



# TRAINING REPORT

**Project Title: Strengthening the capacity of officials on Integrated Flood Management Plans (IFMP): Integrating IFMP into provincial disaster prevention plans in coastal provinces of Central Vietnam**



Quang Nam, 2023

# **TRAINING REPORT**

**Project Title: Strengthening the capacity of officials on Integrated Flood Management Plans (IFMP): Integrating IFMP into provincial disaster prevention plans in coastal provinces of Central Vietnam**

## **Project Leader**

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## **Contributors**

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**Quang Nam, 2023**

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## Abbreviation

APN	Asia-Pacific Network for Global Change Research
MARD	Ministry of Agriculture and Rural Development
VNU	Viet Nam National University
CEFD	Center for Environmental Fluid Dynamics
IFMP	Integrated Flood Management Plans



## Preface

In Vietnam, under the effect of climate change, natural disasters, especially storms and floods, cause more and more damage. Although Vietnam has been active in flood management, these solutions are mainly localized, fragmented, unsystematic or in a short-term period and may cause more severe flooding to nearby areas. Therefore, there is a need for a different approach. IFMP is an integrated management with the aims to maximize the benefits of floodplains and minimize flood damage with a watershed and multisector approach. Recognizing the necessity of IFMP, Center for Environmental Fluid Dynamics, VNU University of Science, Vietnam National University organized training for officials with an aim to enhancing efforts in providing support to the officials through tailored research activities; enhancing efforts in providing capacity development to the officials that meet their specific needs by organizing training; and creating holistic and transdisciplinary capacity development activities on IFMP.

The training for local officials of agencies such as: Provincial Steering Committee for Disaster Prevention and Search and Rescue, District Steering Committee for Disaster Prevention and Search and Rescue and other relevant departments and agencies. The presentations received attentions and appreciation as well as the fruitful comments of the experts and representatives from local agencies. Based on the comments raised at the training, Center for Environmental Fluid Dynamics (CEFD) will, in collaboration with the experts, finalize the report and training documentation. The training was successfully organized on April 2023 in Quang Nam, Viet Nam.

Taking this opportunity, Center for Environmental Fluid Dynamics would like to express sincere thanks to APN for their generous support and to all participants for their active and constructive comments to the training.

## Organization of the training

### Objectives

- (i) Share the knowledge-base of IFMP and how to develop IFMP,
- (ii) Guidance on integrating IFMP into the provincial disaster management plan

### Date of training

14 and 17 April 2023

### Venue

Ban Thach hotel,  
No.10 Bach Dang, Tan Thanh Ward, Tam Ky City, Quang Nam, Viet Nam.

### Organizer

Center for Environmental Fluid Dynamics (CEFD), VNU University of Science,  
Vietnam National University.

### Supported by

Asia-Pacific Network for global Change Research (APN).

# PART 1. REPORT OF THE TRAINING

## 1. Introduction

The training course was organized by CEFD in collaboration with the Provincial Steering Committee for Disaster Prevention and Search and Rescue of Quang Nam with the following main contents:

- Guidance on developing and updating IFMP;
- Guidance on integrating IFMP into the provincial disaster management plan.

A training for local officials of agencies: Provincial Steering Committee for Disaster Prevention and Search and Rescue, District Steering Committee for Disaster Prevention and Search and Rescue and other relevant departments and agencies was held at Ban Thach hotel in Quang Nam on 14 and 17 April 2023.

## 2. Objectives of the training

The general objective of the training was to strengthen the capacity of provincial authorities/organizations and disaster prevention agencies in developing IFMP and integrating it into provincial disaster prevention and control plan.

The specific objectives of the training were to:

- (iii) Share the knowledge-base of IFMP and how to develop IFMP,
- (iv) Guidance on integrating IFMP into the provincial disaster management plan

## 3. Training agenda

Training agenda is detailed below:

Time	Contents	Responsibility
	<b><i>Day 1 – Morning (8:00 – 11:00)</i></b>	
8:00 – 8:30	Opening remarks and introduction of delegates	Dr. Le Minh Nhat
8:30 – 9:00	Introduction to the steps of developing/updating the IFMP	Dr. Le Minh Nhat
9:00 – 11:00	Guidelines for building flood and hazard maps	Dr. Le Minh Nhat
	<b><i>Day 1 – Evening (14:00 – 17:00)</i></b>	
14:00 – 16:00	Guidelines for assessing flood risks	Dr. Le Minh Nhat
16:00 – 17:00	Guidelines for proposing solutions	Dr. Le Minh Nhat
	<b><i>Day 2 – Morning (8:00 – 11:00)</i></b>	
8:00 – 9:00	Guidelines for evaluating the effectiveness and impact of certain construction solutions	Dr. Le Minh Nhat
9:00 – 10:30	Guidelines for prioritizing solutions	Dr. Le Minh Nhat
10:30 – 11:00	Guidelines for building an IFMP report	Dr. Le Minh Nhat

<b>Time</b>	<b>Contents</b>	<b>Responsibility</b>
	<i>Day 2 – Evening (14:00 – 17:00)</i>	
14:00 – 16:30	Guidelines for integrating IFMP into provincial disaster prevention plans	MSc. Dang Dinh Duc
16:30 – 17:00	Closing remarks	Dr. Le Minh Nhat

#### 4. Training Participants

The training was attended by representatives from the following organizations:

- Dr. Le Minh Nhat, Head of the Representative Office of Viet Nam Disaster and Dyke Management Authority in Central and Central Highlands Regions.
- Representatives of CEFD consultant: Assoc. Prof. Tran Ngoc Anh - Project leader, MSc. Dang Dinh Duc, Dr. Nguyen Quoc Son, MSc. Pham Thi Tuyet May, Ms. Nguyen Hong Thuy.
- Representatives of Steering Committee for Disaster Prevention and Search and Rescue of Quang Nam Province: Mr. Pham Quang Dong, Deputy Chief of the Office.
- Representatives from various departments: Department of Agriculture and Rural Development, Department of Natural Resources and Environment, Department of Planning and Investment, Department of Finance, Department of Transportation.
- Representative of Military Command of Quang Nam Province.
- Representative of Quang Nam Provincial Hydro-Meteorological Station.
- Representatives of Steering Committee for Disaster Prevention and Search and Rescue of districts, towns, and cities: Tam Ky, Hoi An, Dien Ban, Hiep Duc, Nong Son, Duy Xuyen, Dai Loc, Thang Binh, Que Son, Nui Thanh, Phu Ninh.

List of Participants:

<b>No</b>	<b>Full name</b>	<b>Organization</b>
1	Tran Thi Tu Anh	Division of Agriculture and Rural Development of Nong Son District
2	Tran Huu Tuy	Provincial Military command
3	Truong Hiep	Central Region Representative Office
4	Bui Trinh Minh Duc	Department of Planning and Investment
5	Phan Dinh Duy Phu	Division of Agriculture and Rural Development of Duy Xuyen District
6	Mai Thanh Son	Division of Agriculture and Rural Development of Hiep Duc District
7	Dinh Ngoc Binh	Department of Transportation
8	Nguyen Trong Quy	Department of Finance

<b>No</b>	<b>Full name</b>	<b>Organization</b>
9	Nguyen Dinh Huon	Provincial Hydro-Meteorological Station
10	Vu Van Tinh	Provincial Hydro-Meteorological Station
11	Le Dinh Tuong	Economic Division of Hoi An city
12	Do Thi Phuong	Steering Committee for Disaster Prevention and Control, Search and Rescue of Quang Nam province
13	Nguyen Thanh Cao	Steering Committee for Disaster Prevention and Control, Search and Rescue of Quang Nam province
14	Rich Dai Phon	Department of Natural Resources and Environment
15	Nguyen Phi Hong	Economic Division of Dien Ban Town
16	Huynh Thanh Quoc	Division of Agriculture and Rural Development of Que Son District
17	Pham Tan	Steering Committee for Disaster Prevention and Control, Search and Rescue of Quang Nam province
18	Le Thi Anh Dao	Steering Committee for Disaster Prevention and Control, Search and Rescue of Quang Nam province
19	Nguyen Tan Nam	Division of Agriculture and Rural Development of Thang Binh District
20	Truong Thi Thuy Trang	Steering Committee for Disaster Prevention and Control, Search and Rescue of Quang Nam province
21	Vo Thi Ly	Steering Committee for Disaster Prevention and Control, Search and Rescue of Quang Nam province
22	Huynh Tan Hoang	Steering Committee for Disaster Prevention and Control, Search and Rescue of Quang Nam province
23	Nguyen Thi Van Lan	Steering Committee for Disaster Prevention and Control, Search and Rescue of Quang Nam province
24	Pham Van Thanh	Steering Committee for Disaster Prevention and Control, Search and Rescue of Quang Nam province
25	Le Van Hiep	Division of Agriculture and Rural Development of Nui Thanh District
26	Nguyen Hong Nhuong	Steering Committee for Disaster Prevention and Control, Search and Rescue of Quang Nam province
27	Trinh Ngoc An	Division of Agriculture and Rural Development of Phu Ninh District
28	Le Cong Duan	Steering Committee for Disaster Prevention and Control, Search and Rescue of Quang Nam province
29	Pham Quang Dong	Steering Committee for Disaster Prevention and Control, Search and Rescue of Quang Nam province
30	Nguyen Huu Thanh	Steering Committee for Disaster Prevention and Control, Search and Rescue of Quang Nam province
31	Ha Thuy Linh	Steering Committee for Disaster Prevention and Control, Search and Rescue of Quang Nam province
32	Truong Xuan Ty	Steering Committee for Disaster Prevention and Control, Search and Rescue of Quang Nam province

## 5. Conduct of the training

The training was inaugurated by Dr. Le Minh Nhat, Head of the Representative Office of Viet Nam Disaster and Dyke Management Authority in Central and Central Highlands Regions, MARD. He warmly welcomed all participants to the training and provided some background information on the project and emphasized the objectives of the training. The consultant also pointed out that the important of developing IFMP in context of climate change and he hopes that through this training course, the participants will have a better understanding of the significance, objectives, and process of developing IFMP.



Figure 1. Dr. Le Minh Nhat, Representative Office of Viet Nam Disaster and Dyke Management Authority in Central and Central Highlands Regions, MARD, makes the welcome speech

In the first presentation, Dr. Le Minh Nhat gave brief introduction on the definitions of IFMP and the steps of developing/updating the IFMP. Subsequently, he presented in detail the specific steps of implementation, each of which was accompanied by illustrative examples to enable the participants to grasp the precise purpose, input, and output of each step. Specific key contents addressed in this presentation include:

- Definition, objectives of IFMP;
- Difference between traditional flood management and IFMP;
- Comparison between old version and new version of IFMP manuals;
- The steps of developing/updating the IFMP and detailed contents in each step;



Figure 2. Dr. Le Minh Nhat, MARD, presents Developing/updating IFMP

In the second presentation, MSc. Dang Dinh Duc presented the importance of integrating the IFMP into the disaster prevention plans, the steps involved, and provided illustrative examples for each step. Specific key contents addressed in this presentation include:

- Responsibilities and tasks of integration implementation;
- Content that needs to be integrated;
- The steps of integrating the IFMP into the disaster prevention plans.

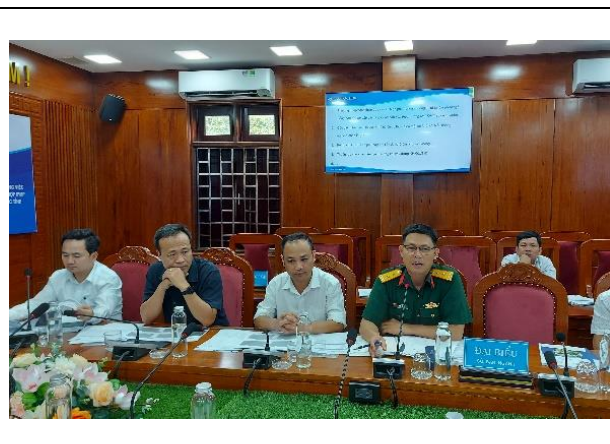


Figure 3. MSc. Dang Dinh Duc, CEFD, presents Integrating IFMP into the provincial disaster management plan

In the discussion: At the end of the training course, the trainers raised several questions related to the training topics to see if the trainees were understood the lectures. In this section, we also want to know how the issues mentioned in the lecture were applied in local specific contexts. This section also allows participants to ask any questions they have, and the trainers answer or respond those questions. Through the training and discussion, the consultant has clarified the concerns of the participants, providing information on the methods and scope of application for each method.

*Mr. Tran Huu Tuy, Military Command of Quang Nam Province*

Vietnam is currently requiring localities to develop IFMP, which is a new concept. Through the training course, trainees have gained a better understanding of the meaning, objectives, and steps to develop IFMP. It is recognized that IFMP is a very effective approach, and based on this, localities can be more proactive in responding to natural disasters in general and floods in particular.





	<p><i>Mr. Nguyen Dinh Huan, Quang Nam Provincial Hydro-Meteorological Station</i></p> <p>Through the training session, it was realized that officials involved in implementing the construction of IFMP require in-depth expertise in flood mapping and risk assessment... The consultant provided detailed guidance on these topics, but the amount of knowledge required is substantial, and further specialized training courses are needed to enable localities to proactively develop IFMP.</p>
<p><i>Mr. Nguyen Huu Thanh, Economic Division of Tam Ky City</i></p> <p>Trainees realized that prioritizing solutions in order is very necessary. This creates favorable conditions for localities to allocate budgets in short-term, medium-term, and long-term investment plans. However, currently the prioritization of solutions depends on the urgency and resources of the localities, without considering other aspects. Therefore, the method of prioritizing solutions which is addressed in the training session is very useful to ensure a balanced development between socioeconomic sectors and reducing the risk of floods.</p>	
	<p><i>Mrs. Tran Thi Tu Anh, Division of Agriculture and Rural Development of Nong Son District</i></p> <p>After the training session, it was understood that Integrated Flood Management is managed according to the river basin, not according to provincial or district boundaries, or specific areas.</p>

Finally, Dr. Le Minh Nhat briefly summarized what had been discussed during the training, and thanked all participants for their participation, especially those who contributed to the presentations and discussions.

## 6. Conclusion

After finishing the discussion, representatives of Viet Nam Disaster and Dyke Management Authority, representatives of the Steering Committee for Disaster Prevention and Control, Search and Rescue of Quang Nam province, the Consultant and delegates come to an agreement on the following:



- Flood is one of the greatest natural risks to sustainable development. At any scale, flood management is very important. To balance the development needs and risks, the best approach is the integrated management of floods. IFM is a process that promotes the coordinated management and development of water, land, and related resources, in order to maximize the resultant economic and social welfare in an equitable manner without compromising the sustainability of vital ecosystems. IFMP requires the coordination of multiple departments and sectors.
- Integrating IFMP into provincial disaster prevention plans is essential to avoid overlap in proposing solutions. During the integration process, it is necessary to consider the level of impact of floods on socio-economic development activities compared to the impact of other natural disasters, because each locality is characterized by different types of natural disasters.

## PART 2. PRESENTATIONS AT THE TRAINING

### 1. Developing integrated flood management plans



VIETNAM NATIONAL UNIVERSITY  
VNU UNIVERSITY OF SCIENCES  
CENTRE FOR ENVIRONMENTAL FLUID DYNAMICS



### TRAINING ON DEVELOPING INTEGRATED FLOOD MANAGEMENT PLANS (IFMP)

PROJECT: STRENGTHENING THE CAPACITY OF OFFICIALS ON  
INTEGRATED FLOOD MANAGEMENT PLANS (IFMP): INTEGRATING  
IFMP INTO PROVINCIAL DISASTER PREVENTION PLANS IN  
COASTAL PROVINCES OF CENTRAL VIETNAM

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## MAIN CONTENTS

- I** INTRODUCTION TO IFMP AND MANUAL
- II** GUIDANCE ON THE STEPS FOR DEVELOPING IFMP
- III** CONCLUSION AND DISCUSS

2

## I. INTRODUCTION TO IFMP AND MANUAL

### Concept (according to WMO and GWP)

Integrated flood management is a process that combines land and water resources management to maximize the benefits of flood-prone areas and minimize the damage caused by floods. Integrated flood management will apply a basin and multi-sector approach, involving communities and supported by mechanisms and policies in flood management.

### Objective

- Maximizing benefits in areas at risk of flooding while minimizing the damage to people and property caused by floods, aiming for sustainable development in river basins, ensuring livelihood security and addressing the vulnerability of communities living in the basin.
- Minimizing damage to people and property.
- Protecting the environment and promoting sustainable development of the ecosystem.

3

## I. INTRODUCTION TO IFMP AND MANUAL

### The differences between traditional flood management and integrated flood management.

Traditional flood management	Integrated Flood management
- Flood prevention plan is usually oriented towards extremes (design floods, historical floods)	- Applying risk management principles and may not completely controlled due to unpredictable changes in climate and socio-economic factors, as well as prioritizing multi-criteria measures.
- Measures (either construction or non-construction) focus on the goal of reducing floods and minimizing the local damage caused by floods. Usually, the measures implement in the three phases before, during, and after the flood have not been clearly distinguished. This leads to conflicts and mutual impacts that reduce effectiveness.	- The measures (either construction or non-construction) are considered to be integrated across river basins to harmonize benefits between different areas. Proposed measures for each phase before, during, and after floods are evaluated carefully to prioritize implementation in practice.
- Lack of participation from relevant parties.	- Participation from many stakeholders involved..

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## I. INTRODUCTION TO IFMP AND MANUAL

### Legal basis:

- The Law on Natural Disaster Prevention and Control No. 33/2013/QH13 (amending and supplementing some articles of the Law on Natural Disaster Prevention and Control and the Law on Dykes No. 60/2020/QH14 dated June 17, 2020) **which includes provisions on the development of a comprehensive flood management plan for river basins within provinces.**
- "The National Strategy for Natural Disaster Prevention and Control until 2030, with a vision to 2050, Decision No. 379/QĐ-TTg dated March 17, 2021 by the Prime Minister of the Government, in which Task and Solution No. 6 is **"Develop and implement a Comprehensive Flood Management Plan for river basins, plans for strong storm and super typhoon, flash floods, landslides, saltwater intrusion, riverbank and coastal erosion control, droughts"**.

### Practical basis:

- In some localities (such as Hue, Quang Binh, Phu Yen, Khanh Hoa...), the implementation of integrated flood management approach has shown to be appropriate.
- Although there are manual available (2016), the application in practice is still difficult, because this is a new approach.

**It is necessary to have a manual for developing IFMP.**

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## I. INTRODUCTION TO IFMP AND MANUAL

**Objective of the manual:** To provide guidance for localities on the process of developing IFMP for river basins in their respective areas.

**Target users of the guide:** People's Committees of provinces/cities, Provincial Steering Committee for Disaster Prevention and Search and Rescue, Department of Natural Resources and Environment, Department of Agriculture and Rural Development, relevant ministries and agencies of the central government, international organizations, and NGOs providing resources to implement the IFMP.

### The manual is structured as follows:

- Introduction
- Part 1: General information of manual
- Part 2: Introduction to Integrated Flood Management
- Part 3: Main contents for developing IFMP
- Part 4: Responsibilities of parties involved in building IFMP
- Conclusion
- References
- Appendix

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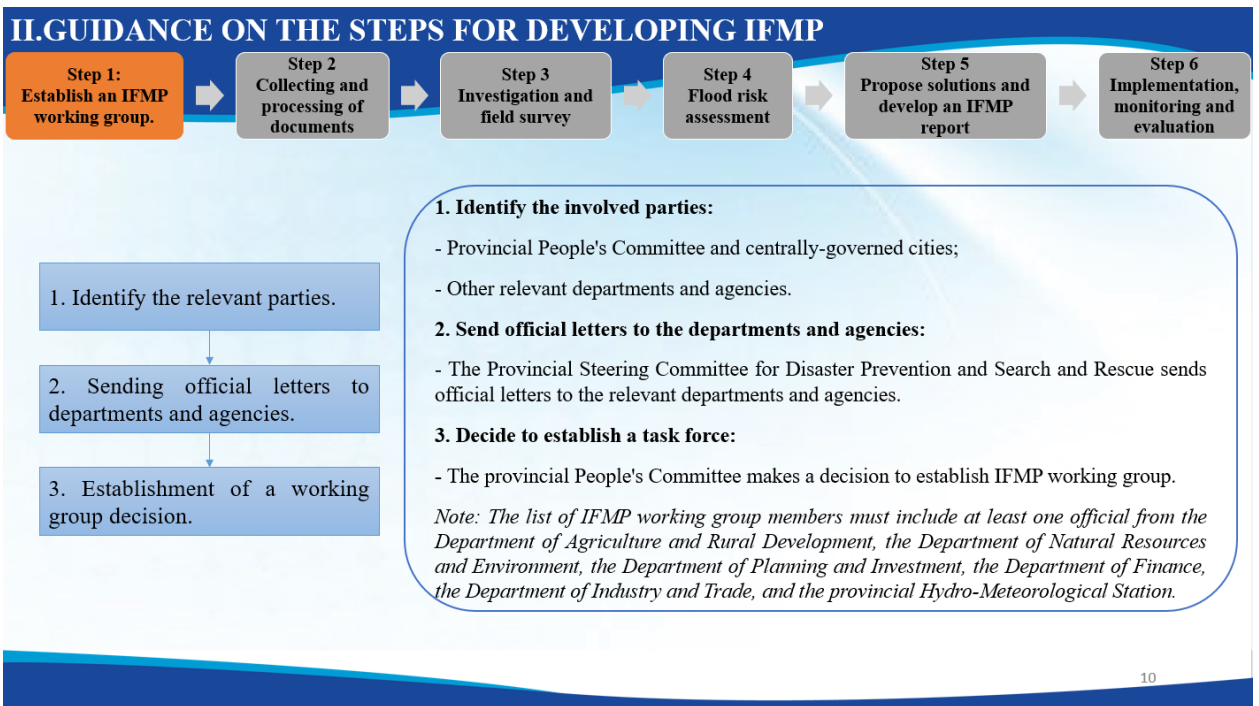
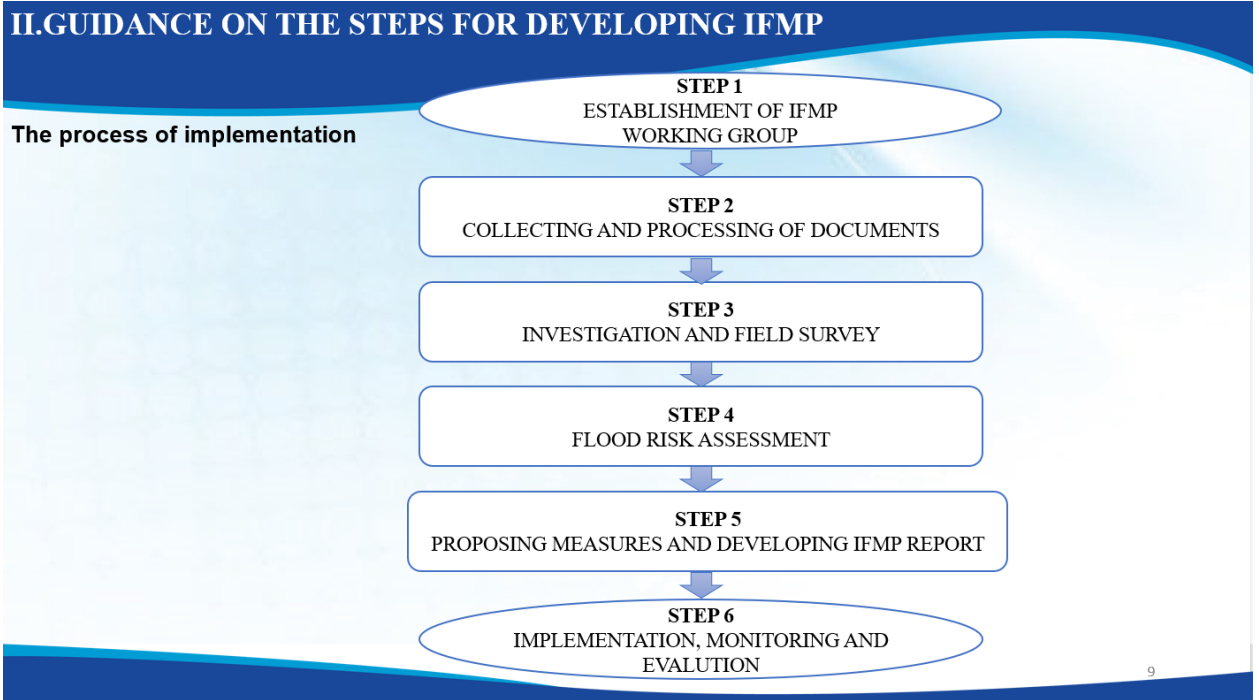
## I. INTRODUCTION TO IFMP AND MANUAL

Content	Old manual (2016)	New manual
<b>Part 1 General information of manual</b>		
- Overview of the Document	- Orientation of documents for developing IFMP, fully updated documents up to the time of handbook preparation.	- Updating newly issued, amended and supplemented legal normative documents.
<b>Part 2: Introduction to Integrated Flood Management</b>		
- Flood situation and damage	- Overview of flood situation and flood damages up to the time of manual development (2010)	- Updating the damage data until 2020.
- Integrated flood management of river basins	- Provide the definition and specific objectives of Integrated Flood Management	- Evaluation of the manual in 2016 and the current status of integrated flood management plans in the central provinces

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## I. INTRODUCTION TO IFMP AND MANUAL

	Outdated document (2016)	New material
<b>Part 3: Main contents for developing IFMP</b>		
Step 1: Establishing the working group.	- Tasks for the team to carry out have not been summarized yet	- Identifying the tasks that the working group needs to carry out.
Step 2: Reviewing documents	- Not collect and evaluate documents on natural characteristics, socioeconomic conditions, infrastructure, flood situation, and documents related to flood prevention and control in the river basin. - Not evaluate the previous IFMPs	- Supplementing the collection and evaluation of documents on natural characteristics, socio-economic conditions, infrastructure, flood situation, and documents on flood prevention and control in the river basin. - Supplement the evaluation of previous IFMPs
Step 3: Field investigation and survey	- The detailed guidance for the required tasks is not provided	- Detailed guidance on the tasks to be carried out
Step 4: Flood risk analysis	- Not providing many risk analysis methods and still using simple risk assessment methods	- Provide advanced risk analysis methods (qualitative, quantitative) and risk assessment approaches
Step 5: Propose solutions and Develop Comprehensive Flood Management Plan report (CFMP)	- The implementation schedule for measures has not been specified, and a template table of measures has not been provided - The main content of the report lacks legal basis, evaluation of the current state of flood prevention and control in the river basin, and a section on assigning responsibilities	- Providing a phased implementation plan for measures and a template for a list of measures. - The main content of the report is supplemented by legal basis, assessment of the current situation of flood prevention and control on the river basin, and assignment of responsibilities.
Step 6: Implementation and Review/Evaluation of IFMP	- A detailed guidance on implementing, reviewing, and evaluating the work is needed.	- Unchanged





## II.GUIDANCE ON THE STEPS FOR DEVELOPING IFMP

Step 1:  
Establish an IFMP working group.

Step 2  
Collecting and processing of documents

Step 3  
Investigation and field survey

Step 4  
Flood risk assessment

Step 5  
Propose solutions and develop an IFMP report

Step 6  
Implementation, monitoring and evaluation

1. Compile a list of relevant documents, programs/projects.

2. Collecting documents/materials.

3. Processing the collected documents.

**1. Collect and analyze related documents, programs/projects**

- Legal documents and policy mechanisms related to the project;
- Related plans, programs/projects;
- Natural and socio-economic characteristic documents, infrastructure documents, and flood situation documents (if there is an IFMP, update and supplement the documents).
- Documents related to flood prevention and control activities in the river basin.

**2. Collect documents**

- Collect documents from relevant departments and units.

**3. Processing the collected documents**

- Analyze and evaluate the current situation of flood prevention and control activities:
  - + Evaluate the IFMP
  - + Evaluate the results of implementing the overall disaster prevention and control tasks and specifically for floods
  - + Evaluate the current organizational structure and coordination of implementation
- Evaluate and update the natural, socio-economic, and infrastructure characteristics in the province (a river basin map showing administrative layers, rivers and streams, transportation routes, etc. ).

After completing step 2, it is necessary to convene IFMP working group meeting to discuss the implementation of the next steps. Depending on the time, budget, and capacity of the locality, a decision may be made to invite additional consultant.

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## II.GUIDANCE ON THE STEPS FOR DEVELOPING IFMP

Step 1:  
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Propose solutions and develop an IFMP report

Step 6  
Implementation, monitoring and evaluation

**Some important contents that need to be surveyed and updated information.**

Meteorological and hydrological data, flood marks.	Topographic data on river channels, canals, and detailed terrain in flood-prone areas.	Data on infrastructure that alter the flow in the basin, flood control and drainage constructions, flood protection constructions, and constructions with potential to obstruct flood flow.
Data on infrastructure and population in areas at risk of flooding.	Assessment of the effectiveness of flood prevention and control measures, as well as risk reduction measures implemented in the basin.	Assessment of the feasibility of flood prevention and control measures, proposed measures to reduce flood risk.

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## II. GUIDANCE ON THE STEPS FOR DEVELOPING IFMP



Some investigation and field survey images.



Measure flood depth.



Measuring flood levels using DGPS equipment.

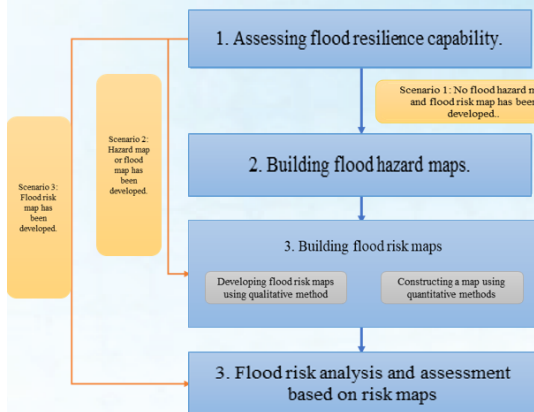


Additional surveying of topographic, river cross-sections data using depth sounder equipment combined with DGPS.



Surveying infrastructure in flood-prone areas.

## II. GUIDANCE ON THE STEPS FOR DEVELOPING IFMP



### 1. Assessing flood resilience capability:

- Assessment of legal compliance, mechanisms, and policies;
- Assessment of human resources and capacity of flood control forces;
- Assessment of the current situation of flood forecasting and warning at the local level;
- Assessment of equipment, materials, and facilities for flood control;
- Assessment of the capacity of core response forces in flood control;
- Assessment of the current situation of information systems and communication at the local level;
- Assessment of the community's awareness and skills in responding to natural disasters and training for flood control at the local level;
- Assessment of flood control infrastructure;
- Assessment of the current situation of support for post-flood damage control;
- Assessment of financial resources for implementing flood control activities at the local level, either through direct or indirect investment.



## II.GUIDANCE ON THE STEPS FOR DEVELOPING IFMP

Step 1:  
Establish an IFMP working group.

Step 2:  
Collecting and processing of documents

Step 3:  
Investigation and field survey

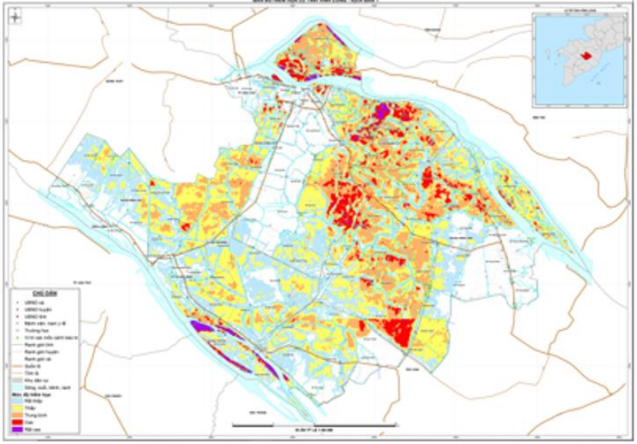
Step 4:  
Flood risk assessment

Step 5:  
Propose solutions and develop an IFMP report

Step 6:  
Implementation, monitoring and evaluation

**1. Building flood hazard maps:**

- Flood hazard map shows the levels of flood (based on 3 factors: inundation depth, velocity, and inundation duration).
- The map displays:
  - + Specialized layer: the maximum inundation depth and scale, distribution of peak flood velocity, and duration of inundation across space.
  - + Background layer: geographic factors and hydraulic system such as reservoirs, pumping stations, dams, dykes, etc.



*Flood Hazard Map of Vinh Long Province,  
Source: Project "Investigation, Survey, and Issuance of Water Levels Corresponding to Flood Alert Levels in Vinh Long Province"*

## II.GUIDANCE ON THE STEPS FOR DEVELOPING IFMP

Step 1:  
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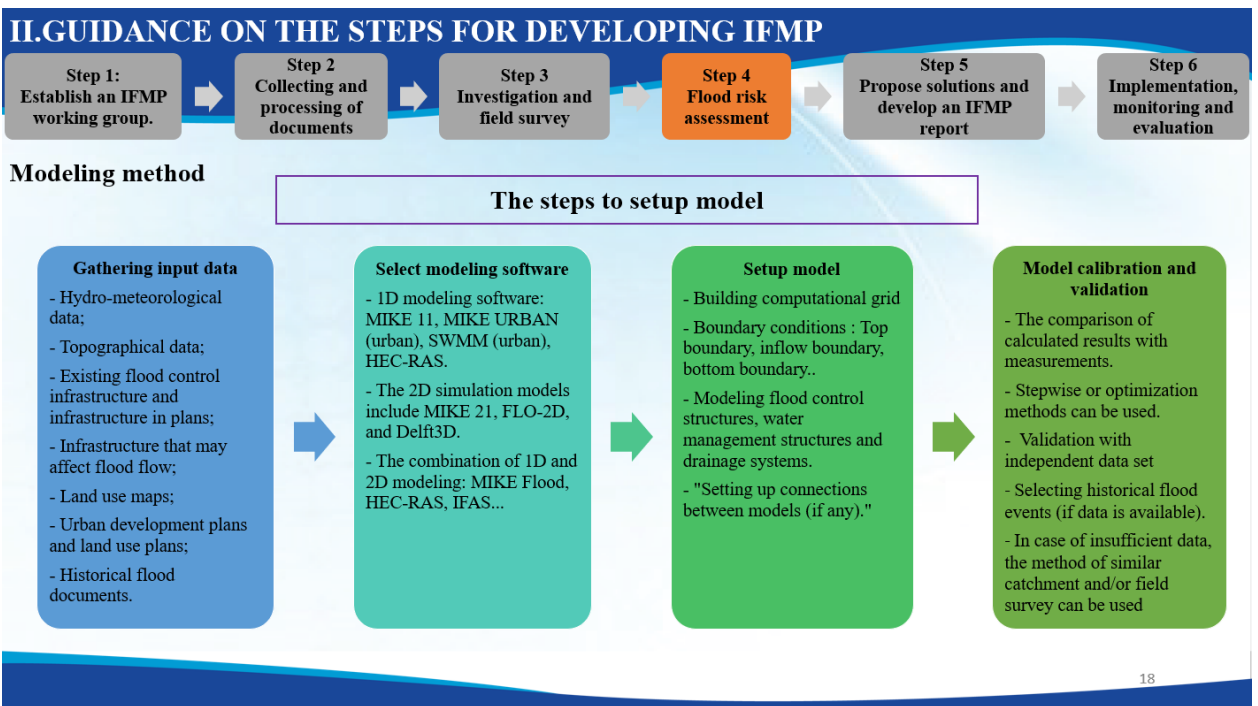
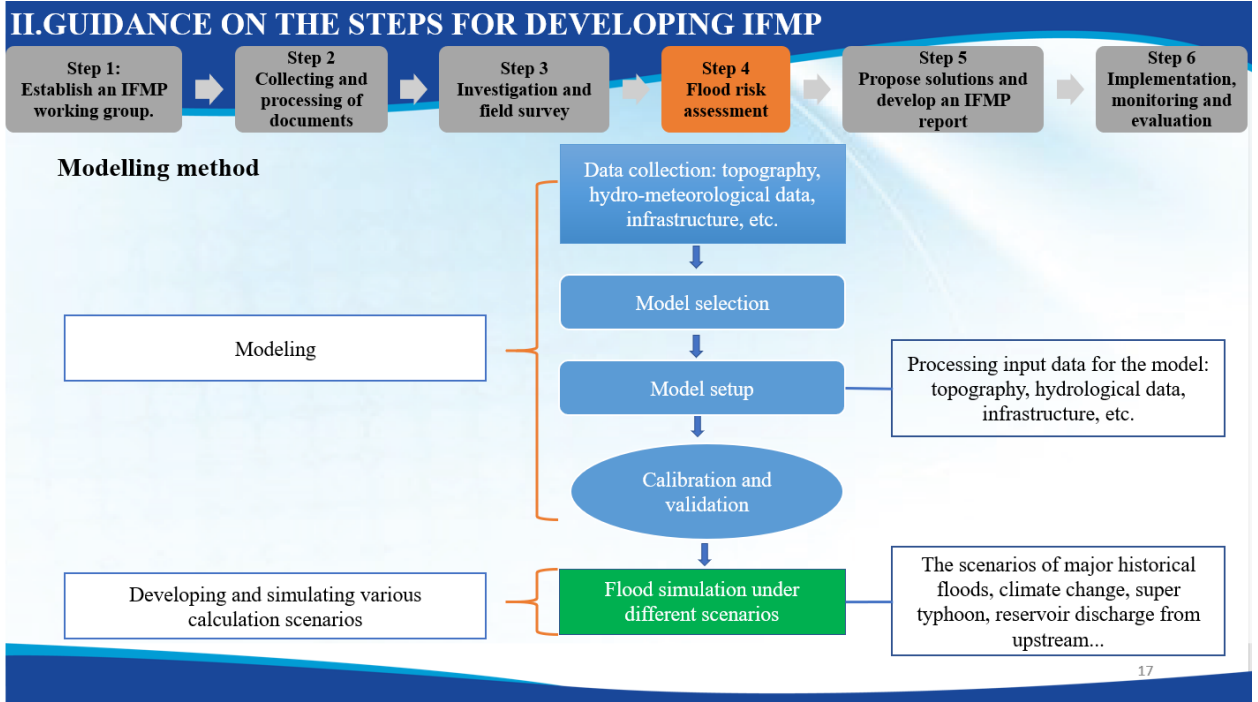
Step 5:  
Propose solutions and develop an IFMP report

Step 6:  
Implementation, monitoring and evaluation

**Method of developing flood hazard maps**

Survey method	Remote sensing method	Modeling method
<ul style="list-style-type: none"> <li>Based on the survey of the area, elevation investigation, location of flood marks, determine the flooded areas by spatial interpolation method..</li> <li>Combine with data from the digital elevation model to develop maps.</li> <li>Advantages: Allows for quick simulation of maps based on actual measurement data and digital elevation models.</li> </ul>	<ul style="list-style-type: none"> <li>Apply to develop flood events that have occurred in the past.</li> <li>Combining the digital elevation model and water level measurement data to develop maps.</li> <li>Depend on the quality and resolution of the captured images.</li> <li>Cannot analyze the depth of flooding.</li> </ul>	<ul style="list-style-type: none"> <li>Using hydrological and hydraulic models to simulate rainfall and flood flows according to calculated scenarios.</li> <li>Required input data: hydro-meteorological data, terrain data, cross-section data of the river, measured flood data used for calibration and verification.</li> <li>Using GIS tools to stack and integrate information and develop maps.</li> </ul>

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## II.GUIDANCE ON THE STEPS FOR DEVELOPING IFMP

**Modeling method**

**Developing computational scenarios**

- Historical flood events in the locality;
- Natural disaster risk level for floods and inundation in the locality (as regulated in Article 45, Decision No. 18/2021/QĐ-TTg);
- Climate change scenarios issued by the Ministry of Natural Resources and Environment;
- Super typhoon and flood scenarios caused by upstream reservoir discharge;
- Land use plans, urban development plans,... (related to scenarios of water exploitation, changes in urban infrastructure, etc.);
- Proposed measures to minimize flood damage (single measures or a combination of multiple measures).

*Note: For coastal provinces in Central Vietnam, attention should be paid to the scenario of climate change and sea level rise.*

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## II.GUIDANCE ON THE STEPS FOR DEVELOPING IFMP

**2. Building flood risk maps**

- Building GIS database
- Developing hazard maps

DATABASE

- Geographic data: administrative boundaries, transportation networks, hydrological systems, land use/land cover, topography, socioeconomic and demographic data.

- Specialized data: exposed data, vulnerable data, hazardous data...

- The simulated results of flood hazards corresponding to different scenarios.

- Development plans/strategies

- Disaster hazard refers to the level (intensity) of a natural phenomenon that can cause adverse impacts to affected objects.
- Risk is the damage that a natural disaster can cause to people, property, environment, living conditions, and socio-economic activities.

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## II. GUIDANCE ON THE STEPS FOR DEVELOPING IFMP

Step 1:  
Establish an IFMP working group.

Step 2:  
Collecting and processing of documents

Step 3:  
Investigation and field survey

Step 4:  
Flood risk assessment

Step 5:  
Propose solutions and develop an IFMP report

Step 6:  
Implementation, monitoring and evaluation

### 2. Developing flood risk maps

- A risk map is a tool used to identify natural risks in general and flood risks in particular.
- It shows:
  - + Specialized layer: spatial zoning of risk levels.
  - + Base layer: basic information on major roads, river systems, terrain elevations, key infrastructure, community living areas, administrative boundaries, etc.



*An example of a flood risk map in the Ba River basin, Source: "Developing a provincial-level natural disaster prevention plan integrated with comprehensive flood management for several river basins in the South Central Coast and Central Highlands regions."*

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## II. GUIDANCE ON THE STEPS FOR DEVELOPING IFMP

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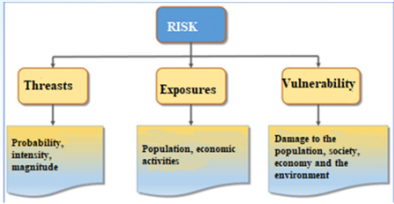
### 2. Developing flood risk maps

➤ **Perform risk mapping**

*Building a map using qualitative risk assessment method*

$$R = f(H, V, E)$$

Risk (R)	Threats/Hazard (H)	Vulnerability (V)	Exposures (E)
<ul style="list-style-type: none"> <li>This is the damage that natural disasters can cause to people, property, the environment, living conditions, and socio-economic activities.</li> </ul>	<ul style="list-style-type: none"> <li>The intensity of a natural disaster that can have adverse impacts on affected objects.</li> </ul>	<ul style="list-style-type: none"> <li>Vulnerabilities are characteristics and states of a community, environment, or assets that are easily affected and unable to withstand adverse impacts from natural disasters</li> </ul>	<ul style="list-style-type: none"> <li>This refers to degree to which a person, infrastructure, housing, production capacity, and other tangible assets can be damaged (opposite of resilience) due to being located in an area prone to natural disasters.</li> </ul>



The qualitative risk assessment matrix

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## II.GUIDANCE ON THE STEPS FOR DEVELOPING IFMP



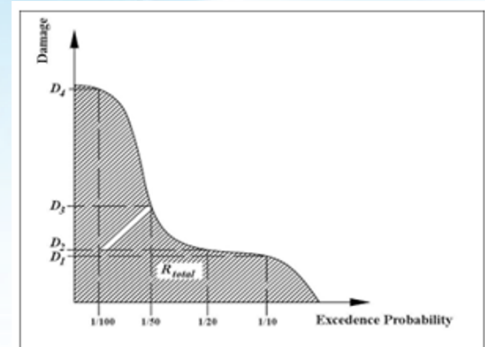
### 2. Developing flood risk maps

➤ *Perform risk mapping*

*Constructing flood risk maps using quantitative risk assessment method.*

**Quantitative risk assessment.**

- It is a function of Probability and Damage. In other words, flood risk is determined by the expected annual damage value and the sum of all flood frequencies.
- The advantage is that it can better estimate the economic value at risk and compare the risk levels of different areas.



*Probability-based damage function*

## II.GUIDANCE ON THE STEPS FOR DEVELOPING IFMP

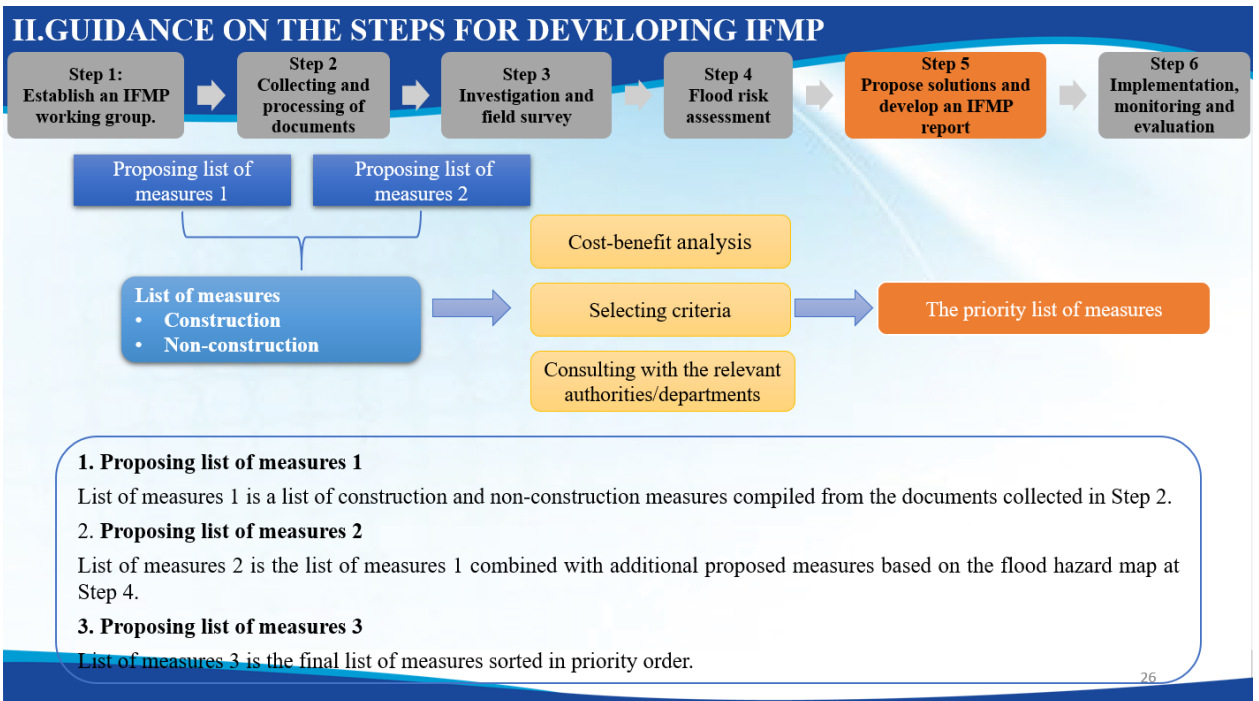
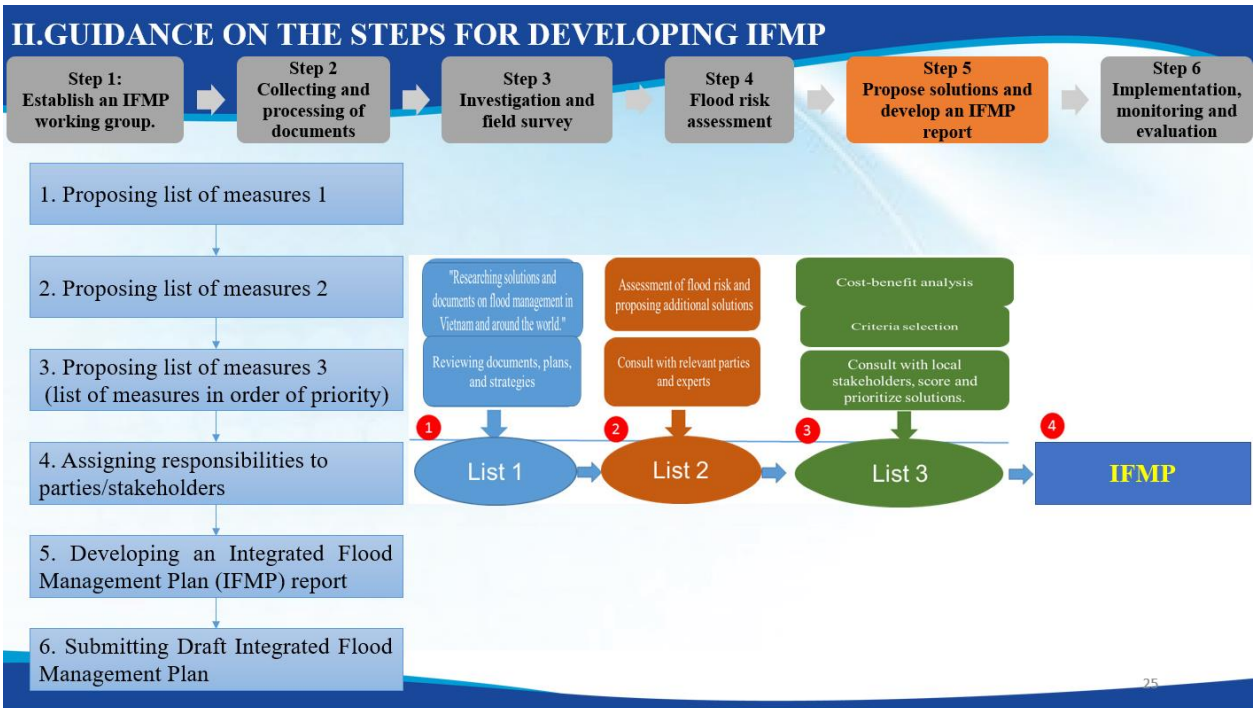


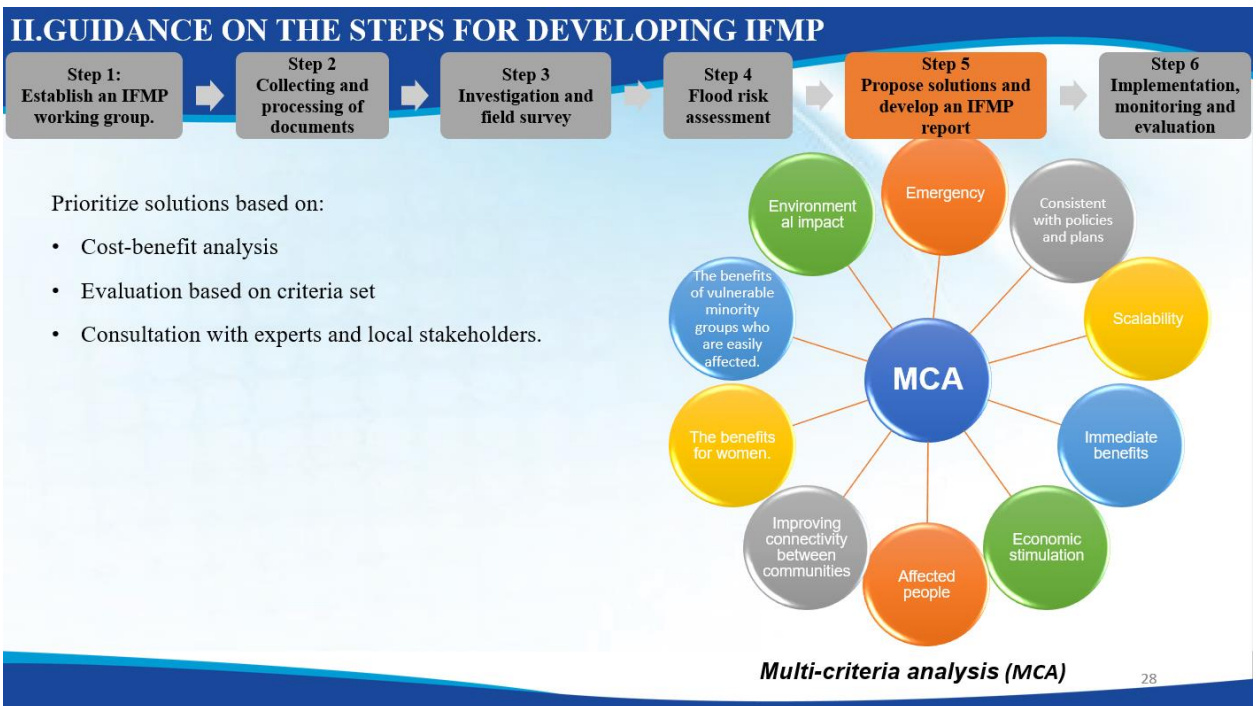
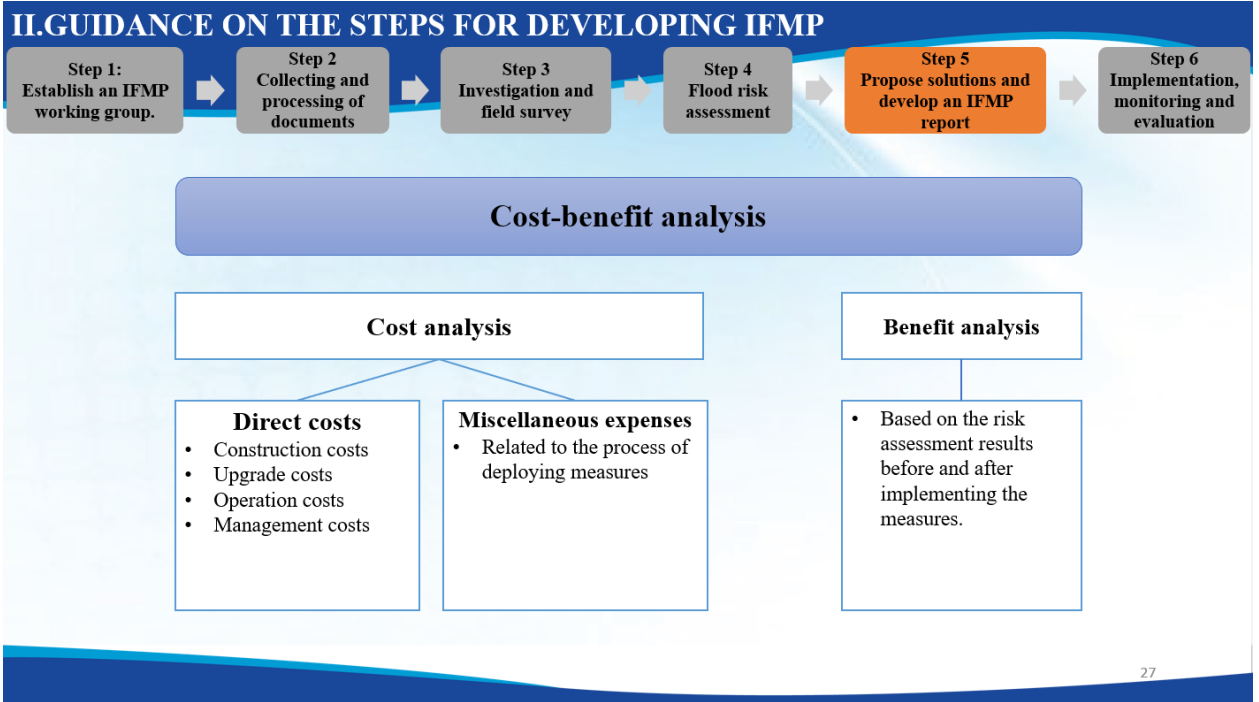
### 4. Analysis and assessment of flood risk based on flood risk maps

- Based on the flood risk map that has been developed, identify the risk zones and then analyze and evaluate the risk according to 5 levels (Decision No. 18/2021/QĐ-TTg dated April 22, 2021 on regulations on forecasting, warning, information dissemination on natural disasters and levels of natural disaster risk):

- +Low risk,
- +Moderate risk,
- +High risk,
- +Very high risk,
- +Catastrophic risk.

- *For river basins that have already developed flood hazard maps or flood inundation maps, the development of flood hazard maps can be omitted.*
- *For river basins that have already developed flood risk maps, the development of flood hazard maps can be omitted.*





## II.GUIDANCE ON THE STEPS FOR DEVELOPING IFMP



Categories	Criteria	Solutions	Point								
			-3	-2	-1	0	1	2	3		
Planning	Urgency	Measures for solving existing problems - take higher priority than problems expected develop in the future	Not available	Not available	Not available	Not urgently	Medium effects and long-term chronicity	Moderately urgent - damage estimated by year	Very urgent - current problems or imminent effects		
	Consistency with policy and plan	Measures that are consistent with plans - long-term priorities take precedence over measures that could conflict with policies and plans	Severe conflict or direct conflict with the plan	Small or indirect conflict with plan	No connection with plan	Neutral - No information	Suitable for short-term plan	Suitable for long-term plan	Meet the priorities in national plan		
	Multiple possibility	More sustainable (national and regional) measures are preferred over single measures and cannot be repeated	Not available	Not available	Not available	Neutral - Unable to be multiplied. Single case	Limited applicability	Regional applicability	Ability to apply nationwide		
	Immediate benefits	Prioritize the measures that deliver short-term benefits over projects with long-term benefits only.	Not available	Not available	May cover entire investment	Neutral - No information	Long-term	Mid-term	Short-term		
Economy	Economic returns	Measures that provide more returns to the local economy are given priority (e.g. creating local jobs, using local inputs, developing local skills and technology, taxes, stimulating investment)	Significant disadvantage	Moderate disadvantage	Small disadvantage	Neutral - No information	Small benefits	Average benefits	Great benefits		
Socio-economic	Affected people	Measures that benefit a large portion of the population are given priority	Disadvantage of province size	Disadvantage of district size	Disadvantage of commune size	Neutral - no information	Commune scale benefits	District scale benefits	Benefits of the provincial scale		
	Improve connections between communes	Projects that improve connectivity in province, districts and communes are given priority over projects that reach communes	Separation between districts and beyond	Separation between districts	Separation between communes	Neutral - unimproved roads gap	In the province	In the district	Between communes and beyond		
	Benefits for women	Measures that focus women in the distribution of benefits take precedence over measures that do not have a direct positive or zero flow effect	Beneficial only for men	The benefits are disproportionately large for men	Benefits are not proportional to men	Neutral - women and men equally benefit	The benefits are not commensurate with women	The benefits are not commensurate with women	Beneficial for women only		
Minority interests are disadvantaged and vulnerable communities	Measures that benefit minorities and vulnerable communities in the distribution of benefits take precedence over measures that do not have a direct positive or zero flow effect	Beneficial only for the majority groups	Disproportionately large gains for non-minority groups	Small benefits do not reach value for non-minority groups	Neutral - population and minorities are benefit equally	Small benefits are not commensurate with the minorities	The great benefits are not commensurate with the minorities	Beneficial only the minority groups			
Environment	Environmental impact	Measures that have a positive impact on the environment take priority	Significant disadvantage	Moderate disadvantage	Minimal disadvantage	Neutral - no effects	Small benefits	Average benefits	Great benefits		

The MCA criteria set is applied to prioritize measures in the project "Enhancing Resilience to Climate Change-Induced Natural Hazards in Vietnam's Coastal Cities - Phase 2".

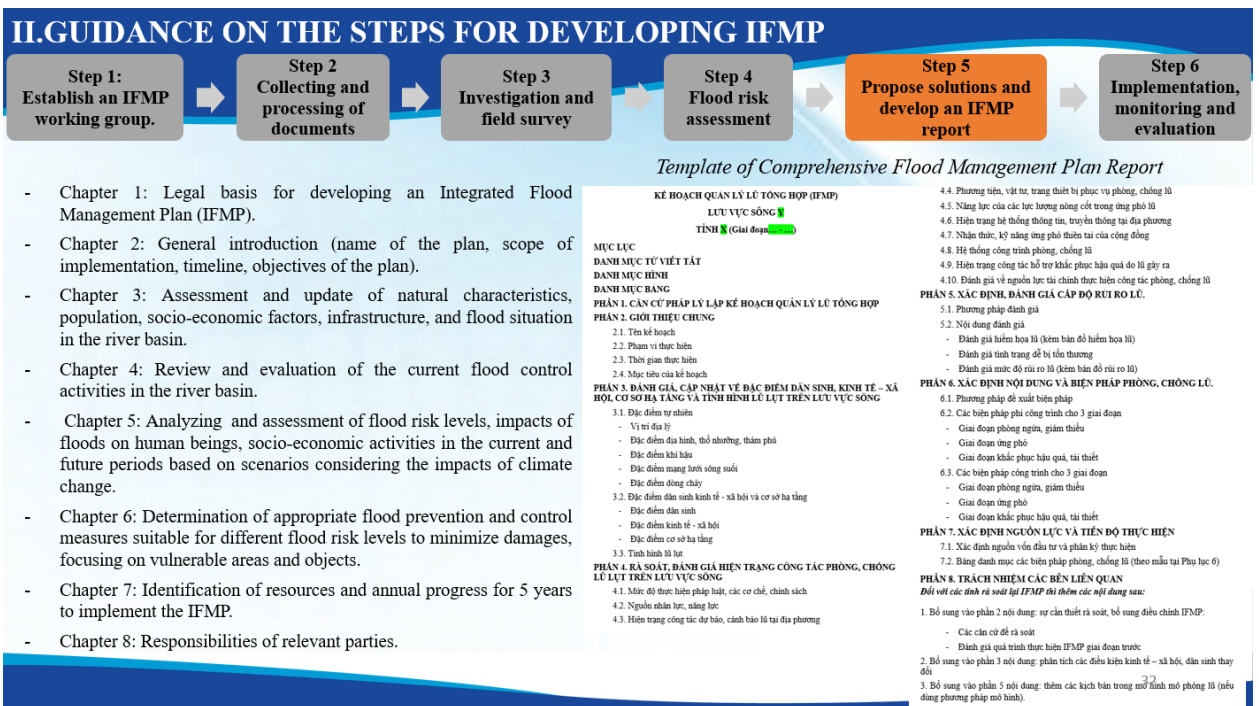
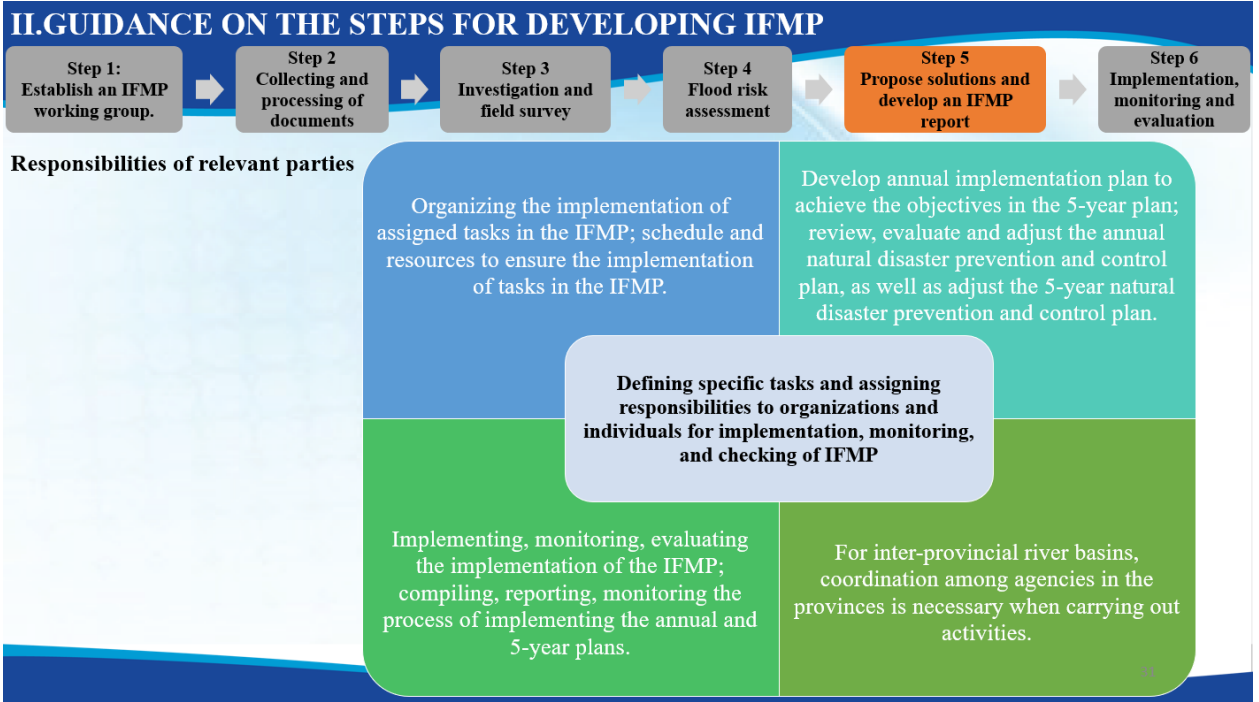
## II.GUIDANCE ON THE STEPS FOR DEVELOPING IFMP



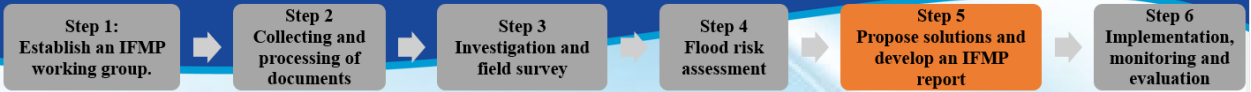
The template table of flood prevention and control measures

No.	Program/Project	Objectives	Lead Agency	Coordinating Agency	Implementation divergence			Expense	Budget resource		
					Year	Year	Year		Local	Central	Other sources
A	STRUCTURAL MEASURES										
A.I	Prevention and mitigation phase										
...	...	...	...	...	...	...	...	...	...	...	...
A.II	Response phase										
...	...	...	...	...	...	...	...	...	...	...	...
A.III	Remedial and reconstruction phase										
...	...	...	...	...	...	...	...	...	...	...	...
B	NON-STRUCTURAL MEASURES										
B.I	Prevention and mitigation phase										
...	...	...	...	...	...	...	...	...	...	...	...
B.II	Response phase										
...	...	...	...	...	...	...	...	...	...	...	...
B.III	Remedial and reconstruction phase										
...	...	...	...	...	...	...	...	...	...	...	...





## II.GUIDANCE ON THE STEPS FOR DEVELOPING IFMP

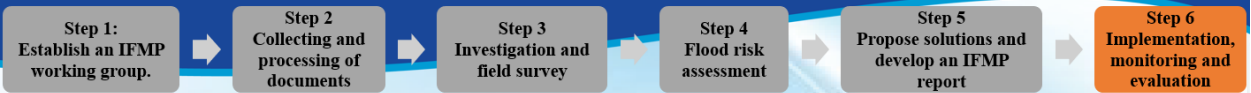


- After the IFMP Working Group completes the IFMP Development Report, the Department of Agriculture and Rural Development will draft a Plan and submit a letter to the provincial People's Committee.
- The Department of Agriculture and Rural Development will direct the IFMP Working Group to complete the Plan and Report based on the feedback received.
- The Department of Agriculture and Rural Development will coordinate with the Provincial People's Committee Office to submit the draft Plan.

### Decision approving the IFMP

UY BAN NHÂN DÂN ...TỈNH... Số...	CỘNG HÒA XÃ HỘI CHỦ NGHĨA VIỆT NAM Độc lập - Tự do - Hạnh phúc... ngày... tháng... năm...	d. Các sở... (có liên quan thực hiện các nội dung trong kế hoạch), Đài KTTV tỉnh khu vực, các tổ chức chính trị - xã hội, các cơ quan truyền thông, Ban chỉ huy quân sự tỉnh, UBND các huyện, thị, TP... theo chức năng, nhiệm vụ và trách nhiệm được phân công... Điều 2. Quyết định có hiệu lực thi hành kể từ ngày ký ban hành. Điều 3. Chánh Văn phòng UBND tỉnh, Giám đốc các Sở: Nông nghiệp và Phát triển nông thôn, Tài chính, Kế hoạch và Đầu tư, Xây dựng, Giao thông vận tải, Tài nguyên và Môi trường, Công thương; Trưởng ban chỉ huy phòng chống thiên tai và tìm kiếm cứu nạn tỉnh, Chủ tịch UBND các huyện, thị xã liên quan, thủ trưởng các cơ quan liên quan chịu trách nhiệm thi hành Quyết định này.
QUYẾT ĐỊNH Về việc phê duyệt kế hoạch quản lý lũ tổng hợp lưu vực sông... tỉnh... giai đoạn 20... - 20... UY BAN NHÂN DÂN TỈNH... Căn cứ... (một số Luật có liên quan như Luật Tổ chức hội đồng nhân dân... Luật Phòng chống thiên tai, một số Nghị định hướng dẫn có liên quan...) Căn cứ... (các Quyết định của Thủ tướng Chính phủ, các Bộ ban ngành TW, UBND tỉnh về các lĩnh vực liên quan đến phòng chống thiên tai) Căn cứ... (Thành lập Tổ công tác lập IFMP, lập Ban chỉ đạo dự án...) Xét đề nghị của Sở Nông nghiệp và PTNT tại tờ trình số...		Nơi nhận: - Văn phòng; - TTU, TT HĐND tỉnh (báo cáo); - CT, các PCT UBND tỉnh; - UBND huyện, thị xã... - Lưu: Văn phòng.
QUYẾT ĐỊNH: Điều 1. Phê duyệt Kế hoạch quản lý lũ tổng hợp lưu vực sông Y tỉnh X giai đoạn 20... - 20... (có báo cáo kèm theo) với những nội dung chủ yếu sau: 1. Tên kế hoạch: ... 2. Phạm vi thực hiện: ... 3. Thời gian thực hiện: ... 4. Mục tiêu của kế hoạch: ... 5. Nội dung của kế hoạch: ... a) Khung kế hoạch b) Các biện pháp công trình và biện pháp phi công trình (Đính kèm danh mục các biện pháp phòng, chống lũ theo mẫu tại phụ lục 4) 6. Dự kiến tổng số nhu cầu vốn đầu tư: ... 7. Nguồn vốn đầu tư: ... 8. Tổ chức thực hiện: a. Sở Nông nghiệp và PTNT b. Sở Kế hoạch và Đầu tư c. Sở Tài chính		TÀI UY BAN NHÂN DÂN CHỦ TỊCH

## II.GUIDANCE ON THE STEPS FOR DEVELOPING IFMP



### Implementation

**Department of Agriculture and Rural Development**

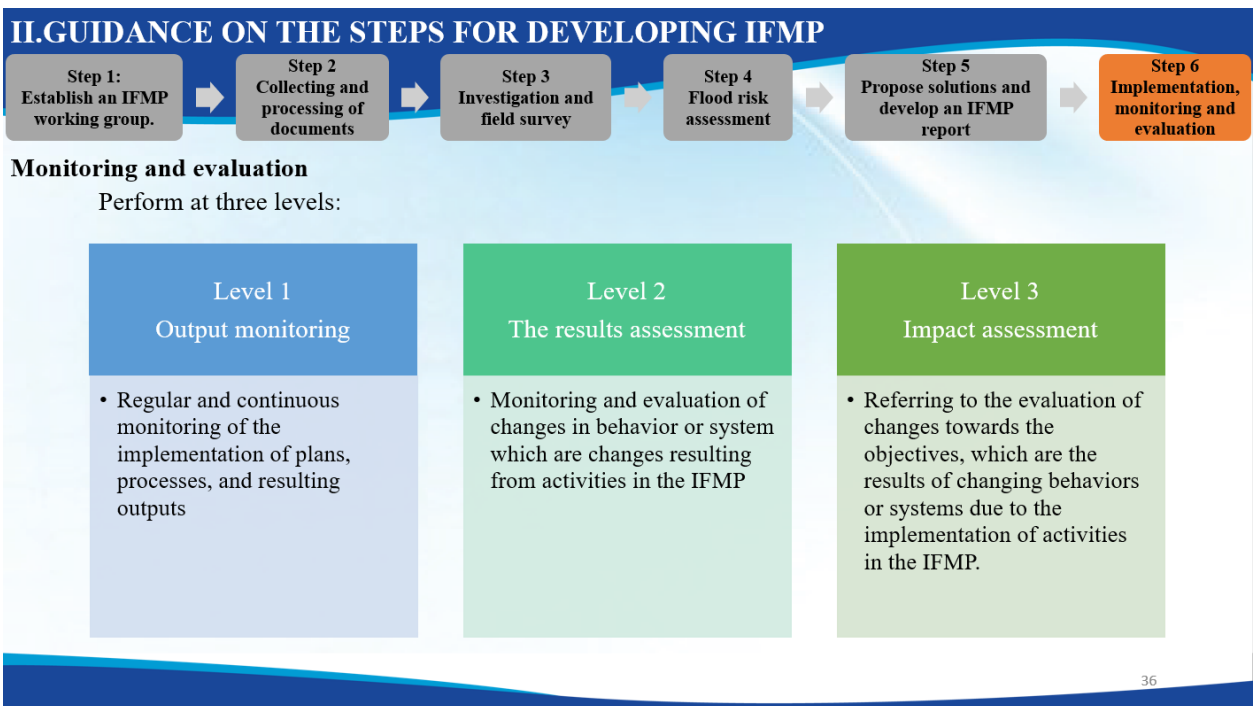
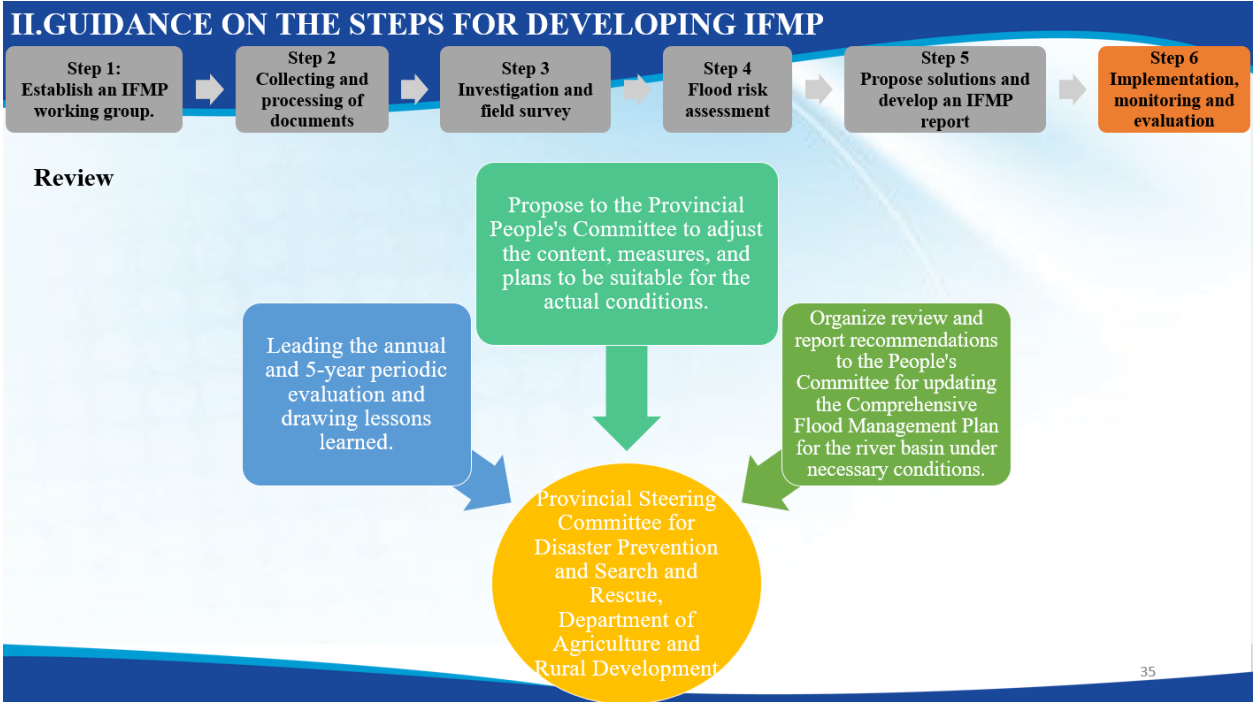
- Guiding, checking, and urging the implementation of IFMP
- Acts as a contact point with national and international organizations
- Organizing review, monitoring, and evaluation of the implementation.

**Department of Planning and Investment**

- Balancing consideration, advising on investment capital by stage and annually.
- Advising the provincial People's Committee to issue policies on financial support for agencies implementing the Plan.

**Other local departments and agencies**

- To lead or coordinate the implementation as agreed in the detailed deployment plan.



### III. CONCLUSION AND DISCUSS

- The manual is developed based on the 2016 manual document and practical implementation experiences of localities that have developed IFMPs. The document provides detailed steps to develop Integrated flood management plans for the locality.
- The manual is designed to support provincial People's Committees in developing IFMP for river basins within their jurisdiction. Depending on the actual situation, localities can flexibly implement the steps and methods introduced in this manual.
- The objective of the training course is to enhance the knowledge of local officials, help them understand the process of building IFMPs, the data, methods, and tools used at each step, thereby developing practical-oriented proposals and controlling the quality of the product during the development process.
- Localities should consider proposing necessary training courses in the near future.

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## Thank you!

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 (+84) 24 3858 4945  
 [cefd@hus.edu.vn](mailto:cefd@hus.edu.vn)  
 [www.cefd.edu.vn](http://www.cefd.edu.vn)

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## 2. Integrating IFMP into the provincial disaster prevention plans



VIETNAM NATIONAL UNIVERSITY  
VNU UNIVERSITY OF SCIENCES  
CENTRE FOR ENVIRONMENTAL FLUID DYNAMICS



### TRAINING ON INTEGRATING IFMP INTO THE PROVINCIAL DISASTER PREVENTION PLANS

PROJECT: STRENGTHENING THE CAPACITY OF OFFICIALS ON  
INTEGRATED FLOOD MANAGEMENT PLANS (IFMP): INTEGRATING  
IFMP INTO PROVINCIAL DISASTER PREVENTION PLANS IN  
COASTAL PROVINCES OF CENTRAL VIETNAM

### Report contents

1. General information;
2. Overview of Natural Disaster Prevention and Control Integrated Flood Management Plans;
3. Process and content integrated.

## General information

**Project:** Strengthening the capacity of officials on Integrated Flood Management Plans (IFMP): Integrating IFMP into provincial disaster prevention plans in coastal provinces of Central Vietnam.

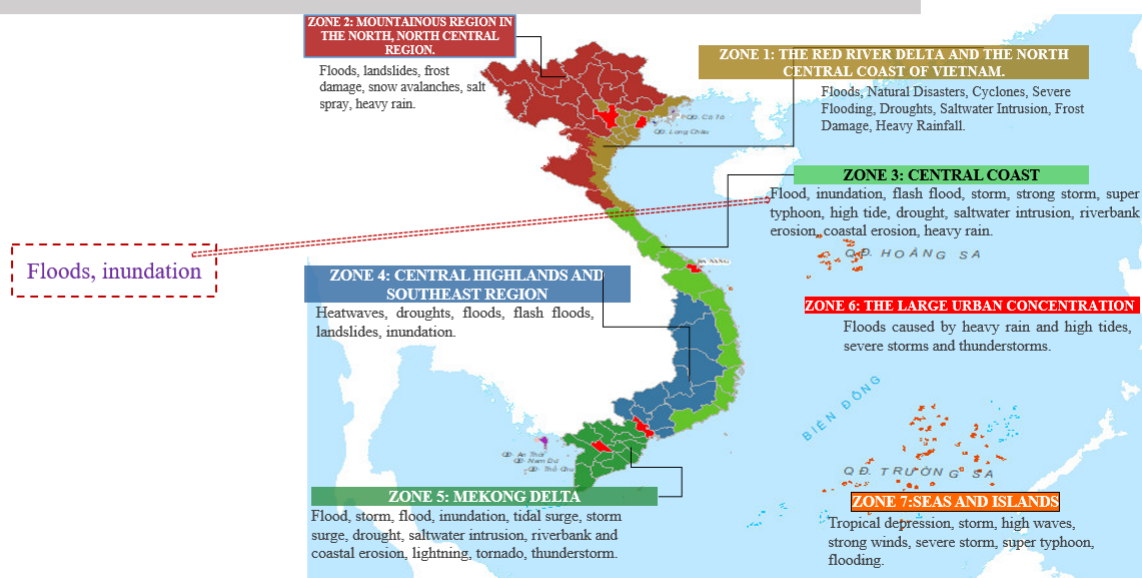
**Grant:** Asia-Pacific Network for Global Change Research (APN)

**Areas:** Quang Nam, Quang Ngai, Binh Dinh

**Time:** 1/10/2022 – 30/9/2023

**Objectives of the Project:** The main objective of the project is to improve the quality and effectiveness of disaster prevention at the provincial level, in order to reduce the damages caused by floods. It can be done through strengthening the capacity and knowledge of officials in the relevant departments and agencies in developing integrated flood management plans, guiding the integration of the IFMP into the provincial disaster prevention and control plan.

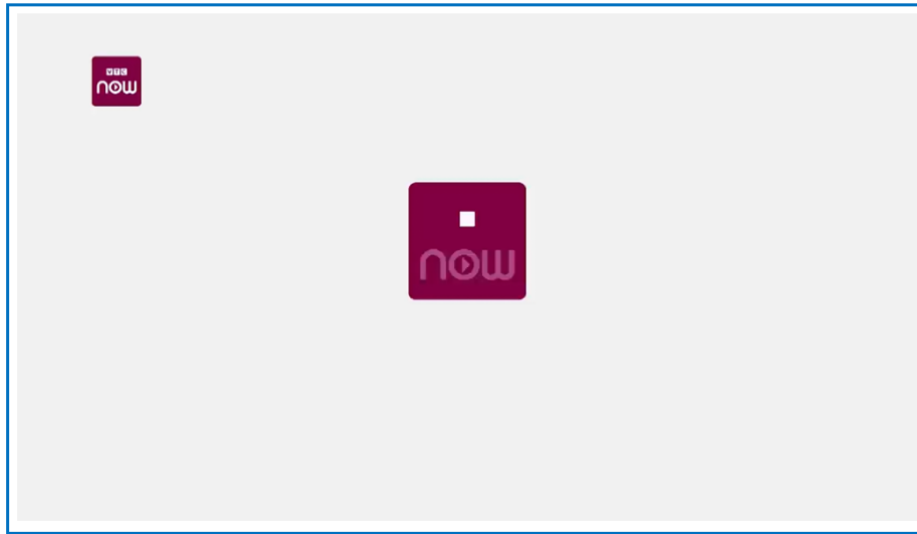
## Typical natural disaster zoning in Vietnam



4

(Source: Circular No. 02/2021/TT-BNNPTNT guiding the development of disaster prevention and control plans at all levels in localities)

# Flooding affects Quang Nam.



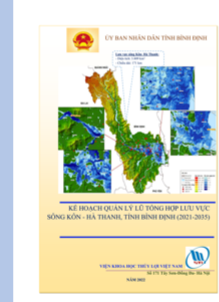
# The Provincial Disaster Prevention Plans Framework

1. Legal basis for planning;
2. Purpose, requirements;
3. Characteristics of natural, social, economic, and infrastructure conditions;
4. Evaluation of the current state of disaster prevention and control work;
5. Identifying and assessing natural disaster risks;
6. Measures for disaster prevention and control;
7. Integrating disaster prevention and control content into plans, programs, and projects;
8. Determining resources and annual and 5-year progress;
9. Determining the responsibilities of organizations and individuals.

The collage contains several official documents and maps. The top-left document is a decision on the plan for disaster prevention and control (2017-2022) for the province. The top-right document is a decision on the plan for disaster prevention and control (2017-2022) for the province. The bottom-left document is a decision on the plan for disaster prevention and control (2017-2022) for the province. The bottom-right document is a map of Quang Nam province showing disaster risk zones.

## Integrated Flood Management Plan (IFMP) Framework.

1. Legal basis for developing Integrated Flood Management Plan according to river basin;
2. Natural, socio-economic and infrastructure characteristics in the province;
3. Review and evaluate the current situation of flood prevention and control in the river basin;
4. Identify and evaluate the level of flood risk, the impact of floods on people and socio-economic activities;
5. Propose flood prevention and control measure;
6. Determine the responsibilities of organizations and individuals.



## Instructions for integration: 3 questions to be answered.

**Question 1:** What are our responsibilities and duties?

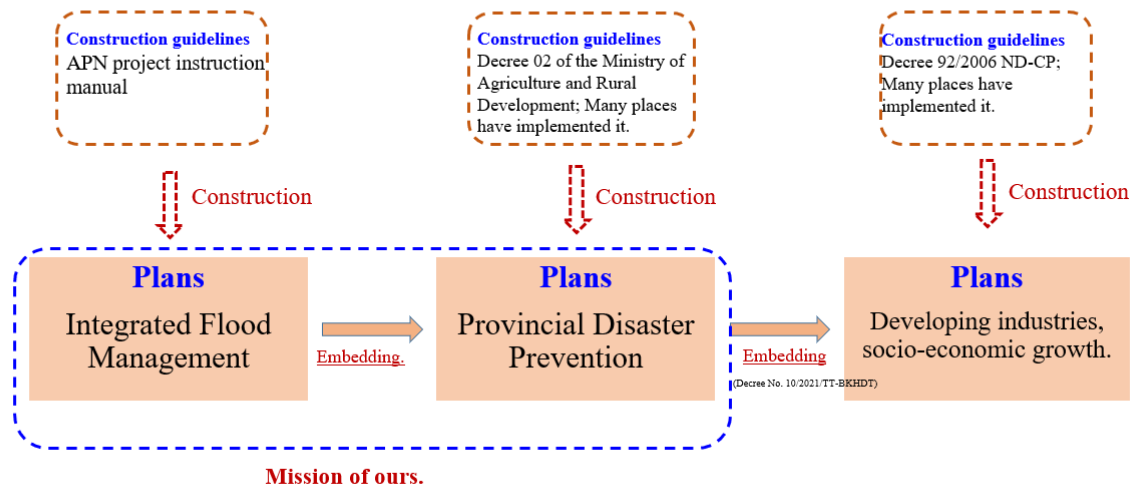
**Question 2:** What content needs to be integrated?

**Question 3:** How should the integration be carried out (process, content)?



## Responsibility, duty.

Answering question 1

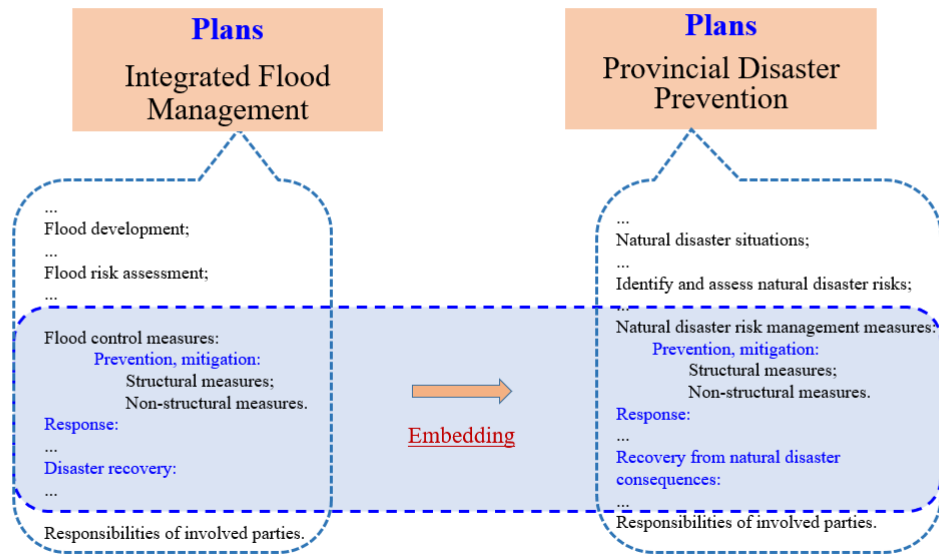


## The objective of integrating manual.

- Clarify the purpose, significance, content, and implementation methods of integrating IFMP;
- Provide technical basis for provincial officials to integrating IFMP into the provincial disaster prevention plans;
- Serve as a reference document for relevant parties on integrating IFMP into disaster prevention activities and local development.

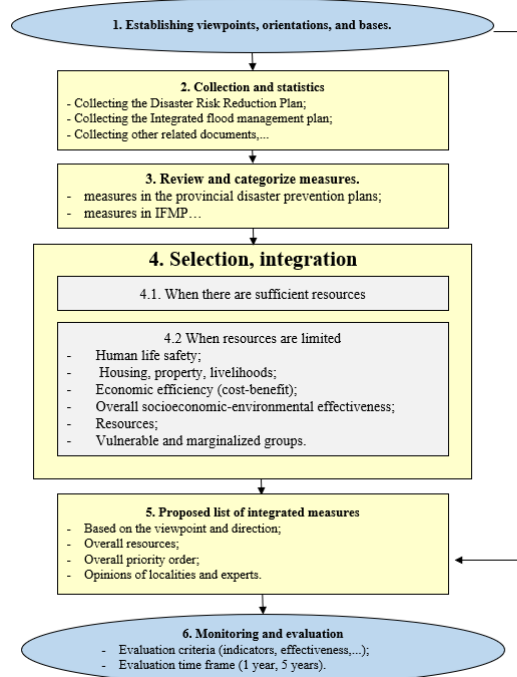
# Embedding content

Answering question 2



## Content Integration Process

Answering question 3



## Step 1: Establish viewpoint, direction, principles

- In accordance with the spirit of remeasures, decisions, legal documents, development plans, etc.;
- Clear objectives and content;
- Balancing benefits, risks, and being suitable for the natural characteristics of each region and locality to ensure sustainable development (human, economic, environmental...);
- Suitable for the characteristics of each sector, local resources, focus, ensuring feasibility and effectiveness;
- Harmonizing measures in all 3 phases: prevention, mitigation (both structural and non-structural), response and recovery from natural disasters, ensuring system, coherence, and comprehensiveness;
- Considering the impact of other types of natural disasters;
- Reviewing the 5-year plan, annual plan of the previous period if the new plan has not been approved;
- Conducting review and survey if necessary;
- ...

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## Step 2: Collection and statistics

**What, where?**

### 1. Collect approved the provincial disaster prevention plans:

- Record-keeping agency (Department, Committee,...);
- Final report on the provincial disaster prevention plans;
- Approved the provincial disaster prevention plans;
- Other reports, meeting minutes, workshop records;

...

### 2. Collect approved Integrated Flood Management Plan (IFMP):

- Record-keeping agency (Department, Committee,...);
- Final report on Comprehensive Flood Management of the province;
- Approved Comprehensive Flood Management Plan of the province;
- Other reports, meeting minutes, workshop records;

### 3. Other documents:

- Other relevant documents;
- Opinions of citizens, management levels, experts;

- ...

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### Step 3: Review and categorize the measures.

Form of result

**1. Review and categorize the measures in the provincial disaster prevention plans:**

- Review;
- List;
- Classify, categorize;
- ...

**2. Review and categorize the measures in the IFMP:**

- Review;
- List;
- Classify, categorize;
- ...

- ✓ Prevention, mitigation:
  - Structural measures;
  - Non-structural measures;
- ✓ Response:
  - Structural measures;
  - Non-structural measures;
- ✓ Natural disaster recovery:
  - Structural measures;
  - Non-structural measures;

### Step 3: Review and categorize the measures.

Answer form

FORM 1

- ✓ Prevention, mitigation:
  - Structural measures;
  - Non-structural measures;
- ✓ Response:
  - Structural measures;
  - Non-structural measures;
- ✓ Natural disaster recovery:
  - Structural measures;
  - Non-structural measures;

FORM 2

- ✓ Structural measures:
  - Prevention and mitigation
  - Response
  - Recovery from natural disasters
- ✓ Non-structural measures:
  - Prevention and mitigation
  - Response
  - Recovery from natural disasters.

FORM 3

- ✓ Structural measures:
  - Improving the legal framework and policy mechanisms:
    - Prevention and response measures
  - Strengthening organizational structure and disaster management capacity:
  - ...
- ✓ Non-structural measures:
  - Investment, upgrading of disaster prevention and water conservancy works:
    - Prevention, response, etc...
  - Investment, upgrading of construction works taking into account disaster prevention....
  - ...

### Step 3: Review and categorize the measures.

**DẶNG KẾT QUẢ**

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✓ **Structural measures:**

- Complete the legal document system and policy mechanism.
  - *Prevention, response, ...;*
- Strengthening the organization, machinery, and capacity for natural disaster management:
- Develop, review, and implement plans, strategies, and options:
- Improving forecasting and warning capabilities at the provincial level.
- Raising awareness and knowledge of disaster prevention and mitigation for the community.
- The program for forest planting and protection.
- The application of science and technology in agricultural production....
- ...

✓ **Non-structural measures:**

- Investing and upgrading natural disaster prevention and hydraulic works.:
  - *Prevention, response, ...;*
- Considering natural disaster prevention in investment and upgrading of construction works.
- Investment and upgrading of transportation infrastructure combined with natural disaster prevention and mitigation.
- Infrastructure for water supply and drainage.:
- Sheltering docks for ships and boats during storms.
- Hydropower reservoir:
- Measurement, monitoring and early warning works.:
- ...

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### Step 4: Selection, integration

**measures of IFMP**

- Structural measures;
- Non-structural measures.

➔

**Embedding.**

**Provincial disaster risk reduction measures**

- Structural measures;
- Non-structural measures.

**Integrating IFMP measures into the provincial disaster prevention plans.**

Criterion for selection:

*One side has, one side doesn't;*

*There are many similar contents.:*

- *Standardize one comprehensive measure..*

*There are some similar contents.:*

- *Compare time, purpose, perspective, etc.*
- ...
- *Cost-benefit analysis*

Structural measures,  
Non-structural measures:

- Subcategories:
  - Prevention;
  - Response;
  - Mitigation.
- ...

## Step 4: Selection, integration (ensured resource)

Integration of documents

### The IFMP measures

- ✓ Structural measures.:
  - Prevention, mitigation;
  - Response;
  - Recovery from natural disasters...
- ✓ Non-structural measures:
  - Prevention, reduction;
  - Response;
  - Overcoming natural disaster consequences



### The Provincial Disaster Prevention Plans measures.

- ✓ Structural measures:
  - Prevention, mitigation;
  - Response;
  - Disaster recovery..
- ✓ Non-structural measures:
  - Prevention, mitigation;
  - Response;
  - Disaster recovery.

### IFMP Plans + Provincial Disaster Prevention Plans

(Example: 15 IFMP measures + 20 Provincial Disaster Prevention measures = 35 measures)

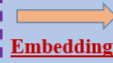
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## Step 4: Selection, integration (limited resources)

Resource constraints.

### measures of IFMP

- Structural measures;
- Non-structural measures.



### Provincial disaster risk reduction measures

- Structural measures;
- Non-structural measures.

### Integrating IFMP measures into the Provincial Disaster Prevention Plans.

#### Selection criteria:

*One side has it, one side doesn't.*

*There are many similar contents:*

- *Agree on a comprehensive measure*

*There are some similar contents:*

- *Compare the time, purpose, viewpoint, ...;*
- *...*
- *Cost-benefit analysis..*

#### Project, non-project:

- Subcategories:
  - Prevention;
  - Response;
  - Remediation.
- ...

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## Step 4: Selection, integration (limited resources)

### Criterion for selection and integration

*(limited resources)*

- Human life safety (B2);
- Housing (B2);
- Property, livelihood (B2);
- Economic efficiency (Cost-benefit) (B3);
- Overall economic, social and environmental effectiveness;
- Resources;
- Vulnerable groups and gender....
- ...

Tables:

B2

B3

...

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## Step 5: Proposed list of integrated measures

### Criteria for consideration:

- Perspective and direction;
- Overall priority order;
- Total resources available;
- Opinions of citizens and experts;
- ...



*MCA criteria evaluation*

**List of measures**

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## Step 6: Monitoring and evaluation

### Evaluation criteria

- Pros, cons, causes, and measures;
- Realistic resource investment;
- Through indicators of reducing damage to property, people, and the environment...

### Evaluation time

- Evaluation cycle for the results of implementing the provincial disaster prevention plans is 01 year;
- Evaluation cycle for the results of implementing the provincial disaster prevention plans is 5 years.

### Supervision responsibilities

- The Department of Agriculture and Rural Development is responsible for implementing and supervising...;
- The Steering Committee for Natural Disaster Prevention and Search and Rescue...
- ...

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## Responsibility of parties

### Provincial People's Committee (PPC)

- Direct the Department of Agriculture and Rural Development to lead and coordinate related departments and agencies to implement integration;
- Direct the Department of Planning and Investment and the Department of Finance to coordinate to determine costs and benefits, mobilize resources to implement measures...
- Issue a Decision on the integrated IFMP in to the provincial disaster prevention plans;

### District People's Committee (DPC)

- Leading and coordinating with organizations to collect and analyze data, providing support as needed.....
- ...

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## Target audience of the guide

- Provincial and central cities' People's Committees;
- Provincial Steering Committee for Disaster Prevention and Search and Rescue;
- Department of Agriculture and Rural Development, and related departments;
- Central Ministries/Agencies;
- International organizations, NGOs supporting resources to implement IFMP and PCTT plans, and stakeholders involved in planning.



## THANK YOU!

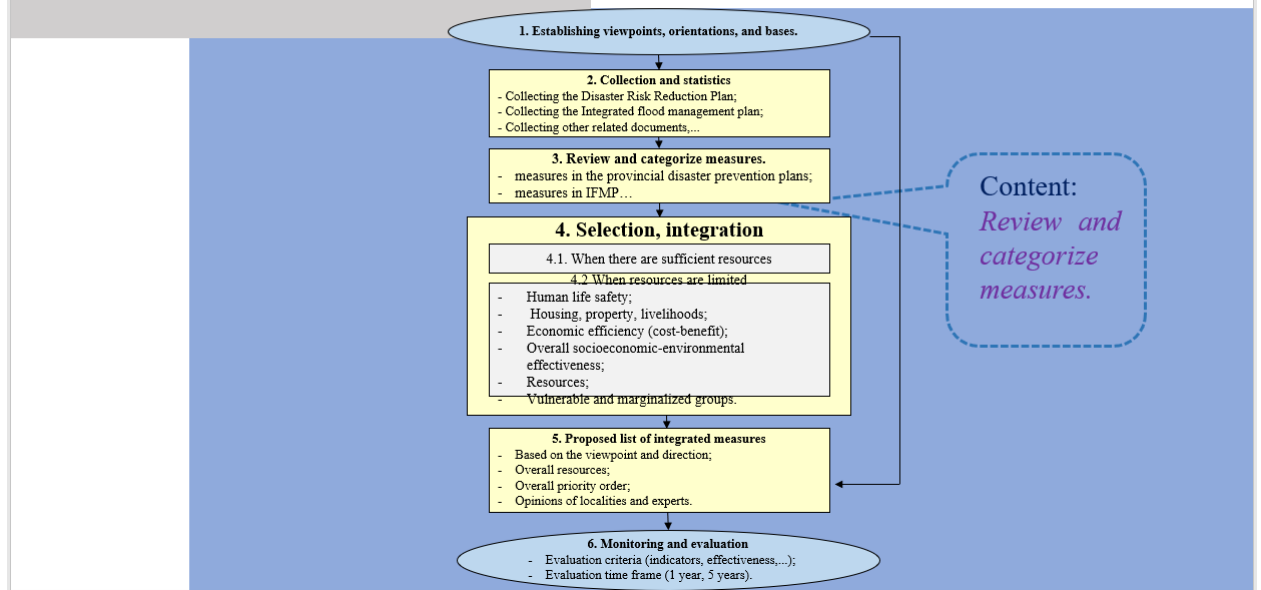
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## Practical section.



## Measures in Quang Nam province's disaster risk reduction plan.

- Reference materials for stakeholders on integrating IFMP into the Provincial Disaster Prevention activities and local development.

## Measures in the IFMP of Quang Nam province for flood management.

- Reference materials for stakeholders on integrating IFMP into the Provincial Disaster Prevention activities and local development.