion**	Trinh Quang Toan – Viet Nam Academy for Water Resources Q&A session ● Le Quang Tuan ● Pham Doan Khanh ● Dam Thi Hoa ● Marvin Kristian Arias ● Nazaruddin Sharaai
Lunch break	
13:30-17:30	**Session 2: Challenges and Gaps in Early Warning Early Action**

Overview of Topic	● Identify shortcomings and limitations in existing early warning systems. ● Discuss barriers to effective early action, including communication gaps, infrastructure limitations, and community engagement challenges. ● Explore innovative approaches to overcoming these obstacles.
Presentations	● **Do Hoai Nam** – Viet Nam Academy for Water Resources: Early flood detection and warning based on extreme precipitation index in Central Viet Nam ● **Nguyen Nghia Hung** – Viet Nam Institute for Water Resources Research– Southern base: Early warning for salinity intrusion in the Mekong Delta ● **Nguyen Tuan Anh** - Institute for Water Resources Economics and Management: Implementation of disaster risk reduction measures in Viet Nam – Solutions to promote early warning early action in Viet Nam ● **Ly Phat Viet Linh -** Program office of UNICEF in Viet Nam - Protecting Our Future: Urgent Actions Against Environmental Impacts on Children ● **Ir. Dr. Norlida binti Mohd Dom, Malaysia - Director of National Flood Forecasting and Warning Centre, Department of Irrigation and Drainage** - Strengthening Early Warning Early Action for the vulnerable communities of APEC
15:00-15:15	Break
Moderator **Panel Discussion**	Le Quang Tuan – Thuy Loi University Q&A session ● Do Hoai Nam ● Nguyen Nghia Hung ● Nguyen Tuan Anh ● Ly Phat Viet Linh ● Ir. Dr. Norlida
Recap from Day 1	

DAY 2	**09h00-17h30 on 25 June**
08:00-12:00	**Session 3: Best Practices and Lessons Learned**
Overview of Topic:	● Showcase successful examples of early warning systems from different APEC economies. ● Highlight community-based approaches, technological advancements, and cross-sector collaboration. ● Discuss how these practices can be adapted and scaled up to benefit vulnerable communities.

Presentations	● **Nguyen Thi Thanh Van** - FAO: Lesson learns in promoting Anticipatory Action Project in Viet Nam: Advantages, disadvantages ● **Hoang Ngoc Tuan** – Viet Nam Academy for Water Resources (VAWR) – Central and Highland base: Study on landslide causes and planning solutions for the mountainous areas – Case study of Quang Nam Province ● **Shiomi Yumi (ADRC)** - Utilization of State-of-Art Communication Technologies for CBDRM and Emergency Management ● **Anya Tinajero Vega (Mexico)** – Best practice and lesson learned on Tier 3 oil spill cabinet simulation May June 2024.
Break	
Moderator **Panel Discussion**	Nguyen Nghia Hung – Southern Institute of Water Resource Research Q&A session ● Nguyen Thi Thanh Van ● Hoang Ngoc Tuan ● Shiomi Yumi ● Anya Tinajero Vega
11:30 - 13:30 Lunch break	
13:30-17:30	**Session 4: Effective Solutions and Capacity Building**
Overview of Topic:	● Propose strategies for strengthening early warning and preparedness. ● Consider capacity-building initiatives, including training programs, knowledge sharing, and resource allocation. ● Gender and Inclusion in early forecasting early action ● Explore partnerships with international organizations, NGOs, and private sector stakeholders.
	Overview of Speakers: ● **Nguyen Hien Thi** – CRS: Preparedness to Respond – Lesson learned in Cash-based approach for early action ● **Trinh Quang Toan** – Viet Nam Academy for Water Resources: Lessons learnt for early warning early action in the worlds and buy-in experience of Viet Nam ● **Luong Nhu Oanh** – UNWomen: Guidance Note on GESI Responsive Anticipatory Action ● **Pham Hong Nga** – Thuy Loi University: Role of CBDRM in end-to-end disaster risk management for critical infrastructure: A case-study of Viet Nam - New Zealand Dam Safety Project.
15:00-15:15	Break
15:15-17:00	**Plenary discussion**

17:00 17:15	Recap of Day 2
17:15-17:30	**Closing remark**

The materials of the project EPWG 01 2023A “Strengthening Early Warning Early Action for the vulnerable communities in APEC” can be found at:

https://t.ly/k1COi

Annex 2: POST WORKSHOP SURVEY RESULTS

1. **Survey Form**

APEC Workshop Survey

Thank you for attending the Strengthening Early Warning Early Action for the Vulnerable Communities in APEC (EPWG / EPWG 01 2023A).

We would now like to gather your feedback with regards to how well the workshop has been organized and how it has helped build capacity for you.

* Must fill in

Economy*_____

Organization*_____

Gender* Female ☐ Male ☐

Participating as * Speakers ☐ Experts ☐ Participants ☐

Way of participation Virtual ☐ Physical ☐

The objectives of the training were clearly defined*. Strongly agree ☐ Agree ☐ Disagree

The project achieved its intended objectives*. Strongly agree ☐ Agree ☐ Disagree

The agenda items and topics covered were relevant* Strongly agree ☐ Agree ☐ Disagree

The content was well organized and easy to follow* Strongly agree ☐ Agree ☐ Disagree

Please comment on the objectives, agenda and content (if any) :

_____

_____

Gender issues were sufficiently addressed during implementation*

Strongly agree ☐ Agree ☐ Disagree ☐

The trainers/experts or facilitators were well prepared and knowledgeable about the topic*

Strongly agree ☐ Agree ☐ Disagree ☐

The materials distributed were useful* Strongly agree ☐ Agree ☐ Disagree ☐

The time allotted for the training was sufficient*. Strongly agree ☐ Agree ☐ Disagree ☐

Please comment on Gender issues (if any):

_____

_____

How relevant was this project to you and your economy? *

☐ Very ☐ Mostly ☐ Somewhat ☐ A Little ☐ Not much

Please briefly explain your answer given above*:

_____

In your view what were the project's results/achievements? *

_____

What new skills and knowledge did you gain from this event? *

_____

Rate your level of knowledge of and skills in the topic prior to participating in the event:*

Very high ☐ High ☐ Medium ☐ Low ☐ Very low ☐

Rate your level of knowledge of and skills in the topic after participating in the event:*

Very high ☐ High ☐ Medium ☐ Low ☐ Very low ☐

Please briefly explain your answer given*:

_____

How will you apply the project's content and knowledge gained at your workplace? Please provide examples (e.g. develop new policy initiatives, organize trainings, develop work plans/strategies, draft regulations, develop new procedures/tools etc.).*

_____

What needs to be done next by APEC? Are there plans to link the project's outcomes to subsequent collective actions by fora or individual actions by economies?*

_____

16. How could this project have been improved? Please provide comments on how to improve the project, if relevant. *

_____

If there are any questions or suggestions, please leave here. With or without additional comments, you are most welcome to leave your Name, Organization/ Economy, Email information here for further communication purposes.

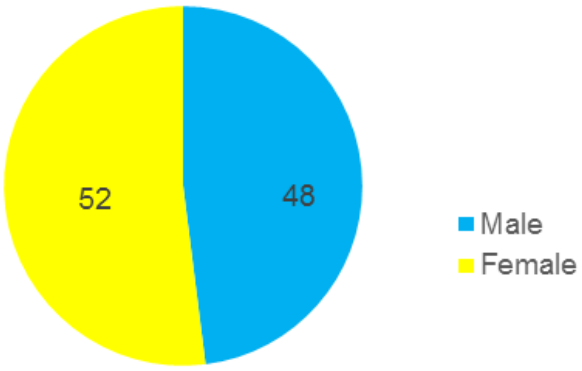
_____

_____

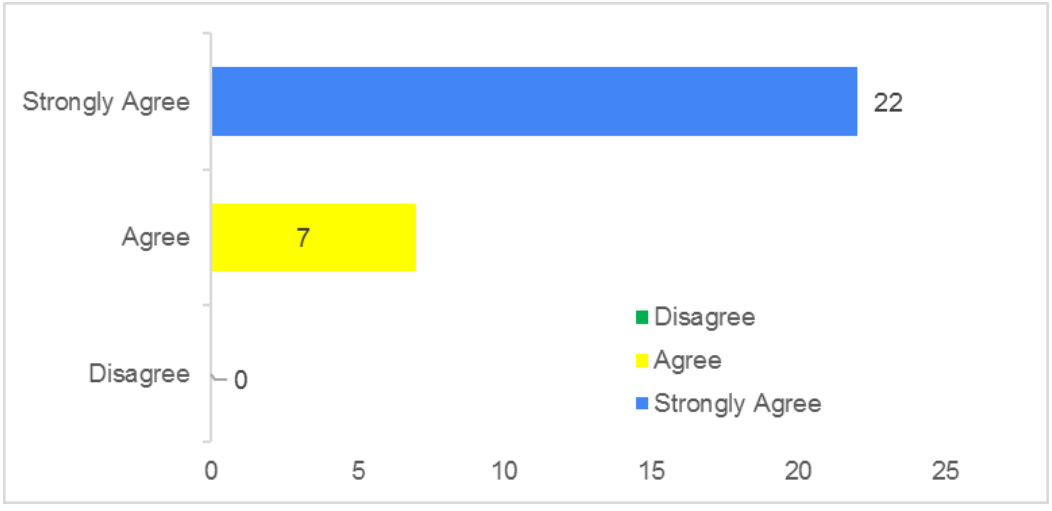
Thank you. Your evaluation is important in helping us assess this project, improve project quality and plan next steps.

2. Survey results

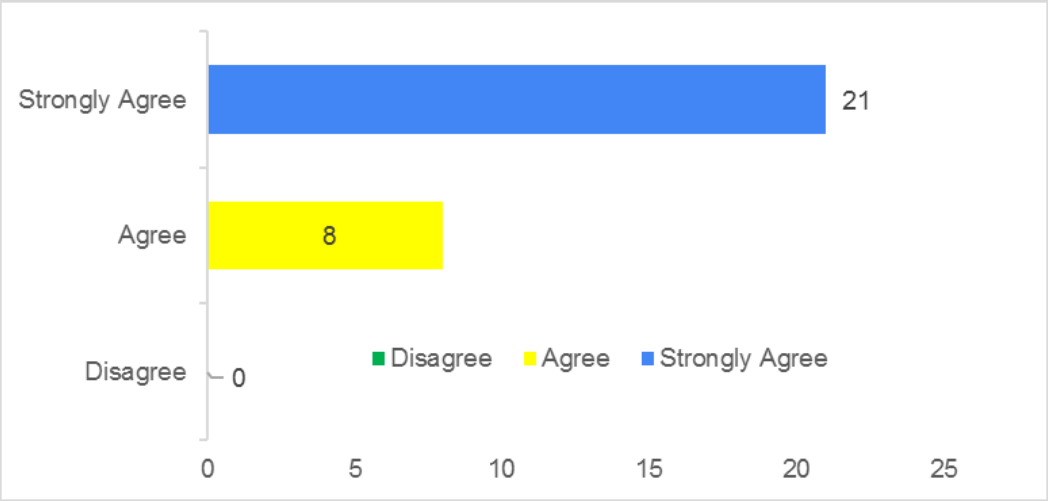
1. Gender (%)



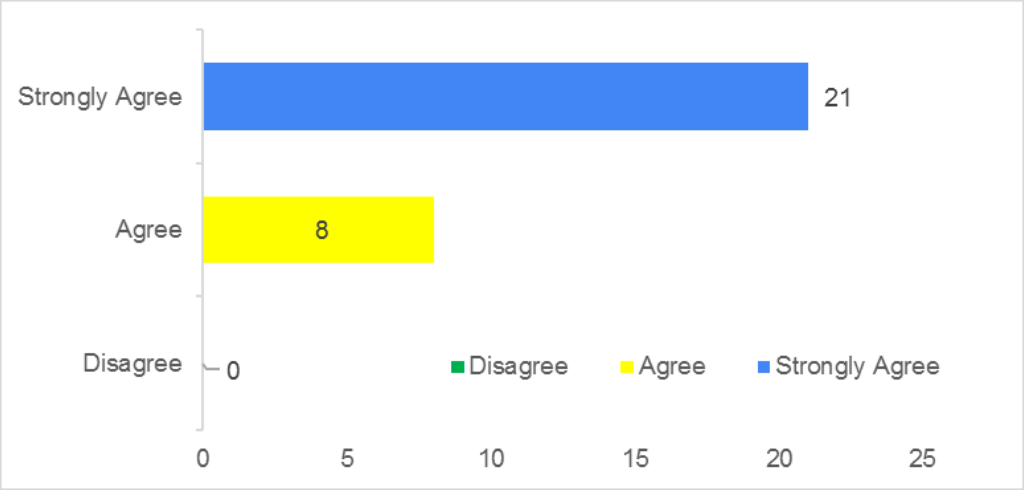
2. The objectives of the training were clearly defined



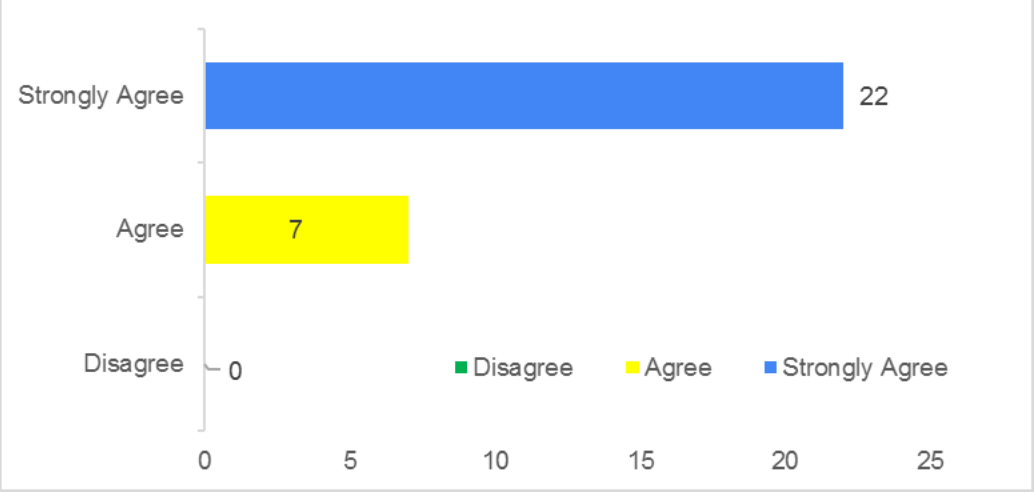
3. The project achieved its intended objectives*.



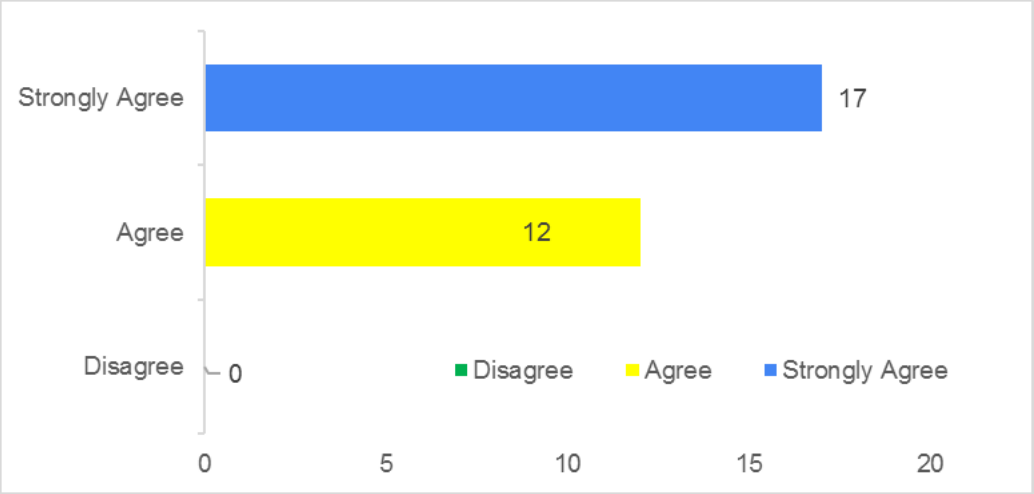
4. The agenda items and topics covered were relevant



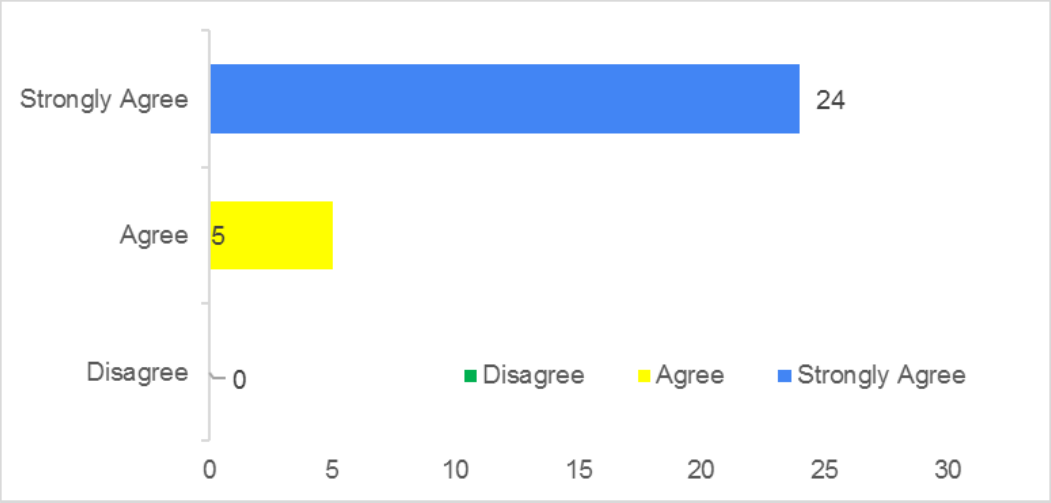
5. The content was well organized and easy to follow



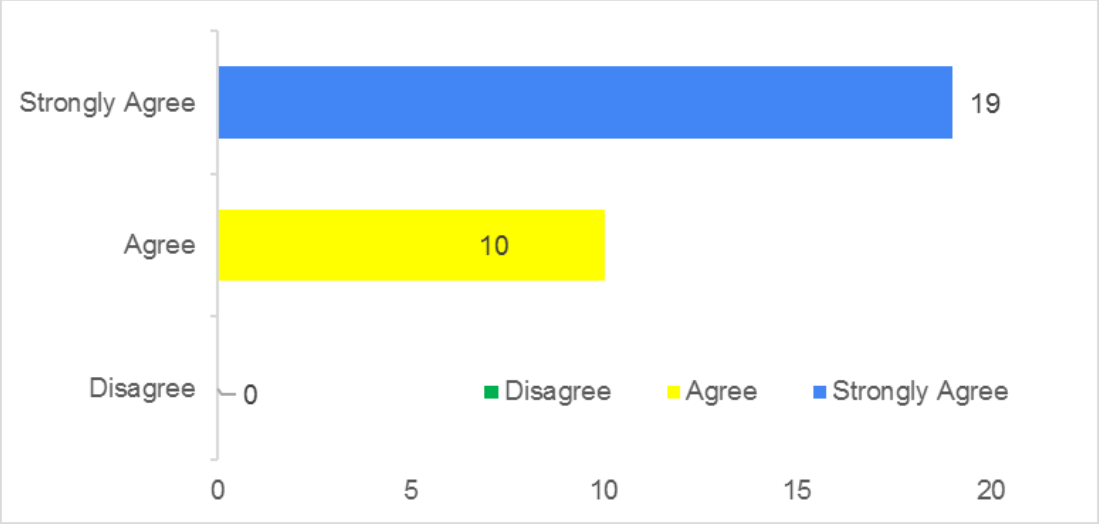
6. Gender issues were sufficiently addressed during implementation*



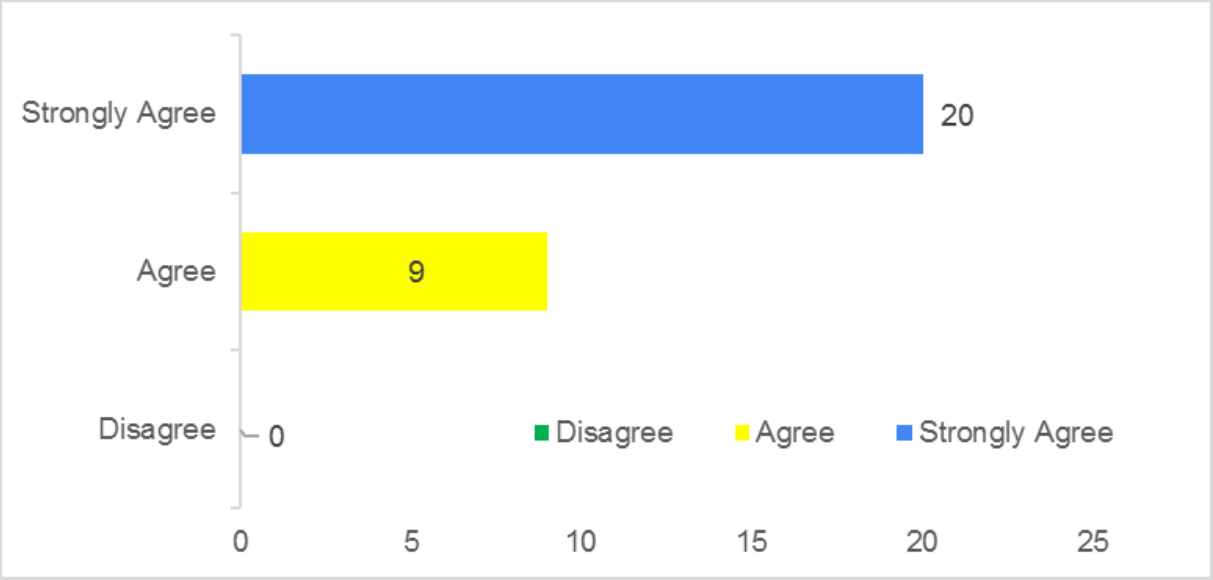
7. The trainers/experts or facilitators were well prepared and knowledgeable about the topic



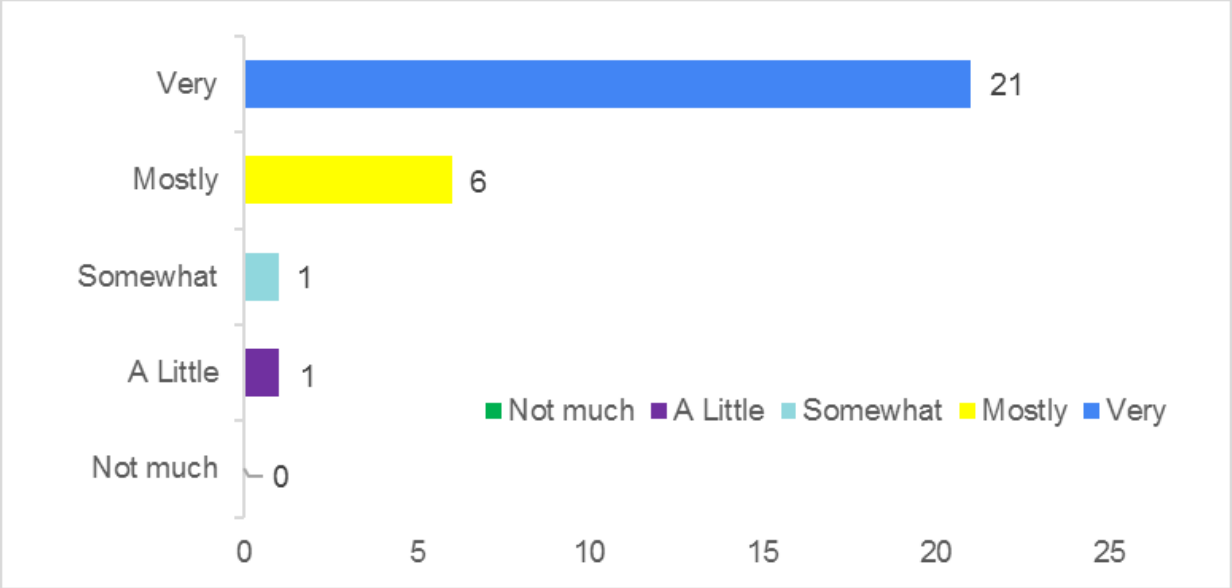
8. The materials distributed were useful



9. The time allotted for the training was sufficient



10. How relevant was this project to you and your economy?



11. In your view what were the project's results/achievements:

- ✓ We heard many examples and also overall reporting structure, infrastructure of early warning governance from various economies
- ✓ Knowledge sharing and learning
- ✓ Bring speakers from different economies in APEC to share knowledge, lesson learnt, and experience on early warning early action. The presentations are diversified - academy, government, and practitioners
- ✓ Useful and informative

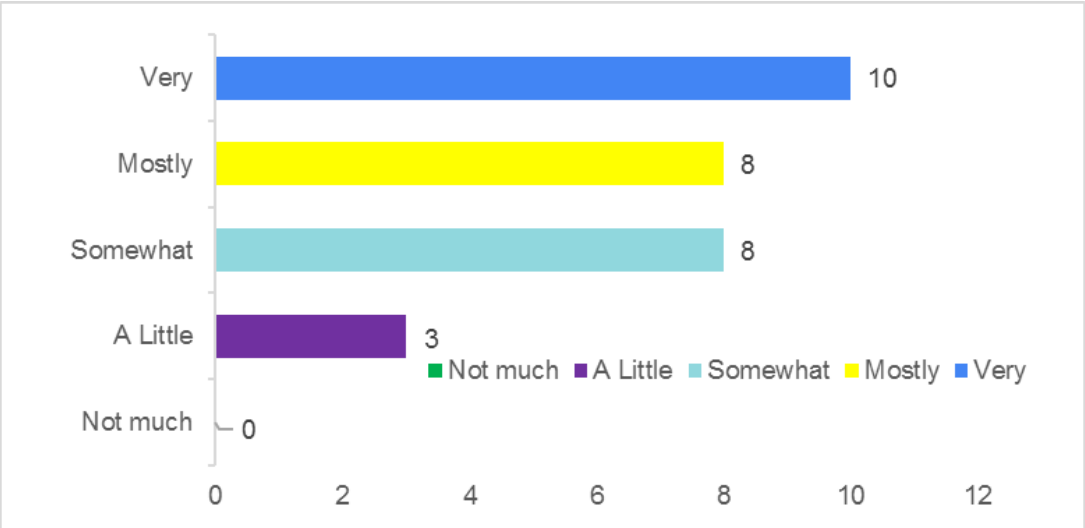
- ✓ great achievement
- ✓ Gathering a diverse pool of experts from APEC Member Economies in discussing EWEA actions
- ✓ International reviews and experiences
- ✓ Flood map
- ✓ Successful
- ✓ No comment
- ✓ Lots of good information for our work
- ✓ Successful and well prepared
- ✓ More comprehensive approach to Anticipatory Action
- ✓ Informative, new experience and knowledge
- ✓ New knowledge and lessons learnt
- ✓ More information for project in future
- ✓ Sharing useful lessons learned and experience
- ✓ Early Warning Early Action is a must to lessen the damage and losses of the impacts of disaster
- ✓ No comment
- ✓ Very much
- ✓ It is very useful
- ✓ Very much
- ✓ Met the objectives of the WS
- ✓ Very successful
- ✓ Clear objective
- ✓ Very satisfied
- ✓ Set objectives are met
- ✓ Lessons learned from practices of Apec economies
- ✓ Knowledge and experience sharing, and socialisation of initiatives relevant to early warning early action and DRRM in general. More importantly, gathering experts from different fields (government, non-profit, science institutions/academe) and advocates of DRRM in one gathering for sharing of insights and experiences. Aside from providing information, the workshop also provides motivation and encouragement to push forward, cooperate, and collaborate in the development of early warning technologies that are both innovative and inclusive.

12. What new skills and knowledge did you gain from this event?

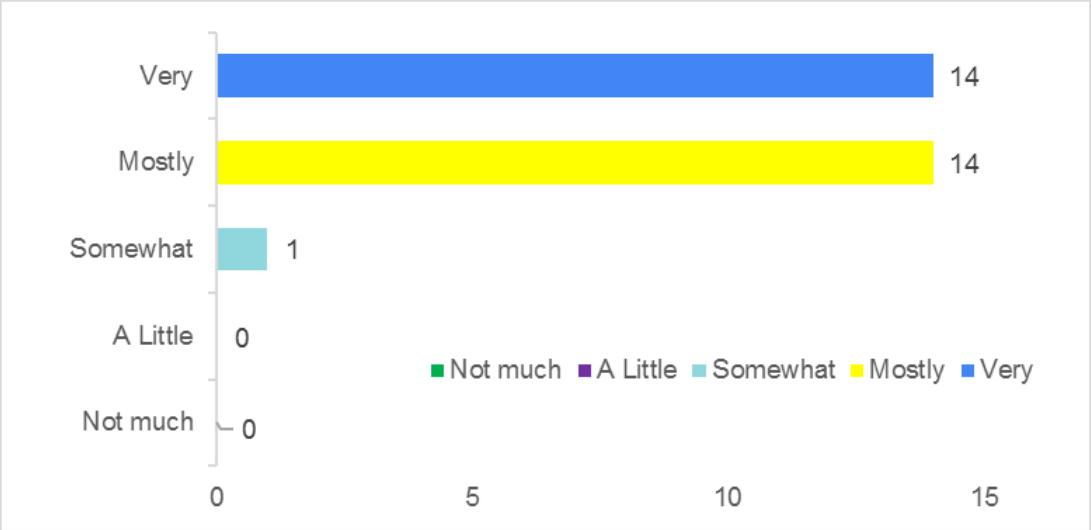
- ✓ Gained knowledge on different methodologies used for various hazard scenarios
- ✓ Early warning system Practice in Indonesia

- ✓ Cbrdm and early warning, early warning early actions and buy-in action in Viet Nam and achievement so far, dm system in ASEAN members e.g. the Philippines, Singapore and Malaysia
- ✓ Early warning, cash transfer, dam safety, early action, oil spill drilling, gender equality
- ✓ classification on Anticipatory Actions
- ✓ Best practices in EWEA
- ✓ Other experiences and knowledge, like all the technology applied in Viet Nam
- ✓ Improvement of early warning system
- ✓ Multiple disaster
- ✓ No comment
- ✓ Lots of good information for our work
- ✓ EWEA
- ✓ Knowledge on Anticipatory Action and Disaster and Climate Information
- ✓ many about early warning action
- ✓ Cash vouchers and Anticipatory Action
- ✓ More skill and knowledge strengthening early action for the vulnerable communities. It helps for my work in the future
- ✓ Anticipatory action
- ✓ impact based forecasting and anticipatory action measures
- ✓ I can learn many skills about control flood from this event
- ✓ A lot of
- ✓ Anticipatory action
- ✓ A lot of
- ✓ Anticipatory actions, early warning...
- ✓ Challenge and gaps to A.A
- ✓ Best practices
- ✓ Learned more stakeholder recognized the importance of anticipatory actions and implemented their efforts.
- ✓ Early warning for affected community; readiness for AA
- ✓ Anticipatory action based on early warning and community-based approaches
- ✓ Glad to learn about the latest research and developments in flood and landslide modelling, and how the different economies approach these challenges. Interesting insights on how disasters impact mental health and the drivers that affect the severity of impact to mental health. It is also good to know that PGI is already incorporated in many DRRM initiatives.

13. Rate your level of knowledge of and skills in the topic prior to participating in the event:



14. Rate your level of knowledge of and skills in the topic <u>after</u> participating in the event:



15. How will you apply the project's content and knowledge gained at your workplace? Please provide examples (e.g. develop new policy initiatives, organize trainings, develop work plans/strategies, draft regulations, develop new procedures/tools etc.).*

- ✓ Provide knowledge sharing during meetings.
- ✓ Draft tools
- ✓ Develop work plan for cash-based AA; apply learnings in the project activities - EW audit and how to strengthen the EW for AA, Gesi in AA, AA integration into CBDRM.
- ✓ It would be better if we have chance to share information in deeper knowledge and make the pilot project to apply and understand well the knowledge.
- ✓ Community-based

- ✓ Integrate the insights learned in our mid term review of the PH NDRRMP 2020-2030 next year
- ✓ I'll look to collaborate with Vietnamese authorities in this issues
- ✓ Develop new tools
- ✓ Early warning
- ✓ Develop new tools
- ✓ Lots of good information for our work
- ✓ Gender and SI in AA planning
- ✓ Apply it in integrating gender perspective in Disaster Response
- ✓ Yes I will use this for my professional works
- ✓ Promote policy advocacy
- ✓ Develop new policy and apply for Viet nam
- ✓ Organizing training, project activities
- ✓ promotion and support to the current IBF and AA initiatives. capacity building.
- ✓ I will share these information about workshop for many colleges in my office
- ✓ Capacity building about early action
- ✓ Organize workshop on anticipatory action
- ✓ develop new procedures
- ✓ Daily work, apply in training
- ✓ Organize trainings, develop work plans/strategies, draft regulations, develop new procedures
- ✓ Improve the existing strategies & activities regarding to early warning system
- ✓ Disseminate the initiatives to wider communities.
- ✓ Communication; EW dissemination; cash-based interventions for AA
- ✓ Early warning early action should be taken into account when developing plans/policies in DDR.
- ✓ Develop projects and foster linkages and collaborations, improve information products related to disaster information and anticipatory action, review and update data analysis methods based on the latest developments in flood and landslide modeling.

16. What needs to be done next by APEC? Are there plans to link the project's outcomes to subsequent collective actions by fora or individual actions by economies?*

- ✓ SOP development

- ✓ It is good if there is a workshop report and a follow-up action plan linking the project's outcomes and Aa achievements in Apec
- ✓ Yes
- ✓ communicate in a group
- ✓ Possibly a follow up workshop to discuss the project's outcomes
- ✓ Call for other economies to participate in the workshops
- ✓ No comment
- ✓ Yes
- ✓ No comment
- ✓ Invite more experts to attend
- ✓ Continue information and knowledge sharing
- ✓ Gender-responsive Disaster Response Forum
- ✓ It would be bigger impact to society:
- ✓ Maintaining these useful seminar series.
- ✓ Need more workshop with economies in APEC in future
- ✓ CBDRM
- ✓ list of anticipatory action measures such as programs, projects and activities that the local government (smallest unit of government) must take consideration in their DRR planning
- ✓ No comment
- ✓ No
- ✓ Good practices of Apec on Anticipatory action
- ✓ No
- ✓ NANA
- ✓ An APEC plan on A.A need to be developed and promulgated
- ✓ Develop the action plan
- ✓ Continuous discussion to introduce good practices in this theme.
- ✓ More good practice from APEC member economies
- ✓ More EWEA practices be considered and apply in our DDR plans
- ✓ Follow through on these activities. As the UN calls for Early Warning for All by 2027, activities such as this workshop highlight the need to mainstream early warning initiatives with emphasis on vulnerable sectors. As highlighted in the workshop, awareness and educational campaigns are important factors in implementing early warning initiatives. While there have been a lot of research, scientific, and technological advances, there remains a gap in effectively communicating this knowledge to communities. Effective science communication is also essential in implementing early warning initiatives. Afterall, for early warning information to actually be effective, it must first be understood.

17. How could this project have been improved? Please provide comments on how to improve the project, if relevant.*

- ✓ Could consider including technological hazards disaster case studies.
- ✓ Longer time Q&A
- ✓ N/a
- ✓ Yes, other economies' participants could participate.
- ✓ not relevant
- ✓ Further participation of other APEC Member Economies
- ✓ Share information with civil society and private sector
- ✓ No comment
- ✓ More information
- ✓ No comment
- ✓ Invite more experts to attend
- ✓ N/A
- ✓ The logical arrangements of the session. The session title is not parallel with the presentation
- ✓ Media and disseminate to society
- ✓ Maintaining follow up
- ✓ More skill and knowledge
- ✓ More participants
- ✓ none so far
- ✓ No comment
- ✓ No
- ✓ More participants from developed economic
- ✓ No
- ✓ NA
- ✓ Perfect
- ✓ Focus on case studies
- ✓ More economies' participation.
- ✓ NA
- ✓ More time for more topics
- ✓ The topics and presentations are all well appreciated, very interesting and informative. Maybe more interactivity among participants such as breakout sessions and sharing of experiences would also extract more insights and add value to future activities.

18. If there are any questions or suggestions, please leave here.

- ✓ In your forms, kindly revisit the use of 'gender'. It should be sex or sex assigned at birth since this pertains to biological characteristics. Gender is how someone perceives themselves so male and female category does not correspond to it.
- ✓ Thank you so much
- ✓ Thank you for VDDMA for wonderful coordination.
- ✓ Kudos to the organising team, thank you!

Annex 3: RESEARCH AND BACKGROUND PAPER

I. KEY CONCEPTS

Anticipatory Action Anticipatory Action is a set of actions taken to prevent or mitigate potential disaster impacts before a shock or before acute impacts are felt. It is increasingly recognized as a key solution to reducing the impacts of climate change and extreme weather events[1].

Contingency Planning means "A management process that analyses disaster risks and establishes arrangements in advance to enable timely, effective and appropriate responses[2]."

Disaster Risk Financing refers to "financial mechanisms, arranged in advance of disasters, for use in Disaster Risk Management activities".

Disaster Risk: The potential loss of life, injury, or destroyed or damaged assets which could occur to a system, society or a community in a specific period of time, determined probabilistically as a function of hazard, exposure, vulnerability and capacity[3]

Disaster risk management is the application of disaster risk reduction policies and strategies to prevent new disaster risk, reduce existing disaster risk and manage residual risk, contributing to the strengthening of resilience and reduction of disaster losses[4].

Early warning "Information provided in advance of a specific hazardous event, disaster or conflict to enable stakeholders to take timely action to reduce disaster risks.

Early Warning System is an integrated system of hazard monitoring, forecasting and prediction, disaster risk assessment, communication and preparedness activities systems and processes that enables individuals, communities, governments, businesses and others to take timely action to reduce disaster risks in advance of hazardous events."[5]

Forecast: A definite statement or statistical estimate of the likely occurrence of a future event or conditions.

Impact based forecasting is an approach that forecasts the potential negative consequences of a hazardous event. It does this by considering the underlying factors that create vulnerability or fragility to a hazardous event and the potential degree of people's exposure to the event alongside the characteristics of the event itself, such as hydro climatic factors, to predict the possible consequences of the event and enable anticipatory action. Essentially, it means forecasting what the weather (or another hazard) will do, rather than what it will be".

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[1] https://www.ifrc.org/document/operational-framework-anticipatory-action-2021-2025

[2] Sendai Terminology

[3] Sendai Terminology

[4] Sendai Terminology

[5] Sendai Terminology

Pre-arranged Financing is a specific form of disaster risk financing that has been approved in advance of a crisis and that is guaranteed to be released to a specific implementer when a specific pre-identified trigger condition is met.

Preparedness: The knowledge and capacities developed by governments, response and recovery organizations, communities and individuals to effectively anticipate, respond to and recover from the impacts of likely, imminent or current disasters.[6]

Resilience: The ability of a system, community or society exposed to hazards to resist, absorb, accommodate, adapt to, transform and recover from the effects of a hazard in a timely and efficient manner, including through the preservation and restoration of its essential basic structures and functions through risk management.

Trigger is a predetermined criterion that, when met, is used to initiate actions. A trigger can be a predetermined value for a specific indicator, set of indicators or index that is forecast to occur (such as wind speed in 48 hours' time) or has been measured as having occurred (such as the amount of rainfall in a specific time). It can also be an assessment of loss (such as the proportion of damage to property), or a more general judgement of severity (such as a government declaration of emergency).

II. BACKGROUND INFORMATION

Overview information

In recent years, weather, extreme weather patterns frequently happen with more severity in many parts of the world, in which people are facing more impacts than ever. These impacts are increasing partly because of population growth, urbanization and environmental degradation. According to the UN, over the past 50 years, there have been more than 11,000 weather, climate and water-related disasters that have killed more than 2 million people, which is equivalent to one natural disaster every day, killing 115 people[7].

Nowadays, Early Warning Early Action is also considered to be a response to minimize the impacts of natural disasters on the people and property. Not all disasters can be prevented, but their effects can be reduced by taking early actions based on forecasts, early warnings and timely coordination between governments, high-risk communities and related agencies. However, according to the assessment of the World Meteorological Organization (WMO), there are still many gaps in the network of weather monitoring and multi-disaster early warning in the Asia-Pacific region. In addition, the capacity of some vulnerable communities to respond to natural disasters is still limited, leading to loss of life and property every time a disaster occurs.

[6] Sendai Definition

[7] UN, Impact of Extreme Weather Patterns and Disasters.

In order to respond to natural disasters more effectively, the project is aimed to improve capacity and strengthen resilience to disasters and climate change for vulnerable communities through the sharing of knowledge, best practices and experiences among APEC economies, related agencies and organizations. Taking timely actions based on early warning early action will contribute to ensuring the sustainable development of the region against natural disasters and climate change.

The project will be carried out as a 2-day workshop in the second quarter of 2024 in Viet Nam. This Workshop will be based on discussions among the participants, particularly experts coming from governments, institutions, and public and private sectors working on disaster management and climate-related issues.

At the project's completion, member economies, particularly developing economies, and participating delegations will have at their disposal a set of best practices and recommendations for improving capacity and strengthen resilience to disasters and climate change for vulnerable communities.

Key Principles of Anticipatory Action

- **Early Warning Systems:** AA relies on enhancing early warning systems that provide timely information about impending hazards. These systems enable decision-makers to anticipate risks and trigger appropriate actions.

- **Flexible Funding Mechanisms**: AA requires flexible funding mechanisms. When a credible warning is issued, pre-allocated funds are released promptly to implement preparedness measures. These funds can be used for activities such as pre-positioning relief supplies, reinforcing infrastructure, or relocating communities.

- **Context-Specific Interventions**: AA interventions are tailored to the specific context and hazard. For instance, in flood-prone areas, communities may receive advance cash transfers to secure essential supplies or relocate temporarily. In drought-affected regions, early livestock destock programs can prevent asset loss.

- **Community Participation:** Engaging local communities is crucial for successful AA implementation. Community members are active participants in risk assessment, planning, and decision-making. Their knowledge and perspectives enhance the effectiveness of anticipatory measures.

Global adoption and APEC's roles

Anticipatory Action has gained traction globally, with organizations like the World Food Programme (WFP), the Food and Agriculture Organization (FAO), and the International Federation of Red Cross and Red Crescent Societies (IFRC) championing its adoption. These agencies collaborate with governments, NGOs, and local partners to integrate AA into disaster risk management frameworks.

Within the Asia-Pacific Economic Cooperation (APEC) region, AA holds immense potential. APEC economies face diverse hazards, including typhoons, earthquakes, and droughts. By embracing anticipatory approaches, APEC member economies can enhance their disaster resilience and protect livelihoods.

III. ANTICIPATORY ACTIONS

3.1 Anticipatory action in the world

Anticipatory action is gaining more and more attentions of the Governments in the region. 15 economies are working on the development of anticipatory action in Asia Pacific, including two economies from Pacific region have recently joined this endeavor.
The European Commission's Civil Protection and Humanitarian Aid Operations department (DG ECHO), Green Climate Finance (GCF), United States Agency for International Development (USAID) and Department of Foreign Affairs and Trade of Australian Government (DFAT) are the key development and humanitarian donors funding for developing and implementing anticipatory action in the region.

Anticipatory action is also an important agenda of the ASEAN Committee on Disaster Management (ACDM). The adoption of the ASEAN Framework on Anticipatory Action in Disaster Management in 2022 and the Ha Long Statement that highly emphasizes on the anticipatory action as presented by the Director General of Viet Nam Dyke and Disaster Management Authority (VDDMA) earlier, clearly indicate a strong commitment of ASEAN Secretariat and its Members to advance the anticipatory action.

3.2 Anticipatory action in Viet Nam

3.2.1 Legal framework for DRM and AA in Viet Nam

In response to disaster risk, Vietnamese Government has made great efforts to undertake structural and non-structural solutions to respond to and mitigate impacts of natural disasters. One of the most important measures is strengthening the organizational system and legal framework for disaster risk management by issuing a series of legal, strategic, and planning documents. These include the Law on Natural Disaster Prevention and Control (2013, revised in 2020); the economy-wide Strategy for Natural Disaster Prevention, Response and Mitigation to 2030 and Vision to 2050; and Domestic Program on Public awareness raising and Community Based Disaster Risk Management (CBDRM) to 2030.

Besides, Viet Nam also actively participates in global and regional initiatives related to DRM, such as the Sendai Framework for Disaster Risk Reduction for the period 2015-2030; the Association of Southeast Asian Nations (ASEAN) Agreement on Disaster Management and Emergency Response (AADMER); and collaborates with the ASEAN Coordinating Centre for Humanitarian Assistance on Disaster Management (AHA Centre); and the APEC Emergency Preparedness Working Group (EPWG).

In 2020, the Viet Nam National Assembly promulgated a revised Law on Disaster Prevention and Control to update and adjust several contents after nearly ten years of implementing the Law 2013 to suit the global socio-economic situation and climate change. Specifically:

- Article 4 stipulates the Government, organizations, and individuals' responsibilities in disaster prevention and control; compliance with the 'four on-the-spot' motto, including means and logistics; integrating disaster prevention and control into socio-economic development planning and plans.

- Regarding resources for disaster prevention and control, Article 8 stipulated the establishment of Central and local DRM Fund. DRM Funds are used to support disaster prevention activities and prioritise emergency relief, housing repair, medical facilities, and schools.

- Regarding emergency relief and recovery, Article 32 specifies emergency relief activities - focusing on essential needs to stabilise lives and repair people's houses with resources from the government's Contingency Budget, the DRM fund, and contributions from organizations and individuals.

Although the Law on Disaster Prevention and Control provided an essential legal framework for DRM in Viet Nam, it is not specific about early warning early action. The Government of Viet Nam should issue more specific policies for disaster financing in the future through relevant legal documents.

3.2.2 Projects on Anticipatory Action in Viet Nam:

As an innovative approach in policy and programming to enhance DRM and help to ensure communities can proactively reduce the impacts of disasters before they occur, anticipatory action was introduced in Viet Nam through these projects:

- The Forecast based Financing (FbF) project and the Early Action Protocols (EAPs) in Viet Nam are developed jointly by the Viet Nam Red Cross (VNRC) and the German Red Cross with support from the Red Cross Red Crescent Climate Centre. This project aims to reduce the adverse public health effects of heatwaves on Hanoi's most vulnerable populations. The project's primary goals include identifying early actions and capacity building within the VNRC to apply FbF to further hazards and provinces throughout the region.

- A consortium of the Food and Agriculture Organization of the United Nations (FAO), United Nations Entity for Gender Equality and Women's Empowerment (UN Women) and Save the Children International in Viet Nam piloted a project "Drought Forecast-based Financing for Food security, livelihoods and WASH in Viet Nam" The project was funded by for the European Civil Protection and Humanitarian Aid Operations (ECHO). Drawing on the learning from the extreme drought of 2015-2016 in large parts of Viet Nam, the project helped communities effectively prepare for drought by introducing the

FbF approach, also called Early Warning Early Action (EWEA). The first phase of this project was conducted from 2017-2019. The second phase was from 2019-2020.

- Project “Increasing capacities and scale for anticipatory action including through social protection systems” by FAO has been instrumental in implementing anticipatory actions in Viet Nam. FAO activated the AA twice. The first activation of the AA is ahead of typhoon Noru in 2022 by providing unconditional cash and watertight drums to the most vulnerable families in Quang Tri and Thua Thien Hue provinces. The most recent activation was to provide an early response to a severe flood in Thua Thien Hue province in November 2023.

- In a recently implemented Anticipatory Action consortium project in Viet Nam, funded by EU Humanitarian Aid, and implemented by CARE, World Vision, Plan International, with local partners at the central (IMHEN) and provincial levels, vulnerable community members realized that through cost-effective interventions, resilience can be fostered to help communities prepare for and cope with impending disaster shocks.

These anticipatory actions have proven to be effective in reducing the impact of disasters and improving the resilience of communities in Viet Nam. They serve as a model for other economies facing similar challenges. However, more research on anticipatory action cash assistance is needed, and community perspectives on how to improve these actions for the future are being considered.

3.2.3 Challenges and opportunities in implementing AA approach

While progress has been made, challenges persist including:

- **Data Gaps:** Reliable data on vulnerability, exposure, and early warning thresholds are essential for effective AA. Strengthening data collection and sharing mechanisms is critical.

- **Capacity Building:** Building the capacity of local institutions and communities to implement AA is vital.

- **Financing:** Sustainable funding mechanisms must be established to support anticipatory measures.

Lessons learned can be withdrawn from the AA progress in Viet Nam

- Anticipatory Action is not a new endeavor or sector in Viet Nam but should be seen as an integral component of disaster risk management, adaptation and resilience. Thus, AA should be institutionalized into the DRM system, reflecting in DRM plans, contingency plans.

- AA is an approach that complements the longer-term disaster risk reduction interventions.

- Risk information and forecast are one of the three key pillars for developing anticipatory action. The longer lead-time and more accurate forecast provided the higher chance we can activate the anticipatory action to minimize the impact of the disaster.

- Historical data (climate and weather observations, forecast, damages) are crucial for analysis and development of trigger. Damage data should be disaggregated by geographical areas (province/ district/ commune) to inform the analysis of the impact and develop an impact-based forecast and triggers and the AA.

- Common understanding and approach are important to avoid confusions, especially at local level.

Anticipatory Action represents a paradigm shift in disaster risk reduction. By prioritizing prevention over reaction, it empowers communities to withstand shocks and build a more resilient future. As APEC economies collaborate, they can harness the power of AA to safeguard lives, livelihoods, and ecosystems in the face of climate change and extreme event.

3.3 Anticipatory action in Philippines

3.3.1 Legal framework for DRM and AA in the Philippines

The Philippines' geographical conditions put it in one of the economies which are highly prone to extreme weather and geologic events such as cyclones, floods, volcanic eruptions, earthquakes, and storm surge. The Philippines is an archipelagic economy consisting of 7,100 islands with a total length of coastline of about 36,000 km and covering a total land area of approximately 300,000 km2. It is located within the Pacific Ring of Fire and the typhoon belt where a significant number of world's tropical cyclones form.

In cognizance of this, the Government of the Philippines was among the first to recognize and develop its economy-wide strategy for comprehensively managing the impacts of disasters. In 2010, it passed the landmark legislation, Republic Act 10121, or the Philippines National Disaster Risk Reduction and Management Act. The law provided for a proactive approach to understanding and managing disaster risks by establishing the organization, structures, mechanisms, and funding towards disaster risk reduction. It further provided the needed paradigm shift by putting a greater premium on disaster prevention, mitigation, and preparedness over the traditional economy focus on relief provision, and recovery.

Republic Act 10121 serves as the Philippines' main legal framework for disaster risk reduction and management (DRRM) activities, and it also serves as the legal basis for the implementation of the Philippines' blueprint for DRRM in the form of the domestic DRRM Framework and Plan 2020-2030, which is also aligned with the priority areas, targets, and indicators of the Sendai Framework.

Similar to other APEC economies like Viet Nam, Republic Act 10121 provided the legal framework for DRRM in the Philippines but does not provide specific provisions about early warning action or AA.

3.3.2 Projects on Anticipatory Action in the Philippines

In line with the Philippines' efforts to further enhance disaster preparedness for swift and effective response, as well as to facilitate resilient recovery, rehabilitation, and reconstruction, the Philippines has made significant strides in the form of established guidelines to govern response and recovery processes more effectively, including the Pre-Disaster Risk Assessment – Actions, Programs, and Protocols, and the Post- Disaster Needs Assessment. The Philippines is also seizing opportunities for early recovery, such as adopting anticipatory actions and implementing Adaptive Shock Responsive Social Protection (ASRSP).

- Recent efforts of the Philippines, through the Department of Social Welfare and Development (DSWD), in institutionalizing Anticipatory Action-Adoptive & Shock Responsive Social Protection (AA-ASRSP) in its DRRM and Social Protection Program include: enactment of Republic Act No. 10121 otherwise known as the Philippine Disaster Risk Reduction and Management Act of 2010, and formation of the domestic Forecast-Based Financing Technical Working Group (TWG) in 2016, which was later renamed to Anticipatory Action (AA) TWG in 2021. In the same year, the Roadmap on Establishing an Adoptive and Shock Responsive Social Protection System (ASRSP) in the Philippines was developed by the United Nations Food and Agriculture Organization (UNFAO) and DSWD, in partnership with other National Disaster Risk Reduction and Management Council (NDRRMC) members. The DSWD also conducted the B- SPARED (Building on Social Protection for Anticipatory Action and Response in Emergencies and Disasters) program wherein ASRSP components are integrated in its design, but is hobbled by limitations due to factors that need to be addressed, which include limited fiscal space in the government of the Philippines; lack of financial institutions, financial service providers (FSPs) and local businesses in the high-risk areas; and, limited capacity (human resource, system, logistics) of FSPs and other local business partners.

- In response to poverty and disasters, the Philippines has developed and utilized an advanced social protection system. Having learned from past emergencies, the government of the Philippiness, through the DSWD, has adopted Establishing an Adaptive and Shock Responsive Social Protection (ASRSP) System in the Philippines: A Roadmap. The ultimate objective is to build an adaptive and shock responsive social protection system to ensure timely and effective responses to risks and shocks as well as build resilient households.

- The ASRSP is being supported by the Food and Agriculture Organization of the United Nations (UNFAO) in response to the Philippine Government's shift from responding to predictable shocks to anticipating them and mitigating their impact. This AA approach establishes risk monitoring systems linked to flexible finance and standard operating

procedures by delivering support ahead of forecast shocks to protect people's lives and livelihoods.

3.3.3 Challenges and opportunities in implementing AA approach

In the Philippines, investments from DRRM are mobilized through primarily, public resources, one of which is mainly through the National DRRM Fund. The passage of Republic Act (RA) 10121 or the Philippine Disaster Risk Reduction and Management Act created the NDRRM Fund, a Special Purpose Fund in the annual budget of the government by virtue of the Philippines General Appropriations Act. Per RA 10121, the NDRRM Fund is intended to be used for the four (4) DRRM thematic areas: (a) prevention and mitigation; (b) preparedness; (c) response and early recovery; and (d) rehabilitation and recovery and can be accessed by both central and local Governments upon the recommendation of the DRRM Council. Since the domestic DRRM Fund appropriations is a Special Purpose Fund, the allocation is not fixed and is dependent on the central government's budget.

The NDRRM Fund is at the heart of disaster risk financing and can also be used to finance ex-ante activities. Even if funding is used ex-ante, it is typically for the development of preparedness plans, forecasts, and early warning systems. Thus far, funding from the NDRRMF has not been used to finance anticipatory cash transfers, because pre-positioning of funds is only allowed for supplies. However, under Resolution No. 07-2022, the National Disaster Risk Reduction and Management Council (NDRRMC) has recommended the institutionalization of the declaration of imminent disaster. This would allow all relevant agencies in areas declared under a state of imminent disasters to use the quick response fund and other emergency funds as part of preparedness, including funding anticipatory cash transfers.

Looking beyond the adoption of NDRRMC Resolution No. 07-2022, there are ongoing efforts for amendments to be made on either one of or both the Bill on the Declaration of Imminent Disaster and Republic Act No. 10121 to include provisions on AA, specifically anticipatory cash transfers. Pending such, there is a need to streamline funding arrangements between the central government and the Local Government Units (LGUs), continue to build the capacities of LGUs, and review existing social protection programs to explore the possibility of integrating and mainstreaming AA into the corresponding programs.

3.4 Anticipatory action in Australia

Australia is a federation of six states and two territories, each with its own constitutions, parliaments, governments and laws.[8] Australian state and territory governments have primary responsibility for emergency management within their jurisdiction, supported by the Australian Government to utilise domestic resources and provide domestic leadership where required.
The Australian Government National Emergency Management Agency (NEMA) leads Australia's crisis management approach for all natural and human-induced hazards across an

[8] The Australian system of government – Parliament of Australia (aph.gov.au)

emergency management continuum that includes prevention, preparedness, response, relief, recovery, reconstruction and risk reduction.

Natural and human-induced crises may occur at any time, but Australia's Higher Risk Weather Season (HRWS) occurs from October to April. Severe weather experienced during the season may include heatwaves, bushfires, tropical cyclones, severe thunderstorms and floods.
In Australia, 'anticipatory action' is often described as 'near-term preparedness'. This section outlines relevant Australian Government crisis management policy frameworks and provides a snapshot of Australia's key domestic anticipatory action/near-term crisis preparedness capabilities. Australia's maintains near-term crisis preparedness capabilities all year with additional preparedness activities planned of each HRWS.

3.4.1 Frameworks for DRM and AA in Australia

National Disaster Risk Reduction Framework

The National Disaster Risk Reduction Framework guides Australia's implementation of the Sendai Framework for Disaster Risk Reduction 2015-2030 at central, state and territory, and local government levels.

Australian Government Crisis Management Framework

The Australian Government Crisis Management Framework (AGCMF) outlines the Australian Government's approach to preparing for, responding to and recovering from all crises. It sets out the Australian Government's approach to crisis management of consequences of all natural and human-induced hazards. The AGCMF also provides a range of tools and mechanisms for crisis preparedness, response and recovery such as the Australian Government National Coordination Mechanism (NCM).

Australian Disaster Preparedness Framework

The Australian Disaster Preparedness Framework (ADPF) provides guidance to Australian states and territories to identify and develop capability across Australia to prepare for, and respond to severe to catastrophic disasters. It outlines the principles that underpin domestic preparedness and defines the required capabilities to maintain whole of government preparedness from severe to catastrophic disasters.

Disaster Recovery Funding Arrangements

The Disaster Recovery Funding Arrangements (DRFA) are a cost-sharing arrangement between the Australian Government, states and territories. The DRFA provide a framework of pre-agreed funding categories, allowing urgent financial assistance to reach disaster-affected communities. As pre-agreed arrangements, state and territory governments can activate certain relief and recovery assistance immediately following a disaster without seeking approval from the Australian Government.

National Emergency Declaration

Under the *National Emergency Declaration Act 2020* the Governor-General of Australia may declare a domestic emergency on advice from the Prime Minister. To make a declaration, the Prime Minister must be satisfied that an emergency is causing, or is likely to cause, harm that is domestically significant in Australia or in an Australian offshore area. A domestic emergency declaration enables responsible government ministers to vary or suspend 'red tape' requirements for specified legislation to support domestic crisis response.

National Coordination Mechanism

The National Coordination Mechanism (NCM) provides the convening mechanism to bring together Australian Government, state and territory, and non-government representatives during crisis coordination. The NCM is flexible, scalable and can be utilised for all hazards near-term preparedness, response and recovery. The NCM facilitates rapid problem definition and shared situational awareness and ensures ownership of solutions to drive the rapid stabilisation of crisis events.

The NCM uses a domain- or sector-based approach to promote collaboration between stakeholders with equities in the crisis, strengthening and formalising the existing relationships between governments, industry and civil society. During concurrent, compounding or complex crises, the NCM ensures that collective capabilities across the domestic system are harnessed to reduce harm and support communities.

The strategic aims of the NCM are to:

- maintain near real-time situational awareness
- ensure domestic leadership and the maintenance of public trust and government services
- ensure that actions are synchronised, coordinated, and responsive
- ensure that the problem is clearly defined and understood
- agree on lines of effort to mitigate the impacts and consequences of a domestic crisis
- support the continuity of critical community functions
- communicate actions
- reduce harm and the overall severity of the crisis

NEMA convenes and chairs the NCM on behalf of the Australian Government. Other relevant Australian Government agencies may co-chair, at the request of the chair or where they are the Australian Government Coordinating Agency. States, territories or the private sector may request that an NCM is activated for a specific purpose/issue.

Australian Government capabilities such as the National Situation Room, National Joint Common Operating Picture and the Crisis Appreciation and Strategic Planning process support the NCM by enabling strategic planning, near real-time situational awareness and other coordination functions.

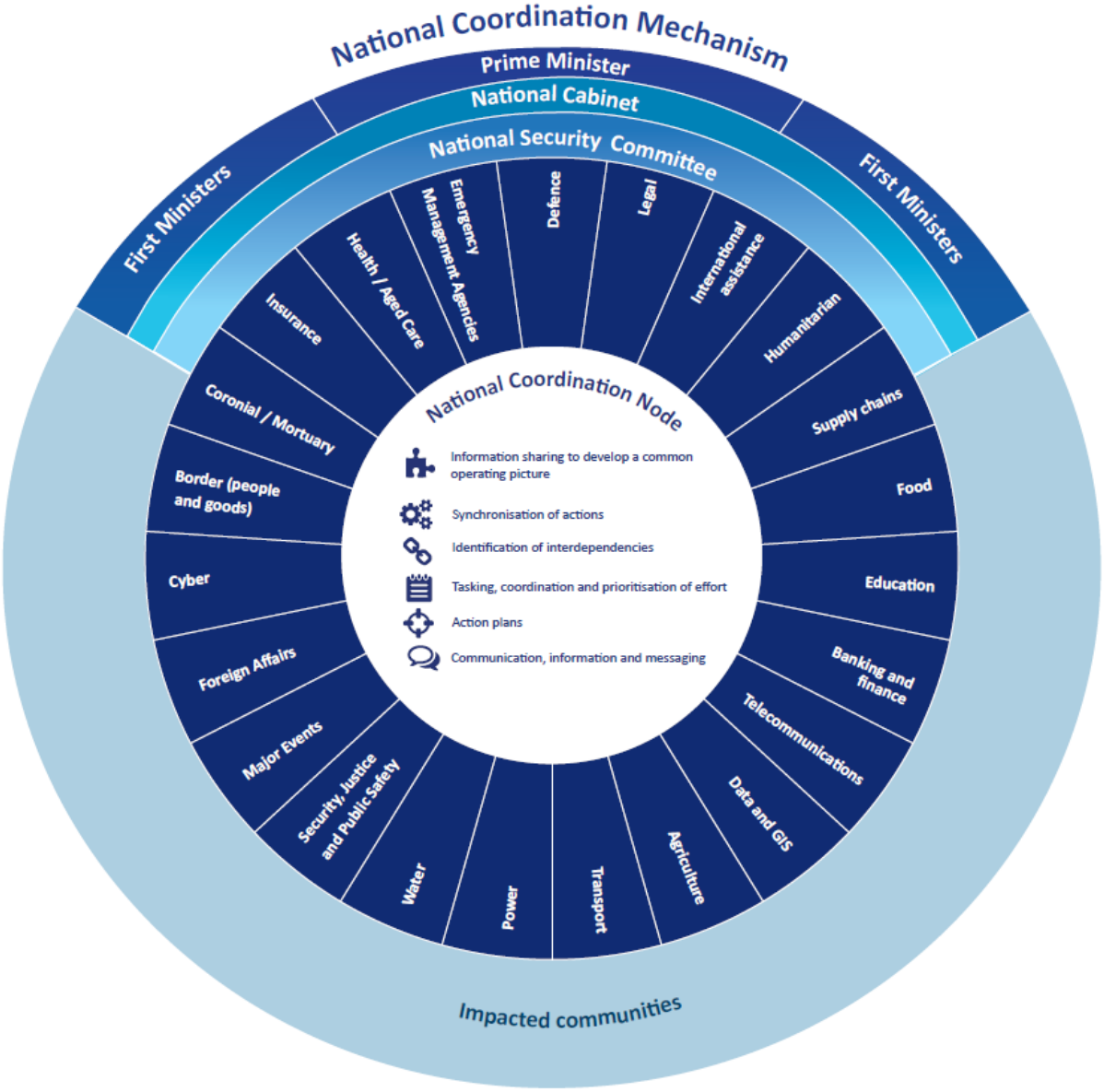

Figure 1: Australian Government National Coordination Mechanism

Australian Government National Situation Room

The Australian Government National Situation Room (NSR) is managed by NEMA and provides 24/7 crisis management information and whole-of-government crisis coordination. The NSR has a range of information-gathering and analytical capabilities, such as the National Joint Common Operating Picture, to create near-real time situational awareness for crisis preparedness, response and recovery. NSR capabilities when used for near-term preparedness support the delivery of critical advice to Government, reducing the time taken to deliver support to impacted communities when a crisis occurs.

National Joint Common Operating Picture

The National Joint Common Operating Picture (NJCOP) is a web-based platform that provides a consolidated view of significant events on an economy-wide scale, including security events, bushfire, flood, cyclone and severe weather warnings, as well as infrastructure and

government actions of support. It integrates data feeds from various government sources, including the Bureau of Meteorology, Geoscience Australia and the Australian Bureau of Statistics. Data is consolidated through the NJCOP assists stakeholders to determine potential impact analysis and support crisis decision-making.

3.4.2 Projects for Anticipatory Action in Australia

Crisis Appreciation and Strategic Planning

The Crisis Appreciation and Strategic Planning (CASP) process is a repeatable strategic planning tool developed by NEMA. CASP is a systematic methodology used to analyse complex scenarios through the timely integration of information from multiple sources. The CASP process explores how government, not-for-profit and private sector efforts can be integrated to plan and prepare for a unified crisis response. NEMA is leading a domestic program of CASP capability development, to uplift existing strategic planning capability in preparation for the 2024-25 Higher Risk Weather Season.

National Emergency Management Stockpile

The National Emergency Management Stockpile (NEMS) Capability is an emergency response and immediate relief capability that allows NEMA to help Australian states and territories to access reliable, readily deployable life protecting and sustaining goods and services in times of crisis.

The NEMS is made up of three components:

- A domestic stockpile of Australian Government-owned disaster goods, including a seasonal strategic reserve of single-use consumables
- A standing offer panel to facilitate the procurement of critical goods and services to support state and territory government responses to crises
- Strategic partnerships with other Australian Government humanitarian and crisis response capabilities.

The NEMS Capability enables the Australian Government to rapidly deploy disaster response and relief resources across Australia where required and facilitates the anticipatory stockpiling and/or pre-positioning of resources in response to potential disasters.

National Preparedness Program

NEMA delivers an annual National Preparedness Program (the Program) ahead of each Australian HRWS, which informs planning and preparedness. The Program includes the HRWS National Preparedness Summit (the Summit) and engagement and bespoke briefings to governments, political leaders, community organizations, and relevant industry sectors to help ensure the economy is well-prepared for disasters that may occur during the HRWS.

National Messaging System

The National Messaging System (NMS) is a cell broadcast, public safety and infrastructure project. The NMS will improve the safety of Australian communities during emergencies by delivering near real-time warning messages to mobile phones and other SIM-enabled devices in defined geographic areas.

The NMS will be rolled out over four years and will enable Australian Government and state and territory emergency services agencies to inform the public of emergency and disaster events. It will do this by sending reliable warnings, alerts and calls to action to galvanize communities and businesses to take appropriate actions to save lives and minimize damage. The NMS will use cell broadcast standards-based technology that enables point-to-area communication between a mobile operator radio cell tower(s) and all SIM-enabled devices in a specified geographic area. This will ensure individuals are targeted through their physical location in relation to tower(s) regardless of their handset subscription.

Cell broadcast technology is new to Australia and requires a new system build and changes to device standards and device operating firmware. While the cell broadcast technology has been applied successfully in over 20 economies, Australia's system of federated states is unique and adds complexity to user groups. Australia is eager to learn from other experiences and to access related standards to support Australia's cell broadcast development. As cell broadcast technology interacts with devices differently to SMS messages a public information and education campaign will be required in advance of rolling out the system.

National Flood Warning Infrastructure Network

The Australian Government is investing AUD236 million over 10 years to establish a National Flood Warning Infrastructure Network (NFWIN). This funding will support remediation and upgrade to flood gauges in high priority river catchments and improve flood data consistency and quality control. The FWIN initiative will help communities, emergency services and business to prepare and respond to flooding events, by providing more reliable, timely and accurate flood forecasts and warnings.

The NFWIN is funded through cost-sharing arrangements between the Australian Government and each state and territory. Implementation is contingent on each jurisdiction agreeing to cost-share ongoing maintenance of upgraded flood gauges and assets, which may impede timeliness of a domestic rollout. Maintenance costs are also expected to increase each year as more flood gauge works are completed in each high priority river catchment, therefore thorough planning and budget allocation are essential for the NFWIN to be completed according to the project timelines.

IV. EXPECTED OUTCOMES AND DELIVERABLES

Viet Nam is one of the 15 economies in the region, pioneering in the implementation of the AA. Viet Nam is amongst just few economies (the Philippines, Bangladesh) leading the anticipatory action, which have activated the AA in a real emergency and conducted an impact assessment of the AA. We have so much experience to share with other economies in the region and globally. There are some expected topics could be shared as outcomes and deliverables in this project's workshop:

- **Understanding Trends and Impacts:**

- The workshop will enhance the understanding of disaster trends within the context of climate change. By analyzing data and case studies, we aim to identify patterns, vulnerabilities, and hotspots.

- Recognizing the severity of these impacts is crucial for informed decision-making and targeted interventions.

- **Addressing Shortcomings and Gaps:**
  - Early warning systems play a pivotal role in disaster risk reduction. However, gaps persist—whether in data collection, dissemination, or community engagement.

  - Through collaborative discussions, we will pinpoint these limitations and explore innovative solutions to bridge the gaps.

- **Sharing Lessons Learned:**
  - Participants from APEC economies, international NGOs, and organizations will share their experiences. These insights—both successes and challenges—will enrich our collective knowledge.

  - Learning from each other's best practices will empower us to enhance early warning systems and build community resilience.

- **Proposing Effective Solutions:**
  - The workshop will be a breeding ground for practical solutions. From technology adoption to community-based approaches, we will brainstorm actionable steps.

  - Our goal is to propose evidence-based strategies that can be scaled up across APEC economies

V. CONCLUSIONS AND RECOMMENDATIONS

5.1 Conclusions

As we navigate the complex landscape of climate change and its impact on natural disasters, anticipatory action emerges as a critical strategy to safeguard vulnerable communities. The upcoming workshop, "Strengthening Early Warning Early Action for the Vulnerable Communities in APEC," holds immense promise in advancing our collective efforts.

5.2 Recommendations

- The government should take the leading role in coordinating the anticipatory action to ensure a common or harmonized approach will be followed by all partners.

- It is important to institutionalize the anticipatory action approach into the domestic disaster risk management system. We want to propose some actions to take this forward:

- VDDMA should consider mainstreaming the anticipatory action into the Government's community-based disaster risk management Programme under Decision 553/QD-TTg. This will help open an opportunity for linking AA with the long-term disaster risk reduction and resilience Programme.

- The Government at central and provincial level should reflect the anticipatory action in the disaster risk management plan, and contingency plan.

- The Government should consider integrating triggers of anticipatory action in the Government's early warning system that can be accessed by the AA partners and provincial governments for decision-making on AA activation.

- An enabling policy is necessary to allow pre-arranged finance for anticipatory action at all levels. This is crucial to take anticipatory action timely at local level.

- The damage data disaggregated by geographical areas (province/ district/ commune) is key to analyze and develop triggers for anticipatory action. We recommend VDDMA to collect and digitalize the damage data that can be stored and accessed in the Viet Nam Disaster Monitoring System.

- Capacity building and operational and logistics preparation are crucial to successfully implement anticipatory action and thus should be integrated into the disaster risk management plan.

- The social protection system should be strengthened to be more shock-responsive which can ensure the inclusive of the targeting and piggyback the delivery of anticipatory action and humanitarian assistance.

- The materialization of anticipatory action protocol will require collective efforts from multi-ministries, development and humanitarian donors, UN agencies, INGOs.