

Post Disaster Needs Assessment and Resilient Recovery

**The Conceptual Framework for
Post-Disaster Needs Assessment**

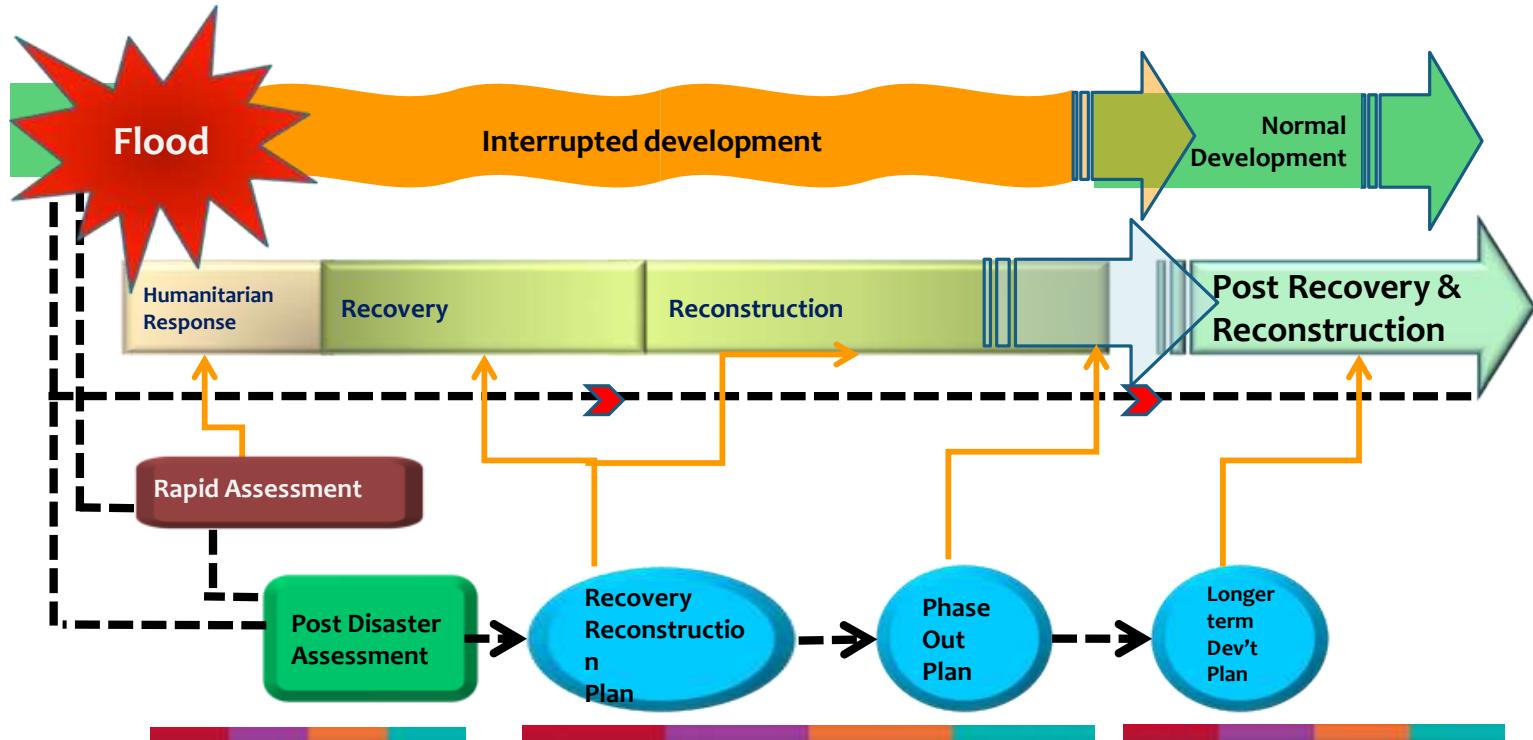
Session Objectives

1. Discuss the **concept** of damage and loss
2. Explain the **methodology** for undertaking damage and loss assessment
3. Discuss the **broad steps** for undertaking damage and loss assessment
4. Use the **typical results** of damage and loss assessment

Typical Post-Disaster Activities



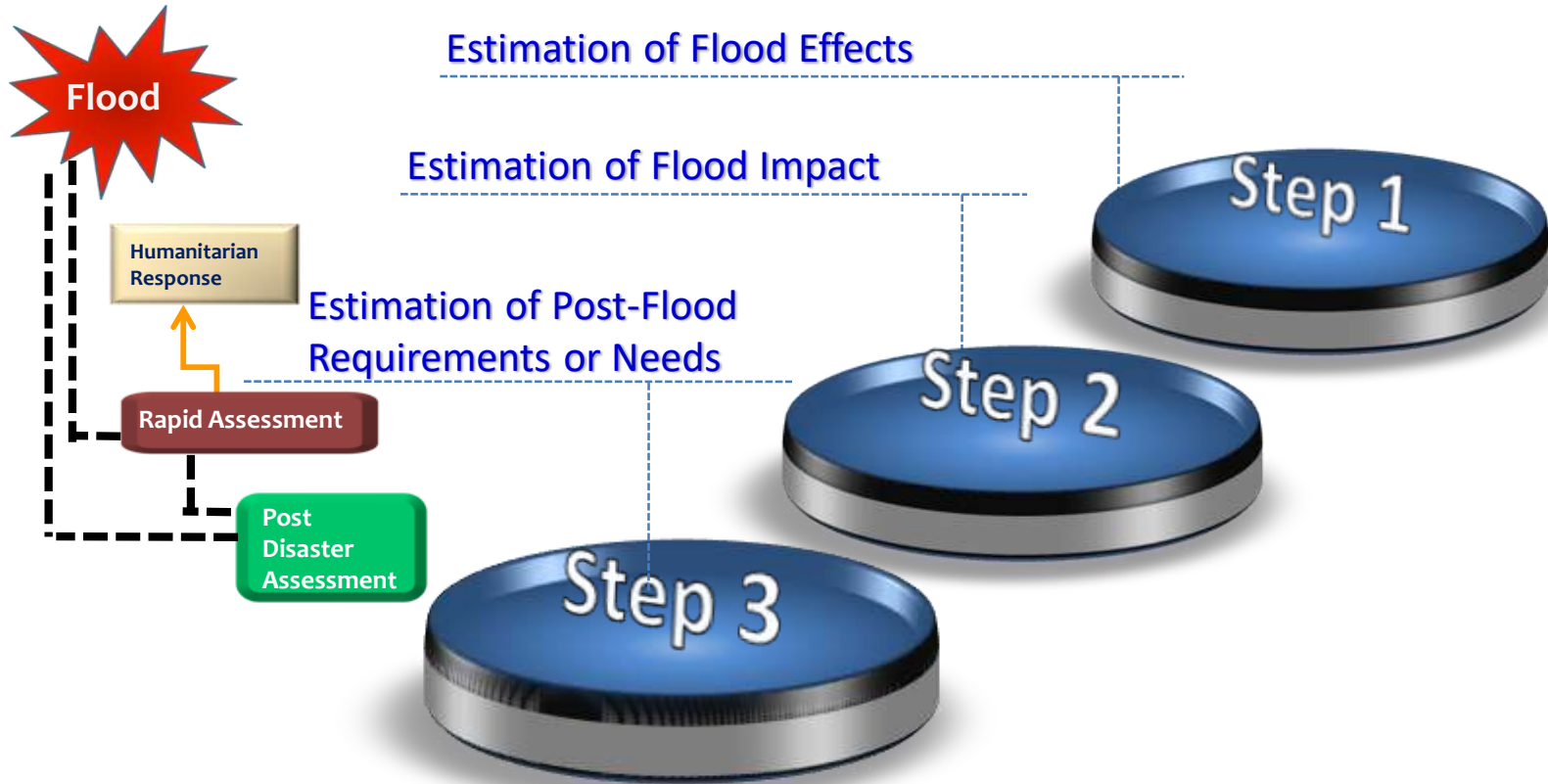
Post-Disaster Interventions



Post-Disaster Terms to Know

- 1. Damage**
- 2. Loss**
- 3. Effects**
- 4. Impacts**
- 5. Needs**

Post-Disaster Needs Assessment (Floods)



Post-Disaster Terms to Know

- 1. Damage**
- 2. Loss**
- 3. Effects**
- 4. Impacts**
- 5. Needs**

1-DAMAGES

□ **Damages:** effects on assets or stock valued as:
the cost, in pre-disaster prices, of:

1. **Repair of *partially damaged*** structures, equipment other assets up to their pre-disaster condition.
 2. **Replacement of *totally destroyed*** structures, equipment and other assets, valued at pre-disaster levels. The valuation can be estimated by:
 - ✓ the market value assets before they were destroyed
 - ✓ acquisition cost less depreciation
 - ✓ Insurance valuation
- **Cost of bringing back the affected structures, equipment , machinery and other assets up to their pre-disaster state**

2-LOSSES (1)

❑ **Loss** – changes in economic (production) flows which can extend beyond the year the disaster occurred.

Losses = Pre-disaster minus post-disaster estimates

Valued **as the amount in pre-disaster prices**, of:

1. Foregone income opportunities

Private:

- total loss of crops or reduction in farm output
- income reduction from businesses, rent, etc.

Public

- Income losses from public facilities and firms like airports, ports, state-owned enterprises, etc.

2-LOSSES (2)

❑ **Loss** – changes in economic (production) flows. Valued as cost of:

2. Higher operating costs

- additional expenses to produce same output of goods and/or services during the recovery phase e.g.
 - Cost of replanting new crops
 - Cost of temporary power and/or water supply; rent of temporary offices firms

3. Unexpected expenses

- cleaning up of debris
- unexpected expenses on temporary shelters, water supply, medicines, food supply, etc. for the government.

2- Importance of Losses

- In the past, the cost of disasters was identified only in terms of damage
- Difficulty in estimating losses
- Urgency for immediate cost estimates for reconstruction financing
- As a result, the total effects of disasters were largely underestimated
- Many social needs not addressed
- The negative impact on economic development not fully understood and mitigated

Examples of Damage and Loss

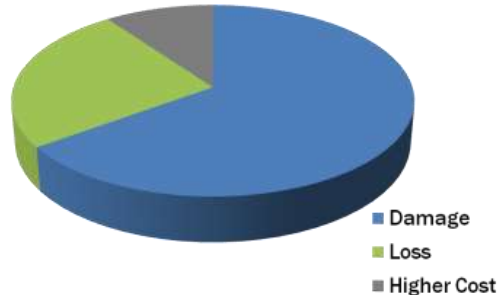
Damage	Loss
<i>Cost of repair OR replacement of affected assets like:</i>	<i>Value of:</i>
<ul style="list-style-type: none">• Taxi	<ul style="list-style-type: none">• Lost income
<ul style="list-style-type: none">• Buildings, houses and contents	<ul style="list-style-type: none">• Lost income from rent
<ul style="list-style-type: none">• Airport structure and/or equipment	<ul style="list-style-type: none">• Lost income• Cost of cleaning
<ul style="list-style-type: none">• Roads and bridges	<ul style="list-style-type: none">• Construction of temporary bridges
<ul style="list-style-type: none">• Hospital buildings and equipment	<ul style="list-style-type: none">• Income losses

Typical Disaster Damages & Losses by Hazards

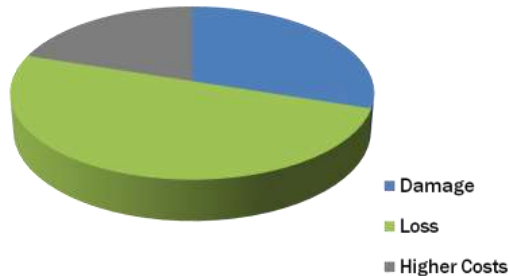
- Disasters caused by geological hazards (volcanic eruptions, earthquakes) usually cause a **higher value of damage**
- Disasters caused by hydro-meteorological hazards (drought, floods, cyclones) usually cause a **higher value of losses**

WHY?

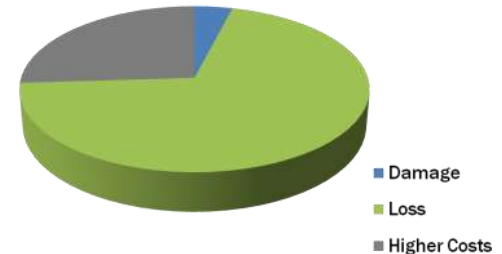
Earthquake



Floods



Droughts



3-Disaster Effects

On Assets

- Destruction of physical, durable assets
- Equal to the cost of rebuilding the destroyed assets
- Occur during or immediately after the natural event

Physical and tangible
= DAMAGES

On Production of Goods and Services

- Changes in the flows of production
 - Temporary decline in production of goods and services
 - Temporary increase in production costs
- Their value is equal to the addition of production not obtained and higher costs incurred until recovery and reconstruction is achieved

Changes in flows of the economy
= LOSSES

3 - Some Examples of Disaster Effects

Destruction of Assets (Damages)

- Housing units and their contents
- Hospitals and schools, and their contents
- Roads and bridges
- Ports & airports
- Vehicles
- Water & sanitation systems
- Etcetera

Changes in production flows (Losses)

- Temporary decline and higher production costs in all productive sectors (agriculture, industry, commerce, et cetera)
- Temporary decline in revenues and higher costs of operation in services sectors (education, health, water, electricity, transport, etc.)

3- Levels of Disaster Effects

Happening immediately after a disaster

1. PERSONAL/HOUSEHOLD LEVEL

- Houses destroyed; jobs or livelihoods lost; number of people died or injured or missing, incidence of hunger; etc.

2. SECTOR LEVEL

- Factories destroyed; roads, airports, ports, etc. destroyed; hospitals and schools destroyed; water and power infrastructure damaged; etc.
- The effects across sectors and the at personal level can have mutually reinforcing impacts (destruction of factories results to loss of employment; loss of power and water reduction on industrial production; agricultural reduction on manufacturing; etc). These are “intersectoral linkages”.

3. MACROECONOMY LEVEL

- Sudden increase in expenditures due to emergency needs; decline in tax/revenues; etc.

4. CROSS-CUTTING LEVEL

- Violence against women; marginalization of indigenous peoples
- Environment – destruction of ecologically sensitive areas

Examples of damage and losses from previous PDNAs in Asia

Disaster	Damage (USD Millions)	Losses (USD Millions)	Total (USD Millions)
Typhoons Ondoy and Pepeng, the Philippines (2009)	1451.7	2931.3	4383.0
Typhoon Ketsana, Cambodia (2009)	58.1	73.9	132.0
Floods, Thailand (2011)	20667.3	26071.8	46739.2 *
Typhoon Haima, Lao PDR (2011)	44.1	22.1	66.2

4- Disaster Impact

*Disaster Impact =
Consequences of Disaster Effects*

@ Macro-
Economic
Level

@ Personal
or
Household
Level

4- Possible Disaster Impacts *

On social conditions

- Decline in well-being, quality of life and human development
- Decline in personal or household income, and rise in costs of living
- Increase in poverty levels and numbers

On economic development

- Decline in overall production and growth
- Possible increase in prices (inflation)
- Deterioration of governance functions

* Impacts are the consequences of effects

4- Disaster Impact

The longer-term consequences or results due to the effects

1. HOUSEHOLD LEVEL

– increase in poverty levels; out migration, etc.

2. SECTOR LEVEL

– Lower production of the manufacturing sector; public health deterioration; decline in national literacy; water and power supply projections; etc.

- Effects on one sector can impacts across sectors (power reduction on industrial production; agricultural reduction on manufacturing; etc)

3. MACROECONOMY LEVEL

– GDP; income/tax revenues; budget deficit; debt; balance of payment; inflation; employment; etc.

4. CROSS-CUTTING LEVEL

- Loss of access of women to essential services; child labor; etc
- Environment – loss of biodiversity; etc.

5 - Needs

□ **Needs** – amount needed to bring back normalcy, **valued in consideration of inflation and international prices**, as necessary.

1. Recovery needs – usually urgent short-term needs to restore pre-disaster conditions as soon as possible

- Restoration of basic services (housing, water, power, etc.)
- Enabling farmers to start replanting
- Resumption of transportation facilities
- Re-opening of businesses

2. Reconstruction needs – longer-term needs

- new infrastructure like relocation of buildings, airports, houses; new road diversions, etc.
- Preparedness and mitigation like dikes, weather forecasting, development of new building codes, land use plans, etc.

Post-Disaster Needs

RECOVERY

Requirements to bring production and peoples access of goods and services to normal levels

1. Recovery of personal and household income
2. Recovery of basic service availability and access
3. Recovery of production

RECONSTRUCTION

Requirements to rebuild destroyed assets with improved norms in order to reduce risk, by adding special features

- Quality improvement
- Modernization through technological improvement
- Risk reduction

Post-Disaster Needs

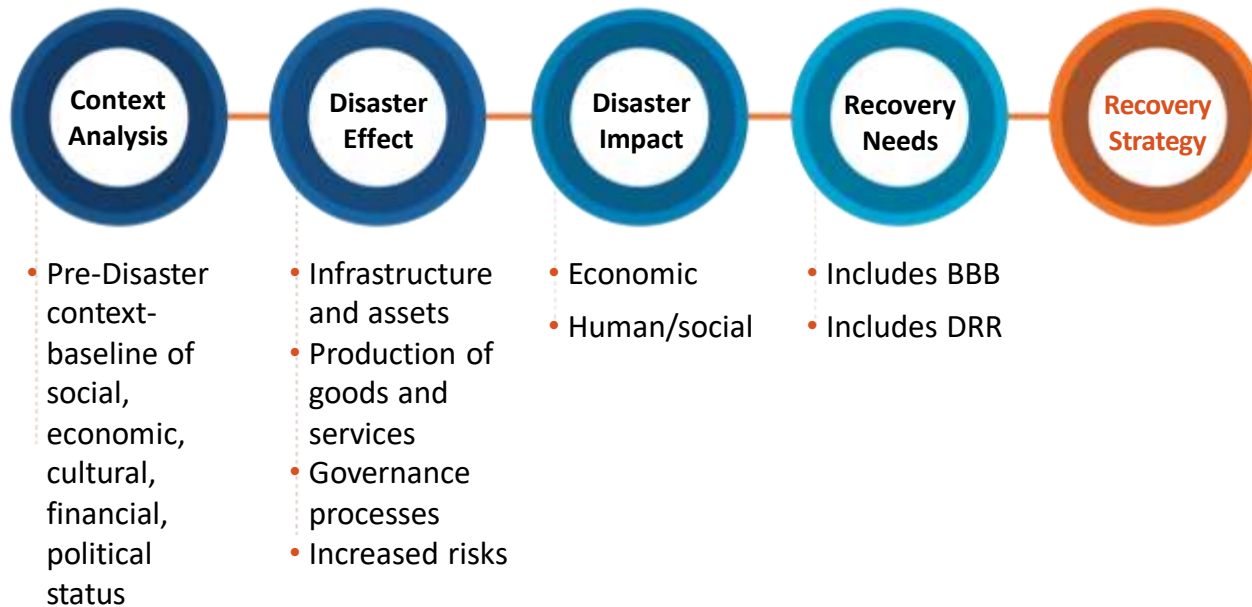
Recovery

The restoring or improving of livelihoods and health, as well as economic, physical, social, cultural and environmental assets, systems and activities, of a disaster-affected community or society, aligning with the principles of sustainable development and “build back better”, to avoid or reduce future disaster risk.

Reconstruction

The medium- and long-term rebuilding and sustainable restoration of resilient critical infrastructures, services, housing, facilities and livelihoods required for the full functioning of a community or a society affected by a disaster, aligning with the principles of sustainable development and “build back better”, to avoid or reduce future disaster risk.

PLANNING AND IMPLEMENTING RECOVERY



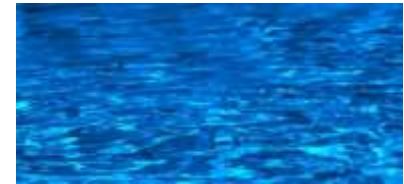
The Game of Damage and Loss

Exercise – 1 : Estimating Damage and Loss

- **An internet café was affected by flood:**
- **Baseline information:**
- Before disaster: Earns \$ 100 per day
- Description of computer:
 - Was bought 3 years ago for \$1,000
 - Value before disaster = \$ 400

After disaster:

- Building was damaged.
- Cost of repair is estimated at \$ 5,000
- The computer was totally destroyed
- Closed for 5 days after disaster



Question: What would be damage and loss of this internet café?

Exercise 1: Estimating Damage and Loss

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What would be damage and loss of this internet café?



Answer: Estimating Damage and Loss

- **The internet café damage:**
 - Cost of repair of building: \$ 5,000
 - Replacement of computer: \$ 400
- **The Loss is:**
 - \$ 100 income per day x 5 days closed = \$ 500



Answer: Table of damages and losses, in \$

Items	Damages	Losses
Building repair	5,000	
Computer replacement	400	
Income		500
New computer		
TOTAL	5,400	500

Applies to houses, buildings, schools, hospitals etc. where **structures**, their **contents** (equipment, etc.) and **income** are affected



Exercise 2: Estimating Damage, Loss and Needs

- **The same internet café which was affected by flood:**
- Baseline information:
- Before disaster: Earns \$ 100 per day
- Description of computer:
 - Was bought 3 years ago for \$1,000
 - Value before disaster = \$ 400

After disaster:

- Building was damaged.
- Cost of repair is estimated at \$ 5,000
- The computer was totally destroyed
- Closed for 5 days after disaster



Result of Exercise1: Damages and Losses

- **The internet café damage:**
 - Cost of repair of building: \$ 5,000
 - Replacement of computer: \$ 400
- **The Loss is:**
 - \$ 100 income per day x 5 days closed = \$ 500



Result of Exercise 1: Damages and Losses

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New computer		
TOTAL	5,400	500

Applies to houses, buildings, schools, hospitals etc. where **structures**, their **contents** (equipment, etc.) and **income** are affected



Identify Needs

- The owner realized that in order to avoid the same losses from floods, he needs to raise the level of the floor of the internet café.
 - The improvement will cost \$2,000.
 - He decided too to buy a new upgraded computer that will cost \$1,000.
- **Question:** What will be the table of this damages, losses and needs?

Result of Exercise 4: Table of damages, losses and needs, in \$

Items	Damages	Losses	Needs
Building repair	5,000		5,000
Computer replacement	400		
Income		500	
New computer			1,000
Building improvement			2,000
TOTAL	5,400	500	8,000

Applies to houses, buildings, schools, hospitals etc. where **structures**, their **contents** (equipment, etc.) and **income** are affected



thank you