



**Asia-Pacific  
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# **Enhancing Participation in Flood Disaster Preparedness through Community-based Hazard Mapping**

**APEC Emergency Preparedness Working Group**

December 2021





**Asia-Pacific  
Economic Cooperation**

# **Enhancing Participation in Flood Disaster Preparedness through Community-based Hazard Mapping**

**Malaysia (Virtual Format) | 15 - 24 June 2021**

## **Workshop Report**

**APEC Emergency Preparedness Working Group**

**December 2021**

APEC Project: EPWG 02 2019A

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## Executive Summary

More frequent flood events are expected to be a new-normal climate hazard faced by many APEC economies' communities. Community participation is one of seven enabling environments for the four pillars of the APEC Disaster Risk Reduction Framework. The aim of the workshop to enhance local community participation in disaster preparedness. The workshop included sharing of experiences by representatives of co-sponsoring economies, and the application of the Town Watching approach, a process advocated by Asian Disaster Reduction Centre.

Eight (8) days of virtual workshop on Enhancing Participation in Flood Disaster Preparedness through Community-based Hazard Mapping were conducted successfully from 15 to 24 June 2021 with attendance of 53 participants from six (6) economies, with 41.5% women. Five (5) speakers from United States, , Chile, Chinese Taipei, Malaysia and Japan shared their experience in disaster preparedness in their economies. Dr Zelina Zaiton Ibrahim from Universiti Putra Malaysia is the Project Overseer whilst Dr Kalithasan Kailasam from Global Environment Centre, is the main trainer for the workshop. A Pre-Workshop Briefing took place five (5) days prior to the workshop proper on 10 June 2021 where an ice-breaking session was conducted to brief the participants on the workshop outline as well as to familiarize them with the workshop online platform, Zoom Meeting.

A total of five (5) modules, incorporating four (4) videos on Town Watching Map Development as well as on Emergency Survival Kits, were presented by the trainer. A session on Electronic Mapping applications (E-Maps) also took place during the workshop. The secretariat had received eight (8) Town Watching Maps developed as part of the key exercise activity from four (4) economies, namely Brunei, Chile, Malaysia and Philippines, who presented their Town Watching Maps and findings. On the last day, a fruitful 'Way Forward' session was conducted Breakout Room with each economy; the Philippines was divided into two (2) groups (different regions). These sessions were facilitated mainly by the trainer and assisted by seven resource persons. All participating economy representatives presented their proposals.

# 1. Introduction

## 1.1 Background

The Emergency Preparedness Working Group (EPWG) mission is to build capacity in the region so that APEC member economies can better mitigate, prepare for, respond to and recover from emergencies and natural disasters, including by building business and community resilience and fostering public-private partnerships. In the 2017-2020 EPWG Strategic Plan, "Promoting public-private partnerships to develop joint disaster preparedness actions and build up disaster resilience" is a priority.

More frequent flood events are expected to be a new-normal climate hazard faced by many APEC economies' local communities, especially due to the increase in frequency and intensity of extremes due to climate change, based on the latest 2021 Intergovernmental Panel on Climate Change (IPCC) Working Group I Sixth Assessment Report Summary for Policy Makers. Community participation is an important support component in the Sendai Framework and is one of seven enabling environments for the four pillars of the APEC Disaster Risk Reduction Framework. Training is targeted at economy representatives who are already actively engaged in, or will be responsible for, community capacity building. The approach is expected to be useful to local communities in all APEC economies and the manual resulting from the workshop may be used for future training.

## 1.2 Context

Disaster risk reduction and preparedness are key pillars for enhancing human security and an important element for Sustainable Growth in the APEC region. In the 2019 Chile Priorities, among the main issues faced by APEC economies for Sustainable Growth are environmental challenges, of which climate change and its impacts is one of the critical issues which need to be handled. Effective management of climate-related disasters, such as floods, cannot be achieved solely by placing the burden of responsibility on government agencies. In flood disasters, the victims are at the community level and the number of victims is expected to greatly outnumber the number of people in public disaster responder teams. This places a great burden on domestic disaster responders. In many cases, too, disaster response is organised in a tiered system where resources are organised based on the spatial scale of the disaster. This project aims to enhance disaster risk reduction and preparedness by developing capacities of selected trainers who may then be the "seed" for training at the local community level.

## 1.3 Workshop Objective

The project is focused on disaster preparedness and risk reduction and supported under the APEC Support Fund (ASF) – Sub-Fund on Human Security (Emergency Preparedness). The project aim is to enhance community participation in disaster preparedness. This is consistent with the 2019 United Nations Office for Disaster Risk Reduction (UNDRR) Approach to Capacity Development for Implementation of the Sendai Framework for Disaster Risk Reduction. It supports capacity building needs for APEC developing economies especially with the development of the resulting training manual and materials.

The overall objective of the workshop is to enhance the capacity of community trainers to enhance community resilience towards flood disasters by sharing best practices; training on using the Town Watching approach for preparing community-based flood hazard maps; developing simple procedures for community disaster preparedness; planning for economy-level training; and adapting the Training of Trainers (ToT) modules for economy-level application. This is to address the issue of increasing flood risk because of climate change and growing human settlements in flood-prone areas.

## 2 Workshop Approach and Programme

### 2.1 Workshop Structure

The workshop was structured to cover three components, as follows:

#### a) Sharing Experiences

This included presentations on "Weather Ready Nations"; sharing of experiences and best practices in flood preparedness and response from Chinese Taipei, Chile, Malaysia; the Town Watching experiences from Japan and other implementations; and presentation on Malaysian experience in Town Watching.

#### b) Training and Implementation of Town Watching Approach

This covers the steps for conducting Town Watching; briefing on the field exercise; presentation on the use of online mapping tools; step-by-step use of the Town Watching methodology and field application; guidance from trainer on conducting the Town Watching exercise, virtually or physically; group mapping exercise in participants' locality; facilitation of groups' presentation of the local maps made; and finally explanation on of emergency survival bags including

use of drinking water filtration kits. Videos formed an important part of the materials for online training modules, as a resource material, due to the virtual training mode.

c) **Group Presentation and Reflection**

Participants are encouraged to review the planning and adaptation of the training modules for economy level training through break-out group discussion and group presentation. Groups are invited to present their proposed plans and localisation needs. The maps and presentations made provide examples for future workshops and facilitation of training and form part of the materials in the Manual for Training resulting from this workshop.

## 2.2 Duration

The workshop was an eight-day virtual event. A pre-workshop briefing session was conducted to introduce participants to the workshop format and meeting platform.

## 2.3 Workshop Programme

The workshop programme is given in Table 2.1 with a list of all presentations and speakers. Participants were also requested to complete a Pre-Workshop and Post Workshop survey on community flood response and practices in their locality and economy.

Table 2.1 Workshop Programme

<b>Time (UTC +8)</b>	<b>Pre-Workshop Session</b>
<b>Date</b>	<b>Thursday 10 June 2021 Pre-Workshop Briefing</b>
09.40	Online registration and reception
10.00	Ice-Breaking Session (Introductions, Procedures, Expectations)
11.00	Session ends
<b>Day 1</b>	<b>Tuesday 15 June 2021 Opening Ceremony</b>
09.15	Online registration and reception
09.45	Opening Ceremony Welcome by Project Overseer, Dr Zelina Zaiton Ibrahim, UPM Opening Address by YBhg Datuk Dr Aminuddin bin Hassim, Director-General, NADMA, Malaysia
10.10	Session Chair (Dr Zelina Zaiton Ibrahim, UPM)
10.15	Keynote: Weather Ready Nations by Dr Rochelle Campbell, NOAA, United States
11.00	Q & A Session
11.30	Session ends

<b>Time (UTC +8)</b>	<b>Pre-Workshop Session</b>
<b>Day 2</b>	<b>Wednesday 16 June 2021 – Panel Session: Sharing of Experiences in Flood Preparedness and Response</b>
09.20	Online registration and reception
09.50	Welcome by Panel Chair, Prof. Dr. Jegatheswaran Ratnasingam, Faculty of Forestry and Environment, Universiti Putra Malaysia (UPM)
10.00	Disaster Risk Reduction in Chile: A Community-Based Approach for a Resilient and Sustainable Development, Mr Cristóbal Mena, Deputy Director, ONEMI, Chile
10.20	Going Beyond Community Hazard Mapping, Dr Gloria Yi-Chung Liu, NCDR, Chinese Taipei
10.40	Sharing of Experiences in Flood Preparedness and Response, Ms Hayatul Husna binti Kamaruddin, NADMA, Malaysia
11.00	Q & A Session
11.30	Session ends
<b>Day 3</b>	<b>Thursday 17 June - Panel Session: Town Watching Approach for Flood Disaster Response Planning</b>
09.20	Online registration and reception
09.50	Welcome by Panel Chair, YBhg Dato' Ir Hj Mohd Azmi Ismail, Deputy Director-General, Department Irrigation and Drainage (DID), Ministry of Environment and Water
10.00	Town Watching Experiences from Japan and Other Implementations by Dr Shiomi Yumi, Asian Disaster Reduction Center, Japan
10.40	Malaysian Experience in Town Watching by Dr K. Kalithasan, Global Environment Centre (GEC), Malaysia
11.00	Q & A Session
11.30	Session ends
<b>Day 4</b>	<b>Friday 18 June – Town Watching Exercise Briefing</b>
09.20	Online registration and reception
09.50	Welcome by Project Overseer, Dr Zelina Zaiton Ibrahim, Universiti Putra Malaysia
10.00	Town Watching exercise briefing and examples, Dr K. Kalithasan, GEC
10.30	Use of electronic mapping applications (E-Maps), Dr Zelina Zaiton Ibrahim, UPM
12.30	Session ends
<b>Day 5</b>	<b>Monday 21 June – Town Watching Exercise</b>
09.20	Online registration and reception
09.50	Welcome briefing by Town Watching Coordinator, Dr K. Kalithasan, GEC
	Video of Town Watching exercise at an outdoor field site in Malaysia
	Video of In-class hazard mapping and flood response plan
	Video of finished group map examples for presentation
10.50	Q & A Session
11.30	Session ends
	Virtual participants may conduct their Town Watching exercise (indoor or outdoor) and upload their maps to workshop cloud folder (optional)



<b>Time (UTC +8)</b>	<b>Pre-Workshop Session</b>
<b>Day 6</b>	<b>Tuesday 22 June – Town Watching Exercise (by participants)</b>
	Virtual participants may conduct their Town Watching exercise (indoor or outdoor) and upload their maps to workshop cloud folder (optional)
<b>Day 7</b>	<b>Wednesday 23 June – Emergency Kits</b>
09.20	Online registration and reception
09.50	Welcome by Town Watching Coordinator, Dr K. Kalithasan, GEC
10.00	Presentation and review of maps prepared by virtual participants (only 3 to 4 of the uploaded maps will be selected for presentation)
10.30	Feedback from participants on mapping exercise
11.00	Emergency survival kits and bags and demonstration of drinking water filtration kits
11.45	Session ends
	Virtual participants organise their groups for Thursday Breakout discussion
<b>Day 8</b>	<b>Thursday 24 June – Way Forward: Planning and Local Adaptation of Training Modules</b>
09.20	Online registration and reception
09.50	Welcome by Town Watching Coordinator, Dr K. Kalithasan, GEC
10.00	Briefing on Breakout group discussions (Participants organise their discussion groups)
10.15	Breakout group discussions on planning and local adaptation of training modules
10.45	Report back
11.30	Concluding remarks by Project Overseer, Dr Zelina Zaiton Ibrahim
11.45	Session ends

## 3 Beneficiaries

### 3.1 Speakers and Participants

The workshop had seven speakers and expert trainers (Table 3.1) from five economies. The speakers were from Chile (co-sponsor), Chinese Taipei (co-sponsor), Japan (co-sponsor), Malaysia and the USA.

The workshop was attended by 53 participants from six APEC economies. The six economies represented by participants were Brunei, Chile, Malaysia, Mexico, Peru, and the Philippines.

### 3.2 Gender Target

There were five female speakers/experts (71.4%) and two male speakers/experts (28.6%). There were 22 female participants (41.5%) and 31 male participants (58.5%).

This achieved the project target of at least 30% women speakers/experts and at least 40% women participants (see section 7).

Table 3.1 List of Speakers and Expert Trainers

No.	First Name	Last Name	Title	M/F*	Speaker/ Expert Trainer	Economy	Organisations
1	Cristóbal	Mena	Mr	M	Speaker	Chile	ONEMI
2	Gloria Yi- Chung	Liu	Dr	F	Speaker	Chinese Taipei	NCDR
3	Shiomi	Yumi	Dr	F	Speaker	Japan	Asian Disaster Reduction Center (ADRC)
4	Hayatul Husna	Kamaruddin	Ms	F	Speaker	Malaysia	NADMA
5	Kalithasan	Kailasam	Dr	M	Speaker and Expert trainer	Malaysia	Global Environment Centre (GEC)
6	Zelina	Zaiton Ibrahim	Dr	F	Expert trainer	Malaysia	Universiti Putra Malaysia (UPM)
7	Rochelle	Campbell	Dr	F	Speaker	USA	NOAA

\* M—Male; F—Female

## 4. Surveys

### 4.1 Types of Surveys

Surveys were conducted through questionnaires using Google forms to obtain information on community engagement from EPWG officials, and on flood disaster management from workshop participants. Surveys on participants were conducted pre-workshop, during the workshop to evaluate each session, and immediately post-workshop.

### 4.2 Pre-Workshop Survey

#### 4.2.1 Questionnaire Structure

Participants were requested to complete a pre-workshop survey (Appendix A) with 52 responses. The results of the survey are presented in Figures 4.1 to 4.11.

The survey was conducted to understand the background of participants and to compare with post-workshop results. The results of the survey do not identify the individual participants and respondents. The questionnaire survey is divided into four parts, that is:

- i. Flood experience
- ii. Before flood
- iii. Flood information
- iv. Respondent background

#### 4.2.2 Flood Experience

Some 79% of the respondents had experienced a flood with more of the male participants having experience in taking on the role of a flood responder. Most of the participants had experienced floods with many experiencing several floods and deeper than knee level floods (Figure 4.1). The results show some differences between responses from male and female respondents.

#### 4.2.3 Before flood

Respondents were asked on the preparations they have or could prepare for any flood disaster that might occur (Figure 4.2), flood disaster management in their area (Figure 4.3), arranged for any emergency kits and supplies (Figure 4.4), and their opinion about the most important topics they would like to learn about.

In most cases respondents either have or plan to prepare for flood disasters (Figure 4.2). Most areas have laws or policies on disaster management however, the disaster management environment in respondents' area is mixed with some areas having disaster management plans, including at community level, while others do not (Figure 4.3). In terms of preparedness most respondents either have emergency kits and supplies ready or are in the process of doing so (Figure 4.4). There only appear to be slight differences between male and female responses. For the topics or items selected for flood preparedness training (Question 5), 30 respondents provided input, and these were categorised (Appendix B) with the top three items being related to the operations during disasters, community training and organisation, and flood disaster preparation and planning.

Figure 4.1 Flood Experience of Respondents

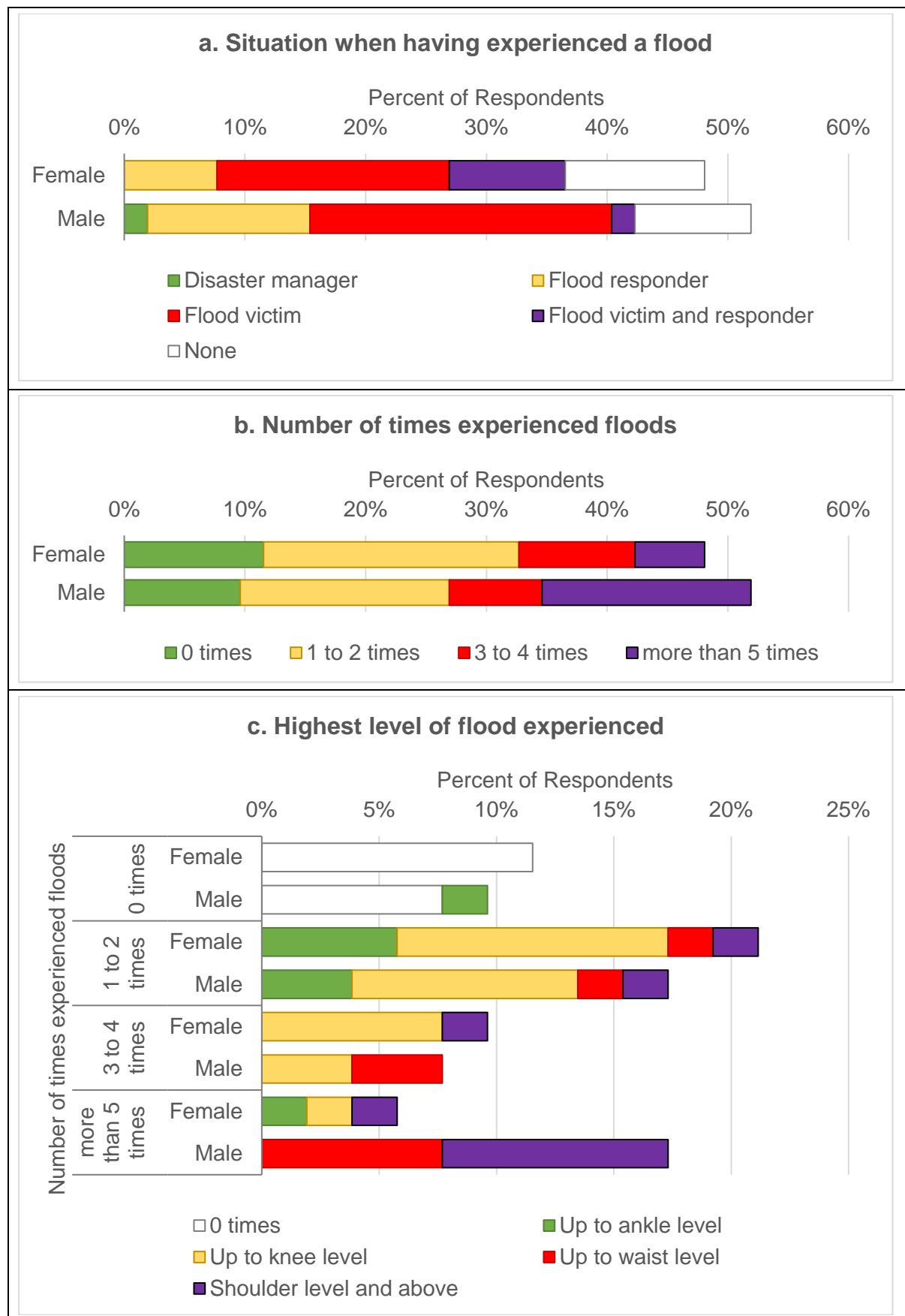
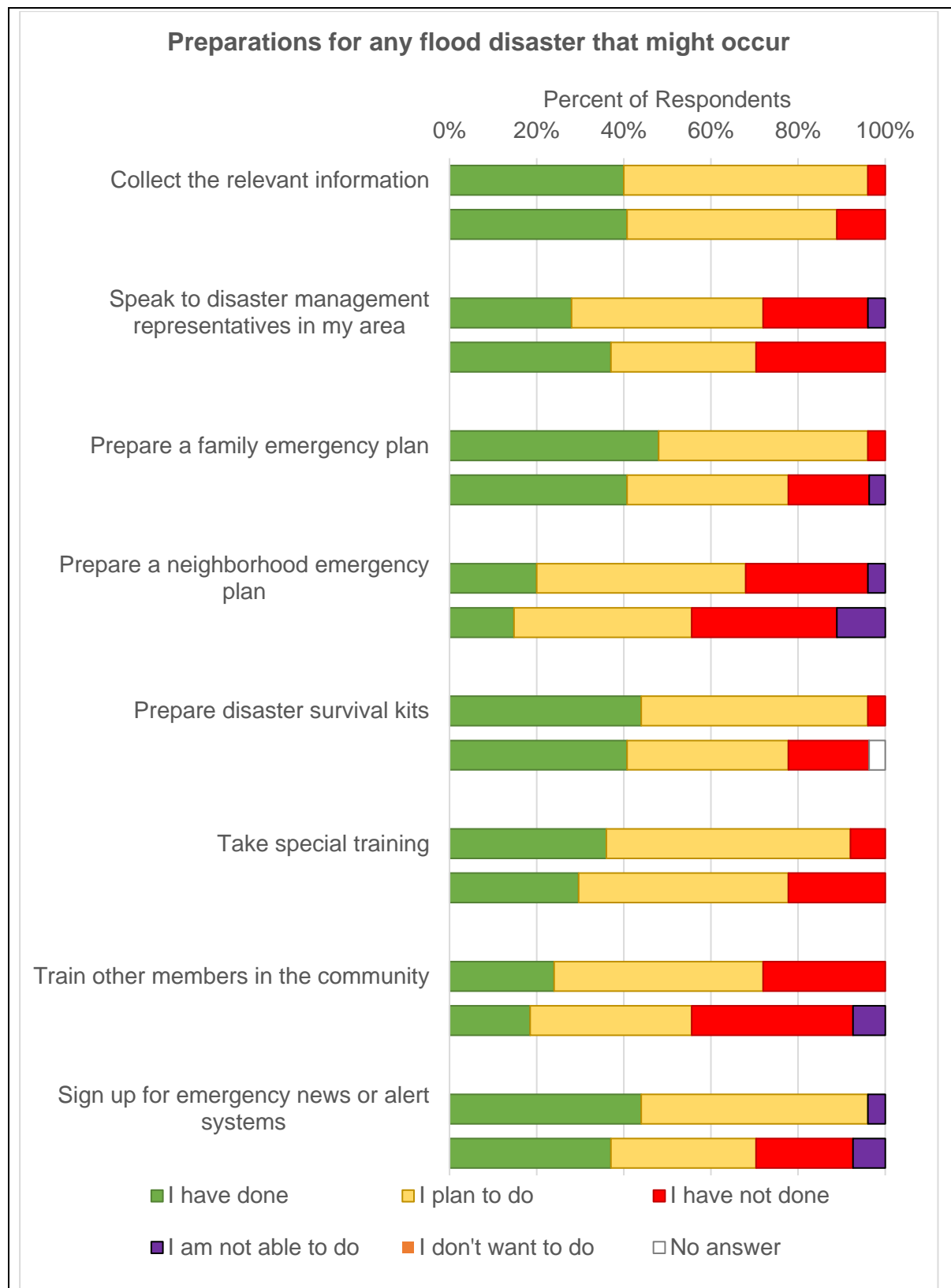
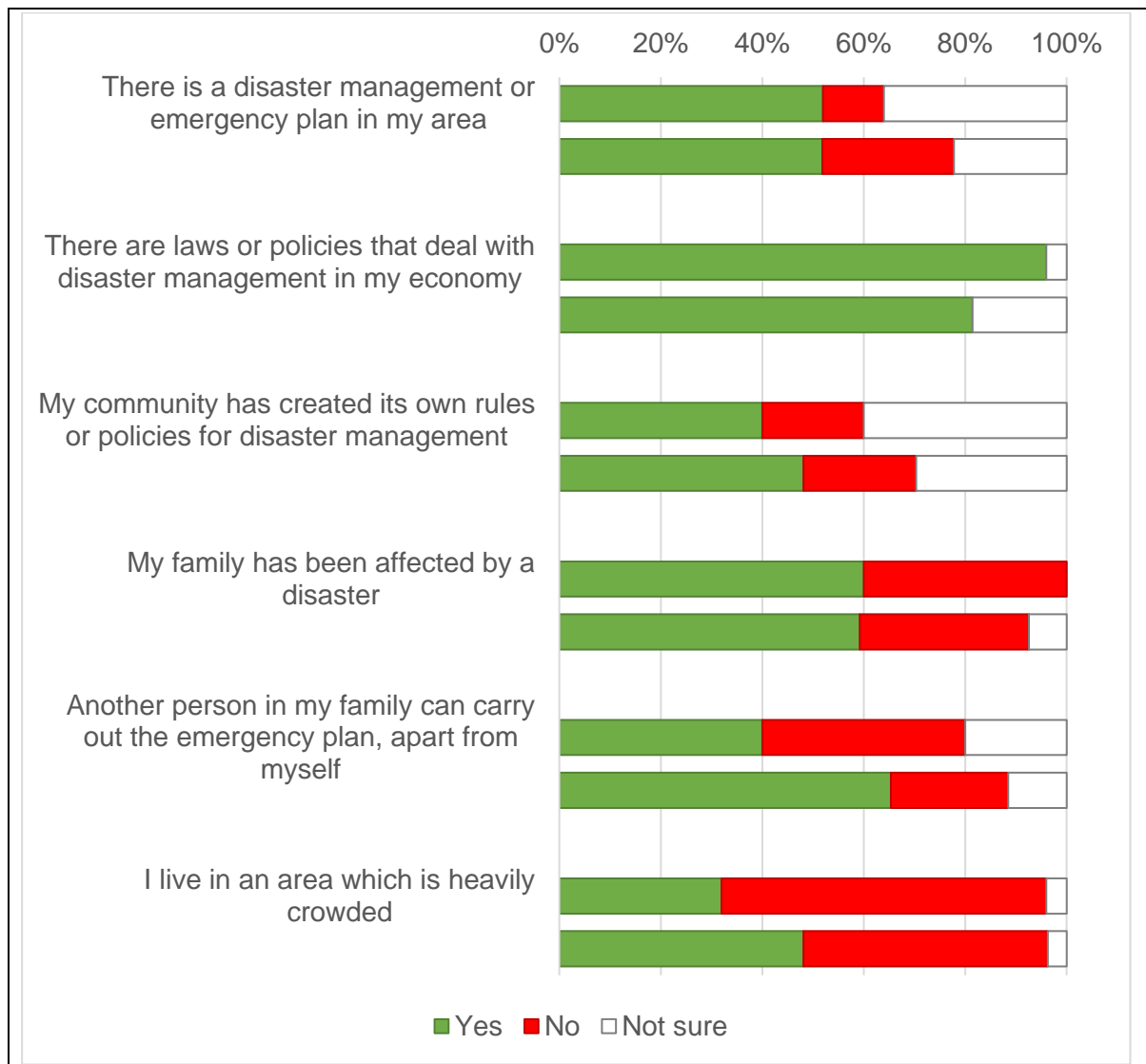


Figure 4.2 Preparations by respondents for any flood disaster that might occur



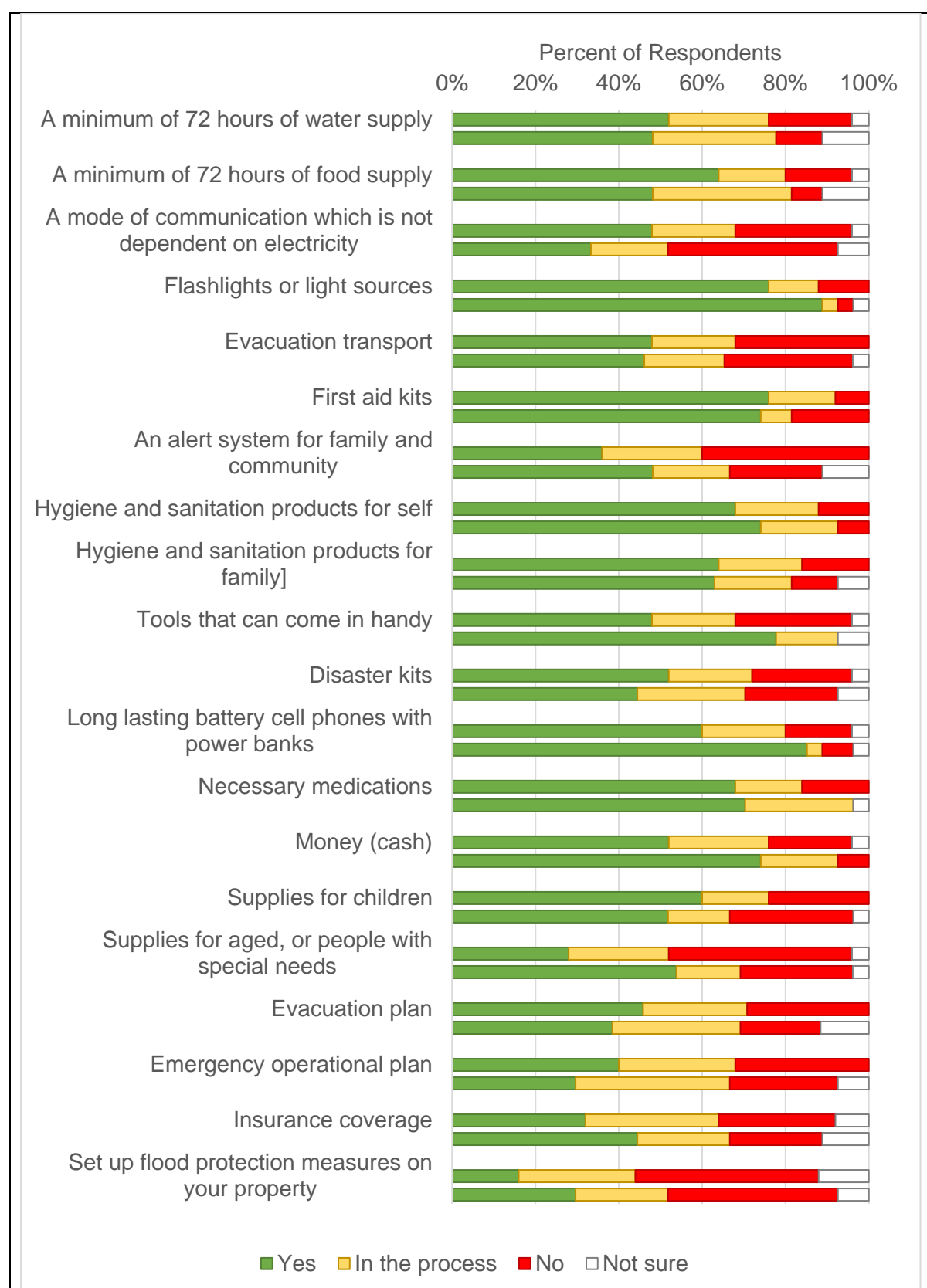
\*Note: For each pair of bars shown for an item, the upper bar represents female respondents, and the lower bar represents male respondents.

Figure 4.3 Flood disaster management in participant's area



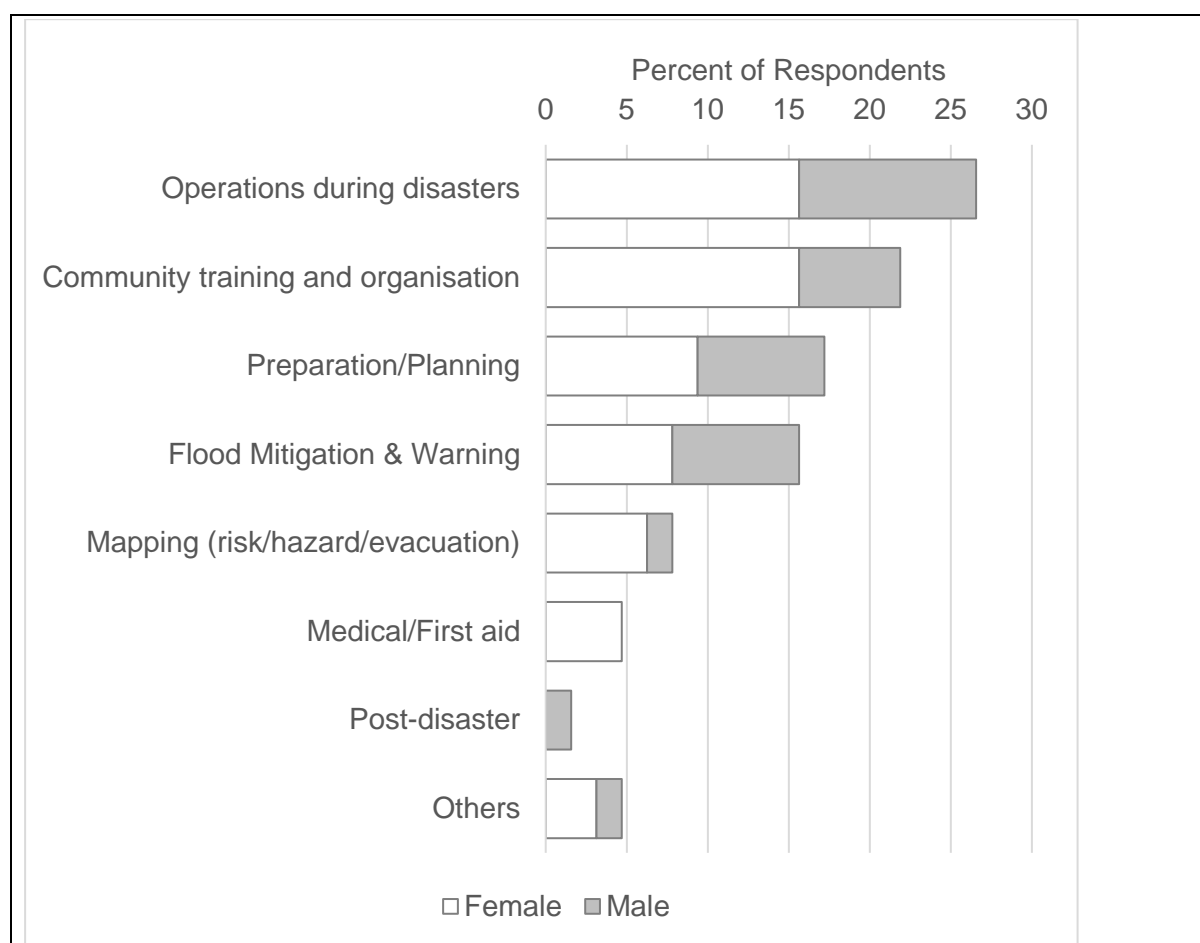
\*Note: For each pair of bars shown for an item, the upper bar represents female respondents, and the lower bar represents male respondents.

Figure 4.4 Respondents have arranged for the following, in case of an emergency or a disaster



\*Note: For each pair of bars shown for an item, the upper bar represents female respondents, and the lower bar represents male respondents.

Figure 4.5 Top items selected for flood preparedness training



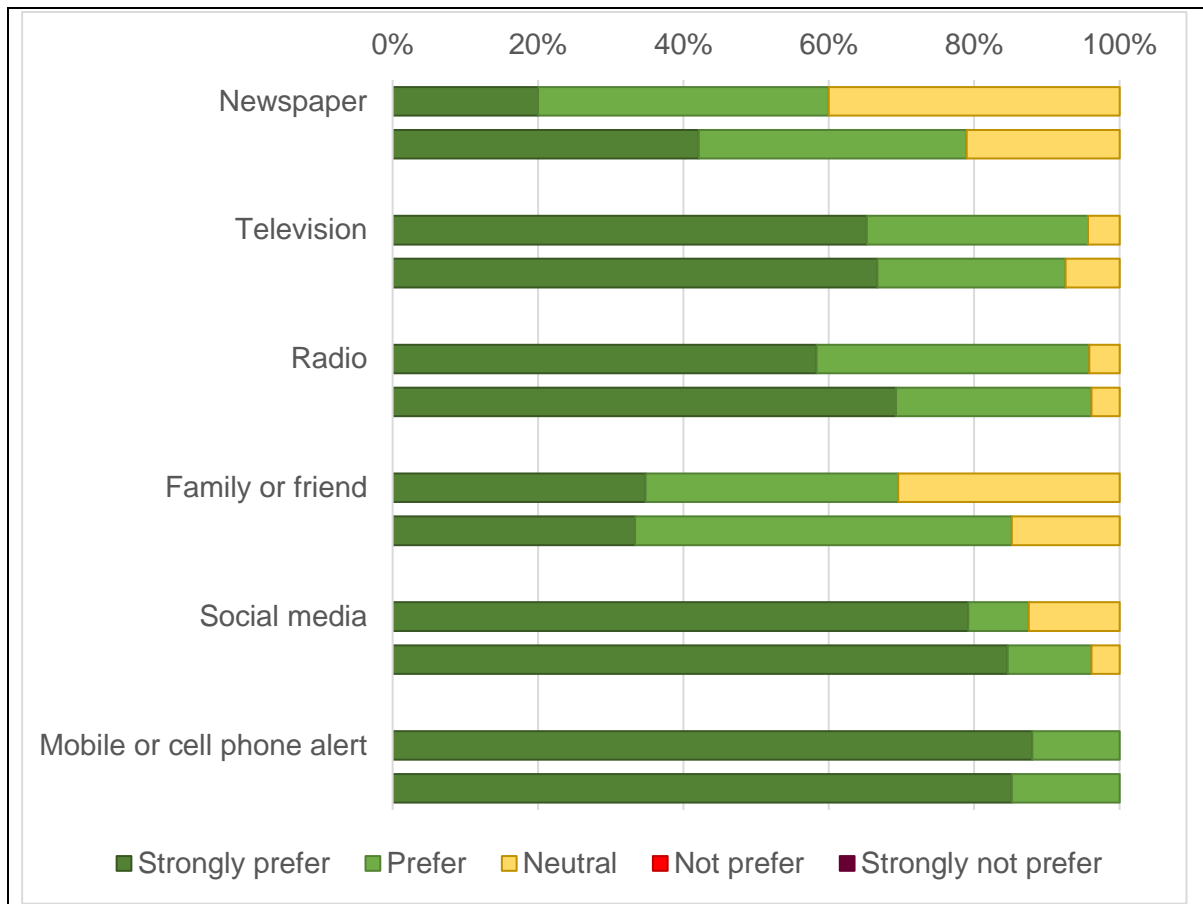
#### 4.2.4 Disaster Information

For the section on flood disaster information, the survey asked respondents on their preferred source of information about the flood disaster or emergency (Figure 4.6), the organisations which should play a role in helping them or their community in preparing a disaster management plan (Figure 4.7), the groups which should be involved in the preparation of community flood response (Figure 4.8), the five most important characteristics for flood disaster resilience and preparedness (Figure 4.9), and the top five barriers to community resilience and preparedness to flood response (Figure 4.10). They were also asked the likelihood that they would recommend a friend or colleague to learn more about disaster management (Figure 4.11).

Most respondents preferred to receive information on through a mobile or cell phone alert, and then through traditional media such as radio and television (Figure 4.6). Newspapers were less preferred, and this is probably related to the timeliness of information. Respondents felt that the domestic or federal government should play the main role in helping them or their community in preparing a disaster management plan, followed by the local authority (Figure 4.7). Women were more accepting of volunteer groups playing a role compared to men.



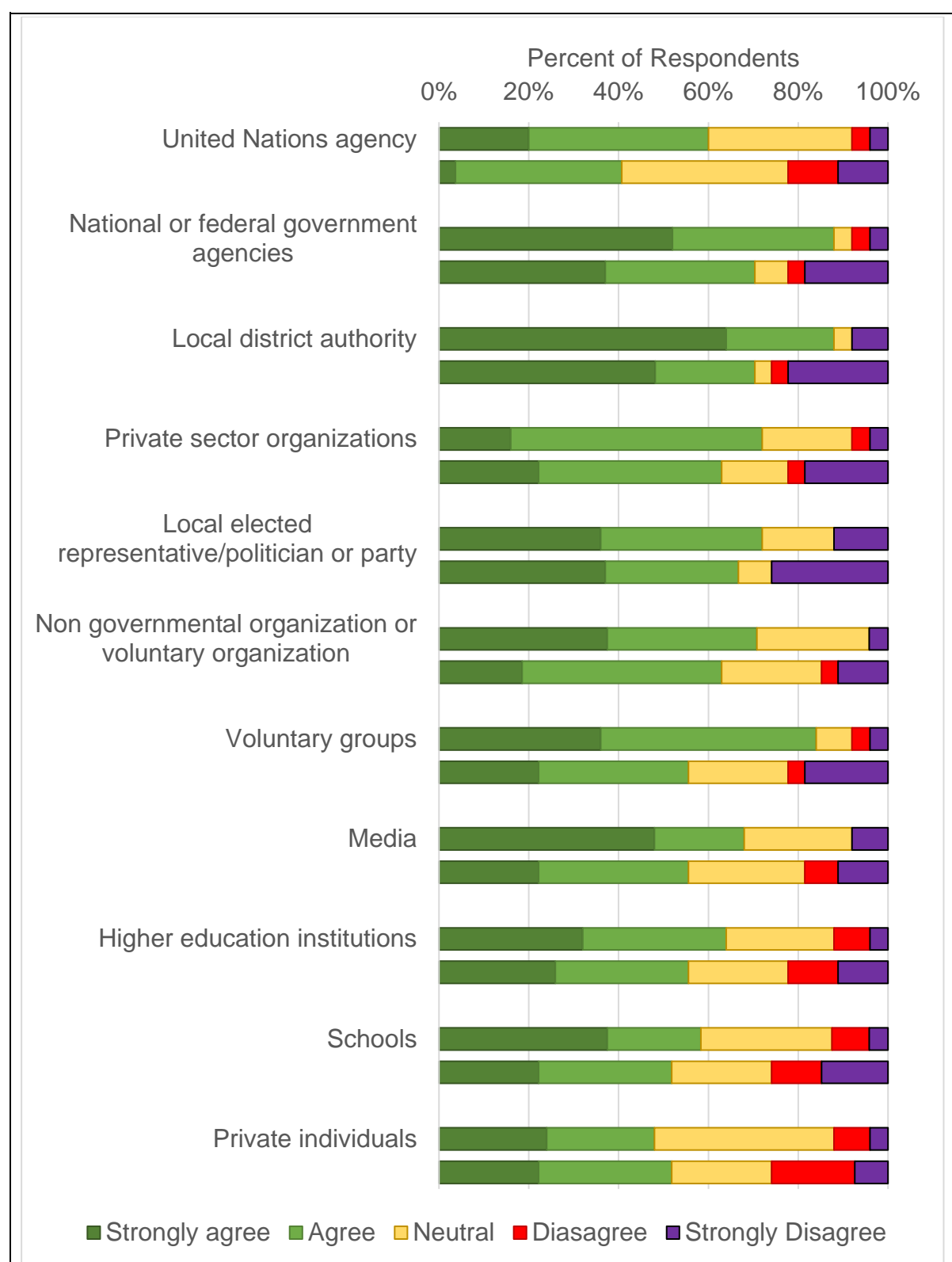
Figure 4.6 Respondents preference of sources to receive information about flood disaster or emergency.



\*Note: For each pair of bars shown for an item, the upper bar represents female respondents, and the lower bar represents male respondents.

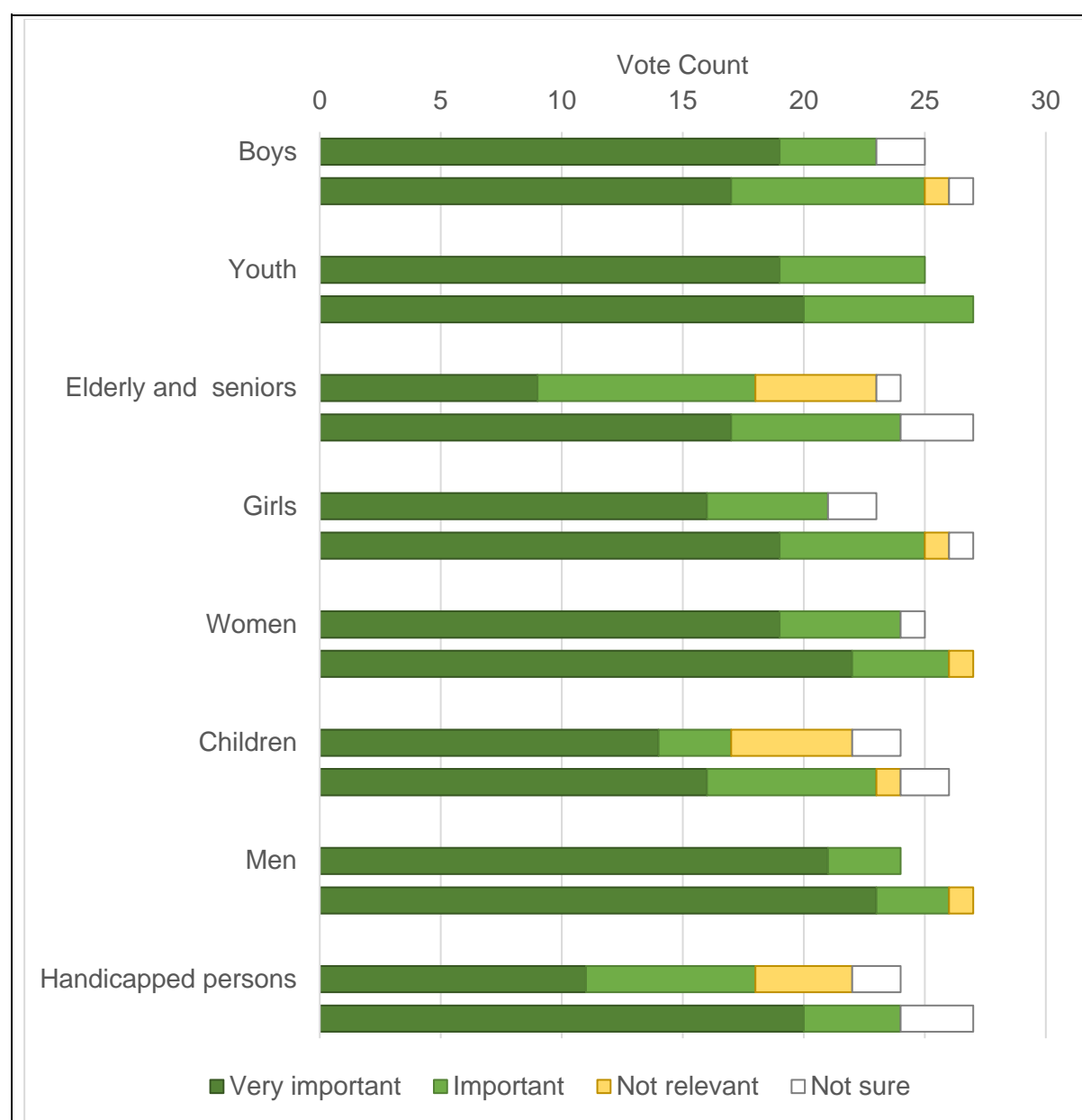
In terms of the different societal groups which should be involved in the preparation of community flood response (Figure 4.8), in general men felt all groups are important to be involved whereas women felt that the elderly and seniors, children and handicapped are not relevant to be involved. This may be due to a wish to protect these groups from having to be involved in what may be perceived as an arduous task. Nevertheless, all groups of people should be involved and consulted although their physical participation may be limited, because during a flood disaster, their awareness of necessary action and the feasibility for them to undertake evacuation or other actions when isolated or far from assistance, is important for their safety. That is action plans need to prepare all groups for action as well as to consider the limitations which might be faced by different groups of vulnerable people.

Figure 4.7 Organisations which respondents think should play a role in the community in preparing a disaster management plan



\*Note: For each pair of bars shown for an organisation, the upper bar represents female respondents, and the lower bar represents male respondents.

Figure 4.8 Groups which respondents think should be involved in community flood response preparation\*.

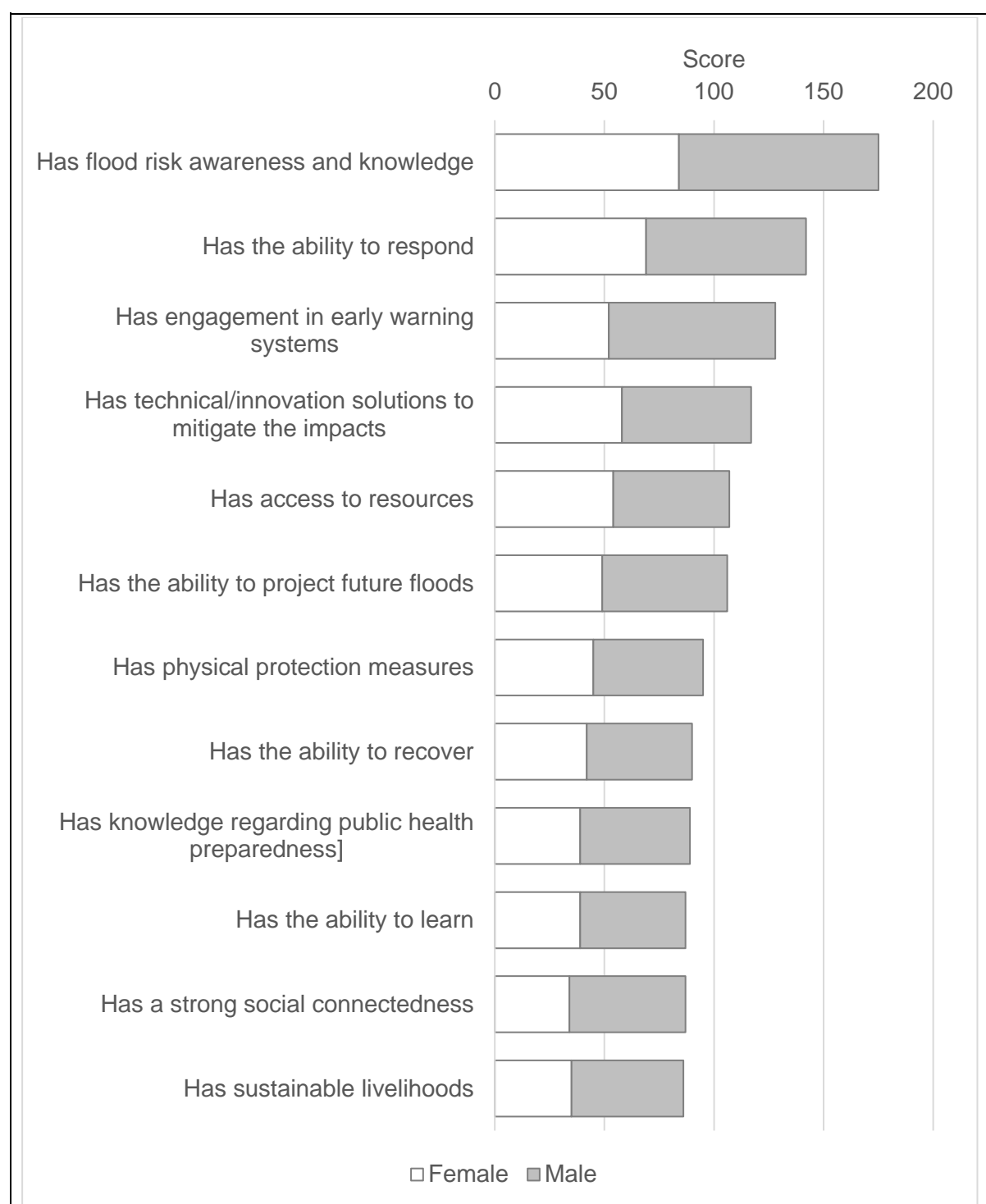


\*Note: For each pair of bars shown for a group, the upper bar represents female respondents, and the lower bar represents male respondents.

Based on the respondents' opinions, the five most important characteristics for flood disaster resilience and preparedness (Figure 4.9) are, in descending order:

- i. Has flood risk awareness and knowledge;
- ii. Has the ability to respond;
- iii. Has engagement in early warning systems;
- iv. Has technical/innovation solutions to mitigate the impacts; and
- v. Has access to resources.

Figure 4.9 Respondents opinion on most important characteristics for flood disaster resilience and preparedness.

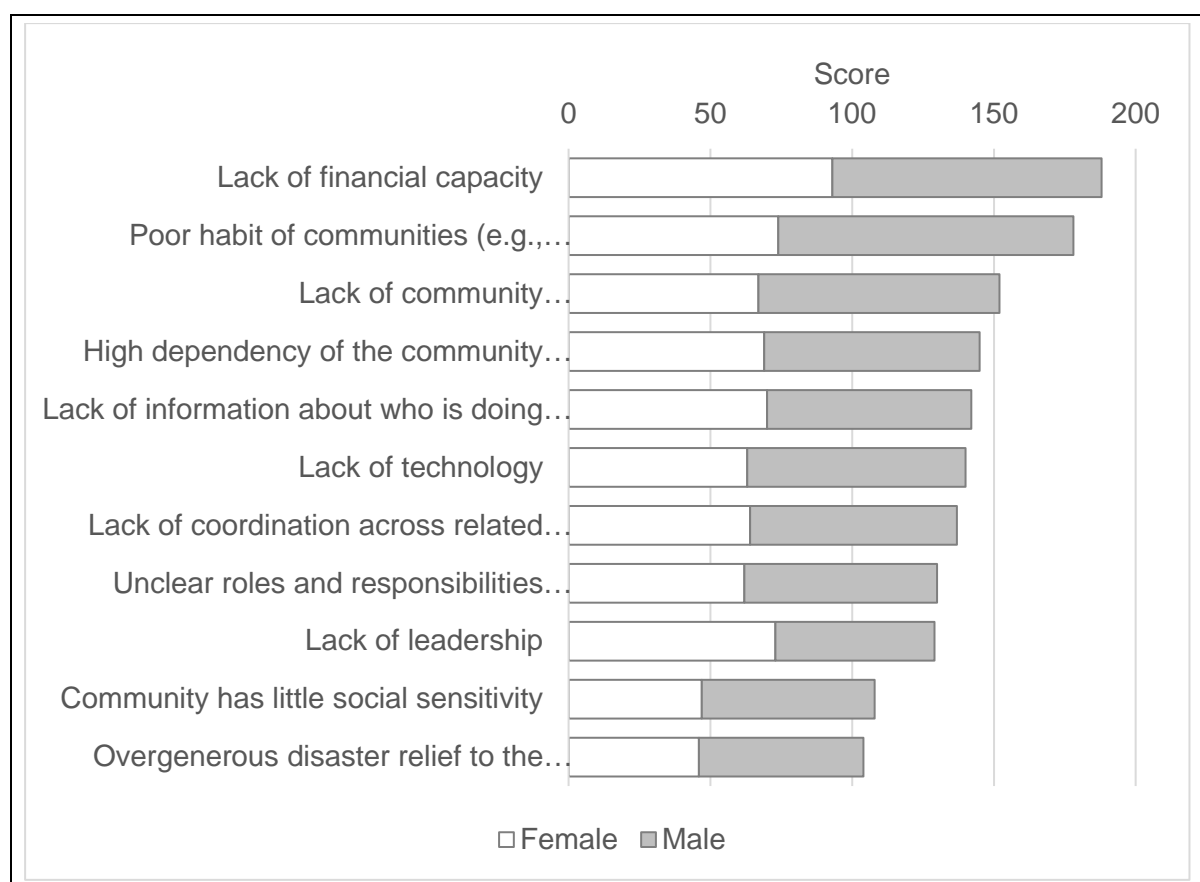


The top five barriers to community resilience and preparedness to flood response (Figure 4.10) are, in descending order:

- i. Lack of financial capacity;
- ii. Poor habit of communities (e.g., dumping waste in rivers);
- iii. Lack of community involvement/participation;
- iv. High dependency of the community members on government relief during annual floods; and
- v. Lack of information about who is doing what, where, and how.

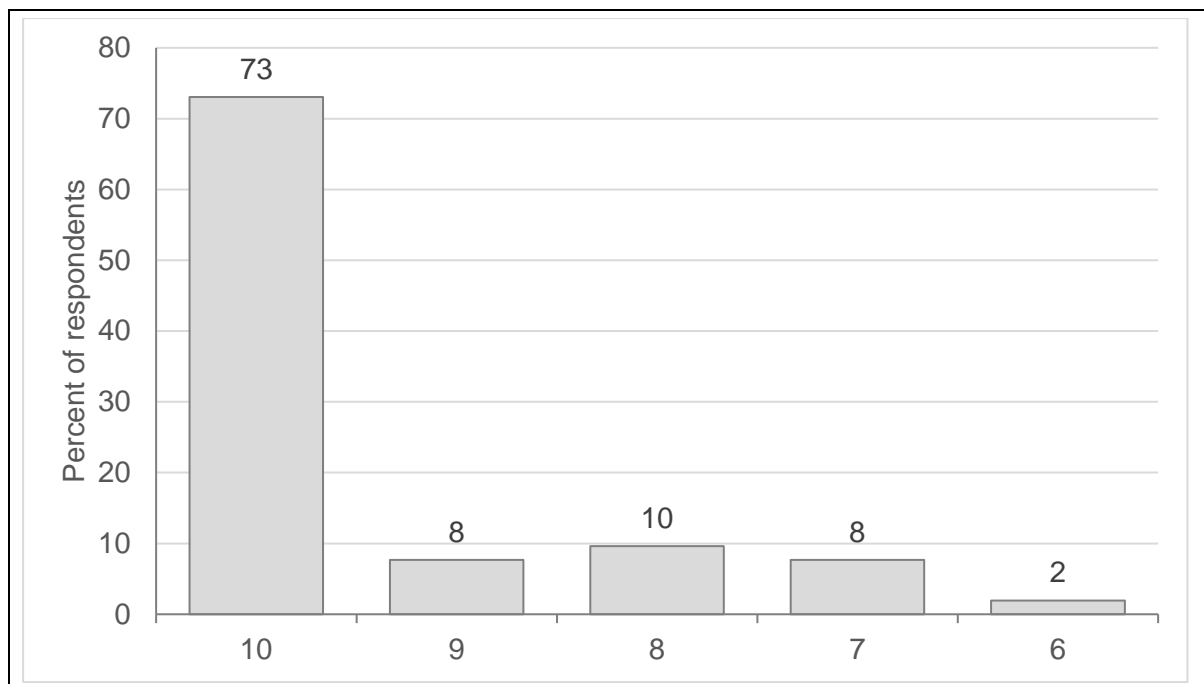
It is notable that of the top five barriers, three are related to community behaviour or participation. Of the top five important characteristics, awareness and knowledge and the ability to respond hold the top spot and these characteristics can be developed by increasing community outreach and facilitating individuals to recognise the different options which they can take to respond to flood disasters.

Figure 4.10 Respondents opinion on barriers to community resilience and preparedness to flood response.



When respondents were asked on the likelihood that they would recommend a friend or colleague to learn more about disaster management (Figure 4.11), on a scale of 1 to 10 with 10 being the most likely, 73% gave a score of 10 indicating that they could be good advocates for disaster management training.

Figure 4.11 Likelihood to recommend a friend/colleague to learn more about disaster management on a scale of 1 (least likely) to 10 (most likely).



### 4.3 In-workshop Surveys

The in-workshop surveys were to evaluate each the suitability and effectiveness of each day's presentations and training. The surveys began after the opening session, that is starting with Day 2. The questions were short and asked respondents if the session objective was achieved, if new knowledge was learned, if the presentation was clear and easy to understand and if the session was relevant for the participants' present duties and useful for their career development (examples are in Appendix C). The response was good with generally about 60% of participants responding. The results are presented in section 6 as workshop evaluation.

### 4.4 Post-workshop Survey

A post-workshop survey was also disseminated to participants, however, this survey only received one respondent who completed the survey. Thus, analysis could not be carried out. It is recommended that in future there could be a specific session within the workshop agenda, at the closing session, for participants to complete the post-workshop survey. This may be less of an issue for a physical, face-to-face event.

## 4.5 Survey on Community Engagement for Flood Disaster Preparedness

A survey on economies' community-based flood management practices and use of Town Watching approach or flood response and evacuation mapping in APEC economies was disseminated to EPWG officials (Appendix D). The question asked for background information on the respondents' organisation and any activities on community training and the use of maps. Respondents from five economies completed the survey.

The results indicate that where floods are one of the hazards faced and awareness, training programmes or drills are carried out more than twice a year to inform the local community, together with active NGOs or CSOs, the respondents are somewhat to very confident that the public will take appropriate action during floods (Figure 4.1a). In the case of Singapore, flood hazards are not one of the hazards faced, however, there is still a high level of confidence that the public will take appropriate action if a flood should occur. This may be related to awareness and training for other types of hazards.

In terms of flood disaster response and evacuation maps, different economies share and engage with different organisations and groups. Some share map information at all the different levels of government as well as with NGOS/CSOs and community groups. Engagement also varies somewhat although different groups at various levels of society are involved in preparing flood response and evacuation maps.

Table 4.1 Overview of community engagement for disaster preparedness.

a. Frequency of community awareness/training programmes.

<b>Economy</b>	<b>Agency type</b>	<b>Flood hazards are faced in the Economy</b>	<b>Frequency of awareness/training programmes or drills to inform local community about responding to flood disasters</b>	<b>Participation of non-governmental organisations (NGOs) and civil society organisations (CSOs) in supporting community awareness/training programmes or drills for flood response</b>	<b>Level of confidence that the general public will take appropriate action when a flood occurs</b>
Chile	Central	Yes	More than twice a year	Very active	Somewhat confident
Chinese Taipei	Central	Yes	More than twice a year	Very active	Very confident
Japan	Regional	Yes	<i>Ad hoc</i> /whenever needed	Somewhat active	Somewhat confident
Malaysia	Central	Yes	More than twice a year	Very active	Very confident
Singapore	Central	No	Never before	Not at all active	Very confident
Thailand	Central	Yes	At least twice a year	Unsure	Somewhat confident

- b. Sharing of flood response and evacuation maps with other agencies or groups.

	Organisation provides maps of the nearest flood evacuation centres to the following groups							Organisation works with the following groups to prepare community or local-level flood response and evacuation maps						
	Central disaster/emergency management agency	Provincial/prefectural/state disaster/emergency management agency	Local government	Local village/community centre	NGOs/CSOs	Education institutes and schools	Other	Central disaster/emergency management agency	Provincial/prefectural/state disaster/emergency management agency	Local government	Local village/community centre	NGOs/CSOs	Education institutes and schools	Other
<b>Economy</b>														
Chile	ü							ü	ü	ü	ü	ü	ü	
Chinese Taipei	ü	ü	ü	ü	ü			ü	ü	ü	ü	ü	ü	
Japan*														
Malaysia	n.d.	n.d.	n.d.	n.d.	n.d.	n.d.	n.d.		ü		ü	ü	ü	
Singapore								ü						
Thailand	ü	ü	ü	ü	ü			ü	ü	ü		ü		

Note: n.d. – not determined

\*Responding agency is at regional level and this question may not be relevant to its scope.

## 5. Session Presentations

### 5.1 Pre-Workshop Briefing on 10 June 2021

The pre-workshop briefing was conducted by the trainer Dr Kalithasan Kailasam, Manager, River Care Programme, Global Environment Centre. There were two parts to the session. The first part provided an overview of the workshop as well as familiarization of Zoom features that would be useful throughout the workshop. Dr Kalithasan provided an introduction the workshop itself, the workshop agenda as well as expected outcomes and the workshop procedure for each day. An ice-breaking session was also conducted.

Dr Kalithasan introduced the Project Overseer, himself as the trainer, the session speakers, as well as facilitators and rapporteurs, secretariat who would be involved throughout the 8-day workshop. The second part of the briefing involved exercises for hands-on familiarization of Zoom features. Two activities took place where the participants were encouraged introduce themselves using the microphone function



and then participants were asked to share something about themselves using the chat function.

## 5.2 Workshop Day 1, 15 June 2021, Opening Ceremony

### 5.2.1 Opening Ceremony

The Project Overseer, Dr Zelina Zaiton Ibrahim, welcomed participants to the workshop and invited the Honourable Datuk Dr Aminuddin bin Hassim, Director-General, NADMA of Malaysia to officiate the opening of the workshop.

Datuk Dr Aminuddin welcomed all participants to the eight-day EPWG workshop and thanked all the co-sponsoring economies; Chile, Chinese Taipei and Japan for their support and for sending speakers to share their experiences during the workshop. He also thanked NOAA of the United States, for nominating their expert to present their special programme with the World Meteorological Organization (WMO), on Weather Ready Nations. He stated the mission of the EPWG and explained that the purpose of the workshop. Datuk Dr Aminuddin highlighted the three main objectives of the workshop, which are:

- i. To enhance the capacity of community trainers to enhance community resilience towards flood disasters, to address the issue of increasing flood risk as result of climate change and growing human settlements in flood-prone areas;
- ii. To share and create ownership by providing tools for developing community-based maps and preparedness procedures using the Town Watching approach;
- iii. To empower APEC economy representatives to implement the methodology during the workshop and propose a plan for similar training and dissemination at their economy level.

Datuk Dr Aminuddin reminded the audience of the importance of community participation under the Sendai Framework and touched on the effects of climate change on flood frequency and intensity.

The Honourable Datuk Dr Aminuddin concluded his opening address by pointing out that town watching activity is very useful in training communities to be prepared to face disaster as well as to reduce disaster risk in their neighbourhood. He then officiated the opening of the workshop.

After the official opening, the Project Overseer introduced the Keynote Address speaker.

### 5.2.2 Keynote Presentation on Weather Ready Nations

The Keynote Address was presented by Dr Rochelle Campbell from NOAA, USA, who presented on the Weather Ready Nations programme of NOAA/WMO.

Dr Rochelle Campbell stated that 2020 had a higher than the annual average in terms of number of recorded weather events and the annual average of economic losses, was estimated to be US\$ 151.6 billion, indicating an escalating scale of losses from natural hazards. This can reverse the effort and progress in poverty reduction and development. She introduced the Weather Ready Nation approach which is based on four key elements:

- Disaster risk knowledge
- Monitoring and forecasting of hazards and impacts
- Dissemination and communication
- Preparedness and response

Dr Rochelle Campbell emphasized that a paradigm shift in all aspects of disaster risk is critical especially in engaging communities. Impact-based forecasting considers information on the elements at risk, that is, the exposure and their vulnerability, and this can extend to the traditional forecasting model chain by translating the hazard characteristics (intensity, duration, and spatial extent) into impact statements. It is important to focus energy on areas that are prone to have the worst impact. User co-production approach to forecasts and early warnings can help ensure communities are prepared to face disasters.

It is important to disseminate and communicate information, especially early warning, effectively in order to prompt action by target groups. This is indicated by a survey on decision-making for tourist trips to the San Salvador Volcano under heavy rainfall conditions. The survey showed that when the forecast for heavy rainfall is followed by information that the heavy rainfall could result in landslides and mudflows, more people chose to suspend their trip to the volcano. When the impact of the weather is communicated effectively in terms of impact, the survey participants can make decisions to reduce possible impacts to them.

Dr Rochelle Campbell concluded the session by emphasizing the importance of disaster risk and impact-based forecasting to reduce probable impacts, by mitigating secondary hazards, and reducing exposure and vulnerability.

### 5.2.3 Question and Answer Session

The following questions and answers were discussed in the session:

- How is education for remote villages on disaster risk conducted especially when they would have to relocate?
  - Dr Rochelle Campbell replied that it would be very challenging. One important factor is to be able to understand the gender roles in the community, especially on who is close to whom and the message which one is trying to deliver. Local knowledge is very powerful.
- Did the San Salvador Volcano example utilize ArcGIS?

- Dr Rochelle Campbell stated that they do use ArcGIS and are advocating all to use ArcGIS but open-source software, such as QGIS, is cheaper and simpler and works just as well.
- How long does it take to gain people's trust to join the programme?
  - Dr Rochelle Campbell responded that usually it takes 3 to 4 workshops for the targeted participants to understand the concept and understand what they are trying to do. The time can be reduced by listening to the community and especially by taking in their opinion on the matter. Being open, honest and forthright will help as well.
- In terms of budget, based on your experience, how much or what percentage should be allocated for preparedness?
  - Dr Rochelle Campbell stated that she did not have much knowledge on the budget. In the US, initially the project will start as a small project with limited budget but eventually it will get support from other parties, other than the government and disaster management department.

### 5.3 Workshop Day 2, 16 June 2021, Panel Session: Sharing of Experiences in Flood Preparedness and Response

#### 5.3.1 Panel Session

The session was chaired by Prof. Dr Jegatheswaran Ratnasingam, Faculty of Forestry and Environment, Universiti Putra Malaysia. The session provided an overview of community-based flood preparedness and response presented by Chile, Chinese Taipei and Malaysia. This was then followed by a question-and-answer session.

#### 5.3.2 Disaster Risk Reduction in Chile: A Community-Based Approach for a Resilient and Sustainable Development

The presentation was made by Mr Cristóbal Mena, National Deputy Director, ONEMI, Chile.

Mr Cristóbal Mena provided an overview of disaster risk reduction especially community-based approach in Chile. Chile is a vulnerable economy and prone to disaster as they have seven of the nine variables that determine vulnerability of an economy. Based on a study by Munich Re, there is significant increase on the number of disasters occurring in Chile since 1980 until now. In the World Economy Forum 2020, the Global Risk Landscape 2020 report showed that environmental-based disasters have the biggest impact towards the economy.

Chile has passed a new law called the *National System for Disaster Preparation and Response*. The system puts citizens at the centre where they will be empowered on skills, product and knowledge to prepare for disaster. ONEMI's role is to coordinate the whole system as well work together with the strategic allies in order to achieve objectives. To go towards risk-informed sustainable development, all key parties have

to move together using frameworks such as the Sendai Framework, the SDG goals, the Paris Agreement, as well as the New Urban Agenda.

The AIDEP-ACCEDER methodology is one of Chile's main methodology and instrument in community-based preparedness. The AIDEP methodology promoted the collaboration between local government and community to find risk and prioritize them while the ACCEDER methodology is a simple tool that aims to guide and facilitate the development of an emergency plan by the local communities. Another methodology used is the Building Community Emergency Response Team, which aims to provide basic training for a community to promote prevention, preparation and response of community toward occurrence of emergency and disaster. Information is also shared through the ONEMI website in multiple languages for citizens who want to take action by themselves.

Mr Cristóbal Mena concluded the session by saying that disaster management is an investment. Firstly, through avoided losses, it can be seen as a return of investment on an economic development action and lastly through co-benefits, it can be seen as contributing to building social capital.

### 5.3.3 Going Beyond Community Hazard Mapping

The presentation was made by Dr Gloria Yi-Chung Liu from the NCDR, Chinese Taipei.

Chinese Taipei is prone to natural disasters especially floods during the typhoon season. The traditional response of the citizens is taking action only when the flood is happening while the government is responsible to take action on evacuation and rescue. Two catastrophic events in Chinese Taipei in the last decade showed different outcomes due to the different approaches which have been taken, which is the bottom-up approach. Some of the initiatives of Community-based Disaster Risk Management (CBDRM) are lectures, town watching, workshop, outreach, training as well as drill and exercise. A guide to CBDRM is shared with the community for their reference.

Community-based Hazard Mapping were also implemented at high-risk areas. The maps are put in public areas for everyone to see. Two methods used are the Participatory Rural Appraisal (PRA) and Participatory Assessment of Disaster Risk (PADR). Dr Liu shared a recent example of Participatory Community-based Hazard Mapping in Jialan Village using Google Map. The community are also encouraged to do desk-top exercises and emergency response drills. After implementing CBDRM, the community had come up with flood-coping strategies.

The main part of the CBDRM is building a Community Disaster Task Force, which is responsible to monitor the evacuation of the community and to work together with the local authorities. They will utilize social media to relay information on disaster to local communities. The outcome of the implementation of CBDRM have turned the role of community from a passive to a more active role. Residents and community leaders can better cope with disaster.

Dr Liu concluded the presentation with sharing Chinese Taipei's collaboration with other economies in CBDRM. In 2019, Chinese Taipei did a cross-boundary collaboration with Malaysia through the Crisis Relief Squad of the Chinese Malaysia Association to share on Participatory Community-based Hazard Mapping. Other than that, NCDR have also worked with local governments in Nepal and the Philippines.

### 5.3.3 Sharing of Experiences in Flood Preparedness and Response

The presentation was made by Ms Hayatul Husna Kamaruddin from NADMA, Malaysia.

Ms Hayatul Husna explained that in Malaysia, the primary hazards faced are monsoonal floods, landslides and atmospheric haze. About 10.1% of Malaysia's total area is flood prone and affects 5.67 million people. Disaster preparedness and response in Malaysia are based on the NSC Directive No. 20. There are three levels of disaster management mechanism where the first level is chaired by the District Officer, the second level is chaired by the State Secretary and at the third level, it will be chaired by the Deputy Prime Minister. The differences in the levels are based on the size and extent of the disaster.

In Malaysia, the Department of Irrigation and Drainage Malaysia is the agency responsible for the flood forecasting and warning system. Information is shared with the public through Short Message Service (SMS), telephone, facsimile as well as through websites. Warning sirens are also installed at flood prone areas. The biggest flood disaster was the 2014/2015 flood which affected the northern and eastern states in Peninsular Malaysia. More than 500,000 people were affected with an estimated RM2.58 billion of losses. At the time, the flood response mechanism was the NSC as the leading agency to coordinate the other agencies to carry out their respective functions.

Ms Hayatul Husna continued with her presentation on lessons learnt from the 2014/2015 disaster, which led to the establishment of NADMA and a wider coverage for the flood forecasting and warning system. More flood hazard and risk maps were developed as well as awareness programmes for flood prone areas. Several exercises and trainings took place in collaboration with various agencies as well as with local communities. She concluded with the new Standard Operating Procedure (SOP) for management of flood victims under the Covid-19 pandemic, which has proven effective during the 2020/2021 flood event.

### 5.3.4 Question and Answer Session

- Question to Mr Cristobal Mena: How to ensure and handle inclusivity during disaster management planning especially for elderly and handicapped community?
  - Mr Cristobal Mena stated that Chile have come up with a policy and one of the focuses is on human rights where agencies have to ensure that in

all planning, everyone should be included, no matter what gender, age, and disability. Chile has been aligning all emergency kits to a standard, for example, there are hygiene kits for women, for men, and it must be ensured that the size of the kit is suitable to be carried by all. Not just in disaster management planning, the local development planning has to follow a certain standard that includes the handicapped community as well as consider gender.

- Question to Dr Gloria Liu: What is the role of the business community in CBDRM in Chinese Taipei?
  - Dr Gloria Liu answered that the business community is the most difficult to approach in CBDRM. If the business community is located in the flood prone area, they will be exposed the same event as the local community. Early warning will be given so that they can get ready to protect their business from losses. Some business that are not affected by floods but are vital to the community involved, for example, collaboration with supermarkets which can be the main supply of food for the community. Another example are pharmacies. They help to provide medicines and first aid in time of disasters. In CDBRM, we get the community to encourage the business community to be part of the disaster management plan and to collaborate and help each other.
- Question to Ms Hayatul Husna: How does NADMA organise the Clothing Bank for Disaster Relief Project (CB4DR) Programme at evacuation centres especially in the flood affected states of Kelantan and Terengganu?
  - Ms Hayatul Husna answered that NADMA collaborated with various agencies, for example, the Social Welfare Department, and worked together with them to store the clothing. Now, NADMA ensures that only the Social Welfare Department is responsible to disseminate the clothing in order to reduce spreading of the Covid-19 virus. The campaign is carried out throughout the year.
- Question to Mr Cristobal Mena: What are the nine variable of vulnerabilities that is monitored and were there any changes after implementation of disaster risk reduction?
  - Mr Cristobal Mena stated that the variables or criteria are from the Intergovernmental Panel on Climate Change (IPCC). Two variables were not applied as Chile is not an island economy or land-locked economy. Chile monitored the changes of level of vulnerability by conducting Underlying Risk Driver Survey with the local community under the local government. This covered four main measures, which are Climate, Change, Governance, Social and Urban Planning. Through this survey, assessments can be done, and recommendations will be shared on how to close the gaps.

- Question to panellists: Do you offer community-based disaster training of trainers, and if so, is it possible to conduct training among communities in the Philippines?
  - Mr Cristobal Mena replied in the affirmative that Chile does conduct training and to contact Mr Alvarro, one of the participants, for more information as he is also one of the trainers in Chile. Ms Hayatul Husna replied that NADMA has developed a module and it has been used by other agencies, NGOs and local communities as a guideline.
- Question to Dr Gloria Liu: How does Chinese Taipei integrate the output of CBDRM into a domestic masterplan or a framework at a higher level and how long does it take to integrate?
  - Dr Gloria replied that Chinese Taipei had been implementing CBDRM for more than 10 years. Within the first 10 years, the central government coordinated the CBDRM and then the local government started to adopt them as well. In time, the coordination expanded to the regional government. After a certain number of years, the networking became better. Now when there are typhoon alerts, there are two ways to approach through the CBDRM. The central level will start sending messages to the local government and media while the local community will also collect their local data and use social media to alert others.

## 5.4 Workshop Day 3, 17 June 2021, Panel Session: Town Watching Approach for Flood Disaster Response Planning

### 5.4.1 Panel Session

The session was chaired by The Honourable Dato' Ir Hj Mohd Azmi Ismail, Deputy Director-General, Department Irrigation and Drainage (DID), Ministry of Environment and Water. The session provides an overview of town watching approach for flood disaster response planning by Japan and Malaysia.

### 5.4.1 Town Watching Experiences from Japan and Other Implementations

The presentation was made by Dr Shiomi Yumi, Senior Researcher, from the Asian Disaster Reduction Center (ADRC), Japan.

Dr Shiomi Yumi started her presentation with a video on Town Watching for Disaster Reduction and Early Warning: Community Based Hazard Mapping explaining on the Town Watching Activity in Japan by the United Nations International Strategy for Disaster Reduction (UNISDR) at that time. Dr Shiomi Yumi explained that Professor Ogawa, Executive Director of the Asian Disaster Reduction Center developed the first concept of Town Watching. Dr Shiomi Yumi played a second video on current methods of Town Watching for Disaster Risk Reduction (DRR) and Hazard Mapping with Online Tool by Dr Arakida Masaru. The video showed some examples of previous and current methods of hazard and risk mapping. In Japan, ADRC contributed to the Asian

Development Bank (ADB) project to apply Science Based Targets (SBT) and Information and Communication Technology (ICT) to strengthen disaster resilience. The outcome of the ADB project was utilized in the transboundary disaster management research project to provide volcanic hazard maps and evacuation centre information during normal times.

Dr Shiomi Yumi stated that Japan is prone to disasters such as earthquake, tsunami, volcano eruption, heavy rain, typhoon, flood, and landslide. In the rainy and typhoon season, rainfall tends to be more intensive. In the last three years, Japan faced three major flood disasters. The recent flood in Central Western Japan which destroyed about 6,000 houses and killed 86 people was significantly lesser than the one in 2018 where the flood in Western Japan destroyed 18,000 houses and killed 237 people. Hazard mapping in Japan is the responsibility of the local government and as of 2020, 98% of local governments have already publicized their Flood Hazard Maps covering about 2,000 rivers. The maps are distributed to each household and uploaded in the local government website portal. In the recent flood in 2018, when compared to a map of inundated areas of flooding developed in 2017, the developed hazard map is very accurate and can show which areas are prone to flooding.

CBHM is used nationwide in Japan and started after community-based maps became widely used after the 1995 Kobe Earthquake. Initially it was only used for awareness. Over time more people became committed, and this has helped to build community resilience. CBHM was incorporated in the Community Disaster Management Plan. The guidelines were developed by the Cabinet Office in 2014. Other government agencies such as the Ministry of Land, Infrastructure, Transport and Tourism also came out with a guideline on developing “MY DRR Map” or “MY DRR Plan” targeting community. The guideline includes publishing the map and plans and their distribution to the community members as well as suggestions on conducting DRR Drills and updating the map and plan regularly.

To conclude the presentation, Dr Shiomi Yumi shared that ADRC conduct various training programs for all levels at various targeted areas. The training and workshop is simple, easy and applicable.

#### 5.4.2 Malaysian Experience in Town Watching

The presentation was made by Dr Kalithasan Kailasam, Manager, River Care Program, Global Environment Centre, Malaysia.

The session introduced the disaster management initiative in Malaysia by NADMA. One of the roles and responsibilities of NADMA is to coordinate the implementation of public awareness programmes. The presentation highlighted Global Environment Centre (GEC)’s Flood Ranger Programme, which promotes the PREPARE Approach towards community-based flood resilience.

Dr Kalithasan explained the six components of the Flood Ranger Programme:



1. SMART Partnership – the programme developed compliments the NADMA framework and helps to balance the role and responsibility of all stakeholders;
2. Flood Ranger Module – a highly effective approach that can be adopted by all levels of the community and through community-based initiative. This was developed in 2015 by Malaysian Water Partnership (MyWP) and GEC in partnership with UPM, NADMA, DID Malaysia and the relevant local authority, Majlis Perbadanan Kelang (MPK)
3. Training and Workshops – this empowers the key stakeholders especially local communities. Each workshop/training will have a customized agenda to suit the local condition and setup;
4. Tools and Materials – various tools and materials are shared with all stakeholders to help build community resilience towards flood;
5. PREPARE Training - more than eight trainings have taken place in all regions in Peninsular of Malaysia since 2014 by MyWP and GEC; and
6. Post Training Activities
7. Town Watching
8. Sharing
9. Recovery.

#### 5.4.3 Question and Answer Session

- Question to Dr Shiomi Yumi on how often the hazard maps were being updated and how the community-based map is integrated with the domestic hazard map and vice versa.
  - Dr Shiomi Yumi stated that the official hazard map which is the responsibility of the local government is fully dependent on the capacity of the local government including budget, expertise and other matters. The big cities can update the hazard map every year while for other smaller cities, the maps are not updated as frequently. The hazard map is developed under the Government Guideline, and once the guideline is updated, the hazard maps have to be updated as well.
- Question to Dr Shiomi Yumi on any platform that civilians can continuously contribute to the official hazard mapping and any information screening before it is published.
  - Dr Shiomi Yumi explained that for the official hazard map, the input of community is not highlighted. There are challenges to community hazard mapping. An example being that the map developed is at a small-scale and not suitable to be incorporated into the official hazard map as it contains privacy issues.
- Question to Dr Kalithasan on whether GEC have disaster rescue personnel and equipment for localized rescue and for the mapping, does GEC incorporate GIS to make the map updatable.

- Dr Kalithasan stated that GEC does not have the resources, but GEC's modus operandi is to work together with agencies such as Fire Rescue Brigade and to tap into resources available in the area. GEC's role is to create a link between local communities and relevant agencies. The main aim of the Flood Ranger is to encourage a bottom-up approach. Trainings are conducted within rural areas where the community are IT illiterate. Thus, it is important to take into account the community's ability and to work together with them. GEC will digitalize the outcome of mapping and share them to the agencies.
- Question to panellists on who the key players are, and on the authority and officials responsible in the development and updating of hazard maps.
  - Dr Kalithasan replied that the programme developed in Malaysia is a bottom-up approach, which champions the affected local community. The key responsibility falls onto the community but the SMART Partnership concept requires the relevant agency, especially local agencies, to play its role and support the community. Dr Shiomi Yumi agreed with Dr Kalithasan's input and emphasized the important role of the community leader. The main challenge in Japan is that community leaders are usually the elderly. The sustainability of initiative by the community leaders and its members is very important.
- Question to Dr Kalithasan on how to measure effectiveness of trainings conducted.
  - Dr Kalithasan replied that within GEC, the most important part of the training is monitoring. Two main methods used are, firstly, to directly monitor the community for what they do and if there are any reduction of issues after the training and secondly, to make sure to link the community with local authorities and relevant agencies to monitor and improve infrastructure to help reduce flood occurrence in the area. GEC provides a platform for local authorities and relevant agencies to monitor the local community.
- Question to Dr Kalithasan on how to ensure the sustainability of community-based disaster preparedness in the future.
  - Dr Kalithasan replied that there is no one single solution to this but based on experience, ownership by the local community is very important. People need to know that the programme benefits them, and not just for the sake of conducting an activity. Support and recognition from local agencies can also be motivating for the community to sustain the programme.
- Question to panellists on their own experience of the greatest challenge to sustain the programme mainly on the motivation of the community
  - Dr Kalithasan explained that the stumbling block is the attitude of the community. Most people feel that the responsibility falls under the

government. The consultation phase is the most important phase to get buy-in and ownership of the community and to convince them to reconnect themselves to nature. Malaysia should start doing flood drills to prepare the community. Dr Shiomi Yumi stated that in Japan the most challenging part is involving the people in the town watching activity although it is the most important part. The town watching activity should be made fun to motivate the local community.

## 5.5. Workshop Day 4, 18 June 2021, Town Watching Exercise Briefing

### 5.5.1 Town Watching Exercise Briefing and Examples

The presentation was made by Dr Kalithasan Kailasam as the trainer. He presented a step-by-step implementation of Town Watching activity. Town Watching activity is a simple and practical tool for efficiently implementing community-based hazard mapping in various local communities around the world. It was originally used to support town planning; however, it was also used in reducing and prevention of disaster impacts such as from floods. The approach is used to identify areas which are prone to risks of danger and to plan routes which are safe to travel along, for example during the occurrence of floods in community/residential areas.

Town Watching activity focuses on two main outputs, which are:

- a) Community-Based Flood Hazard Map (CBFHM);
- b) Community-Based Flood Response Plan (CBFRP).

The flow of Town Watching activity emphasized during the session is the following:

- a) Selection of Project Site;
- b) Early Preparation;
- c) Implementation of Town Watching;
  - i. Preliminary Review of the Area;
  - ii. Town Watching Map Development;
  - iii. Presentations and Discussions;
  - iv. Submission and Sharing.
- d) Follow up.

Towards the end of the session, participants were briefed on preparation they should make for a practical exercise session to take place on Day 6 of the workshop. Implementation of the practical session was optional but encouraged as it depended on the capacity of the participants and the situation in their local area.

### 5.5.2 Use of Electronic Mapping applications (E-Maps) – Interactive

The session was conducted by Dr Zelina Zaiton Ibrahim, Universiti Putra Malaysia.

Dr Zelina introduced the topic of digital applications for developing maps. She explained that she would show four steps to be familiar with and progress in the use of digital mapping applications. Step 1 is a hand-drawn map; step 2 is drawing a map using Microsoft PowerPoint; step 3 is drawing using Google My Maps and step 4 is drawing using Google Earth Pro Desktop. She emphasised that all mapping applications or Geographic Information Systems (GIS) will have a minimum of 3 types of objects which are arranged in layers. The objects are point, line or polyline and polygon. Once the basics of these objects and layers are understood then participants should be able to use any other mapping software. She also mentioned that many mapping applications or GIS will allow images and descriptive text to be added.

She then proceeded to present exercises which the participants could follow to create simple map drawings using the four steps. Participants were asked to draw a simple map of a room using the shapes in MS PowerPoint. After that she explained how to open and use Google My Maps. She asked participants to draw some simple objects using the My Maps application, such as point (Marker), lines and polygons or shapes. She also gave examples of flood response maps drawn for selected sites in Malaysia which participants could view on My Maps.

Finally, she demonstrated the use of Google Earth with reference to several online videos available on YouTube. These included drawing points (Placemark), lines (Path), polygons, organising files and folders, adding photographs and images, and finally, overlaying an image.

The time taken to go through the material was longer than the allotted time and in future training, more time would need to be allocated for this session to allow participants to be able to become familiar with the different controls.

## 5.6 Workshop Day 5, 21 June 2021, Town Watching Exercise Briefing

The training was conducted by Dr Kalithasan Kailasam on the steps to implement a Town Watching exercise.

The session started with a summary of the Flood Ranger Programme and Town Watching activity presented in the previous session. Trainer, Dr Kalithasan went through step-by-step of the implementation of Town Watching with the help of three videos developed by Global Environment Centre.

The first video explained the first three steps, which are i) preliminary review of the area, ii) town watching map development and iii) presentations and discussion. This was followed by two exercises where participants were asked to identify the potential local community flood-evacuation gathering centre (LCFGC) through a drone video of an area in Malaysia. Participants listed the advantage, disadvantages, weakness, and enhancement needed of each of the proposed LCFGCs through the Zoom chat box function. This was followed by the third and fourth exercise which focused on identifying a safe route as well as mapping of hazards within the area shown in the video. Answers were discussed and finalized during the session.

The second video focused on town watching map development on transferring the data compiled during the activity into a map. This was followed by a hands-on exercise to fill in a response plan. The third video highlighted the presentation of map and plan which had been developed as well as discussion of the outcome of the activity. During this session the participants were shown how to use some of the Zoom features in order to share the outcome of their town watching activity that would be conducted on the next day. Examples of town watching maps were shared with the participants.

Towards the end of the session, participants were briefed again on the preparation for the practical session which they were encouraged to do on Day 6 of the workshop. Participants were also briefed on the presentation that they will be preparing and making on Day 7 of the workshop.

## 5.7 Workshop Day 6, 22 June 2021, Town Watching Exercise

Participants were asked to form groups based on their economy and geographical area and to conduct their own town watching activity in their respective local areas, if it was possible for them to do so.

Participants were then asked to submit the results of their town watching exercise by uploading their maps and forms. A total of five economies submitted the outcome of their activities.

## 5.8 Workshop Day 7, 23 June 2021, Emergency Kits

### 5.8.1 Presentation of Town Watching Map

Dr Kalithasan summarised the different steps and methods of town watching and the participants were encouraged to share the methods they had used for their town-watching activity on Day 6.

Presentations were made by:

- Brunei Darussalam team, who developed a map in the Belais and Buda-buda Bokok area;
- Chile team, who presented a map for Municipalidad de Iquique;
- The Philippines team, who conducted town watching activity in the Poblacion, Ferrol, Rombon area; and
- Malaysia team, who presented their map for Dengkil, Selangor area.

Dr Kalithasan provided comments on each of the reports submitted by the teams. He made an overall summary and reminded of the following steps and activities when conducting the Town Watching Mapping exercise:

- Do the three steps of preliminary review, hazard map and response plan;

- Prepare town-watching mapping forms, hazard maps and response plan;
  - If doing the assessment as a virtual or hybrid approach, digital mapping is a very useful tool. For example, virtual tour with Google Earth Pro is a common method to view the area of interest. Prepare to do live sharing or submit video presentation.
- Include supporting/reference images of hazards in the map;
- Provide directions (arrows) in evacuation routes, where path direction is vital component; and
- Provide information on the community profile.

When conducting the actual Town Watching Map activity at the local or with the community, he reminded participants to be aware that:

- Ideally, the activity should involve and be initiated by the community in order for them to have ownership and for sustainability (updating of information) of the product;
- The authority or agency plays a coordination and catalyst role;
- The Town Watching Map must be supported by images;
- Flood response plan must be included; and
- The response plan must be localised as needed, according to the community profile (elderly, children, handicapped, medical needs/issues, etc).

### 5.8.2 Community-Based Flood Emergency Survival Preparation

In this session, Dr Kalithasan emphasize that flood management at the scene is very important, and it needs to be carefully understood. The flood management stages can be divided into before, during and after flooding. Before a flood occurs, it is important for the community to collect relevant information, survey their surrounding area and start preparing emergency and survival kits such as Grab bag and 72H bag. The community needs to be aware of the action of evacuation as well as awareness of emergency actions. Examples are making sure the community knows their evacuation route and have a list of emergency contact numbers. The Grab bag must store the most important survival materials, such as important documents, emergency kit, medicine supply, personal hygiene kit, as well as food. The 72H kit should be able to provide for the needs for a person for a minimum of three (3) days (72 hours). The main purpose of this kit is to ensure temporary survival while in transit to a safer area or while awaiting rescue and is not intended as a life aid.

During flood, the key community actions are to ensure that they are aware of what they should do when they are trapped inside or outside the house or inside a vehicle, what they should do during relocation and to adhere to the electrical management safety guide. After flood, the community should be encouraged to listen to media announcements or to wait for instructions before returning home. The community needs to follow safety precautions when entering buildings as well as when performing inspections of their surroundings before relocation. Dr Kalithasan concluded the

session with a step-by-step video on Community-Based Flood Emergency Survival Preparation.

## 5.9 Workshop Day 8, 24 June 2021, Way Forward: Planning and Local Adaptation of Training Modules

### 5.9.1 Breakout Group Discussions

Dr Kalithasan started the session by explaining the objectives of the Way Forward, which are to develop post-workshop action plans to:

- Adopt and apply Town Watching Mapping (TWM) at respective economy level;
- Share materials and skills acquired from training to be used at economy level;
- Engage stakeholders to develop a community-based Flood Disaster Preparedness plan at respective economy level; and
- Explore integration of the Community-based Flood Ranger programme and Town Watching Map into each respective economy's existing policy framework

The important aspects of Way Forward are to:

- Use or adapt materials relevant to participants' respective economies;
  - Module (slides), videos, Town Watching Maps, guidelines and forms.
- Organise localised workshop (Training of Trainers) within participants' economy;
- Develop Town Watching Maps;
- Integrate community-based Town Watching Map into participants' respective economy's existing policy framework; and
- Other plans or recommendations.

The participants were divided into seven breakout groups based on participants' economy. Each group was provided with a facilitator to assist during the Way Forward discussion. The breakout session discussion took place in three steps, which are brainstorming, discussion and presentation.

A summary of the results presented from the breakout group discussions on the Way Forward is in Table 5.1, with presentation slides available in Appendix E.

Dr Kalithasan concluded the workshop by sharing the list of outcomes of the workshop that can be utilized by the participants such as the PowerPoint presentations, videos, modules, brochures, materials shared throughout the eight-day workshop. The most important part is the post-training initiatives, which include:

- Adoption of the modules and implementation at the economy level;
- Follow-up activities;
- Post-training survey (after about 6 months);
- Reporting and updates; and
- Participants were requested to send a report of any implementation in the post-training survey.

Table 5.1 Results of 'Way Forward' breakout group discussions

<b>Economy</b>	<b>Facilitator</b>	<b>Discussion Recommendations/Outcomes</b>
Brunei Darussalam	Ms Zulaikha	<ul style="list-style-type: none"> <li>• Introduce hazard mapping in SBDRM (school-based disaster risk management) programme</li> <li>• Develop ERP (emergency response plan) for industries potential affected by flooding in the flood zone proximity</li> <li>• Possibility of including the agriculture and aquaculture industries into disaster preparedness training, workshop and module</li> </ul>
Chile	Mr Sathis Venkitasamy	<ul style="list-style-type: none"> <li>• Sharing of informative materials with local communities within the website</li> <li>• Localize town watching in flood prone areas.</li> </ul>
Malaysia	Mr Norazrin Mamat	<ul style="list-style-type: none"> <li>• Prioritize at highest risk area first</li> <li>• Identification of the exact flood-triggering factor (e.g.: existing runoff conveyance system or area location in floodplain)</li> <li>• Community participation (strategies for sustainability)</li> <li>• Collaborate with relevant agencies</li> </ul>
Mexico	Dr Zelina, Ms Intan Shafiqah	<ul style="list-style-type: none"> <li>• Adapting materials and information from this workshop into native language to be shared to all level agencies and local communities</li> <li>• Promote state and municipalities to replicate town watching activity in all areas</li> </ul>
Peru	Ms Athirah Lim	<ul style="list-style-type: none"> <li>• Incorporate google map methodology and emergency kit preparedness in current programme</li> <li>• Community risk maps to be shared at all levels</li> </ul>
Philippines Group 1	Ms Jagedeswari Mariappan	<ul style="list-style-type: none"> <li>• Reinforcing awareness and education through continuous training and workshops with local communities</li> <li>• Incorporating town watching activity in CBDRM</li> <li>• Incorporating local Town Watching Map into domestic map</li> </ul>
Philippines Group 2	Ms Tsia Mun Kaik	<ul style="list-style-type: none"> <li>• Enhance existing framework on CBDRM</li> <li>• Application of community based and hazard mapping within the economy using digital maps such as Google Earth, My Maps</li> </ul>



## 6 Workshop Evaluation

### 6.1 Workshop Feedback Surveys

Workshop evaluation was conducted through in-workshop feedback surveys of the presentations and training conducted. Feedback surveys were conducted using Google Forms after each day starting with Day 2. The questions asked respondents if the session objective was achieved, if new knowledge was learned, if the presentation was clear and easy to understand and if the session was relevant for the participants' present duties and useful for their career development. Examples of the survey questions are provided in Appendix B. The charts of responses are presented using a traffic-light colour code of green, amber and red, indicating positive, neutral and negative responses. The responses are disaggregated by gender.

In addition, there was a survey of available information on economies' community-based flood management practices and use of Town Watching approach or flood response and evacuation mapping in APEC economies.

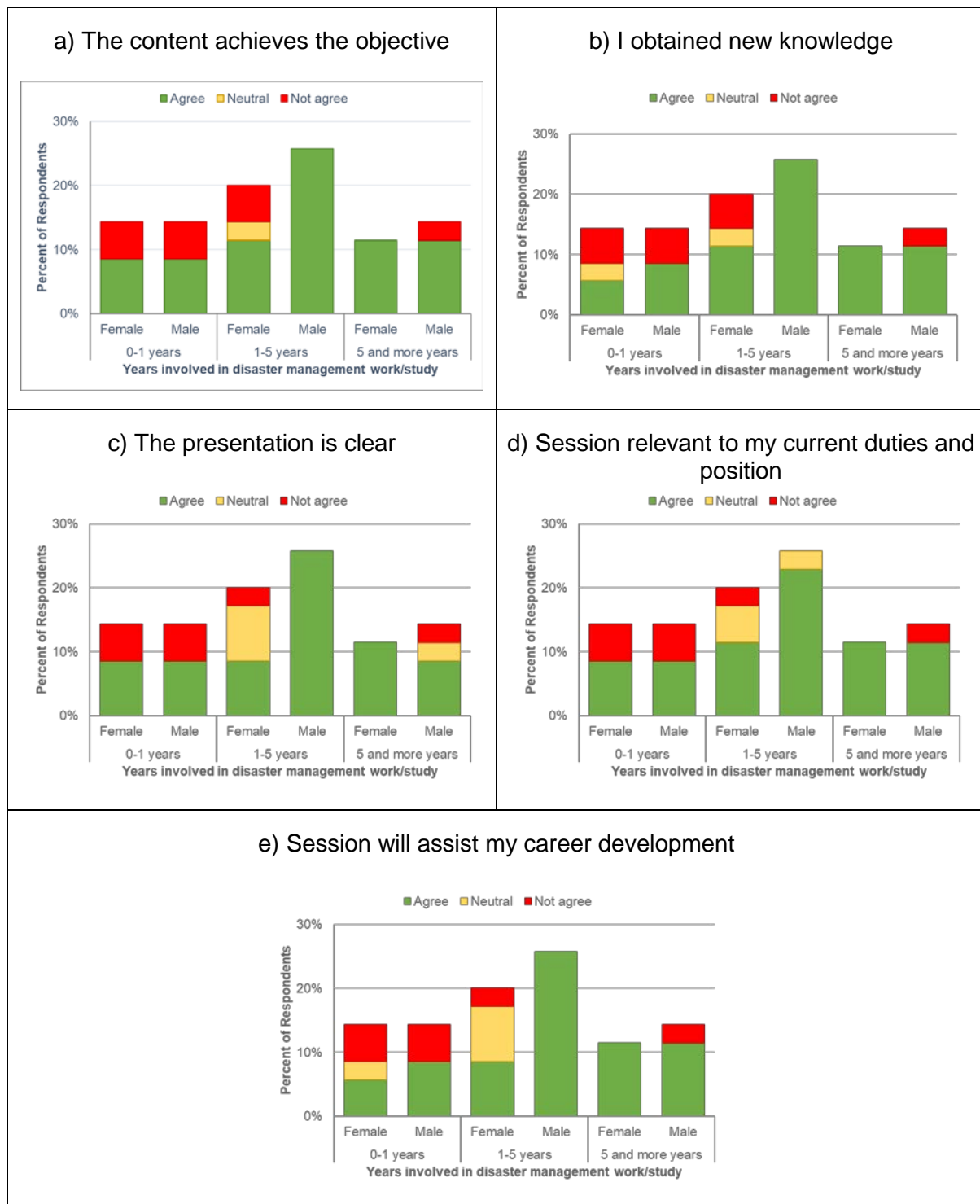
A post-workshop survey was also disseminated to participants, however this survey only received one respondent despite reminders for participants to complete the survey. Thus, it is recommended that in future there should be a specific session within the workshop agenda for participants to complete the survey.

### 6.2 Feedback on Day 2, Panel Session: Sharing of Experiences in Flood Preparedness and Response

For the session feedback survey, 34 participants (64% of total participants) responded with the disaggregated results presented in Figure 6.1. In general respondents felt that the session achieved its objective of sharing experiences, provided new knowledge and was useful for their current duties, position and career development.

Some comments provided were that the session was 'very interesting' although 'face to face session' would be preferred. There were comments on audio and video issues ('some of the videos are not that visible' and 'the audio at the Malaysian presentation'); and requests to 'share information handouts to participants' and to 'share the slides to workshop participants'.

Figure 6.1 Feedback from participants on Day 2 session.



### 6.3 Feedback on Day 3, Panel Session: Town Watching Approach for Flood Disaster Response Planning

For the session feedback survey, 30 participants (57% of total participants) responded with the disaggregated results presented in Figure 6.2. In general respondents felt that the session achieved its objective of sharing experience on Town Watching approach, provided new knowledge and was useful for their current duties, position and career development despite previous experience of disaster management workshop. Although those who had attended a workshop in the last 5 years were less certain that the current workshop was useful for their current duties and position.

The comments provided also included request to 'share the presentation slides' and a suggestion that the organisers could 'have asked someone from the local community to share his/her experience on the town watching or community preparedness programme'.

When the Town Watching training is conducted in Malaysia by the organising team in a face-to-face event, a peer-to-peer sharing session is included where a member of a local community shares their experiences of conducting a Town Watching activity and preparing their flood response map and plan. This session was not included in the APEC workshop due to possible language issues. Nevertheless, having a peer-to-peer sharing session is a good practice which other economies can undertake in their own economy.

### 6.4 Feedback on Day 4, Town Watching Exercise Briefing

For the session feedback survey, 36 participants (68% of total participants)) responded with the disaggregated results presented in Figure 6.3. Some participants had been involved in Town Watching activity previously and many did have some knowledge of electronic mapping applications. Nevertheless, most respondents felt that the session achieved its objective on explaining the town watching exercise, provided new knowledge and was useful for their current duties, position and career development.

The comments provided included request to 'manage time' and the 'time constraint; maybe should give more time for E-Map session' as well as for 'slower tutorial of the one-by-one steps on making E-Maps because this is my first time to have that kind of orientation'. Another comment was that the participant felt they had 'to study' the steps presented in the sessions. The time allocated for the E-Map session was not enough and the presentation ran over the time allocation. In future we suggest that the E-Map session be given much more time and to allow participants to be able to carry out each of the steps by themselves. This would be easier to conduct in a face-to-face session.

Figure 6.2 Feedback from participants on the Day 3 session.

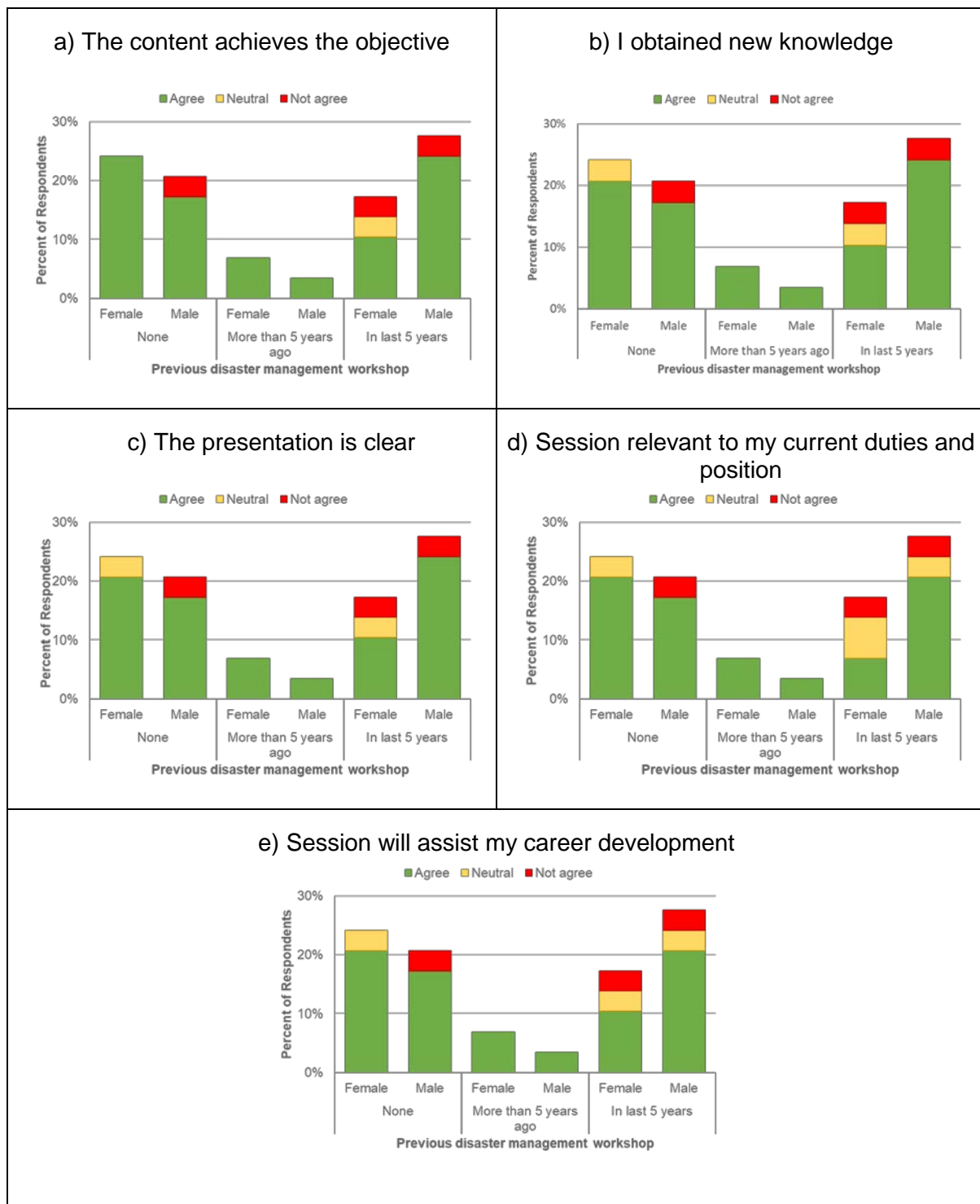
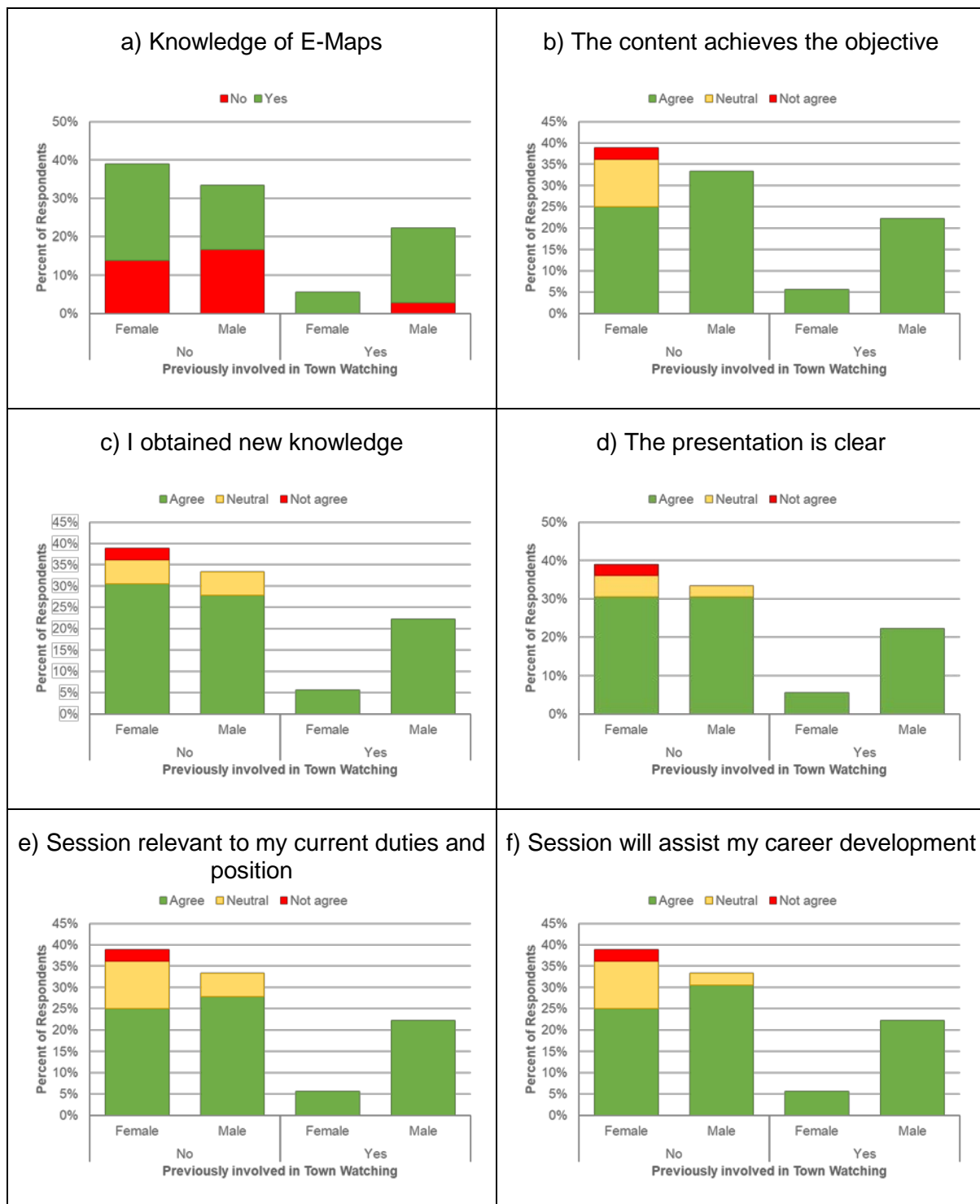


Figure 6.3 Feedback from participants on the Day 4 session.



## 6.5 Feedback on Day 5, Virtual Town Watching Exercise

For the session feedback survey, 34 participants (64% of total participants) responded with the disaggregated results presented in Figure 6.4. None of the women had experience in flood hazard mapping while about 48% of the men had experience in flood hazard mapping. In general respondents felt that the session achieved its objective of the Town Watching exercise, provided new knowledge and was useful for their current duties, position and career development despite previous experience of disaster management workshop.

The comments provided also included request to 'share the power point presentation' and a suggestion that the organisers could rearrange 'the schedule of activities, because to me, the activity about map apps had to be done at the beginning of workshop'.

## 6.6 Feedback on Day 6, Town Watching Exercise

No surveys were carried out for this day. Participants were developing their own maps.

## 6.7 Feedback on Day 7, Emergency Kits

For the session feedback survey, 31 participants (58% of total participants) responded with the disaggregated results presented in Figure 6.5. In general respondents felt that the session achieved its objective of introducing different emergency kits, provided new knowledge and was useful for their current duties, position and career development despite previous experience of disaster management workshop.

A participant felt that interactions which are 'face to face is better, but I understand it is due to Covid restrictions.' Another commented that they 'loved the recommendations about how to maintain pets' safety in a flood situation.'

## 6.8 Feedback on Day 8, Way Forward

For the session feedback survey, 34 participants (64% of total participants) responded with the disaggregated results presented in Figure 6.6. All respondents reported that they would either be planning to train their organisation's staff/member or community on Town-watching mapping. Most (91%) plan to do both. Most respondents felt that the session achieved its objective of sharing experiences, provided new knowledge and was useful for their current duties, position and career development.

Participant comment indicated that it would be better to have a field site exercise by noting that 'in future might need to include the actual physical site reconnaissance for detail site appreciation/inspection'. Another participant indicated that they might

‘practically start immediately at our local community’ which is a very encouraging result to note.

Figure 6.4 Feedback from participants on the Day 5 session.

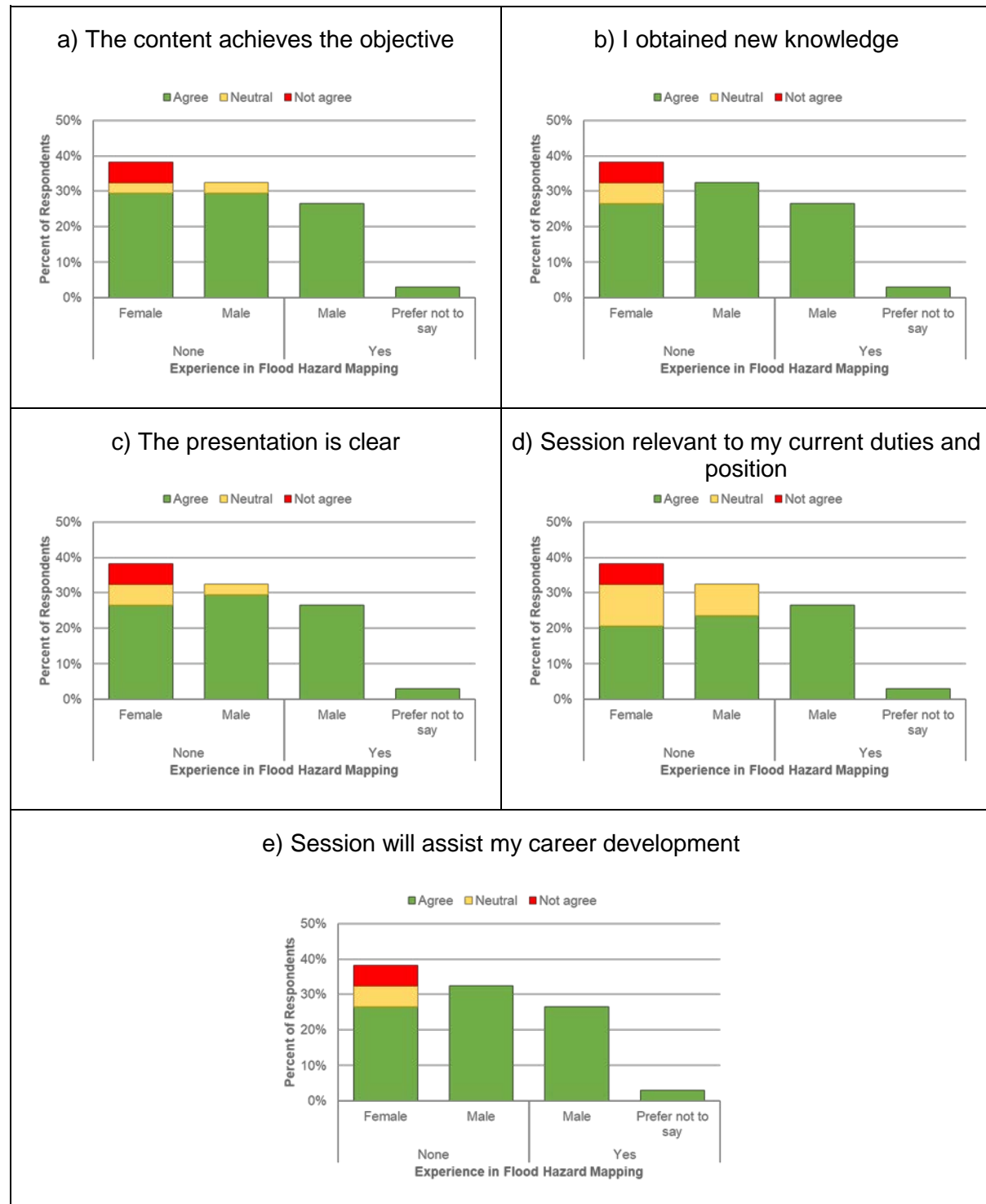


Figure 6.5 Feedback from participants on the Day 7 session.

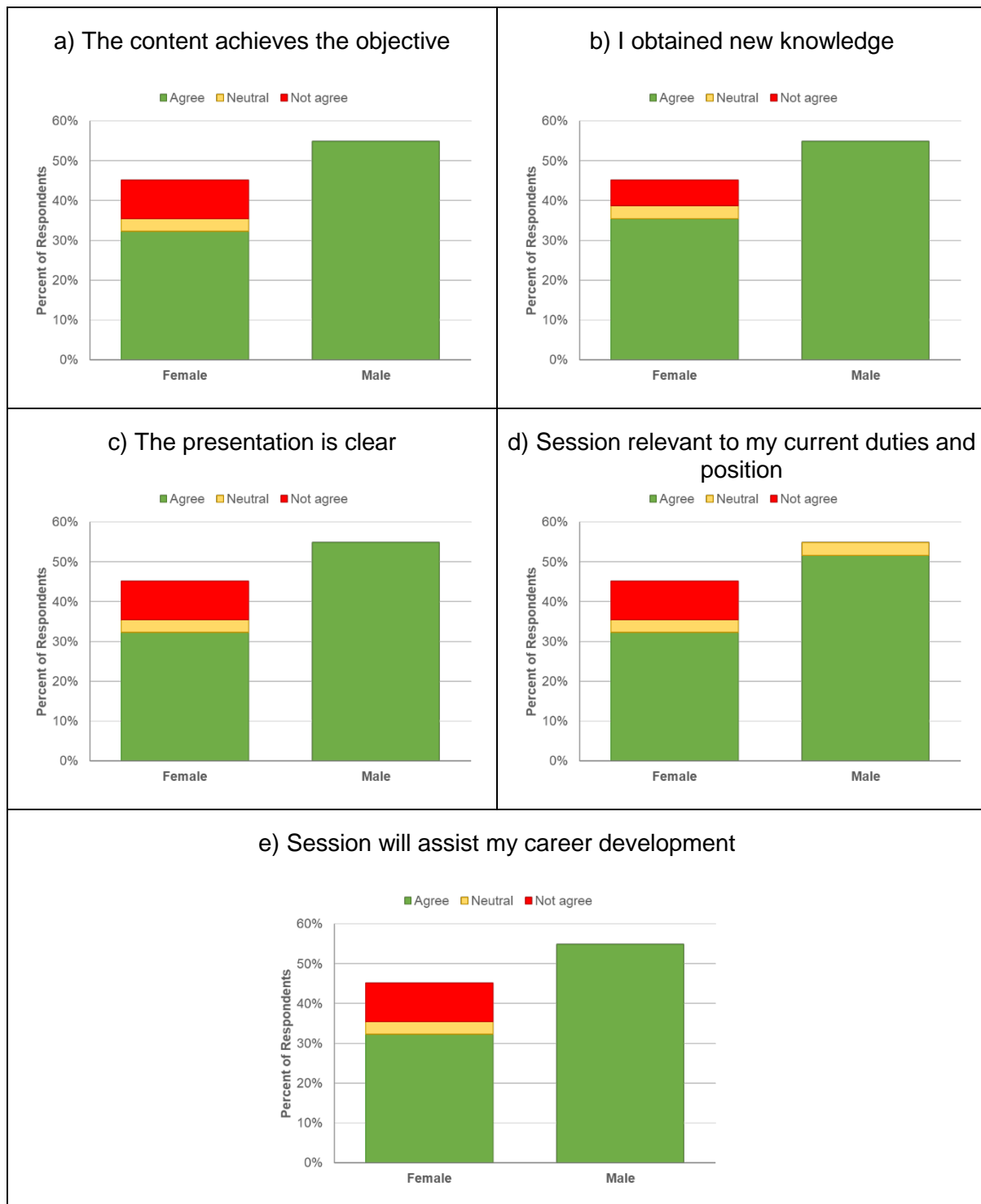
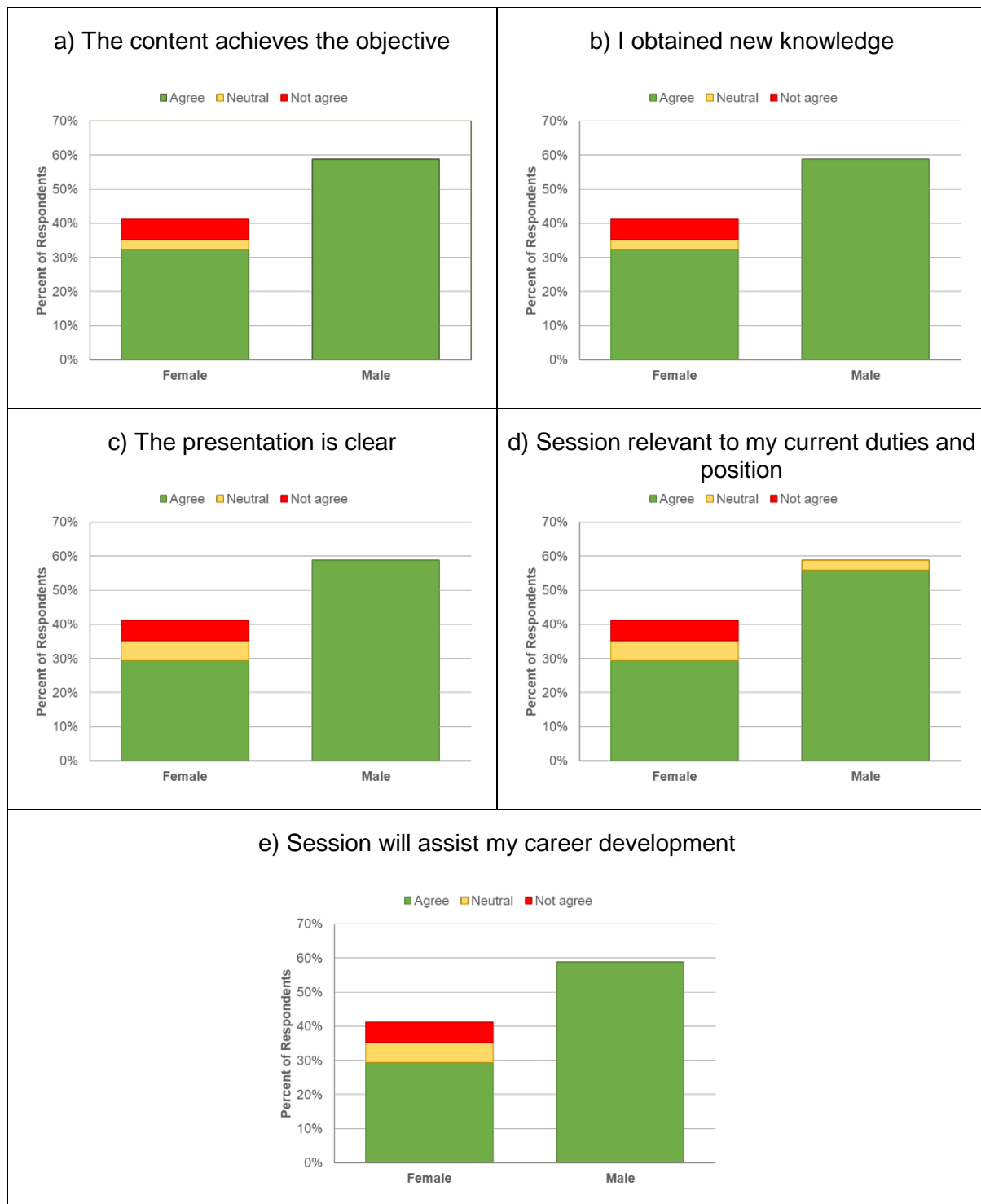




Figure 6.6 Feedback from participants on the Day 8 session.



## 7 Conclusion and Next Steps

### 7.1 Workshop Success Indicators

Aside from the participant feedback on the workshop sessions as presented in section 5, other workshop success indicators are assessed as presented in Table 7.1. We note that the number of participating economies is much less than anticipated despite receiving a higher number of participants. The higher number of participants can be attributed to the virtual nature of the workshop where travel is not required to be funded. However, the time schedule of the workshop makes it awkward for participants from economies located on the eastern side of the Pacific as it is quite late at night for them.

Table 7.1 Achievement of Workshop Success Indicators

<b>Workshop/Project Success Indicators</b>	<b>Target values</b>	<b>Actual values</b>	<b>Achieved?</b>
Number of participating economies	14	6	No
Number of participants	42	53	Yes
Number of funded participants	20	Not applicable	Not applicable
Participation rates of female participants	40%	41.5%	Yes
Participation rates of female speakers	30%	71.4	Yes
Number of training modules developed	5 1. Town Watching process, including field exercise, map production, online map resources, 2. Emergency kits, 3. Drinking water filtration, 4. Developing community training workshop, 5. Other topic.	5 1. Town Watching process, 2. Online mapping resources 3. Town Watching Exercise; 4. Survival Preparation and Emergency Kits; 5. Way Forward: Planning Local Training,	Yes

The low number of economies participating may be due to Covid-19 conditions which may have resulted in higher workload and stress on disaster response personnel. Another factor could be lack of adequate ICT facilities for participants to link to the workshop. We noticed that some of the participants to the workshop did not have video

facilities and some might have been using their mobile phone device to link to the workshop meeting platform. This may be because of lack of adequate facilities at home.

Feedback from participants recommend to extend the allocation of time for the electronic mapping module; hold the training physically instead of virtually especially because of the field or on-site training aspect. There was also a comment that the mapping module be introduced earlier in the agenda.

Another issue is the difficulty in obtaining sufficient respondents for the survey conducted. There was good response for questionnaire surveys conducted at the beginning of the workshop (for the pre-workshop survey) and during the workshop (daily feedback survey). It was more difficult to obtain sufficient response outside of the workshop environment and post-workshop. This has implications for assessing the effectiveness of one of the expected outcomes, that is on adoption or utilization or planning of the use of the Town Watching modules at the local scale.

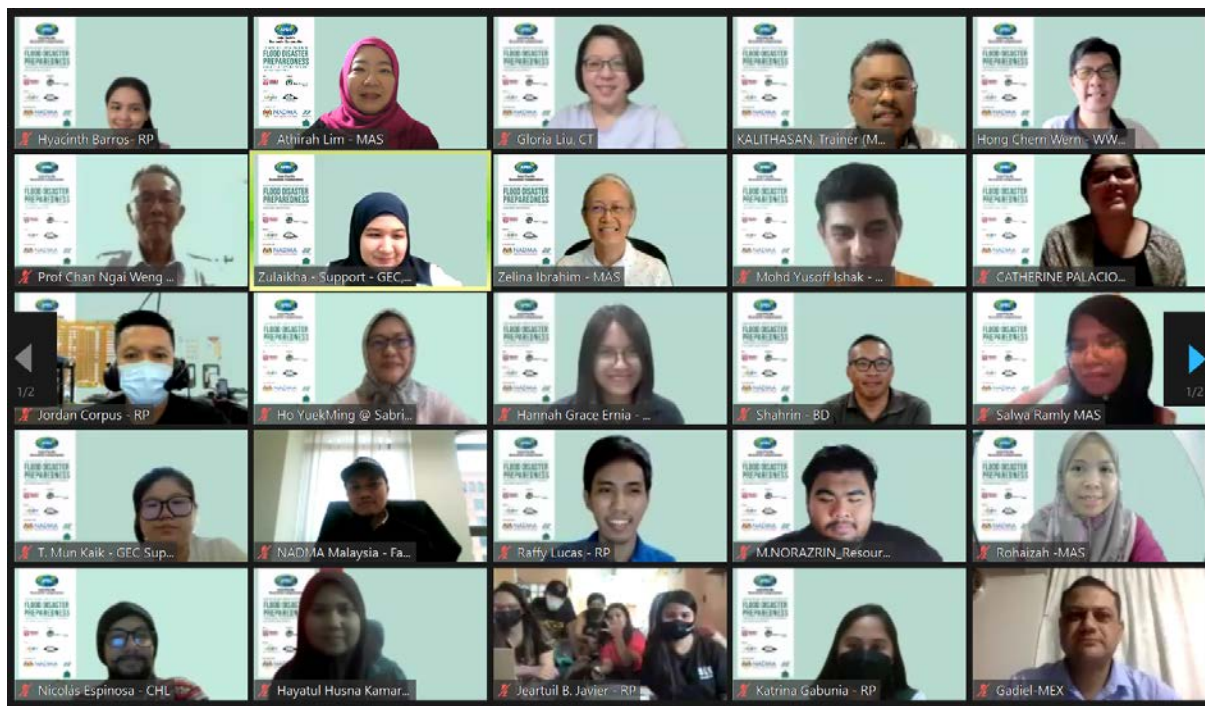
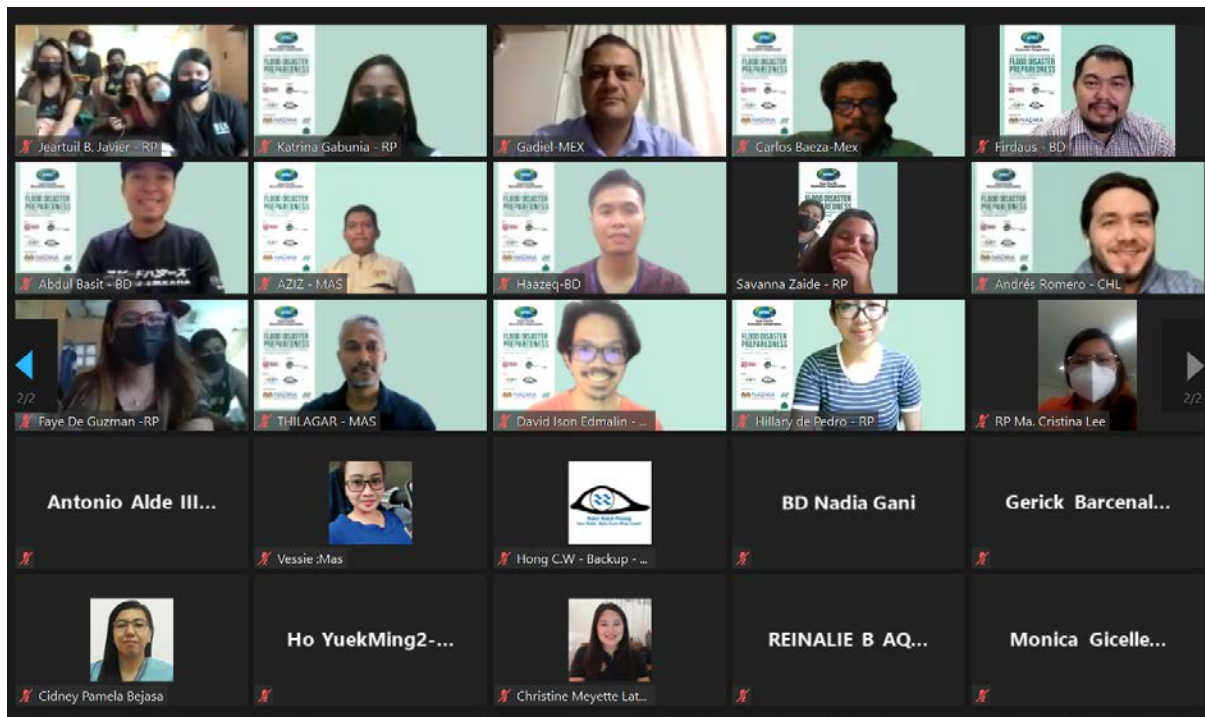
Nevertheless, overall, from Table 7.1, the workshop and project managed to achieve almost all of the Success Indicator targets.

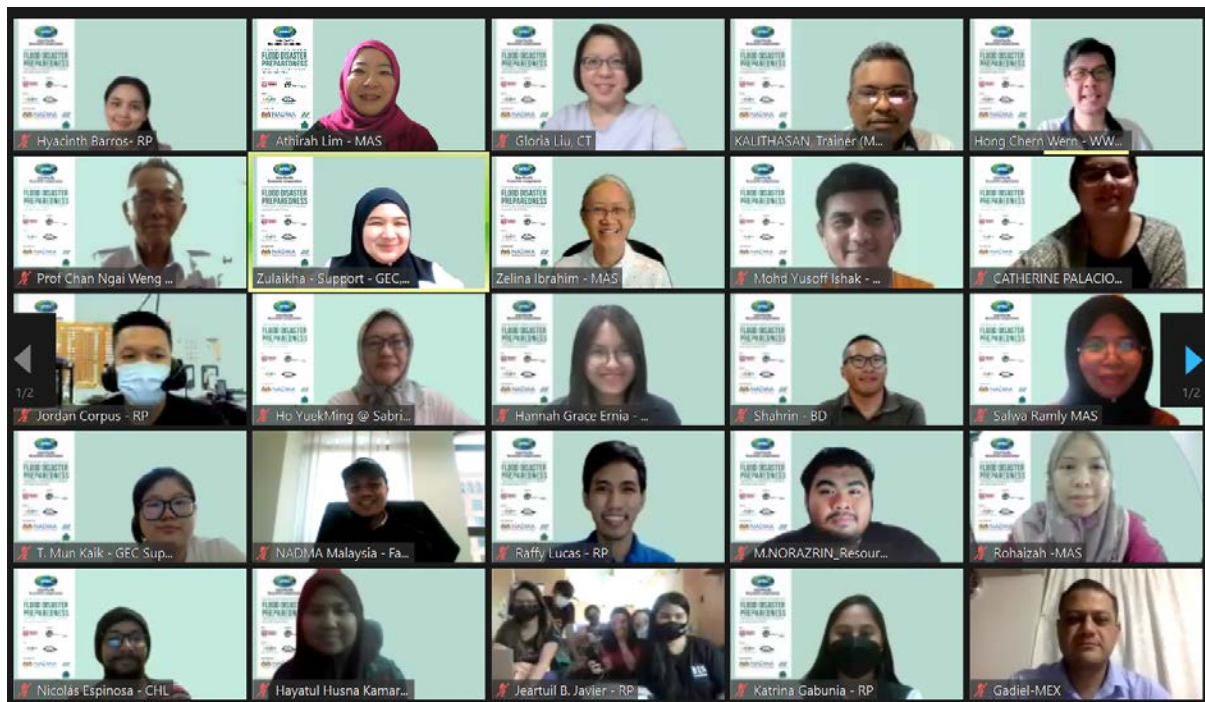
## 7.2 Dissemination of Training Materials

Aside from this workshop report, the documents for the project include training materials in the form of slides will be placed online in electronic form. The training modules and manual will be available online and downloadable through the web pages of the Malaysian Water Partnership ([www.mywp.org.my/apec-workshop](http://www.mywp.org.my/apec-workshop)). Videos are available upon request to the Project Overseer, Dr Zelina Ibrahim, [zelina@upm.edu.my](mailto:zelina@upm.edu.my), or to the Malaysian Water Partnership Secretariat, Ms Athirah Lim, [athirahlim@gmail.com](mailto:athirahlim@gmail.com). This provides opportunities to disseminate the workshop modules not only for the participants to use but also to reach a wider audience of community-level trainers. The target audience for the materials are government agencies, academia, private sector, schools, non-profits and community-based organisations, and especially the prospective community-level trainers.

A survey of progress towards implementation of economy-level training conducted by participants will also be undertaken to evaluate project outcome. This survey will be conducted within five months after completion of the training workshop. We hope at least 33% of participating economies will indicate adoption or utilization or planning using the ToT modules and manual available online.

## Participants on Day 4 of the Workshop





# APPENDICES

## Appendix A Pre-workshop Flood Disaster Preparedness Survey

10/20/21, 1:21 AM

Flood Disaster Preparedness Survey (APEC EPWG 02/2019A)

### Flood Disaster Preparedness Survey (APEC EPWG 02/2019A)

This survey collects information from participants following the APEC Workshop on Enhancing Participation in Flood Disaster Preparedness through Community-based Hazard Mapping (EPWG 02 2019A), 15-24 June 2021.

The information is understand the pre-workshop background of participants and to compare with post-workshop results.

Please provide your email address so that we may compare the pre with post workshop results.

Please be assured that the results of the workshop will not identify the individual participants and respondents which will be anonymised.

The questionnaire survey is divided into

- A. Flood experience
- B. Before flood
- C. Flood information
- D. Respondent background

Please respond to each question item if possible

You can revisit and edit this survey before the workshop begins.

An email of your response will be sent to you after you complete the survey.

This survey is prepared by:

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Faculty of Forestry and Environment

Universiti Putra Malaysia

and is a compilation of questions based on previous frameworks and surveys on flood resilience, preparedness, response and training.

Thank you for participating in this survey.

**\*Required**

1. Email \*

#### A. Flood Experience

Information of exposure or experience of flood events

2. 1.a. Have you ever experienced a flood? \*

*Mark only one oval.*

- ☐ Yes  
☐ No

3. 1.b. If yes, when you experienced the flood, were you a victim or a responder?

*Mark only one oval.*

- ☐ Flood victim  
☐ Flood responder  
☐ Flood victim and responder  
☐ Other: \_\_\_\_\_

4. 1.c. If you have experienced flood, how many times did you experience it?

*Mark only one oval.*

- ☐ 1 to 2 times  
☐ 3 to 4 times  
☐ more than 5 times

5. 1.d. If you have experienced flood, what was the highest level of flood which you have experienced?

*Mark only one oval.*

- ☐ Up to ankle level  
☐ Up to knee level  
☐ Up to waist level  
☐ Shoulder level and above

**B.  
Before  
Flood**

Information of actions which might be taken before flood events. Take the role that you may be a potential victim, not as a responder from a disaster management agency



6. 2. Would you do the following to prepare yourself for any flood disaster that might occur? Please respond for each item.

Mark only one oval per row.

	I don't want to do	I am not able to do	I have not done	I plan to do	I have done
Collect the relevant information	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Speak to disaster management representatives in my area	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Prepare a family emergency plan	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Prepare a neighborhood emergency plan	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Prepare disaster survival kits	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Take special training	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Train other members in the community	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Sign up for emergency news or alert systems	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>



7. 3. Please answer the following questions about flood disaster management in your area. Please respond for each item.

*Mark only one oval per row.*

	Yes	No	Not sure
Is there a disaster management or emergency plan for the area you stay in?	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Are there laws or policies that deal with disaster management in your country?	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Has the community created its own rules or policies for disaster management?	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Has you or your family ever been affected by a disaster?	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Is there another person in your family who can carry out the emergency plan, apart from you?	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Do you live in an area which is heavily crowded?	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>

8. 4. Have you arranged for the following, in case of an emergency or a disaster. Please respond for each item.

Mark only one oval per row.

	No	Not sure	In the process	Yes
A minimum of 72 hours of water supply	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
A minimum of 72 hours of food supply	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
A mode of communication which is not dependent on electricity	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Flashlights or light sources	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Evacuation transport	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
First aid kits	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
An alert system for family and community	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Hygiene and sanitation products for self	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Hygiene and sanitation products for family	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Tools that can come in handy	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Disaster kits	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Long lasting battery cell phones with power banks	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Necessary medications	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Money (cash)	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Supplies for children	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Supplies for aged, or people with special needs	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Evacuation plan	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Emergency operational plan	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Insurance coverage	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Set up flood protection measures on your property	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>

9. 5. What three items would you want to learn from a flood preparedness training?

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**C. Disaster  
Information**

Information and factors. Take the role that you may be a potential victim, not as a responder from a disaster management agency

10. 6. Do you prefer to receive information about flood disaster or emergency situation from the following sources? Please respond for each item.

*Mark only one oval per row.*

	Strongly prefer	Prefer	Neutral	Not preferred	Strongly not preferred
Newspaper	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Television	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Radio	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Family or friend	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Social media	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Mobile or cell phone alert	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>

11. 7. Should the following organisations play a role in helping you or your community in preparing a disaster management plan? Please respond for each item.

*Mark only one oval per row.*

	Strongly disagree	Disagree	Neutral	Agree	Strongly agree
United Nations agency	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
National or federal government agencies	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Local district authority	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Private sector organizations	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Local elected representative/politician or party	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Non governmental organization or voluntary organization	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Voluntary groups	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Media	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Higher education institutions	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Schools	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Private individuals	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Other	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>

12. 8. Who should be involved in community flood response preparation? Please respond for each item.

*Mark only one oval per row.*

	Very important	Important	Not sure	Not important	Not relevant
Youth	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Children	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Women	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Men	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Elderly and seniors	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Handicapped persons	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Girls	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Boys	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>

13. 9. In your opinion which are the five most important characteristics for flood disaster resilience and preparedness? Please respond for each item.

Mark only one oval per row.

	First (1st)	Second (2nd)	Third (3rd)	Fourth (4th)	Fifth (5th)
Has flood risk awareness and knowledge	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Has the ability to project future floods	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Has the ability to respond	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Has technical/innovation solutions to mitigate the impacts	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Has the ability to recover	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Has the ability to learn	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Has access to resources	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Has knowledge regarding public health preparedness	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Has sustainable livelihoods	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Has engagement in early warning systems	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Has a strong social connectedness	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Has physical protection measures	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>

14. 10. In your opinion what are the top five barriers to community resilience and preparedness to flood response? Please respond for each item.

Mark only one oval per row.

	First (1st)	Second (2nd)	Third (3rd)	Fourth (4th)	Fifth (5th)
Lack of financial capacity	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Lack of technology	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Poor habit of communities (e.g., dumping waste in rivers)	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Lack of coordination across related institutions	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Lack of leadership	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Unclear roles and responsibilities within the stakeholders	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Lack of information about who is doing what, where, and how	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Community has little social sensitivi	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Lack of community involvement/participation	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
High dependency of the community members on government relief during annual floods	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Overgenerous disaster relief to the survivors of annual flooding	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>

15. 11. Considering your knowledge about disasters and its consequence, how likely are you to recommend a friend/colleague to learn more about disaster management? \*

Mark only one oval.

	1	2	3	4	5	6	7	8	9	10	
Very unlikely	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	Very likely

#### D. Respondent Information

16. 12. Identify your role or organization type \*

Mark only one oval.

- ☐ Disaster management
- ☐ Non-government organisation or community based organisation
- ☐ Education institution
- ☐ Local government authority
- ☐ Individual citizen
- ☐ Small business or SME
- ☐ Large private sector or corporate organisation
- ☐ Government-linked corporation
- ☐ Other: \_\_\_\_\_

17. 13. Are you male or female? \*

Mark only one oval.

- ☐ Female
- ☐ Male
- ☐ Prefer not to say



18. 14. Would you like to identify your APEC economy? \*

*Mark only one oval.*

- ☐ No
- ☐ Brunei
- ☐ Chile
- ☐ Malaysia
- ☐ Mexico
- ☐ Peru
- ☐ The Phillippines

19. 15. Do you have any comments on this survey?

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## Appendix B Analysis of Question 5 in Pre-Workshop Survey

Table D.1. Respondent replies to pre-workshop survey question 5. What three items would you want to learn from a flood preparedness training?

F/M *	Answers from 30 respondents separated by each item proposed	Operations during disasters	Community training and organisation	Preparation/ Planning	Flood Mitigation & Warning	Mapping (risk/hazard/ evacuation)	Medical/ First aid	Post-disaster	Others
F	Risk identification by communities		1						
F	Risk identification by communities		1						
F	Hazard Mapping					1			
F	How to link all materials to the main geodatabase where we could always come back to retrieve it later (and share with others too)					1			
F	Mapping					1			
F	Mapping					1			
F	Disaster Preparedness			1					
F	Emergency Needs			1					
F	Evacuation Management and Plan			1					
F	Flood Forecasting				1				
F	Flood preparedness for flash flood			1					
F	Flood protection measures on property				1				
F	Planning			1					
F	Preparedness action plan			1					
F	Set up evacuation plan	1							
F	Proper evacuation plan	1							
F	First Aid Treatment						1		
F	Set up necessary medication						1		
F	enough supplies for meds and first aid.						1		
F	Anything that can make me grow and help others								1
F	Community organisation		1						
F	Community organisation		1						
F	Community training		1						

F	Community training		1						
F	Disaster Response	1							
F	Emergency operational plan	1							
F	Evacuation plan for people with special needs	1							
F	Execution, various approach and relatability	1							
F	How to be part of an active hazard responder in my community.		1						
F	How to properly help the community		1						
F	I would like to learn about three of them								1
F	Implementing	1							
F	Long term solutions for flooding				1				
F	new concepts on DRR-CCA				1				
F	Set up flood protection				1				
F	Strategic measures for efficient, and speedy collection of data	1							
F	Strategies to better harness community engagement/commitment		1						
F	Survival skills	1							
F	The most efficient way to engage rural community (who might be tech-illiterate)		1						
F	Supplies for the foods, clean water supplies, and safe place for the flood victim	1							
M	Risk communication		1						
M	How to be prepared			1					
M	The first, preparation for in case to a flood in other cities of the economy			1					
M	Preparedness			1					
M	Evacuation maps					1			
M	Who is to contact	1							
M	How to prevent from recurring				1				
M	Experience of other economies			1					
M	Other economies' forms of responses			1					
M	Action plan	1							
M	How to handle the situations	1							
M	What to look for	1							
M	First responder	1							

M	Post disaster plan							1	
M	Early warning system				1				
M	What make sense to community		1						
M	How to manage yourself when caught in flash flood	1							
M	How to get earliest and reliable flash flood warning in urban areas				1				
M	1. Community Evacuation plan		1						
M	2. Household preparedness		1						
M	3. Things to do during a flood	1							
M	Identify areas than doesn't flood				1				
M	Different approach to mitigate the impact and effect of flood				1				
M	Everything that is needed								1
	<b>TOTAL</b>	17	14	11	10	5	3	1	3
	<b>Female (40 separate suggestions)</b>	10	10	6	5	4	3	0	2
	<b>Male (24 separate suggestions)</b>	7	4	5	5	1	0	1	1
	<b>TOTAL %</b>	26.6	21.9	17.2	15.6	7.8	4.7	1.6	4.7
	<b>Female TOTAL %</b>	15.6	15.6	9.4	7.8	6.3	4.7	0.0	3.1
	<b>Male TOTAL %</b>	10.9	6.3	7.8	7.8	1.6	0.0	1.6	1.6

## Appendix C      Examples of In-Workshop Feedback Form Survey

### E.1      Survey for Day 3, 17 June 2021

10/25/21, 1:45 AM

Panel Session: Town Watching Approach for Flood Disaster Response Planning - Feedback form

# Panel Session: Town Watching Approach for Flood Disaster Response Planning - Feedback form

Workshop on Enhancing Participation in Flood Disaster Preparedness through Community-based Hazard Mapping

---

\* Required

1. Email \*

---

2. Name \*

---

3. Gender \*

*Mark only one oval.*

☐ Female

☐ Male

☐ Prefer not to say

☐ Other: 

---

## 4. APEC Economy \*

*Check all that apply.*

- ☐ Brunei
- ☐ Chile
- ☐ Malaysia
- ☐ Mexico
- ☐ Peru
- ☐ Philippines

## 5. What is your field of expertise? \*

---

## 6. Have you participated in any disaster management workshop prior to this one? \*

*Mark only one oval.*

- ☐ Yes, please refer to the next question
- ☐ No

## 7. If Yes, how long ago was that? \*

*Mark only one oval.*

- ☐ < 1 year      *Skip to question 8*
- ☐ 1 - 5 years      *Skip to question 8*
- ☐ 5 - 10 years      *Skip to question 8*
- ☐ > 10 years      *Skip to question 8*
- ☐ Not Relevant

Panel Session: Town Watching  
Approach for Flood Disaster Response  
Planning (17 June 2021)

All of the questions below are related to the given scale.

Workshop on Enhancing Participation in Flood  
Disaster Preparedness through Community-based  
Hazard Mapping

Scale :

1 - Totally Agree

2 - Agree

3 - Neutral

4 - Disagree

5 - Totally Disagree

8. Content of module achieves the objective of town-watching approach for flood response \*

Mark only one oval.

	1	2	3	4	5	
Totally Agree	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	Totally Disagree

9. I learnt new knowledge from this module \*

Mark only one oval.

	1	2	3	4	5	
Totally Agree	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	Totally Disagree

10. Module presentation is clear, understood and interactive \*

Mark only one oval.

	1	2	3	4	5	
Totally Agree	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	Totally Disagree

11. The module presented was relevant to my current duties and position \*

Mark only one oval.

	1	2	3	4	5	
Totally Agree	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	Totally Disagree

12. The module presented will assist in my future work \*

Mark only one oval.

	1	2	3	4	5	
Totally Agree	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	Totally Disagree

13. Suggestion: What could we have done better?

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## E.2 Feedback Survey for Day 5, 21 June 2021

10/25/21, 1:47 AM

(21 June 2021) Town Watching Exercise in Malaysia

### (21 June 2021) Town Watching Exercise in Malaysia

Workshop on Enhancing Participation in Flood Disaster Preparedness through Community-based Hazard Mapping

---

\* Required

1. Email \*

---

2. Name \*

---

3. Gender \*

*Mark only one oval.*

☐ Female

☐ Male

☐ Prefer not to say

☐ Other: 

---

## 4. APEC Economy \*

*Check all that apply.*

- ☐ Brunei
- ☐ Chile
- ☐ Malaysia
- ☐ Mexico
- ☐ Peru
- ☐ Philippines

## 5. What is your field of expertise? \*

---

## 6. Do you have any experience in preparing a Flood Hazard Map? \*

*Mark only one oval.*

- ☐ Yes
- ☐ No

## 7. Do you have any experience in preparing a Flood Response Map? \*

*Mark only one oval.*

- ☐ Yes
- ☐ No

Town Watching Exercise in  
Malaysia (21 June 2021)

All of the questions below are related to the given scale.  
Workshop on Enhancing Participation in Flood Disaster  
Preparedness through Community-based Hazard Mapping  
Scale :  
1 - Totally Agree  
2 - Agree  
3 - Neutral  
4 - Disagree  
5 - Totally Disagree

8. Content of module achieves the objective of explaining how to carry out the Town-watching exercise. \*

Mark only one oval.

	1	2	3	4	5	
Totally Agree	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	Totally Disagree

9. I learnt new knowledge from this module \*

Mark only one oval.

	1	2	3	4	5	
Totally Agree	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	Totally Disagree

10. Module is clear, understood and interactive \*

Mark only one oval.

	1	2	3	4	5	
Totally Agree	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	Totally Disagree

11. The module presented was relevant to my current duties and position \*

Mark only one oval.

	1	2	3	4	5	
Totally Agree	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	Totally Disagree

12. The module presented will assist in my future work \*

Mark only one oval.

	1	2	3	4	5	
Totally Agree	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	Totally Disagree

13. Suggestion: What could we have done better?

---

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## Appendix D      Survey on Community Engagement for Flood Disaster Preparedness

10/26/21, 1:29 PM

APEC Survey on Community Engagement for Flood Disaster Preparedness

### APEC Survey on Community Engagement for Flood Disaster Preparedness

Survey to support the project on 'Workshop on Enhancing Participation in Flood Disaster Preparedness through Community-based Hazard Mapping' (EPWG 02 2019A).

Please answer all questions.

Project Overseer: Dr Zelina Z. Ibrahim ([zelina@upm.edu.my](mailto:zelina@upm.edu.my))

---

**\*Required**

1. Email \*

---

#### A. Background Information

2. A.1. Please give your APEC Economy name. \*

---

3. A.2. Please give your organization name. \*

---

4. A.3. Please select your organisation category. \*

*Tick all that apply.*

- ☐ Central disaster/emergency management agency  
☐ Provincial/prefectural/state disaster/emergency management agency  
☐ Local government

Other: ☐ 

---

5. A.4. Is flood one of the hazards faced in your economy? \*

*Mark only one oval.*

- ☐ Yes  
☐ No  
☐ Maybe

6. A.5. If your organisation has a web page providing information for the local community on preparing for flood response, please provide the website URL.

---

#### **B. Community Engagement Questions**

Please answer all questions.

7. B.1. How frequently does your organization conduct awareness/ training programmes or drills to inform local community about responding to flood disasters? You may select more than one answer.

*Tick all that apply.*

- ☐ Never before  
☐ Sometime ago  
☐ Less than once a year  
☐ At least once a year  
☐ At least twice a year  
☐ More than twice a year  
☐ Ad hoc / whenever needed  
☐ I don't know

8. B.2. How active are non-governmental organizations (NGOs) and civil society organizations in supporting community awareness/ training programmes or drills for flood response?

*Mark only one oval.*

- ☐ Very active  
☐ Somewhat active  
☐ Not at all active  
☐ I don't know

9. B.3. In preparation for potential flood response, does your organization provide maps of the nearest flood evacuation centres to the following groups? Check all that apply.

*Tick all that apply.*

- ☐ Central disaster/emergency management agency  
☐ Provincial/prefectural/state disaster/emergency management agency  
☐ Local government  
☐ Local village/community centre  
☐ Civil society/ non-governmental organizations  
☐ Education institutes and schools

Other: ☐ \_\_\_\_\_

10. B.4. In preparation for flood response, does your organization work with the following groups to prepare community or local-level flood response and evacuation maps? Check all that apply.

*Tick all that apply.*

- ☐ Education institutes and schools  
☐ Civil society/ non-governmental organizations  
☐ Local village/community groups  
☐ Local government  
☐ Provincial/prefectural/state disaster/emergency management agency  
☐ Central disaster/emergency management agency

Other: ☐ \_\_\_\_\_

11. B.5. How confident are you that the general public will take appropriate action when a flood occurs?

*Mark only one oval.*

- ☐ Very confident
- ☐ Somewhat confident
- ☐ Not at all confident
- ☐ I don't know

Thank you for your participation in this survey.

---


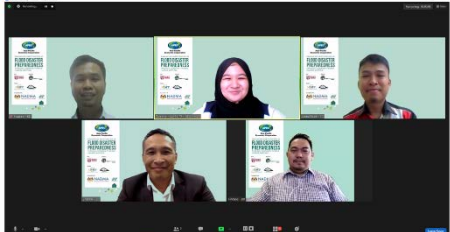
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# Appendix E Way Forward Proposals by Breakout Groups

## G.1 Group 1 Brunei

 <p style="text-align: center;"><b>WAY FORWARD (BRUNEI)</b></p> <p style="text-align: center;">Workshop on Enhancing Participation in Flood Disaster Preparedness through Community-based Hazard Mapping</p> <p style="text-align: center;">1</p>	<p><b>INTRODUCTION</b></p> <p>Economy: Brunei Darussalam</p> <p>Leader: Nadia</p> <p>Team members:</p> <ol style="list-style-type: none"> <li>1. Shahrin</li> <li>2. Haazeq</li> <li>3. Abdul Basit</li> <li>4. Firdaus</li> </ol> <p>Facilitator: Zulaikha</p> <p style="text-align: center;">2</p>																																			
 <p style="text-align: center;">3</p>	<table border="1"> <thead> <tr> <th>Aspect</th> <th>Proposed action</th> <th>Quantity/ frequency</th> <th>Timeline*</th> <th>Any support needed**</th> </tr> </thead> <tbody> <tr> <td>1. Use or adapt materials relevant to your respective economies (especially module (PPT), videos and Town Watching Map guideline and form)</td> <td></td> <td></td> <td></td> <td></td> </tr> <tr> <td>i. How are you going to share the training materials (modules and exercise) in your economy, with relevant agencies as well as local communities?</td> <td>To utilise all social media platform namely FBIG, Telegram, Community programmes to disseminate information - Via community leaders, focal points of DDMC, social media, print</td> <td>4 / year</td> <td>12 month</td> <td>PMO, District office, GEC</td> </tr> <tr> <td>ii. Will you adopt these measures in flood prone areas within your economy?</td> <td>Yes, translated to local languages (English, Malay, and others as required) and modify to suit local needs and ethnicity</td> <td>1 year</td> <td>12 month</td> <td>Thru Local leaders, village consultative council and local community, GEC</td> </tr> <tr> <td>iii. Do you plan to develop new and relevant materials?</td> <td>Customise it to supplement the national DRR programme</td> <td>1 year</td> <td>12 month</td> <td>Relevant Agencies</td> </tr> </tbody> </table> <p><small>* (Immediately, 3 months, 6 months, 12 months, beyond 1 year) ** (including from APEC, MWP, UFM, GEC and others)</small></p> <p style="text-align: center;">4</p>	Aspect	Proposed action	Quantity/ frequency	Timeline*	Any support needed**	1. Use or adapt materials relevant to your respective economies (especially module (PPT), videos and Town Watching Map guideline and form)					i. How are you going to share the training materials (modules and exercise) in your economy, with relevant agencies as well as local communities?	To utilise all social media platform namely FBIG, Telegram, Community programmes to disseminate information - Via community leaders, focal points of DDMC, social media, print	4 / year	12 month	PMO, District office, GEC	ii. Will you adopt these measures in flood prone areas within your economy?	Yes, translated to local languages (English, Malay, and others as required) and modify to suit local needs and ethnicity	1 year	12 month	Thru Local leaders, village consultative council and local community, GEC	iii. Do you plan to develop new and relevant materials?	Customise it to supplement the national DRR programme	1 year	12 month	Relevant Agencies										
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Aspect	Proposed action	Quantity/ frequency	Timeline*	Any support needed**																																
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## G.2 Group 2 Chile

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## G.3 Group 3 Malaysia

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i. Develop or support the Town Watching Map development > Details include Numbers, Which level, federal/central, state/local level, community level, your target group, smart partnership : Agencies, NGOs, private sectors and community	<ul style="list-style-type: none"> <li>a) must also ready for remote areas / IT literate / other challenges</li> <li>b) Nice to have permanent map (evacuation path &amp; marked higher risk areas) at those locations for local's reference</li> <li>c) Include both method of mapping; manually (human draw) and automatically (computer/software)</li> <li>d) need proper geodatabase for easy access (sharing and integrating) by all data provider</li> <li>e) include all experts and professional input to maximize the effectiveness of plan</li> </ul>																																													
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i. How do you propose to integrate this approach into your economy's existing policy framework?	<b>DRR Policy &amp; NRR</b> a) It gives concrete examples of how the engagement of community can be done collaboration with the government b) Input in land reform, planning and development c) Benefits: It can create sustainable likelihood system d) It can be consulted from time to time																																													
ii. Do you think your economy has the right existing mechanisms and platforms for this? > Detail: at federal/central, state and local level	-at all level -Need to integrate the mechanisms and execution strategies from all relevant agencies - impact-driven approach rather than sectoral/in silo																																													
<div>5. Other plans or recommendations</div> <table border="1"> <tbody> <tr> <td>           i. Other plans besides above mentioned aspects            a) TOTs in action: They really train other trainers / locals            b) be prepared to <u>adapt and blend</u> with different expectation / capacity / cultures / literacy of each participant            c) Upload series of <u>short videos</u> onto social media for town watching exercise (from introductory &gt; intermediate &gt; advance level) on how to develop such maps and suitable timeframe to update it            d) Get <u>buy in</u> from the parent agency e.g. Ministry of Rural Development            e) To integrate all studied areas in a single kmz file for reference and future planning. If possible, <u>integrate with JKM's evacuation centres map</u>            JKM = Dept. of Social Welfare            promotion/publicity strategies to encourage participation among the community members, NGO and local stakeholders         </td> <td></td> <td></td> <td></td> <td></td> </tr> </tbody> </table> <div style="text-align: center;"> </div> <div style="text-align: center;"> <h2>7</h2> </div>	i. Other plans besides above mentioned aspects a) TOTs in action: They really train other trainers / locals b) be prepared to <u>adapt and blend</u> with different expectation / capacity / cultures / literacy of each participant c) Upload series of <u>short videos</u> onto social media for town watching exercise (from introductory > intermediate > advance level) on how to develop such maps and suitable timeframe to update it d) Get <u>buy in</u> from the parent agency e.g. Ministry of Rural Development e) To integrate all studied areas in a single kmz file for reference and future planning. If possible, <u>integrate with JKM's evacuation centres map</u> JKM = Dept. of Social Welfare promotion/publicity strategies to encourage participation among the community members, NGO and local stakeholders					<div style="text-align: center;"> <h1>THANK YOU</h1> </div> <div style="text-align: center;"> </div> <div style="text-align: center;"> <h2>8</h2> </div>																																								
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#### G.4 Group 4 Mexico

# CAMINO A SEGUIR WAY FORWARD (México)

**Workshop on Enhancing Participation in Flood Disaster Preparedness through Community-based Hazard Mapping**



1

## INTRODUCCIÓN / INTRODUCTION

Economía / *Economy* : México

Lider / Leader: **Carlos Baeza** (Investigador en hidrometeorología / *Researcher in hydrometeorology*)

Miembros del equipo / *Team members:*

- 1.
- 2.
- 3.

Facilitadora / *Facilitator*: Dr Zelina & Intan Syafigah



2

Aspecto	Acción propuesta	Cantidad / frecuencia	Línea de tiempo	Cualquier apoyo necesario*
1. Utilice o adapte materiales relevantes para sus respectivas economías (especialmente el módulo (PPT), los videos y la guía y el formulario del Mapa de observación de la ciudad). Use o adapte materiales				
i. ¿Cómo va a compartir los materiales de capacitación (modulos y ejercios) en su economía, con las agencias relevantes y las comunidades locales? a través del sitio web, redes sociales, impresion	Lo estaría compartiendo con cada director, pero en el centro donde trabajo existe la Escuela Nacional de Protección Civil	12 meses  every 12 months		y unidades estatales de Protección Civil y Universidades  State units of Civil Protection and Universities
How are you going to share the training materials	<i>I would be sharing it with my director, but in the center where I work there is the National School of Civil Protection</i>			
ii. ¿Adaptará estas medidas en áreas propensas a inundaciones dentro de su economía? traducir, mejorar, localizar, etc.	Si, se adaptarán en español	cada 12 meses		
How are you going to share the training materials	<i>Yes, would adapt in Spanish</i>	every 12 mths		
iii. ¿Planea desarrollar material (s) nuevo y relevante?	Si, caso de estudio en México	cada 12 meses		
Do you plan to develop new and	<i>Yes, case study in Mexico</i>	every 12 months		

3

Aspect	Acción propuesta	Cantidad / frecuencia	Lineas de tiempo	Cualquier apoyo necesario
<b>2. Organización de talleres localizados</b>	<b>(TOT) dentro de su economía / <i>Organising localised workshop</i></b>			
i. Llevar a cabo la capacitación de FLOOD Ranges (programa de preparación basado en la comunidad)?	Lo estaré compartiendo con mi director, pero en el centro donde trabajo existe la Escuela Nacional de Protección Civil	2 /año	más de 1 año	y unidades estatales de Protección Civil y Universidades
Conduct FLOOD Range training (community based preparedness programme)	<i>I would be sharing it with my director, but in the center where I work there is the National School of Civil Protection</i> <i>I can share with them also through my Director</i>	2 /year	more than 1 year	State units of Civil Protection and Universities
ii. Realizar capacitación sobre mapas de observación de la ciudad (entrenador de entrenadores / TOT)?	Lo estaré compartiendo con mi director, pero en el centro donde trabajo existe la Escuela Nacional de Protección Civil, federal, agencias	1 /año	más de 1 año	y unidades estatales de Protección Civil y Universidades
iii. Los detalles incluyen: número, qué nivel, federal, central, estatal / local / nivel comunitario, su grupo objetivo, asociación inteligente, agencias, OMC, sectores privados y comunidad.	<i>I would be sharing it with my director, but in the center where I work there is the National School of Civil Protection</i>  <i>federal, level, agencies</i>	1 /year	more than 1 year	State units of Civil Protection and Universities
Conduct Town Watching Map training (TOT) Details				

4

Aspect	Acción propuesta	Cantidad / frecuencia	Línea de tiempo *	Cualquier apoyo necesario **
<b>3. Desarrollar un mapa de observación de la ciudad / Develop Town Watching Map</b>				
<p>i. Desarrollar o apoyar el desarrollo del mapa de observación de la ciudad.</p> <p>Los detalles incluyen números, que nivel, federal / central, estatal / local / nivel comunitario, su grupo objetivo, asociación inteligente: agencias, ONG, sectores privados y comunidad.</p> <p><i>Develop or support the Town Watching Map development?</i></p>	<p>México tiene de 32 estados</p> <p><i>Mexico has 32 states</i></p>		<p>&gt; 1 año</p> <p><i>It will take more than 1 year</i></p>	<p>Unidades estatales de Protección Civil y Universidades</p> <p><i>State units of Civil Protection and Universities</i></p>

5

Aspect	Acción propuesta	Cantidad / frecuencia	Línea de tiempo	Cualquier apoyo necesario
4. Integración del mapa de observación de la ciudad basado en la comunidad en el marco de políticas existente de su economía <i>Integration of Community-based Town Watching Map into your economy's existing policy frame</i>	A través del CENAPRED que es el área técnico-científico del Sistema Nacional de Protección Civil			
i. Cómo propone integrar este enfoque en el marco de políticas existente en su economía?  <i>How do you propose to integrate this approach into your economy's existing policy framework?</i>	Through CENAPRED, which is the technical-scientific area of the National Civil Protection System			
ii. Cree que su economía cuenta con los mecanismos / plataformas adecuados para ello? Detalle: a nivel federal / central, estatal y local  <i>Do you think your economy has the right existing mechanisms and platforms for this? Detail: at federal/central, state and local level</i>	Federal CENAPRED a través de la Escuela Nacional de Protección Civil  <i>At the Federal level, CENAPRED through the National School of Civil Protection</i>			

6

Aspect	Acción propuesta	Cantidad / frecuencia	Línea de tiempo *	Cualquier apoyo necesario **
<b>5. Otros planes o recomendaciones / Other plans or recommendations</b>				
<p>i. Otros planes además de los aspectos antes mencionados</p> <p><i>Other plans besides above mentioned aspects</i></p>	<p>Los estados y municipios pueden replicar los cursos</p> <p><i>States and municipalities can replicate the courses</i></p>	<p>regular</p> <p><i>Regularly</i></p>	<p>más de 1 año</p> <p><i>more than 1 year</i></p>	<p>y unidades estatales de Protección Civil y Universidades</p> <p><i>State units of Civil Protection and Universities</i></p>

\*Immediately, 3 months, 6 months, 12 months; beyond 1 year)

<sup>\*\*\*</sup> Excluding from APEC, MWP, UFM, CEG and others









7

# THANK YOU











8

## G.5 Group 5 Peru

<div style="text-align: center;"> <h1>WAY FORWARD (PERU)</h1> <p>Workshop on Enhancing Participation in Flood Disaster Preparedness through Community-based Hazard Mapping</p> </div> <div style="text-align: center;">  </div> <div style="text-align: center;">1</div>	<h2>INTRODUCTION</h2> <p>Economy: Peru Leader: Catherine Team members:</p> <ol style="list-style-type: none"> <li></li> <li></li> <li></li> </ol> <p>Facilitator: Athirah Lim</p> <div style="text-align: center;">  </div> <div style="text-align: center;">2</div>																																								
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## G.6 Group 6 The Philippines I

<h3 style="text-align: center;">WAY FORWARD (PHILIPPINES GROUP 1)</h3> <p style="text-align: center;"><b>Workshop on Enhancing Participation in Flood Disaster Preparedness through Community-based Hazard Mapping</b></p> 	<h3>INTRODUCTION</h3> <p>Economy: Republic of the Philippines Leader: Team members: 1. Cidney Pamela M. Bejasa 2. Jordan I. Corpus 3. Hillary I. de Pedro Facilitator: Jagedeswari</p> 																																													
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## G.7 Group 7 The Philippines II

### WAY FORWARD (PHILIPPINES GROUP 2)

**Workshop on Enhancing Participation in Flood Disaster Preparedness through Community-based Hazard Mapping**



1

Aspect	Proposed action	Quantity/ frequency	Timeline*	Any support needed**
3. Develop Town Watching Map				
i. Develop or support the Town Watching Map development	To develop Town watching Map from Municipalities down to barangay level, target group with municipal council and DILG	as needed	3rd quarter	LGU

\* (immediately, 3 months, 6 months, 12 months, beyond 1 year)  
\*\* : (including from APEC, MNP, UFM, CEC and others)

2

Aspect	Proposed action	Quantity/ frequency	Timeline*	Any support needed**
1. Use or adapt materials relevant to your respective economies (especially module (PPT), videos and Town Watching Map guideline and form)				
i. How are you going to share the training materials (modules and exercise) in your economy, with relevant agencies as well as local communities?	Disseminate training materials thru website to LGUs down to barangay level and print leaflet and posters	Quarterly	3months	from LGU
ii. Will you adopt these measures in flood prone areas within your economy?	Yes, by enhancing preparedness measures to our economy and disseminate IECs	Quarterly	3months	National and LGU
iii. Do you plan to develop new and relevant material(s)	Yes, by creating leaflets and posters regarding in preparedness in any disasters	Yearly		

\* (immediately, 3 months, 6 months, 12 months, beyond 1 year)  
\*\* : (including from APEC, MNP, UFM, CEC and others)

3

Aspect	Proposed action	Quantity/ frequency	Timeline*	Any support needed**
2. Organising localised workshop (TOT) within your economy				
i. Conduct FLOOD Ranger training (community based preparedness programme)	-Conduct it through local government so it may help them to be aware of the possible flooding in their community	quarterly for their awareness	3months	LGU
ii. Conduct Town Watching Map training (TOT)	-Conduct Town Watching Map training (TOT) in every barangays with Flood prone areas together with the municipal agency and DILG	quarterly for their awareness	3months	LGU

\* (immediately, 3 months, 6 months, 12 months, beyond 1 year)  
\*\* : (including from APEC, MNP, UFM, CEC and others)

4

Aspect	Proposed action	Quantity/ frequency	Timeline*	Any support needed**
4. Integration of Community-based Town Watching Map into your economy's existing policy frame				
i. How do you propose to integrate this approach into your economy's existing policy framework?	To enhance their existing frameworks			
ii. Do you think your economy has the right existing mechanisms and platforms for this?	we have an agency called pag-as and phivoks which disseminate information thru local level down to barangay level for the possible hazard in their respective community			

\* (immediately, 3 months, 6 months, 12 months, beyond 1 year)  
\*\* : (including from APEC, MNP, UFM, CEC and others)


5

Aspect	Proposed action	Quantity/ frequency	Timeline*	Any support needed**
5. Other plans or recommendations				
i. Other plans besides abovementioned aspects	Conduct community based and hazard mapping in our economy (Google Earth, My Maps)			

\* (immediately, 3 months, 6 months, 12 months, beyond 1 year)  
\*\* : (including from APEC, MNP, UFM, CEC and others)

6

## THANK YOU



7

## Appendix F List of Abbreviations

Abbreviation	Meaning
72H	72-hour
ADB	Asian Development Bank
ADRC	Asian Disaster Reduction Center
AIDEP—ACCEDER	<i>Análisis Histórico, Investigación en terreno, Discusión de Prioridades, Elaboración de Mapa, Planificación—Alarma, Comunicación, Coordinación, Evaluación Primaria, Decisiones, Evaluación Complementaria, Readecuación del Plan</i> Analysis of the history, Investigation of the terrain, Discussion of priorities, Elaboration in maps, Planning—Alarm, Communication, Coordination, Preliminary Evaluation, Decision, Complementary Evaluation, Readjustment of the Plan
ASF	APEC Support Fund
CB4DR	Clothing Bank for Disaster Relief Project, Malaysia
CBDRM	Community-based Disaster Risk Management
CBFHM	Community-Based Flood Hazard Map
CBFRP	Community-Based Flood Response Plan
CFGC	Community Flood Gathering Centre
CSO	Civil society organisation
DID	Department of Irrigation and Drainage
DRR	Disaster Risk Reduction
E-Maps	Electronic mapping applications
EPWG	Emergency Preparedness Working Group
ERP	Emergency response plan
F	Female
GEC	Global Environment Centre
GIS	Geographic Information Systems
ICT	Information and Communication Technology
IPCC	Intergovernmental Panel on Climate Change
KML	Keyhole Markup Language
KMZ	Keyhole Markup language Zipped
LCFGC	Local community flood-evacuation gathering centre



M	Male
MPK	<i>Majlis Perbadanan Kelang</i> Klang Municipal Council
MS	Microsoft
MyWP	Malaysian Water Partnership
n.d.	Not determined
NADMA	National Disaster Management Agency,
NCDR	National Science and Technology Center for Disaster Reduction
NGO	Non-governmental organisation
NOAA	National Weather Service, National Oceanic and Atmospheric Administration
NSC	National Security Council
ONEMI	<i>Oficina Nacional de Emergencia del Ministerio del Interior</i> Office of National Emergencies, Ministry of the Interior,
PADR	Participatory Assessment of Disaster Risk
PRA	Participatory Rural Appraisal
SBDRM	School-based disaster risk management
SBT	Science Based Targets
SMS	Short Message Service
SOP	Standard Operating Procedure
ToT	Training of Trainers
TWM	Town Watching Mapping
UNDRR	United Nations Office for Disaster Risk Reduction
UNISDR	United Nations International Strategy for Disaster Reduction
UPM	Universiti Putra Malaysia
USA	United States of America
UTC	Universal Time Coordinated
WMO	World Meteorological Organization
WWP	Water Watch Penang

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