

## Regional Programme for Pre-disaster Natural Hazard Loss Estimation

### PROCEEDINGS

#### 2<sup>nd</sup> Steering Committee Meeting on Development of Pre-disaster Loss Estimation Strategy



Venue: Windsor Suites Hotel, Bangkok, Thailand  
Date: 12-13 July, 2010

organized by  
**Asian Disaster Preparedness Center (ADPC)**

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## **2<sup>ND</sup> STEERING COMMITTEE MEETING ON DEVELOPMENT OF PRE-DISASTER LOSS ESTIMATION STRATEGY**

### **BACKGROUND OF THE PROJECT**

Asian Disaster Preparedness Center (ADPC) with the financial assistance from the Royal Norwegian Ministry of Foreign Affairs is implementing a regional program for Pre-disaster Natural Hazard Loss Estimation in Bangladesh, China, Nepal, Philippines, Sri Lanka and Vietnam. In retrospect, more than 7,000 major disasters have been recorded in the world since 1970, causing at least \$2 trillion in damage, killing at least 2.5 million people, and adversely affecting societies. These alarming statistics alone can make natural disasters one of the major urgent and high priority tasks to tackle to sustain the development efforts of most of the developing countries. One of the problems observed in this connection is the lack of knowledge about the economic impact due to potential scenarios of natural disasters. Hence the most important factor in this regard is to assess the damages and losses with regard to natural hazards proactively and plan the Development Initiatives in such a way that the vulnerability is reduced or illuminated. One of the urgent needs of the day is developing a standardized methodology and also to make arrangements for advocacy and sensitizing the policymakers for mainstreaming disaster risk reduction in development initiatives.

The objectives of this project intervention are to devise a methodology for the systematic and consistent collection of data and assessment of the damage caused to housing, buildings, infrastructures, the environment, social and economic systems from which an accurate assessment of economic losses can be determined. This process would facilitate incorporating potential natural hazard impacts in the long term economic modeling based on the economic losses derived from damages identified. Finally, it is aimed to deliver a comprehensive training package targeted for building the capacity of key specialists in National planning departments/ ministries, sector based development planning specialists etc. from selected priority countries and deliver the training at regional and national levels.

### **PROJECT PROGRESS**

The two and half year project started in July 2009 has already achieved several milestones including conduct of 1<sup>st</sup> Regional Meeting with selected members from project target countries who has subsequently nominated as Steering Committee Members of the program.

#### **Outcomes of the 1<sup>st</sup> Regional Meeting (14 – 15 December 2009 in Bangkok)**

- ☐ Identification of main national level key stakeholders involved in conducting damage and loss estimation with regard to natural hazard for fixing the priorities at national
- ☐ Review of available methodologies for estimating disaster losses and customization of an appropriate methodology suitable for estimating pre-disaster losses
- ☐ Identification of subject areas to be covered in the Regional Training package

As per the course curriculum agreed by the project steering committee during 1<sup>st</sup> Regional Meeting, ADPC project team together with identified technical specialists has developed draft

course materials. The Project team also received technical assistance from Centre for Economic and Public Policy (CEPP), Deakin University Australia for developing the pre disaster loss estimation methodology which will be subsequently used in the training package.

### **OBJECTIVES OF THE 2<sup>ND</sup> STEERING COMMITTEE MEETING**

The 2<sup>nd</sup> steering committee meeting was planned to bring steering committee members from project target countries namely: Bangladesh, China, Philippines, Sri Lanka & Vietnam to fulfill the following main objectives:

- Review the draft materials and methodology developed by the project team together with technical specialists and
- Agree upon the Methodology developed for estimation of pre-disaster losses and economic modeling as a decision-making tool.

The Meeting has been structured in two main sessions. In the first session course materials were presented by the team of experts who developed the each module as per the agreed course curriculum followed by comments and suggestions by the steering committee members.

In the second session of the meeting; the proposed methodology layout was presented by the technical experts from Centre for Economic and Public Policy (CEPP), Deakin University Australia.

### **OPENING SESSION**

Mr. N.M.S.I. Arambepola, Director & Team Leader, Urban Disaster Risk Management Team of Asian Disaster Preparedness Center (ADPC) welcomed the participants to the 2nd Steering Committee Meeting and appreciated the contributions from the members who were attended in the 1st Steering Committee Meeting held in December 2009. He stressed the need of an informal meeting where the participants could share their views and suggestions in order to achieve the objectives of the meeting.

For the benefit of all the participants specially who were not presented during 1st Steering Committee Meeting, Mr. Arambepola has presented the objectives of the whole program as well as the specific objectives of the 2 days meeting. Also he has expressed the main expectation from steering committee members as the country focal point in advocating the pre disaster loss estimation model and training course while providing technical assistance in developing and shaping up of methodology and training materials as per the need.

Mr. Arambepola further explained the importance of pre disaster loss estimation especially for governments in policy decision making while presenting the phases and cycle of disaster risk reduction as a whole.

Dr. Bhichit Rattakul, Executive Director, ADPC who delivered the opening speech expressed the importance of the pre disaster loss estimation initiative as a pioneer work in the region. He expressed ADPC's gratitude to the Royal Norwegian Government in providing financial assistance to the project and thankful to all the members of the steering committee for their support in achieving the project objectives.

## **REVIEW OF COURSE MATERIALS**

The ADPC project team together with the technical experts who developed the draft course materials presented the content of each session in order to obtain the feedback from the steering committee members.

Mr. N.M.S.I. Arambepola presented the first two sessions of Module 1: Basic Definitions and Disaster & Development in brief as the areas covered under those sessions are very basic and self explanatory.

Session 3 of Module 1: Disaster Risk Assessment has been presented by Dr. Amit Kumar and he explained the process of identifying what is at risk and importance of risk assessment. Also he presented a case study of Nepal Hazard Risk Assessment a project of ADPC funded by WB Nepal, which helps to understand the process of risk assessment at national level.

Mr. Arghya Sinha Roy from ADPC discussed the areas to be covered under the Session 4: Concepts of DRR and importance of mainstreaming DRR in to development. He incorporated the areas of need to link the disaster risk reduction measures in to development in his session and presented the materials for the same.

The committee members shown their concern on target participants for the proposed regional training as the depth of the training materials should depends on the background of the participants. Also Mr. Siriwardana from Sri Lanka raised the need for adding additional materials as a Reader which can be referred by participants if details of a particular area are needed. It has been also proposed to present the basic definitions related to economic sector in addition to the basic definitions of DRR.

Materials for Module 2: Introduction to Economics of Natural Disasters has been presented by Mr. Mahinda Siriwardana who has developed the relevant training materials. He has presented the summary of each session under the module as per the draft materials. Mr. Siriwardana proposed to present case studies on economic and sustainable development in order to show real examples.

As target participants for the proposed training is a mixture of economists, DRR specialists, planning specialists, government representatives, NGOs, etc it has been decided to simplify the materials on economics in order to make it understandable by non economists as well.

Mr. Habibur Rahman, who developed the materials for Module 3, Quantification of Disaster Risk Assessment presented the areas covered under the module including various tools which can be used for hazard assessment, vulnerability and capacity assessment. Dr. Peeranan from

ADPC joined Mr. Habibur by presenting a case study on scenario based seismic risk assessment, which is a project executed by ADPC in Bangladesh under the Comprehensive Disaster Management Program. He presented the process and required parameters to develop a scenario and the process of generating risk and damage maps using Hazus analysis.

Draft materials for Module 4, Introduction to damage and loss estimation was not ready for review as there were some concerns on the areas to be covered under the module. However Mr. Emmanuel Torrente has presented the areas to be covered under the module and he requested for comments from the committee members in order to shape up the module as per the areas covered under other modules. Committee members agreed to keep the current sessions as it is with some minor changes in order make it simple for anybody to understand. It has been also decided to have only an introduction on data collection methodology for each sector which can be tailor-made as per the country needs. All the members agreed to add terminology on economics before moving in to economic sections of the training.

## **DAY 2: 13 JULY 2010**

The second day of the meeting was started with a presentation from Mr. Habibur Rahman who gave an overview of the project including existing methods and tools on loss estimation. He also presented the history of the relationship between natural disaster Vs economics which creates different school of thoughts within the subject.

With the above he presented the material covered under the Module 5: Integration of DRR in to econometric modeling. The materials for the module comprise of several tools and methods of economic modeling with emphasis given to econometric model and catastrophe model as the methods used in the proposed methodology. Committee members proposed him to elaborate more on selected models than other models and show the reasons for selection of those particular models against other available. Also it has been proposed to provide a table comparing the strengths and weaknesses of each model against the other in order to justify the selection.

Mr. Rahman also presented the material covered under Module 6: Economic policy making for DRR and explained the importance of the module for decision makers in order to reduce the possible risk. He discussed and compare about possible policy options and different financial strategies that can be used in different scenarios.

The proposed pre disaster loss estimation methodology has been presented by Prof. Mehmet A. Ulubasoglu from Deakin University who has been advising the project team in carrying out the research on the methodology. He affirmed that various methodologies are available for forecasting economic losses due to natural disasters; each one comes with its own flaws. Hence, it is a scientific decision to determine an appropriate methodology for estimating disaster losses. After presenting the existing methodologies, it is found that a Structural Macroeconometric Model could be one of the best options in estimating ex-ante economic losses with regard to natural disasters. The comparative edge of utilizing this method over other techniques is that it would consider multiplier effect of any incidence within the economy simultaneously. In this regard, it is proposed that a medium-sized macroeconomic

model consisting of six blocks including- production, expenditure, balance of payment, government, monetary and price blocks for integrating the impacts of natural disasters. This method would allow policymakers to provide more than one shock at the same time. For instance, the policymakers can give monetary and fiscal shocks at the same time under any natural disaster scenario to judge the potential economic impacts to the overall economy. Moreover, it would assist in comparing different the effects of adopting different set of policies to address DRR. All the members were in agreement on the proposed layout of the methodology and requested to add hands-on experience on the model during proposed regional training. Also it has been decided to distribute the model in a CD during the training course in order for participants to use in their own countries in pre disaster loss estimation exercises.

### **MAIN COMMENTS AND SUGGESTIONS FROM STEERING COMMITTEE MEMBERS**

Steering committee members were asked to provide their comments and suggestions on the draft training materials as well as for the proposed pre disaster loss estimation methodology. They have proposed some changes in to the course curriculum in order to keep the basic flow of the course and to avoid duplication of some materials covered under different sessions. The comments were incorporated and revised course curriculum as per the changes were attached in Annex 3.

Other main comments and suggestions and decisions taken during the meeting are:

- ☐ Course materials should be modified/simplified based on the target participants.  
Since the training course will target multi disciplinary group of participants including DRR practitioners, economists, policy makers, private sector people, etc it has been decided to use basic terminologies of both disaster related and economic related and give basic understanding of both areas in order to bring participants in to same plat form. However as the objective of the training course is to introduce the methodology and provide the understanding of importance of carrying out pre disaster loss estimation, the training can cover wide spectrum of professionals as target group.
- ☐ Duration of the training course  
Members have shown their concern on deciding the duration of the proposed training course. Since the course should cover both disaster and economic related aspects as well as should have time for hands-on exercise on the model, it has been proposed to have more than five days for the course. It has been agreed to finalize the number of days for the course once the training materials are finalized.
- ☐ Use case studies where ever possible  
It has been decided to use case studies to present real world scenarios as examples in most of the sessions. This will allow participants to understand and relate with their own experiences as well.

## **ACTION PLAN AGREED**

At the end of the meeting all the steering committee members were agreed on following action plan in order to achieve the project target dates.

Revised Course Curriculum Sharing by ADPC	20 July 2010
Comments on Revised Course Curriculum by Steering Committee Members	06 Aug 2010
Circulation of Revised Course Materials by ADPC	10 Sep 2010
Comments on Course Materials by members	30 Sep 2010
Methodology Finalization by project team	30 Sep 2010
Finalization of Training Materials by ADPC	20 Oct 2010
Third Steering Committee Meeting to finalize methodology and training materials	end Oct 2010
First Regional Training Course	March 2011

## **CONCLUDING REMARKS**

In the concluding remarks, Mr. Arambepola thank all the steering committee members for their valuable support in shaping up the course materials on behalf of the project team. Also he requested their kind assistance in advocating the need for pre disaster loss estimation in their respective countries. He also affirm that the regional course would tailor-made in to national level courses as per the need and request from respective countries providing that the project can cover such expenses.

Mr. Arambepola also requested assistance from steering committee members in collecting data to run the country specific pre disaster loss estimation model which could help in using at country level.










**ANNEX 1**  
(List of Participants)






**2<sup>nd</sup> Steering Committee Meeting on  
Development of Pre-disaster Natural Hazard Loss Estimation Strategy  
Venue: Bangkok, Thailand  
Date: 12-13 July, 2010**






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**LIST OF PARTICIPANTS**

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**ANNEX 2**  
(Programme Schedule)

**2<sup>nd</sup> Steering Committee Meeting on  
DEVELOPMENT OF PRE-DISASTER NATURAL HAZARD LOSS ESTIMATION STRATEGY**  
Venue: Windsor Suites Hotel, Bangkok, Thailand  
Date: 12-13 July, 2010

**PROGRAMME SCHEDULE**

<b>Day 1 : 12 July 2010</b>	
<b>8.30 - 9.00</b>	Registration of participants
<b>9.00 - 10.00</b>	<p><b>Inaugural session</b></p> <p>Welcome Speech &amp; Objectives of the meeting by Mr. N.M.S.I. Arambepola – ADPC</p> <ul style="list-style-type: none"> <li>• Opening Speech by Dr. Bhichit Rattakul, Executive Director, ADPC</li> <li>• Brief Introduction of Participants</li> <li>• Group Photo</li> </ul>
<b>10.00 - 10.30</b>	<i>Coffee/tea break</i>
<b>Review of Course Materials</b>	
<b>10.30-11.30</b>	<p><b>Module 1: Introduction to Disaster Risk Reduction</b> <i>Discussion led by Mr. Arambepola &amp; Mr. Arghya</i></p>
<b>11.30 – 12.30</b>	<p><b>Module 2: Introduction to Economics of Natural Disasters</b> <i>Discussion led by Mr. Mahinda Siriwardana</i></p>
<b>12.30 - 13.30</b>	<i>Lunch</i>
<b>13.30 - 15.00</b>	<p><b>Module 3: Quantification of Disaster Risk Assessment</b> <i>Discussion led by Mr. Habibur Rahman</i></p>
<b>15.00 - 15.30</b>	<i>Coffee/tea break</i>
<b>15.30-17.00</b>	<p><b>Module 4: Introduction to Damage and Loss Estimation</b> <i>Discussion led by Mr. Emmanuel Torrente</i></p>
<i>Dinner host by ADPC</i>	
<b>Day 2 : 13 July 2010</b>	
<b>9.00 - 10.30</b>	<p><b>Proposed Pre Disaster Loss Estimation Methodology layout</b> <i>Discussion led by Prof. Mehmet A. Ulubasoglu</i></p>
<b>10.30 - 11.00</b>	<i>Coffee/tea break</i>
<b>11.00 - 12.30</b>	<p><b>Module 5: Integration of DRR Into Economic Modeling</b> <i>Discussion led by Mr. Habibur Rahman</i></p>
<b>12.30 - 13.30</b>	<i>Lunch</i>
<b>13.30 - 15.00</b>	<p><b>Module 6: Economic policy making for DRR</b> <i>Discussion led by Mr. Habibur Rahman</i></p>

<b>15.00 - 15.30</b>	<i>Coffee/tea break</i>
<b>15.30 - 16.00</b>	<b>Preparation of Action Plan for finalization of course materials and Course delivery</b>
<b>16.00 - 16.30</b>	<b>Concluding session</b>



**ANNEX 3**  
(Revised Course Curriculum)

## REGIONAL TRAINING COURSE ON PRE-DISASTER NATURAL HAZARD LOSS ESTIMATION

### COURSE CURRICULUM

#### MODULE 1: INTRODUCTION TO DISASTER RISK REDUCTION

##### **M1.S1: Basic Definitions: Disasters, Hazard, Vulnerability, Risk, exposure, Capacity & Concepts of disaster risk reduction**

**Goal:** Make aware of basic definition of the subject, Understanding risk reduction concepts

**Learning Objectives**

- To prepare the community to overcome with risk
- To creating awareness on disaster hazard vulnerability risk and capacity

**Learning Outcomes**

- At the end of the session, the participants will be able to have a common understanding on the key terminologies & concepts of DRR

##### **M1.S2: Importance of mainstreaming DRR into development**

**Goal:** Create an environment of government involvement in DRM

**Learning Objectives**

- To describe the potential impacts of DRR on economic growth
- Identify approaches for mainstreaming risk reduction into development
- Identify factors for creating an enabling environment for mainstreaming DRR into development

**Learning Outcomes**

- Understand the inter-reliant relationship between economic development and DRR
- Understand the importance for mainstreaming DRR into development

#### MODULE 2: DISASTER RISK ASSESSMENT

##### **M2.S1: Disaster Risk Assessment Models & Process**

**Goal:** Make aware the participants of DRA procedure/ methodology for DRA for specific hazards (Broader terms)

**Learning Objectives**

- To understand the need to identify 'What is at risk' & 'What is contributing to the risk'
- To learn various methods and process of assessment risk of various hazards
- Discuss how results of risk assessment could help in reducing risk

**Learning Outcomes**

At the end of the session, participants will be able to

- 
- Learn broad steps of undertaking risk assessment
  - Learn the appropriate existing models and tools for DRA
- 

### **M2.S2: Introduction to Hazard Risk Assessment**

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**Goal:** Identify and aware the approach for hazard assessment

**Learning Objectives**

- To learn various methods and process of assessment hazards

**Learning Outcomes**

At the end of the session, participants will be able to

- Learn the appropriate hazards tools which they can apply with available data and resources
- 

### **M2.S3: Introduction to Vulnerability & Capacity Assessment**

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**Goal:** Identify and aware the approach for vulnerability and capacity assessment

**Learning Objectives**

- To learn various methods and process of vulnerability and capacity assessment
- To appreciate vulnerability and capacity within overall framework of DRA

**Learning Outcomes**

At the end of the session, participants will be able to

- Learn the appropriate vulnerability and capacity assessment tools which they can apply with available data and resources
- 

### **M2.S4: Development of Scenarios based on Disaster Risk Assessment**

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**Goal:** Understand process of developing scenario based on DRA and importance of scenario building

**Learning Objectives**

- To understand the process of developing scenario based on DRA process
- To learn the importance / usefulness of scenario building
- To understand the data required for scenario building

**Learning Outcomes**

At the end of the session, participants will be able to

- Develop the scenario based on available data and resources based on DRA
- 

### **M2.S5: Methods for Quantification of Disaster Risks**

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### **M2.S6: Natural Disasters and Development**

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**Goal:** Understand the linkage between natural disasters and development

**Learning Objectives**

- To understand the effects on development due to natural disasters

**Learning Outcomes**

At the end of the session, participants will be able to

- Learn about the linkages between natural disaster and development
- Know different case studies on disaster impact on development

## MODULE 3: INTRODUCTION TO ECONOMICS OF NATURAL DISASTERS

### M3.S1: Basic Definitions of Economics

**Goal:** Familiarize with basic economic definitions

**Learning Objectives**

- To clarify about macroeconomic framework
- To provide basic definitions of macroeconomic indicators

**Learning Outcomes**

At the end of the session, participants will be able to

- Understand basic macroeconomic concepts of DRR

### M3.S2: Economic Impacts of Natural Disasters

**Goal:** Understand both micro & macroeconomic impacts with regard to natural disasters

**Learning Objectives**

- To explain the microeconomic and macroeconomic impacts of natural disasters

**Learning Outcomes**

At the end of the session, participants will be able to

- Conceptualize the basic impacts of natural disasters

### M3.S3: Role of the Government in DRM

**Goal:** Identify the roles and responsibilities of the government in DRR field

**Learning Objectives**

- To aware the importance of DRR into economic planning process
- To link the roles of the government in integrating DRR into economic planning process

**Learning Outcomes**

At the end of the session, participants will be able to

- acquire basic idea about the roles and responsibilities of the government in DRR field

## MODULE 4: INTRODUCTION TO DAMAGE AND LOSS ESTIMATION

### M4.S1: Basic Concepts of National Income Accounts

**Goal:** Provide basic understandings on National Income Accounts

**Learning Objectives**

- To make the participants understand the national accounting system

**Learning Outcomes**

At the end of the session, participants will be able to

- understand how national income accounts can be prepared

### M4.S2: Methodology for Data Collection

**Goal:** to introduce the data collection methodology

**Learning Objectives**

- 
- To clarify the importance of preparing baseline and damage and loss estimation database
  - To give an idea about the types of data required

***Learning Outcomes***

At the end of the session, participants will be able to

- Understand how to develop and facilitate data collection process
- 

**M4.S3: Damage & Loss Estimation: Production Sectors (Agriculture, Manufacturing, Commerce, and Tourism)**

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***Goal:*** Provide basic understandings on national Sectoral damage and loss estimation

***Learning Objectives***

- Introduction of Damage and Loss concepts due to disasters
- To know how to estimate Damage and Loss in each economic sectors

***Learning Outcomes***

At the end of the session, participants will be able to

- Learn about how to estimate sectoral damage and losses for production sector
- 

**M4.S4: Damage & Loss Estimation: Infrastructure Sectors**

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***Goal:*** Provide basic understandings on national Sectoral damage and loss estimation

***Learning Objectives***

- Introduction of Damage and Loss concepts due to disasters
- To know how to estimate Damage and Loss in each economic sectors

***Learning Outcomes***

At the end of the session, participants will be able to

- Learn about how to estimate sectoral damage and losses for infrastructure sector
- 

**M4.S5: Damage & Loss Estimation: Social Sectors**

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***Goal:*** Provide basic understandings on national Sectoral damage and loss estimation

***Learning Objectives***

- Introduction of Damage and Loss concepts due to disasters
- To know how to estimate Damage and Loss in each economic sectors

***Learning Outcomes***

At the end of the session, participants will be able to

- Learn about how to estimate sectoral damage and losses for social sectors
- 

**M4.S6: Damage & Loss Estimation: Cross-cutting Sectors**

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***Goal:*** Provide basic understandings on national Sectoral damage and loss estimation

***Learning Objectives***

- Introduction of Damage and Loss concepts due to disasters
- To know how to estimate Damage and Loss in each economic sectors

***Learning Outcomes***

At the end of the session, participants will be able to

- Learn about how to estimate sectoral damage and losses for cross-cutting sectors
-

## MODULE 5: INTEGRATION OF DRR INTO ECONOMIC MODELING

### M5.S1: Tools and Methods of Economic Modeling

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**Goal:** Provide basic understandings on economic modeling and its tools

**Learning Objectives**

- To orient with the basic components of economic models
- To provide explanation how the Model works in formulating policies

**Learning Outcomes**

At the end of the session, participants will be able to

- Learn how economic models can work in policy formulation
- 

### M5.S2: Catastrophe Models: Damage and Loss Estimation

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**Goal:** Familiarize with the various existing catastrophe models (e.g. CatSim, Other Simulation Models, SAM, I-O Models, GTAP etc.)

**Learning Objectives**

- To identify the various policy options
- To understand the potential impacts of disasters on economic variables

**Learning Outcomes**

At the end of the session, participants will be able to

- learn about existing catastrophe models
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### M5.S3: Integration of DRR into Econometric Model

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**Goal:** Understand the integration process of DRR into macro models

**Learning Objectives**

- To specify the factors of DRR to simulated by economic models
- To learn the integration process of DRR into economic policy-making

**Learning Outcomes**

At the end of the session, participants will be able to

- Learn how to incorporate DRR issues into national macro models
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## MODULE 6: ECONOMIC POLICY-MAKING FOR DRR

### M6.S1: Policy Options and its effectiveness

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**Goal:** Formulate linkage between economic policy and DRR

**Leaning objective**

- To identify possible recommendations based on economic models

**Learning Outcomes**

At the end of the session, participants will be able to

- Learn the two way linkages of DRR and policy
  - Assistance in policy advocacy
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## **M6.S2: Financing Strategies**

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**Goal:** Understand the approach for policy formulation and selection

**Learning objective**

- To analyze the policy options and selection process

**Learning Outcomes**

At the end of the session, participants will be able to

- Effective economic Policy section process
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