

The background of the slide is a blue-tinted photograph of a desk. It features several rolled-up architectural blueprints, a white marker, a pencil, and a red eraser. The blueprints show technical drawings, including a grid pattern. The overall scene is related to engineering or construction.

How to Estimate Post-Disaster Recovery and Reconstruction Needs

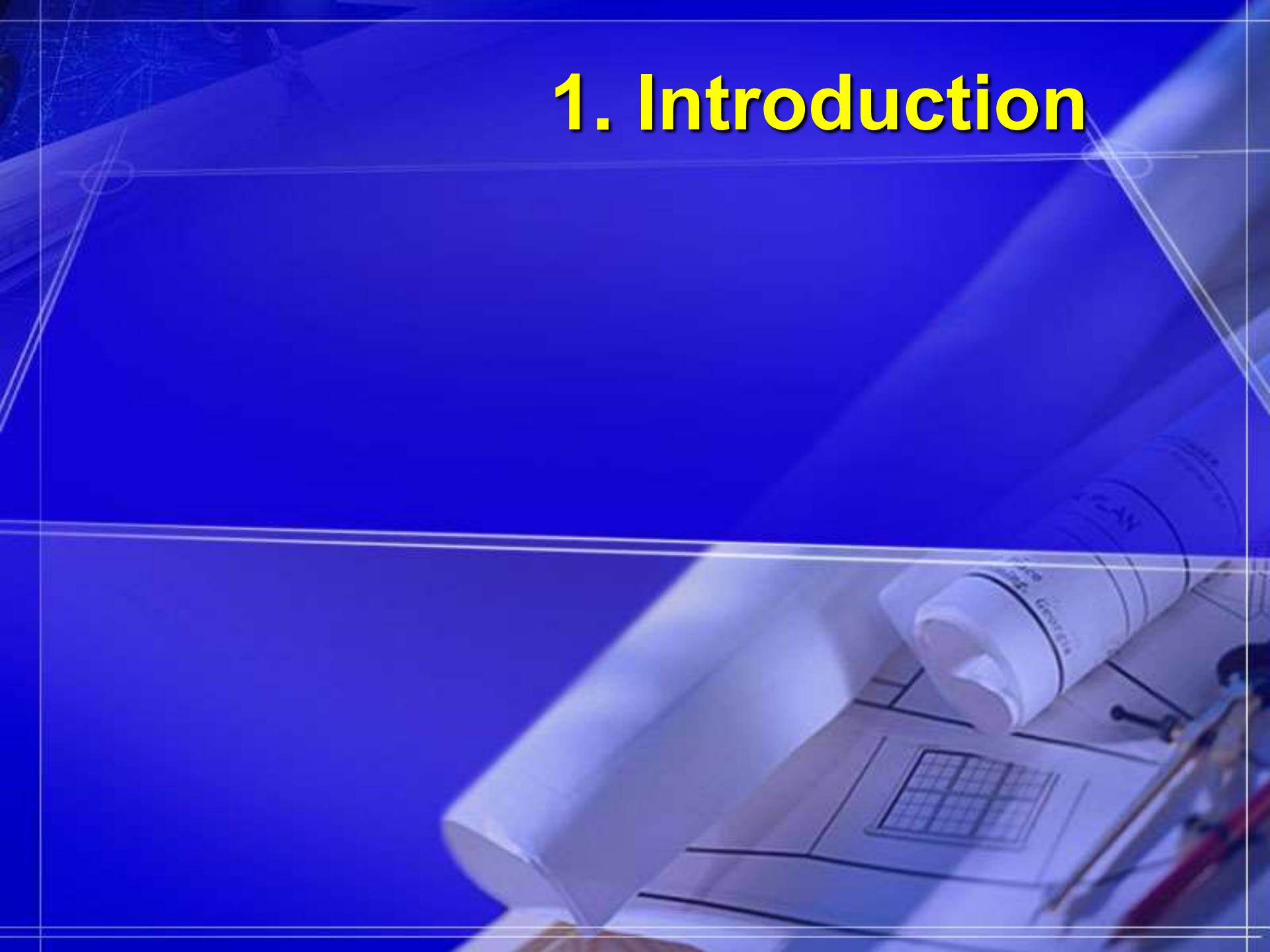
**Using the UN-ECLAC Methodology
For Assessment of Damage, Losses and Needs**

J. Roberto Jovel

Contents

1. Introduction
2. Conceptual Framework
3. Why Do We Need an Assessment?
4. Scope of Assessment
5. How Do We Do an Assessment?
6. When Should it be Done?
7. Who Should Do the Assessment
8. Information Requirements

1. Introduction



Typical Post-Disaster Stages and Activities



**Emergency
Stage**

**Humanitarian
Assistance**

**Recovery
Stage**

**Rehabilitation of
Essential Services,
Livelihoods
and Production**

**Reconstruction
Stage**

**Rebuilding
Destroyed Physical
Assets**

Division of Labor

United Nations World Bank and others

**Humanitarian
Assistance &
Early Recovery**

**Recovery &
Reconstruction**

Methodologies for Needs Assessment

**Humanitarian
and Early Recovery**

**UN and Other
Methodologies**

**Recovery and
Reconstruction**

**Damage and Loss
Assessment Methodology**

Summary of Assessment Process

Damage + Losses

- Sector by Sector
- Aggregation of Total Effects

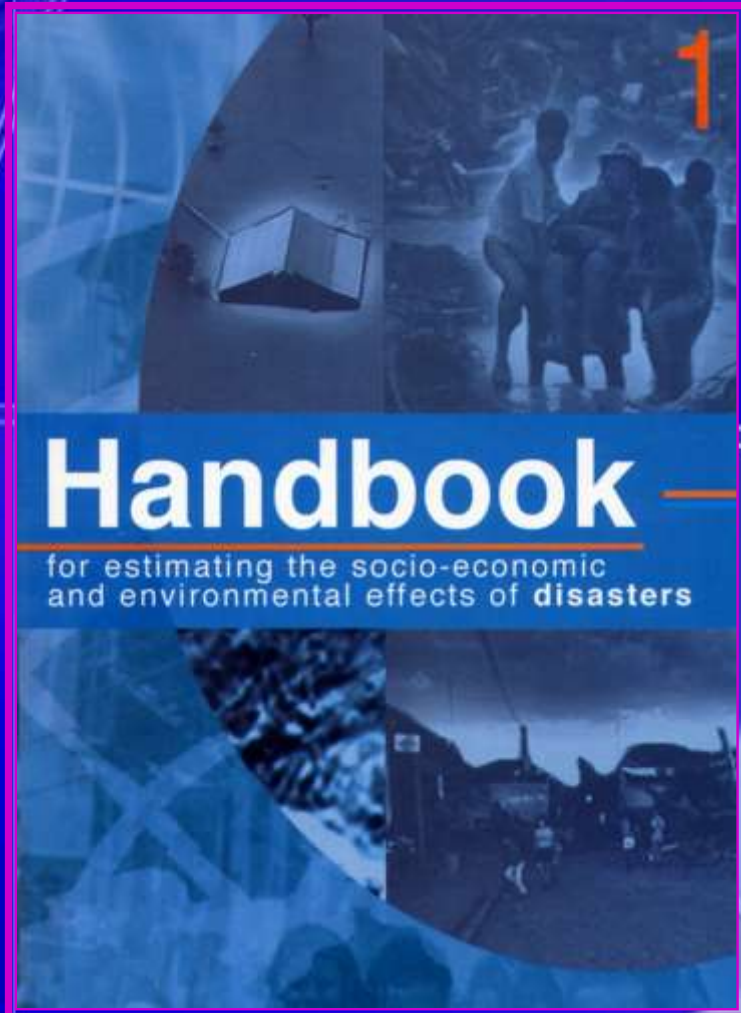
Impact Assessment

- Macro-economic
- Personal/Household

Estimation of Needs

- Recovery
- Reconstruction
- Risk Management

2. Conceptual Framework



Definitions of Disaster Effects

Immediate Effects

Damage

Total or partial destruction of physical assets
Occur during the event itself
Measured in physical units and valued at replacement cost

Medium-Term Effects

Losses

Changes in economic flows
Occur after the natural event, and over a relatively long time period
Valued at current prices

Total Effects : Damage + Losses

Typical Damage and Losses

Damage

Housing and household goods

Hospital and schools, and contents

Agriculture lands and irrigation systems

Roads and bridges

Ports and airports

Water supply systems

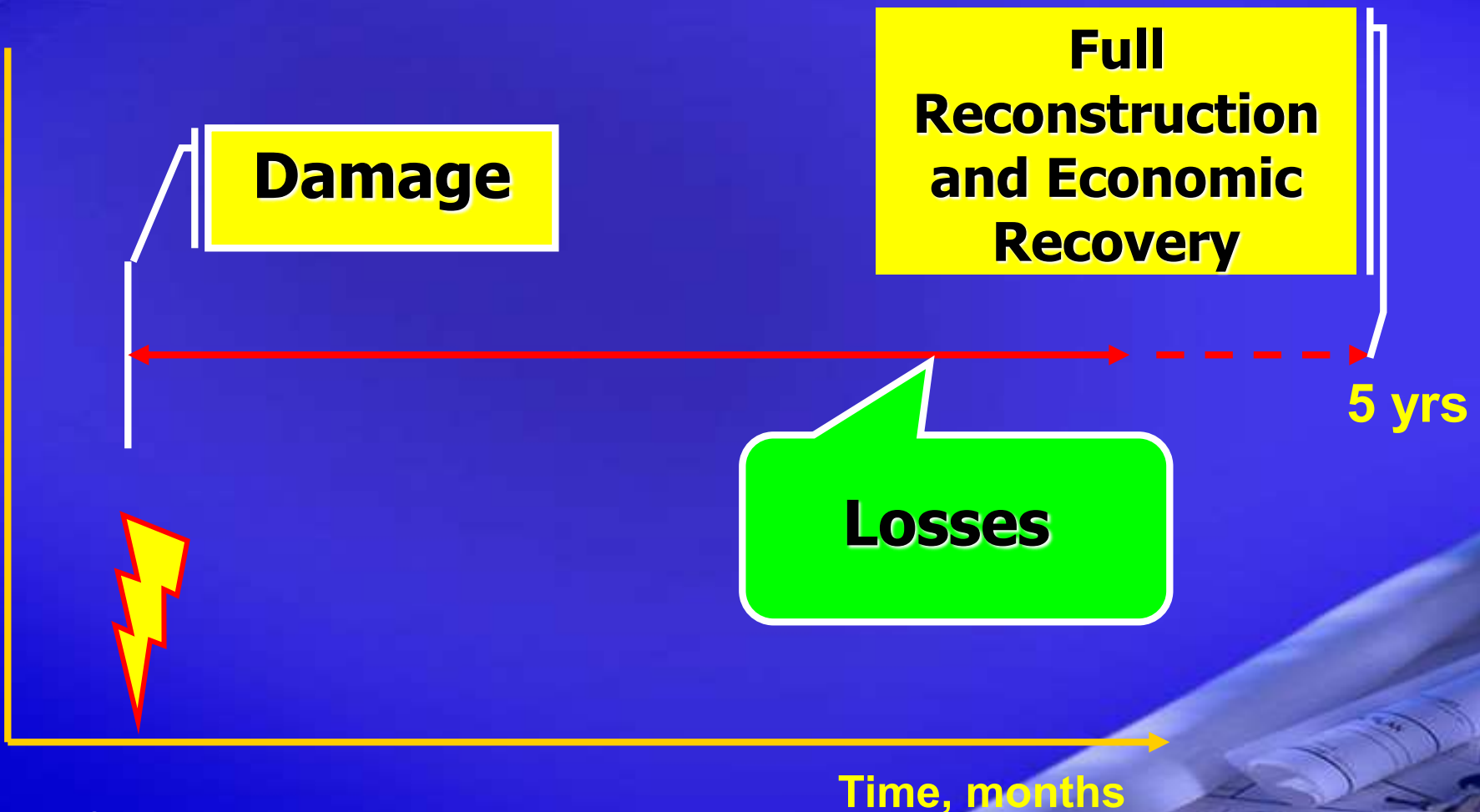
Electrical systems

Losses

Production losses in agriculture, fishery, livestock, industry, commerce, tourism

Higher operational costs and lower revenues in electricity, water supply and transport

The Timing of Disaster Effects



3. Why Do We Need an Assessment?



Objectives of Assessment

1. To obtain a quantitative estimation of the value of destruction or damage to assets and of changes or losses in economic flows due to the disaster
2. To identify the impact of the disaster on the overall functioning or performance of the economy of the affected country or area, and also on individual persons or on households

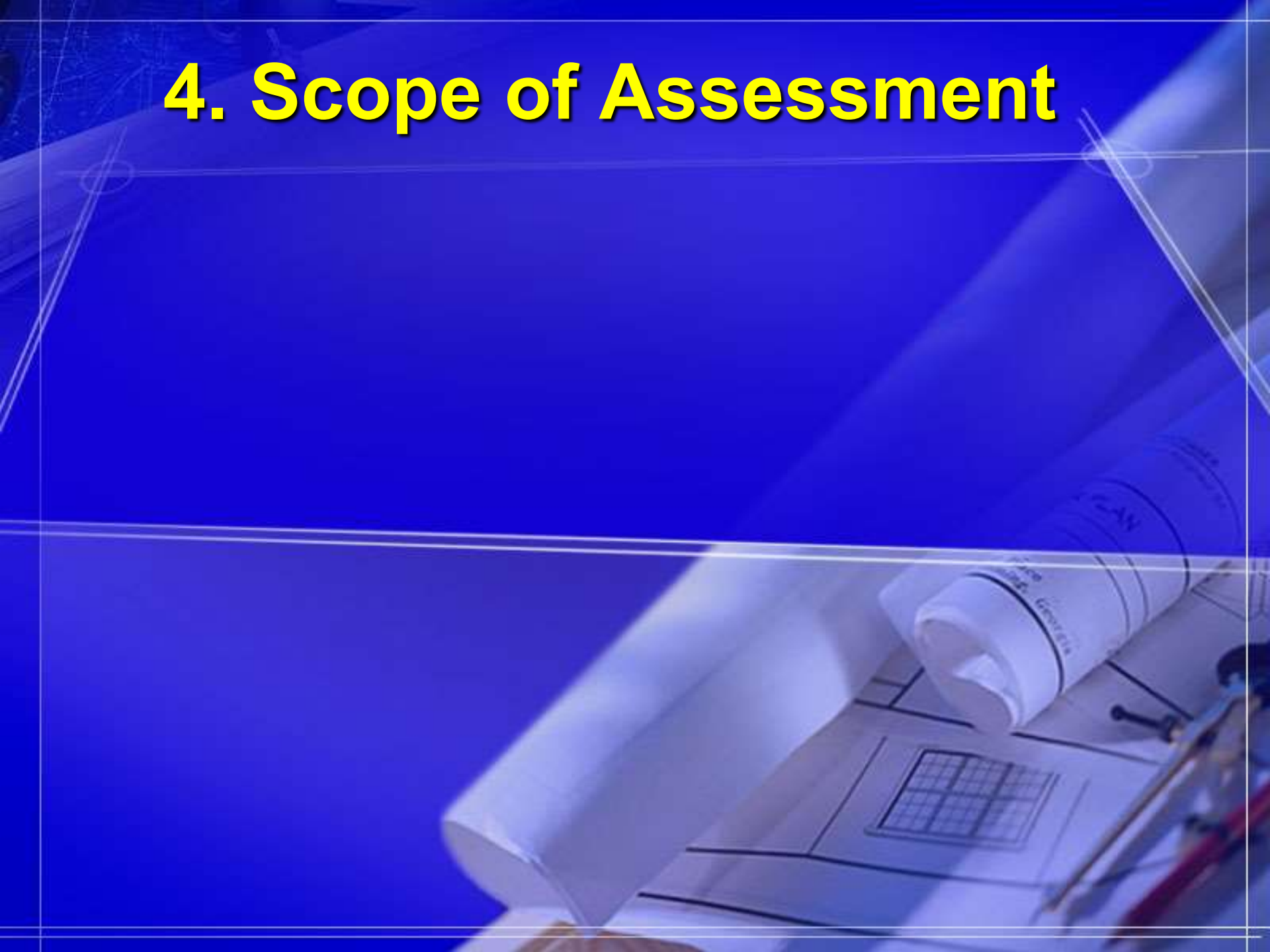
Objectives of Assessment..

3. To identify the capacity of the State to undertake on its own all recovery, reconstruction, and disaster risk management programs and activities
4. To ascertain whether international assistance should be provided, its scope and timeframe
5. To identify specific public sector actions at the State or lower levels to be undertaken in the short, medium and long term to ensure recovery and reconstruction

Objectives of Assessment...

6. To estimate financial, technical and human resource requirements or needs to implement the agreed upon programs of recovery, reconstruction and risk management, duly broken down into actions at the Central, State, Provincial, District or Community levels

4. Scope of Assessment



Scope of Assessment

The assessment should cover the entire area affected by the disaster and broken down by geo-political divisions

All sectors of economic activity that may have sustained positive or negative disaster effects must be covered

List of sectors to be assessed is defined on basis of economic activities included in country's system of national accounts

List of Typical Sectors

Republic of Macedonia	
Sector of Economic Activity	
1	Agriculture, hunting and forestry
2	Fishing
3	Mining and quarrying
4	Manufacturing
5	Electricity, gas and water supply
6	Construction
7	Wholesale and retail trade
8	Hotels and restaurants
9	Transport, storage and communications
10	Financial intermediation
11	Real estate, renting and business activities
12	Public administration and <u>defence</u>
13	Education
14	Health and social work
15	Other community, social and personal services

5. How Do We Do an Assessment?



Process for Assessment

1. **Sector-by-sector assessment**
2. **Aggregation of individual sector assessments, ensuring no double accounting or gaps**
3. **Analysis of macro-economic impact**
 - Gross domestic product
 - External sector
 - Fiscal sector
4. **Analysis of personal/household impact**
5. **Estimation of needs for recovery and reconstruction**

Typical Results of Assessment

Summary of DaLA
Macro-Economic Impact
Impact at Personal Level

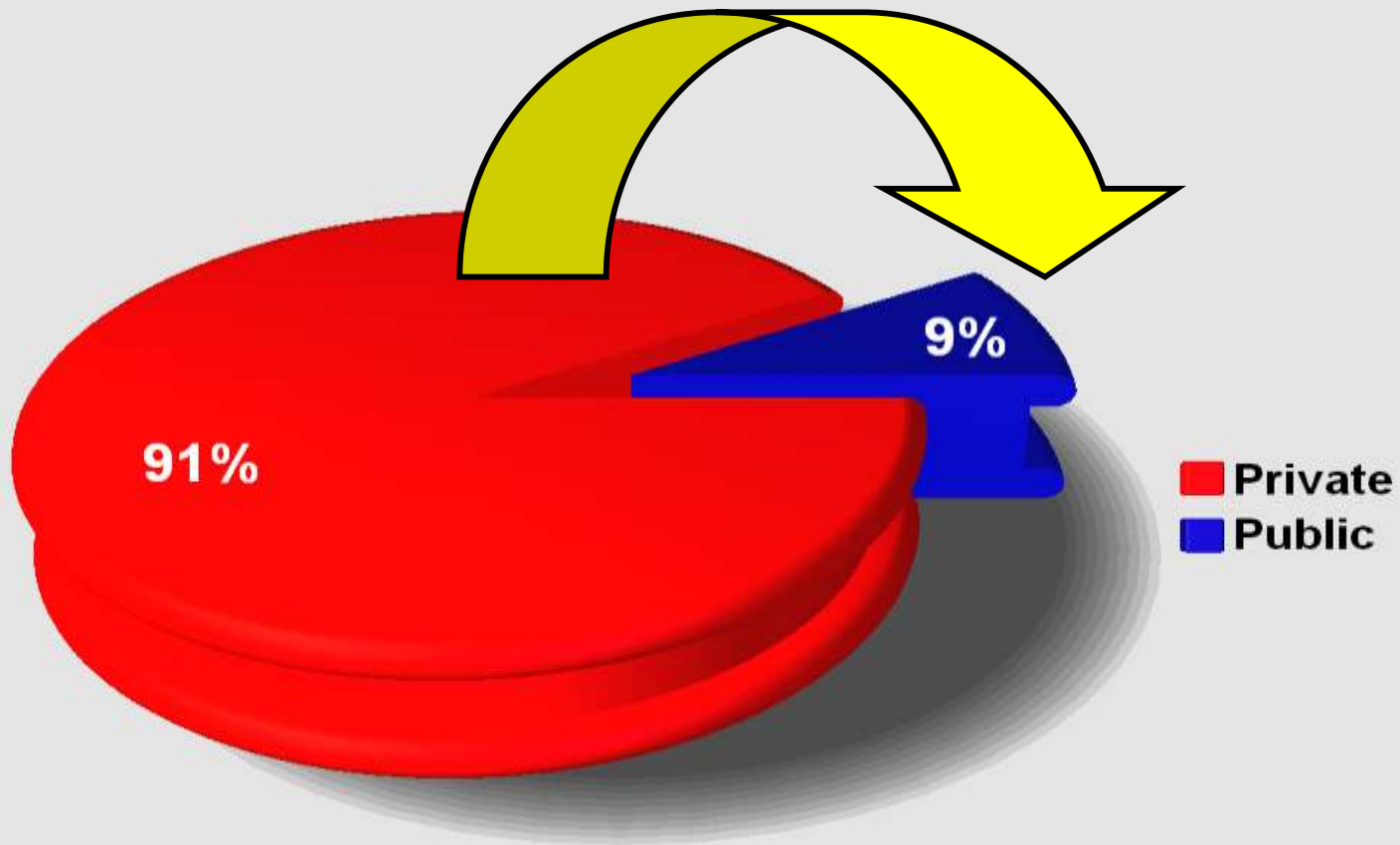
2006 Yogyakarta Earthquake Summary of Total Effects

Sector and Subsector	Total Effects, Rp Billion		
	Damage	Losses	Total
Housing	13,915	1,382	15,296
Transport and Communications	90	---	90
Energy	225	150	375
Water and Sanitation	82	4	86
Education	1,683	56	1,739
Health	1,569	21	1,590
Culture and Religion	654	--	654
Agriculture	66	640	705
Trade	184	120	303
Industry	4,063	3,899	7,962
Tourism	36	18	54
Government	137	--	137
Banking and Finance	48	--	48
Environment	--	110	110
TOTAL	22,751	6,398	29,149

29 Sep 08

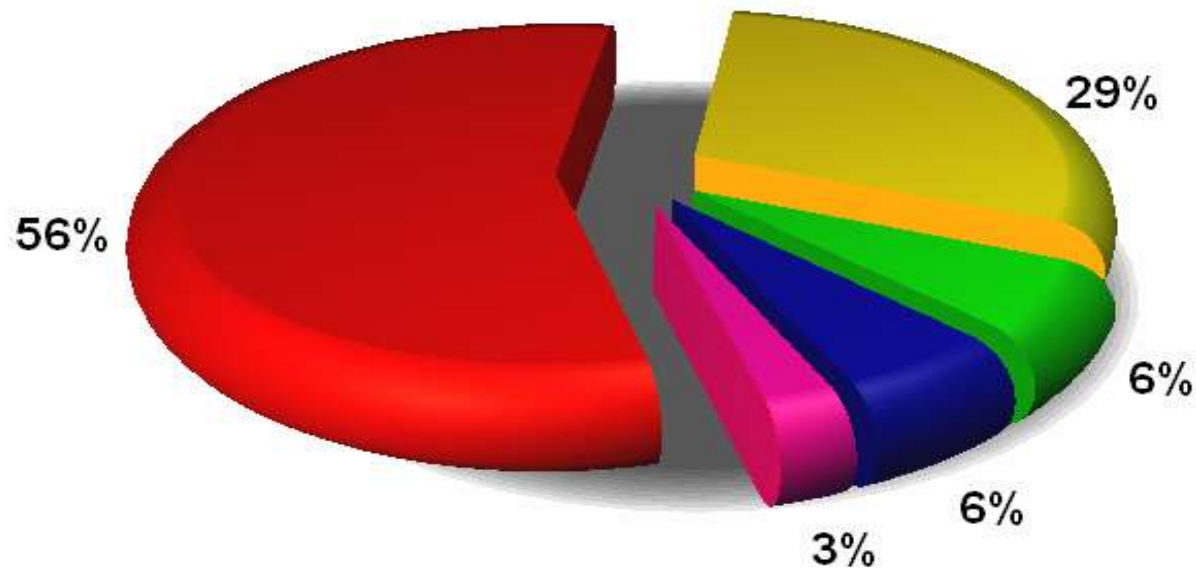
RJovel

2006 Yogyakarta Earthquake Ownership of Total Disaster Effects



An Indication of Post-Disaster Efforts

Breakdown by Sector of Total Disaster Effects: 2006 Yogyakarta Earthquake



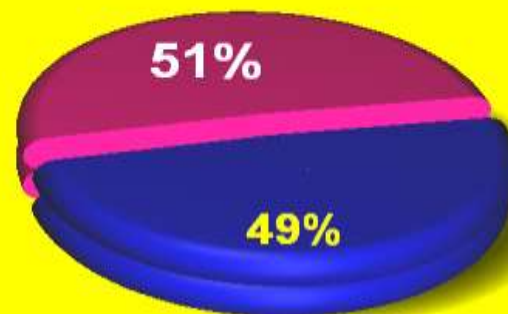
A social and productive disaster

 Housing  Industry  Education  Health  Agriculture

2006 Yogyakarta Earthquake Damage and Losses by Sector



Housing





Industry



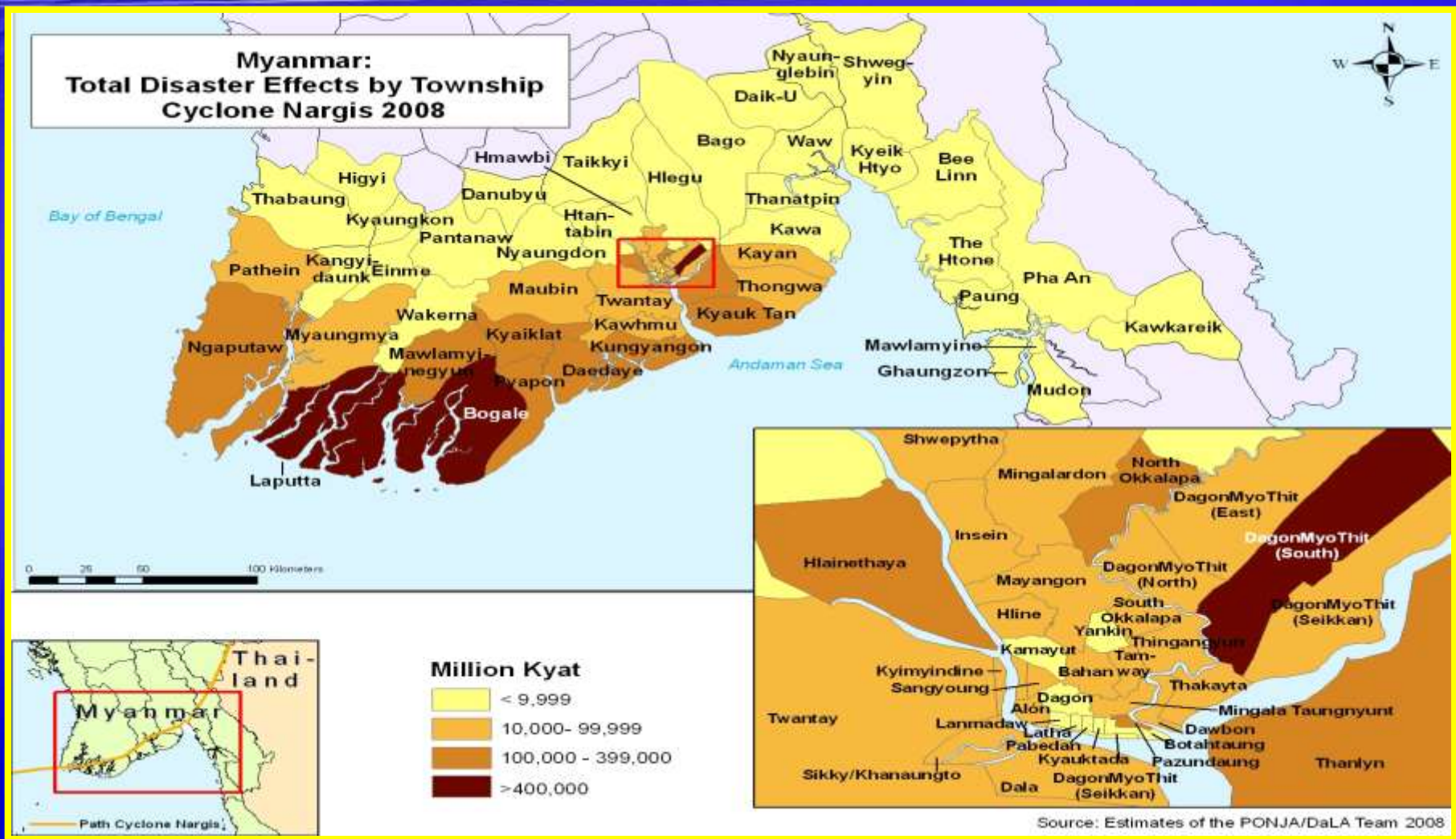
Social Sectors



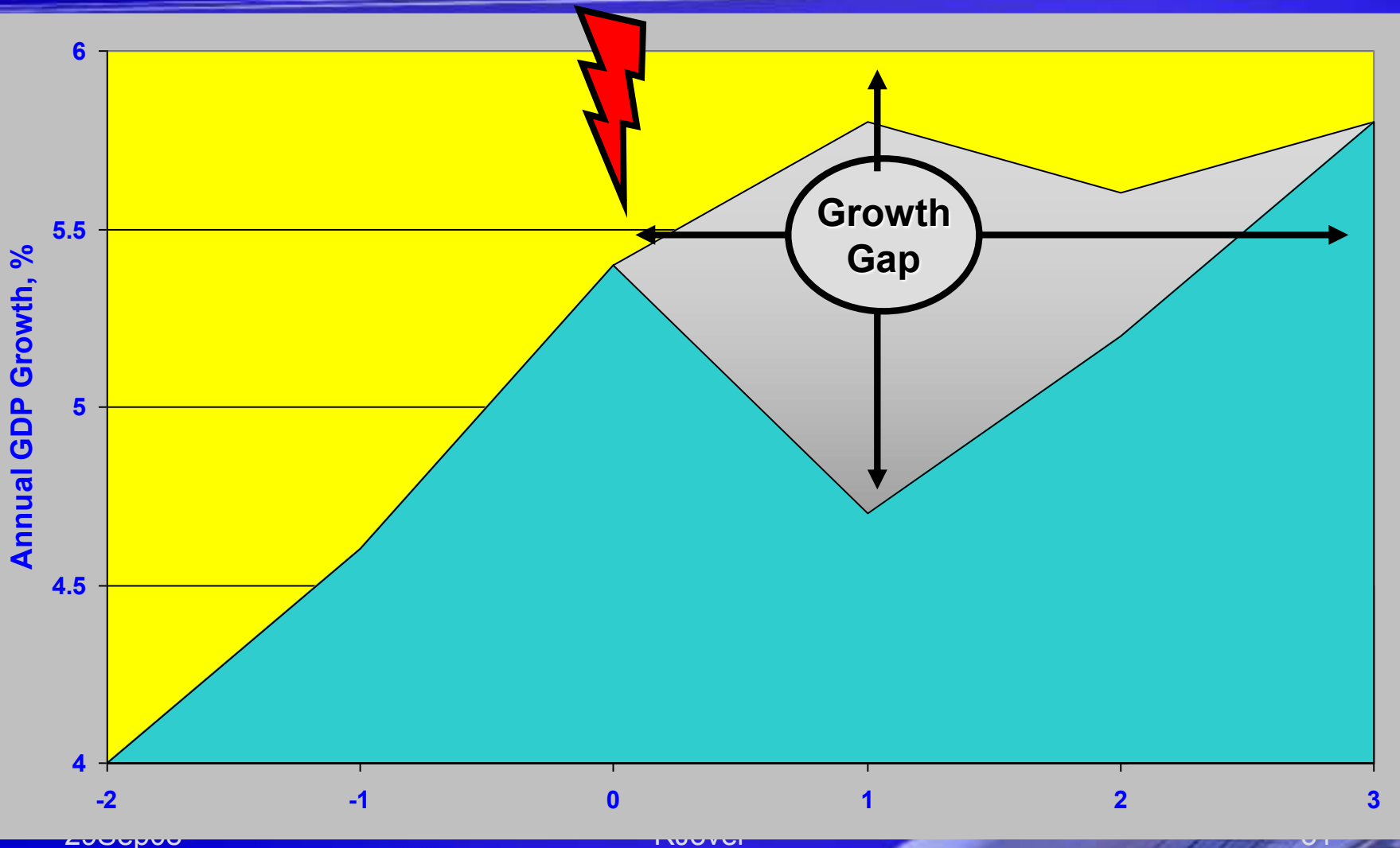
Agriculture

 Damage
 Losses

Geographical Distribution of Disaster Effects in Myanmar



Impact of Disaster Losses and Post-Disaster Activities on GDP

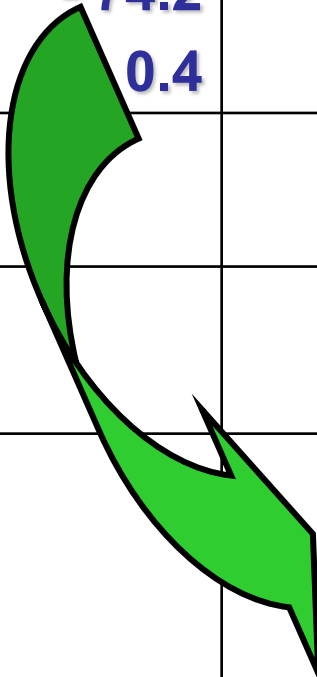


Impact of Disaster on Balance of Payments in Jamaica

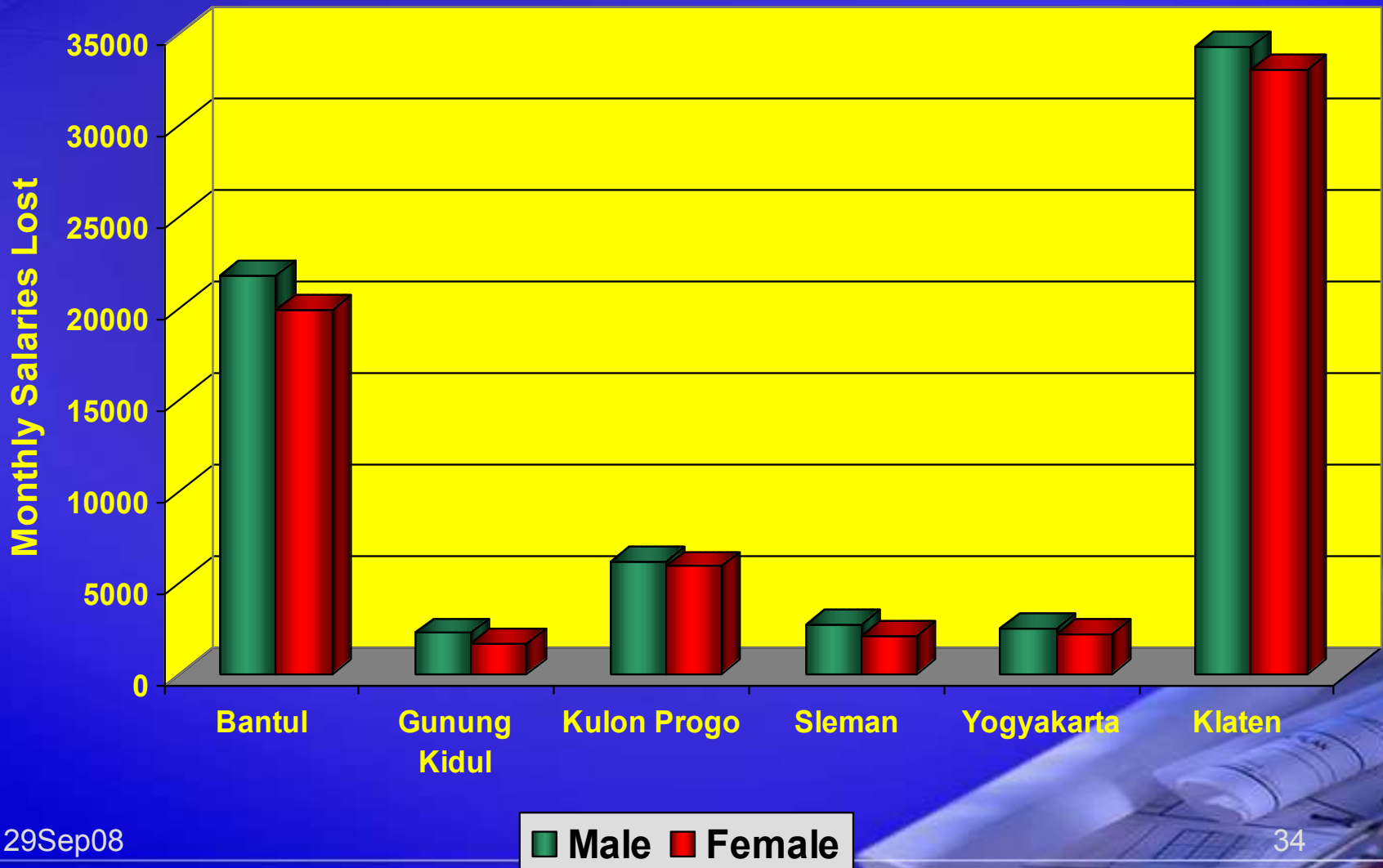
	2006 BOP	Estimated Losses		Revised BOP	
		Moderate	Severe	Moderate	Severe
Goods Balance	- 2,911			- 2,953	- 2,972
Exports (FOB)	2,016	8.78	12.43	2,007	2,004
Imports (FOB)	4,927	33.50	48.40	4,961	4,975
Services Balance	788	206.39	206.39	582	582
Income	- 663			- 663	- 663
Current Transfers	1,670	66.52	94.29	1,603	1,576
Current Account Balance	- 1,116			- 1,431	- 1,478

Impact of Disaster on Fiscal Sector

	2006 No disaster	2006 After disaster
<u>Central Government Performance</u>		
• Million US\$	- 74.2	
• As % of GDP	0.4	
Decline in revenues due to pandemic		11.8
Increase in expenditures due to pandemic		57.2
<u>Central Government Performance</u>		
• Million US\$		- 143.2
• As % of GDP		- 0.7



2006 Yogyakarta Earthquake: Personal Income Loss by Gender



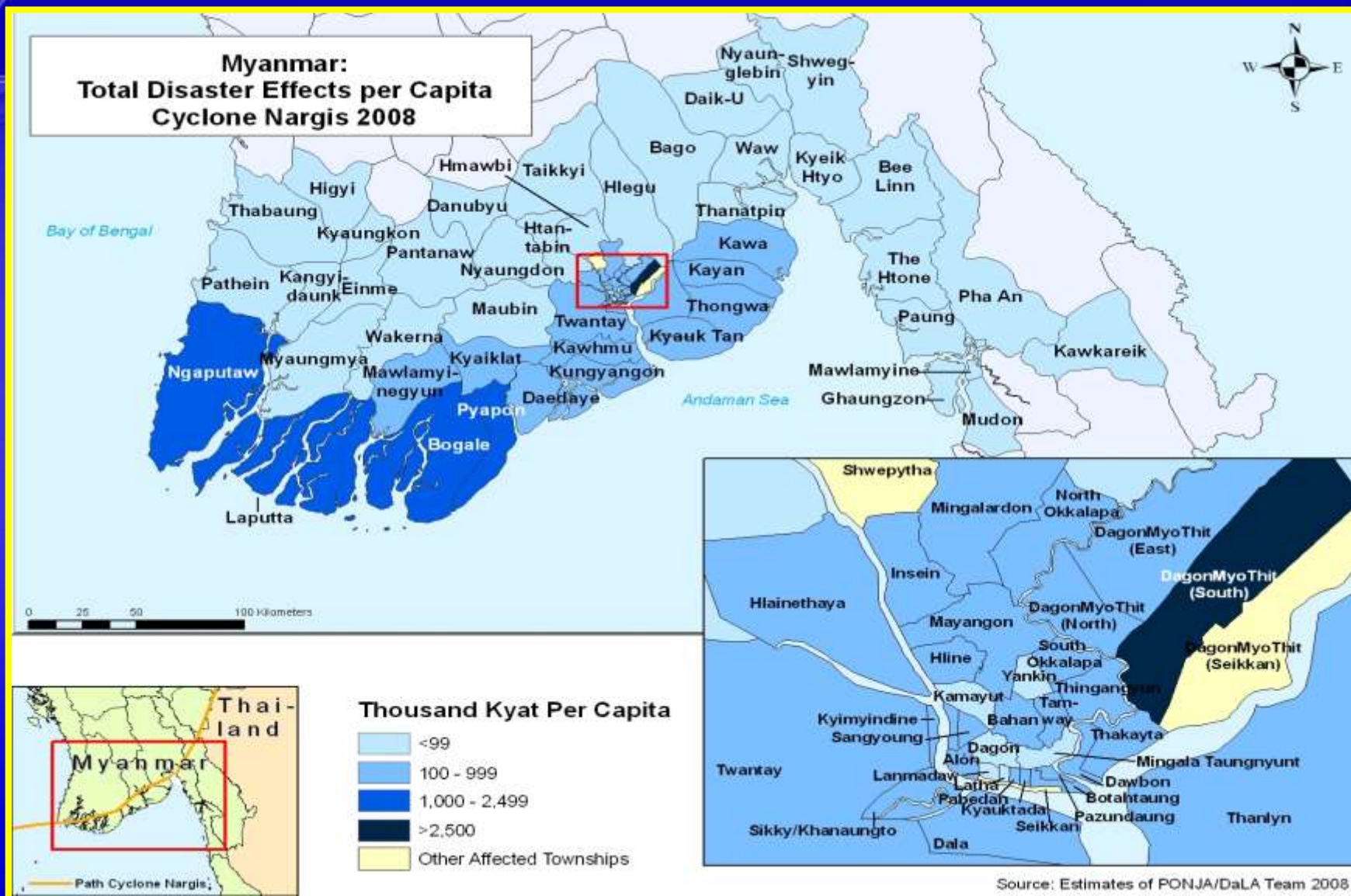
Temporary Personal Income Decline after Disaster in El Salvador

			Economically Active Population	Monthly income, US\$/mo			
				Non-disaster conditions	Lower income according to type of medical care		
					Ambulatory	In hospital	In ICU
Country			2,784,000				
Urban Areas	Total		1,609,152				
	Micro-enterprises	More than 5 employees	415,161	244	218	139	26
		Less than 5 employees	212,408	175	156	100	19
	Domestic employees		62,757	160	143	91	17
	Self employed	Industry and Construction	104,595	190	170	108	20
		Commerce and others	384,587	220	196	126	24
Rural Areas	Total		1,174,848				
		Agriculture	249,068	98	88	56	10
		Others	372,427	177	158	101	19
		Self employed	475,813	79	70	45	8

Type of Medical Care for the Sick	Average length of absence, days	Income reduction factor
Ambulatory	3	0.107
Hospitalization	12	0.429
Intensive Care Unit (ICU)	25	0.893

	Monthly Income, US\$/mo	
	Urban	Rural
Poverty	76.10	49.20
Extreme poverty	38.10	24.60

Damage and Losses per Person in Myanmar

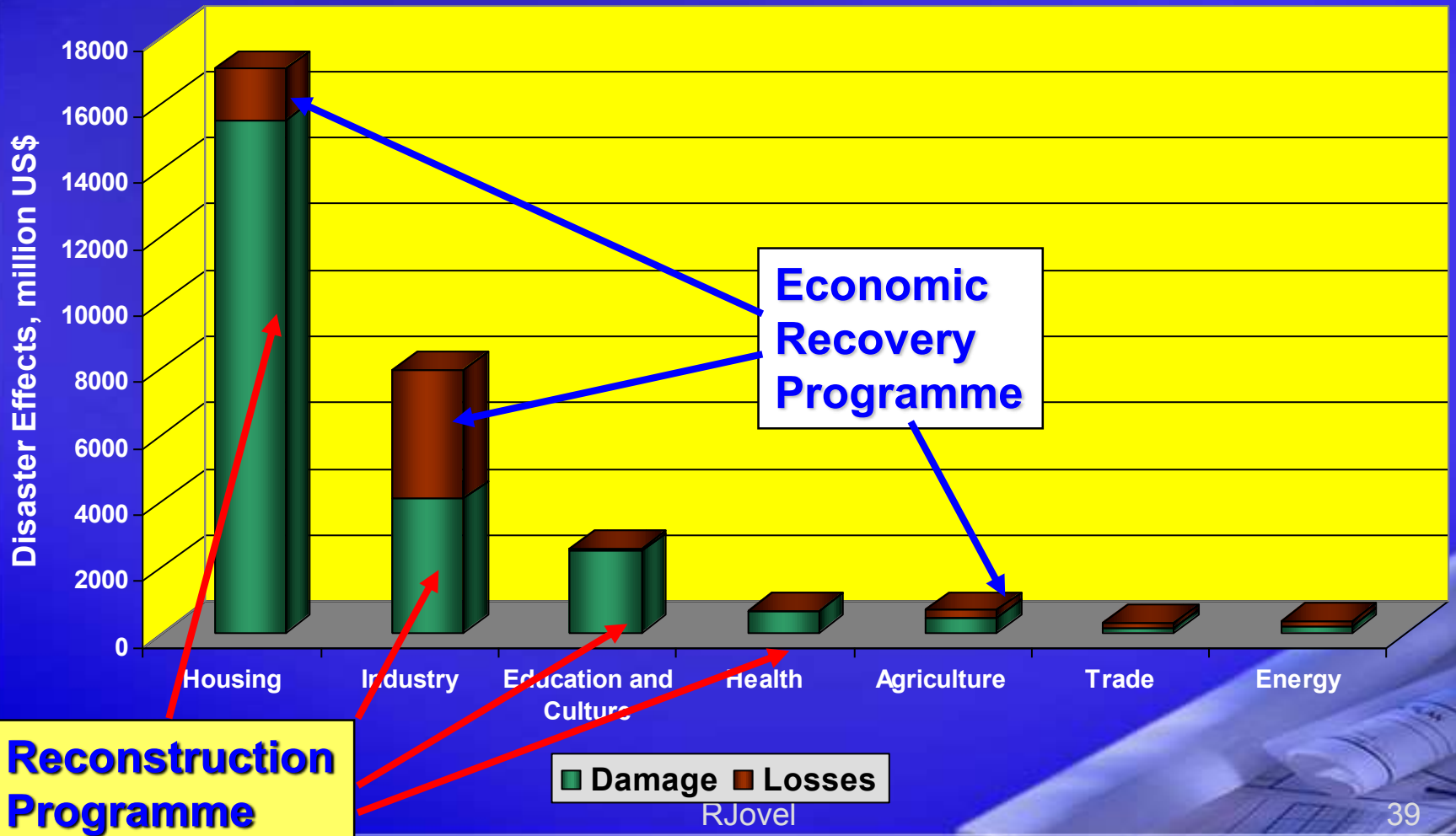


Typical Estimation of Needs

Recovery
Reconstruction
Risk Management



Use of Sector Analysis



Economic Recovery Program Components

Modifications to public policies to mitigate macro-economic and individual impact

- Income generation schemes for most affected population groups, with special reference to those that are not credit worthy
- Temporary shelter provision and housing rehabilitation
- Social sector recovery programs
- Provision of soft term financing to re-start production activities in micro, small and medium sized enterprises
- Introduction of temporary tax relief measures to assist producers (from micro to large)
- Facilitation of construction permits to provide minimum delays of reconstruction start and execution

Recovery Needs Assessment

**Production
Losses**

Recovery needs: f Production Losses

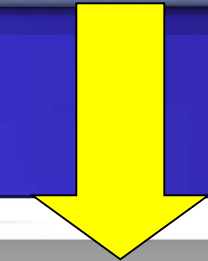
**Recovery
Needs**

Typical Activities for Economic Recovery

Timeframe	Objective	Activities	Type of intervention
Early recovery	Income generation	Cleaning up/rubble removal	Cash for work
		Rehabilitation of lifelines and essential services	Cash for work
	Provision of shelter to homeless	Setting up temporary shelter camps	
	Housing rehabilitation	Minor repairs to housing units	Donation of construction materials and household goods
	Education		
		Rehabilitation of schools and resumption of classes	
	Health		
		Rehabilitation of health services	Emergency hospitals
		Monitoring and control of diseases	Vector control Vaccinations
		Recovery of production	
Recovery		Provision of inputs for re-planting standing crop	Grants/donations of seeds, fertilizer
		Provision of inputs for future crop	Grants/donations of seeds, fertilizer, pesticides
		Financing of working capital Acquisition of inputs and raw materials	Grants for micro-enterprises. Soft loans for SMEs. Credit lines for large enterprises. Temporary tax relief program for enterprises.

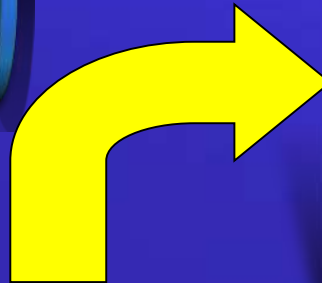
Reconstruction Needs

Damage



Reconstruction Strategy

Quality/Techno Improvement
Mitigation Costs
Relocation Costs
Multi-Annual Inflation



Reconstruction Programme

Financing Needs

Reconstruction priorities:

- Sectorial
- Geographical
- Population groups



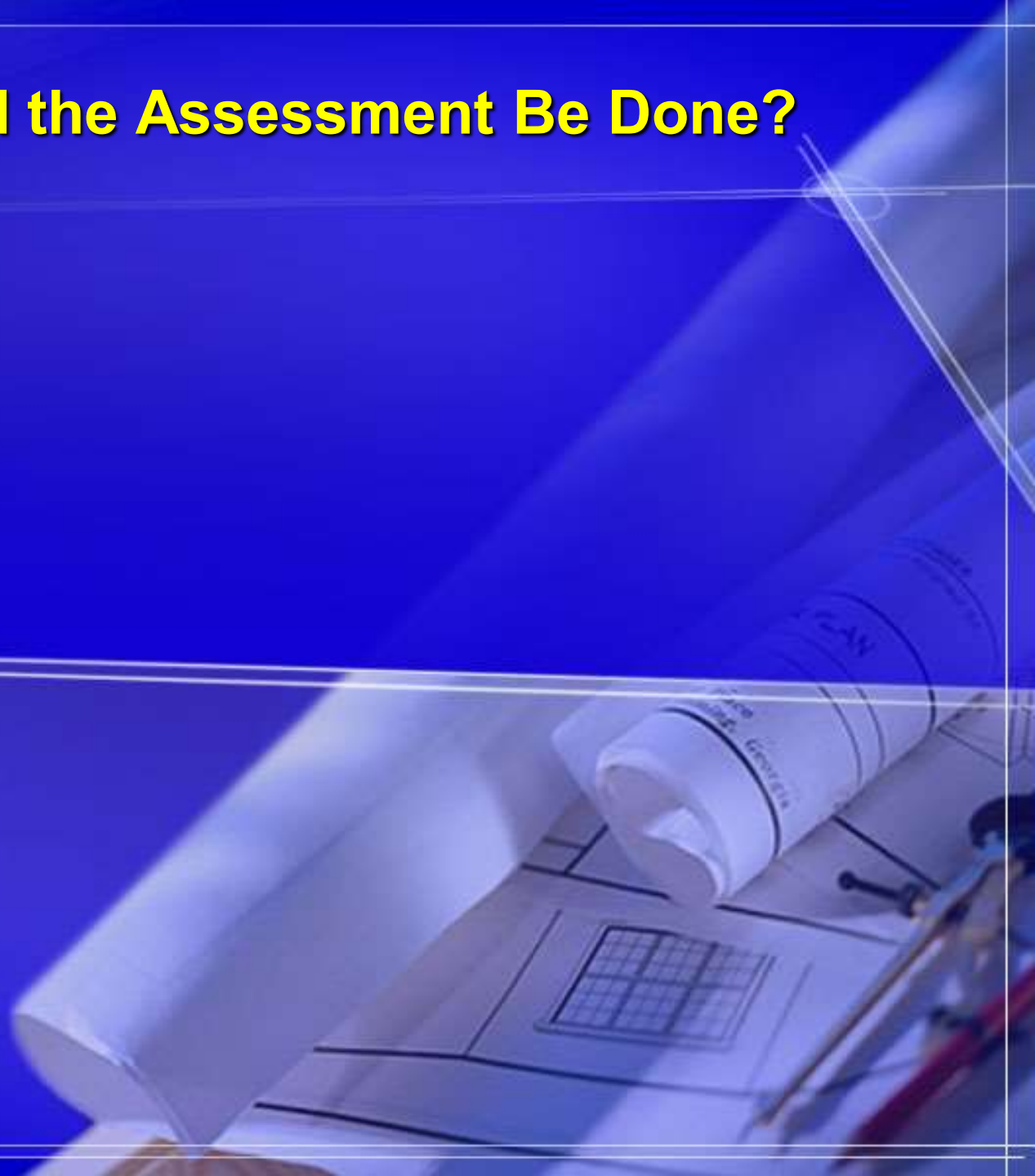
Financing Formula

- **Government funds**
- **Private sector funds**
- **Insurance proceeds**
- **International grants**
- **International loans**

Typical Activities for Reconstruction and Disaster Risk Reduction

Timeframe	Objective	Activities	Type of intervention
Reconstruction	Housing reconstruction	Housing reconstruction and household goods replacement	Grants/compensation to poor. Soft credit lines for others
	Productive infrastructure reconstruction and equipment replacement	Reconstruction and replacement of infrastructure and equipment	Special Credit lines
	Social infrastructure and services reconstruction	Reconstruction of schools, health sector facilities and services, etc	Retrofitting. Reconstruction according to standards.
	Physical infrastructure reconstruction	Reconstruction of public administration buildings, roads and bridges, ports and airports, communications, etc	
Disaster risk reduction	Prevention and preparedness measures		Standards for anti-disaster design and construction. Early warning systems and evacuation procedures. Community preparedness and organization.
	Civil protection works		Construction of dikes and other protection works
	Financial risk transfer		Funds for rehabilitation of works. Insurance. Catastrophe bonds.

6. When Should the Assessment Be Done?



Timeframe

Period required for typical assessment: 2 to 4 weeks depending on complexity of disaster and extension of affected area

Start after certain conditions have been met:

- Availability of government officials to participate in assessment
- Availability of baseline and disaster effects information
- Adequate access to and within affected areas

Therefore, damage and loss assessment should not begin until after the humanitarian stage is over and when the natural phenomena has abated

Typical Schedule

Activities	Months/Weeks	
	Month 1	Month 2
Emergency Stage	XX	
Damage and Loss Assessment		
- Training on Damage and Loss Assessment	X	
- Baseline data collection	X	
- Field survey for primary data collection in affected area	X	
- Extrapolation of results to entire affected area	X	
- Sector-by-Sector assessment	X	
- Recapitulation of damage and losses		X
Disaster Impact Analysis		
- Macro-economic impact analysis		XX
- Analysis of disaster impact at personal or household level		X
Estimation of Recovery and Reconstruction Needs		X
Final Report Writing		X

Accuracy vs Opportunity

- **Urgent need to produce assessment and obtain financial support for recovery and reconstruction**
- **Speed more important than 100% accuracy**
- **Nevertheless, aim for highest possible accuracy by combining**
 - **Best available professionals**
 - **Best available information**
 - **Adequate and reliable methodological tool for assessment**

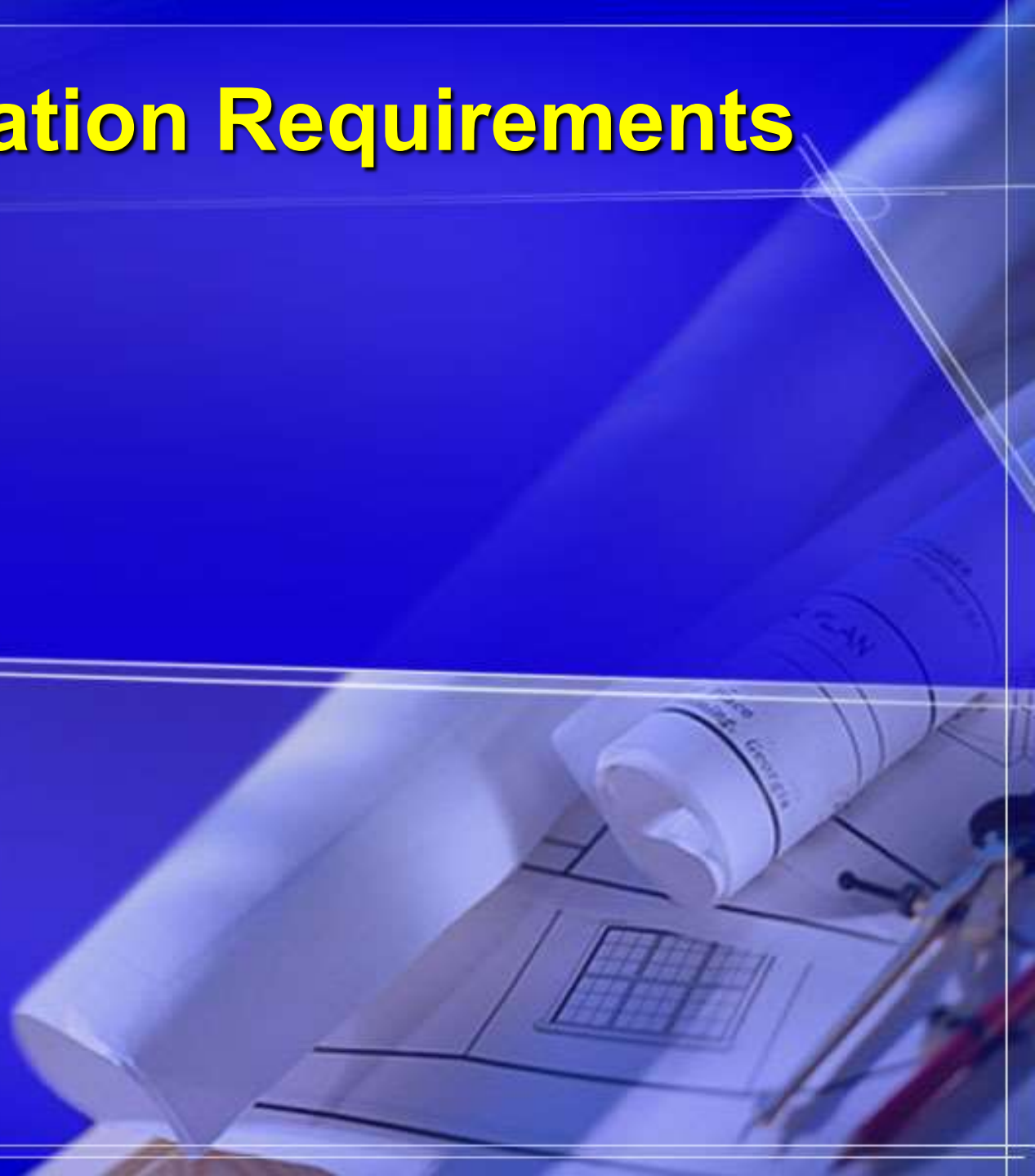
7. Who Should Do the Assessment

**A Well-Integrated, Multi-Disciplinary Team:
Government-led
Assisted by UN, IFIs, NGOs**

List of Specialists

Sectors	Sub-Sectors	Discipline or Profession Required	
		Essential	Desirable
Productive Sectors			
	Agriculture, livestock, fishery	Agronomist	Agriculture extensionist
		Agriculture economist	Fishery biologist
		Fishery economist	Veterinarian
		Livestock economist	Food balance/security specialist
	Industry	Industrial engineer	
		Industrial economist	
	Commerce and Trade	Trade economist	
	Mining and quarrying	Civil engineer	
		Mining economist	
	Tourism	Civil engineer	
		Tourism economist	
	Social Sectors		
	Education	Sociologist	
	Health	Civil engineer	Public health specialist
		Medical doctor	Nutrition specialist
		Epidemiologist	
	Housing	Architect	Urban planner
		Civil engineer	

8. Information Requirements



Baseline Data, general

Most recent population census

Most recent household survey

Annual production statistics

Production forecasts

Annual reports for utilities

Annual economic and social surveys

Other economic and financial reports

Baseline Data, by Sector

Sector	Information Required
	Productive
Agriculture	<ul style="list-style-type: none"> Calendar of production activities Cropped area for different products (Seasonal, annual or permanent crops) Production volume for each crop Unit prices for each crop (at farmgate, wholesale and retail levels) Expected unit yields for all crops Forecasted volume of production
Livestock	<ul style="list-style-type: none"> Animal stock Unit prices paid to owners for animals Production, annual or monthly value (milk, cheese, eggs, etc) Prices paid to producers
Fishery	<ul style="list-style-type: none"> Boats and nets (number and capacity) Monthly catch (in volume or weight) Prices paid to fishermen
Commerce	<ul style="list-style-type: none"> Most recent commerce census or survey Time series of commerce and trade volume and prices Information on small and medium enterprises Gross domestic product, by commerce categories Periodic surveys carried out by trade and industry ministries or by central banks
Industry	<ul style="list-style-type: none"> The most recent industrial census Time series of industrial production and prices Data on small and medium enterprises Gross domestic product, by branches and activity
Tourism	<ul style="list-style-type: none"> Most recent survey on tourism sector Time series of tourist arrivals, seasonality, and income Average length of stay and expenditures Gross domestic product for tourism and subsectors Static baseline on assets

Training on DaLA

GFDRR is training World Bank Staff on DaLA procedures since April 2007

So far, more than 275 Staff have been trained and some of them have already participated in field assessments

GFDRR is also training core groups of country experts that can undertake such assessments after disasters

National training workshops have been done in Indonesia, Philippines, India, Myanmar, as well as in Senegal, Madagascar and Uganda

Many more similar events are scheduled for FY09



rjovel@jovel.org