PDNA
POST-DISASTER NEEDS ASSESSMENT
DRF
DISASTER RECOVERY FRAMEWORK

Session 5

Identifying the disaster effects & estimating the economic value

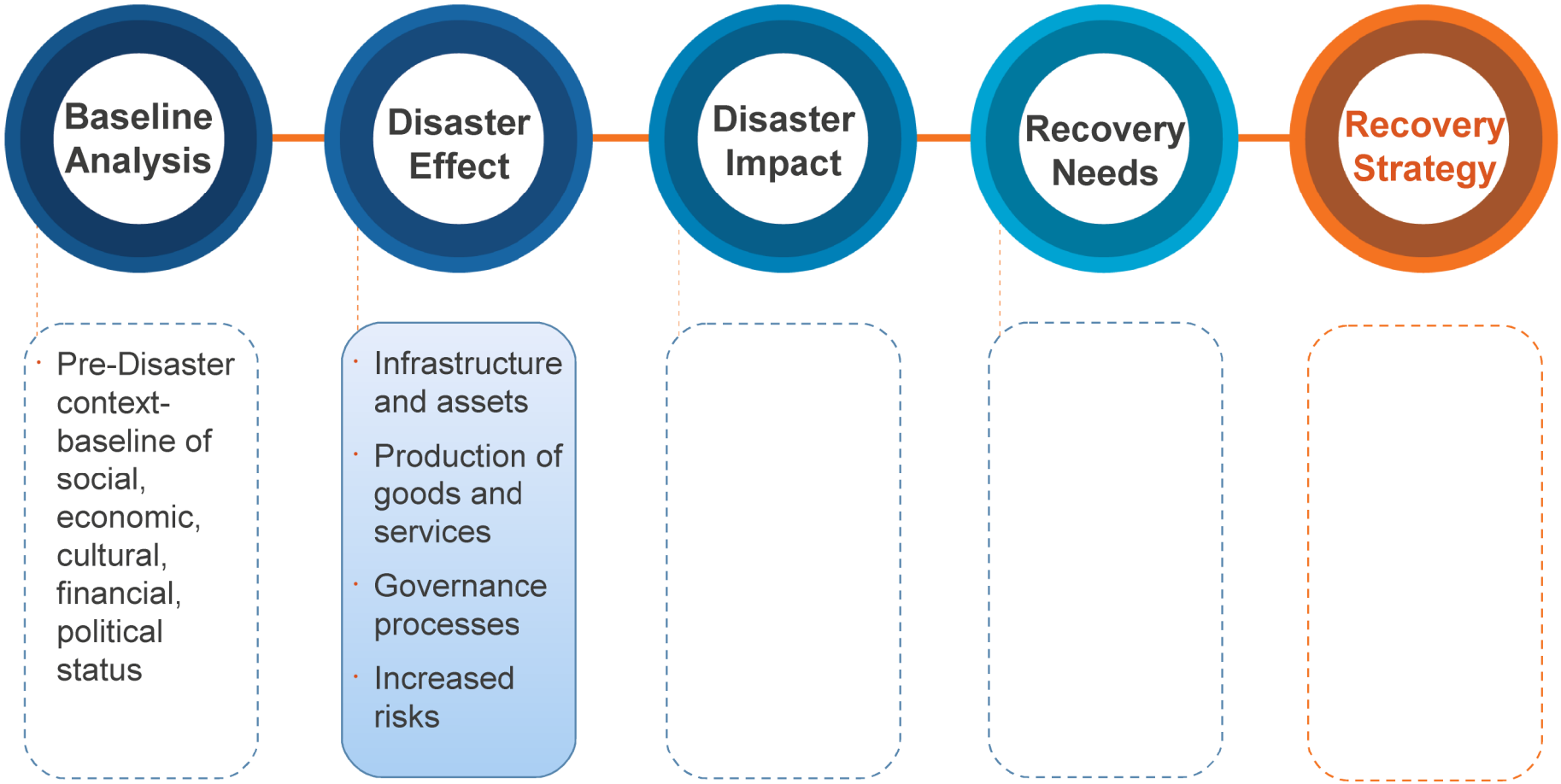
WORLD BANK GROUP

GFDRR
Global Facility for Disaster Reduction and Recovery

Session Objectives

- **Define the disaster effects**
- Estimate the **economic value** of the **disaster effects**
- **Test your understanding** of identifying and costing through a simple case study

The PDNA Process



As a reminder…

The assessment consists of a gap analysis in ALL affected sectors and areas…

BEFORE	AFTER	GAP
Pre disaster context analysis and baseline data	Effects of the event presented in post disaster data set	Compare pre-and post disaster scenarios

- Collect/estimate post-disaster data on the affected population/area(s).
- Disaggregate data by gender, age, ethnicity and geographical area.

What are the disaster effects?

Effects → Immediate results of the event that is to be assessed

Damage and Loss

- Expressed in quantitative and qualitative terms
- Identified in every sector
- Disaggregated by geographic divisions, gender, vulnerable groups, public/private ownership, etc.

Effects are analyzed under 4 dimensions

PARTIAL OR TOTAL DESTRUCTION

of infrastructure and physical assets

DAMAGE

DISRUPTION

of the production of goods and services and access to goods and services

LOSS

DISRUPTION

to Governance and Decision-Making Processes

LOSS

INCREASED RISKS

Risks and Vulnerabilities

LOSS

Effects are defined as...

DAMAGE

and

LOSS

Damage

Damage

Destruction

Refer to the total or partial destruction of infrastructure and physical assets

Costing

Its cost is estimated at the replacing or repairing market prices prevailing just before the disaster

Evaluation

Damage is valued first in physical terms (number of houses of a specific typology, Km of roads or pipelines, size and types of schools or hospitals); and then in terms of their monetary value.

Loss

Loss

Flux

Duration

Evaluation

Economic loss refers to changes in economic flows arising from the disaster

These changes in flows continue until the achievement of full economic recovery and reconstruction, in some cases lasting for several years.

Loss is expressed in current monetary values.

Assessment of Damage

Assessment of Loss - Goods & Services

Value of Loss - Goods and Services

Assessment of Loss - governance

Assessment of Loss - Risks & Vulnerabilities

The **economic value** is estimated on the increased expenditure for managing new risks arising from the disaster

Importance of Identifying and costing the Losses

- In the past, the cost of disasters was identified mostly in terms of damages due to urgency in reconstruction financing;
- Total effects of disasters could be largely underestimated if losses are not accounted for;
- Many social needs may not be addressed.

Example:
Damage and loss in the health sector

Infrastructure and physical assets	Production and access to G&S	Governance and decision making	Increased risk and vulnerabilities
· Facilities fully destroyed · Facilities partially destroyed · Equipment · Furniture · Medications and supplies	· Loss of revenue · Demolition and rubble removal · Higher number of patients due to injuries during the disaster	· Reduced capacity of Health authorities to manage the service · Lack of personnel/staff · Information management systems affected	· Potential disease outbreaks · Chronic malnutrition · Increased vulnerability of hospitals and medical centers

How are non-economic effects accounted for in a PDNA?

- A qualitative description of the effects
- Matrix summarizing the measurement of the extent of effects
- The non economic effects also informs the recovery strategy

Sources of Information for Effects

PRIMARY

Collected by government in the form of surveys, field visits and direct inquiry / interviews, consultation with key informants, as appropriate or needed, focus groups discussions

SOURCES

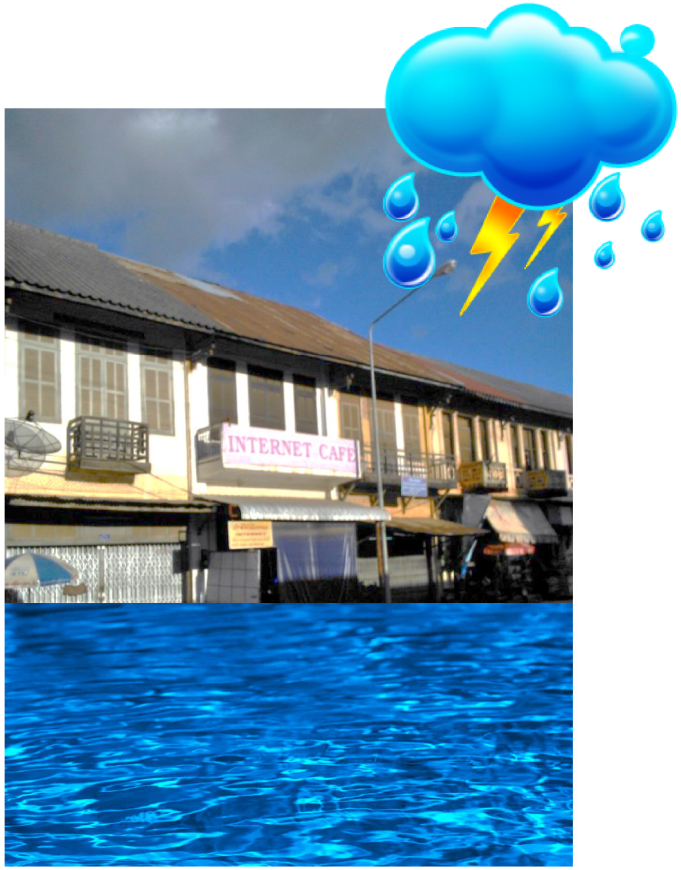
SECONDARY

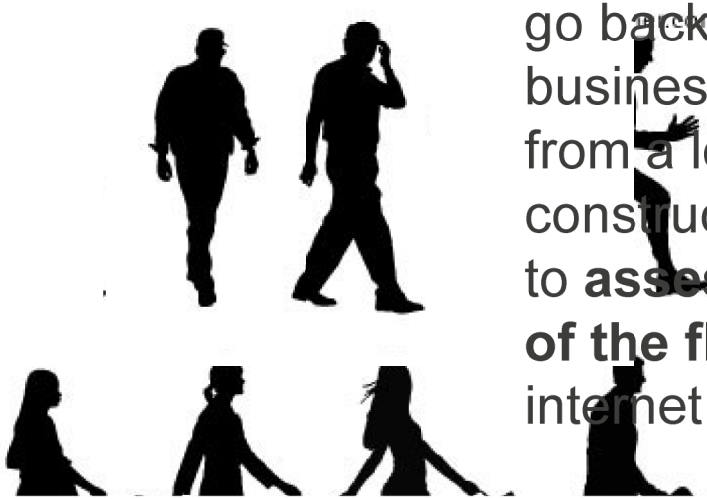
Surveys undertaken at sector level after the disaster (emergency humanitarian needs assessments is done by local and international first responders), situation reports, media information.

Ensure data includes: sex disaggregated data, analysis of geo-referenced data from satellite information and maps, technical analysis from geological, climatic, meteorological and geographical scientific institutions.

Application

You are the owner of an **internet cafe** in Somecity. After a week of **heavy rainfall** a river in your neighbourhood broke through its dam and **flooded houses and shops** close-by, including your internet cafe. You have to evacuate the area and are **not able to access your internet cafe for four days**.





On the fifth day, you go back to your business with a friend from a local construction company to **assess the effects of the floods** on your internet cafe.

Application

Here is what you and your friend find:

- The internet cafe has been partially destroyed:
  - **5 m2 of your walls need to be repainted**
  - **6m3 debris have to be removed**
- The **computer** has been totally **destroyed**
- Your annual **business license was washed away**
- According to the latest weather forecast, it might rain again. The river's dam is still broken and you therefore **decide to install** a temporarily **flood protection wall with 40 sandbags**.
- Luckily, your friend is able to help you immediately and **you do not need to hire additional workers** to handle situation.
- You expect to **re-open** your internet cafe **in 15 days** (including days when you could not access the cafe')

Application

Relevant baseline data:

- Before the flood you had a monthly revenue of 1,300 USD
- Cost of your computer: 1,000 USD
- Cost of paint: 10 USD/m2
- Cost of debris removal: 8 USD/m3
- Cost of renewing business license at local municipality: 30 USD
- Cost one sandbag: 3 USD

Application

Activity 1

- At your table, familiarise yourself with the case study
- Identify the different dimensions of the disaster effect
- Estimate the economic value of the disaster effect, using the following table:

Disaster effects	Damage	Loss

Application - Results

Disaster effects	Damage (USD)	Losses (USD)
Partially destroyed building (repainting of the walls)	(5 m2 x $10/m2) = 50	
Totally destroyed computer	1,000	
Debris removal		(8 m3 X $6/m3)= 48
Destroyed business licence		30
Temporary flood risk (Sand bags for protection)		(40 bags x $3/bags) = 120
Business interruption (income not received)		1,300 / 2 = 650
TOTAL	**1050**	**848**

Key Take - Away

- The assessment of the disaster effects consists of a **gap analysis** that is conducted across all PDNA sectors and in each disaster affected area.

- **Damage** refers to the **total or partial destruction of infrastructure and physical assets** - **valued first in physical terms** and then **in terms of their monetary value** (using unit **market prices prevailing just before the disaster**).

- **Loss** refers to **changes in economic flows** arising from the disaster. It may continue until full economic recovery and reconstruction is achieved. Loss is **expressed in current monetary values**.

Discussion