

Building Disaster and Climate Resilient Cities in ASEAN (CN18)

1st Workshop for Urban Resilience in ASEAN

Risk Assessment (Introduction)

December 8, 2016

JICA Project Team

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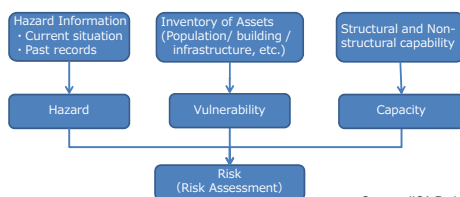
Source: JICA Project Team 2

1. Introduction

1-1 Definition of Disaster Risk

Risk = "Hazard × Vulnerability / Capacity"

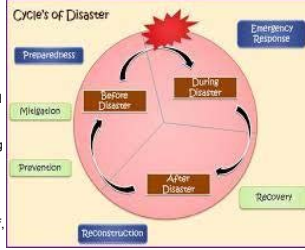
Hazard = Earthquake, Flood, Tsunami, Cyclone, etc.
Vulnerability = human life, building, infrastructure, etc.
Capacity = Structural and non-structural capability



Source: JICA Project Team 3

1-2 Basic Approach for Disaster Risk Management (DRM)

- Prevention/Mitigation:** Minimizing the effects of disaster (structural measures, land use planning, public education)
- Preparedness:** Planning how to respond (contingency plan for emergency, emergency training, building warning system)
- Response:** Efforts to minimize the hazards created by a disaster (search and rescue, emergency relief, temporary shelter, evacuation center, grants, medical care)
- Recovery:** Returning the community to normal in the short-term (recovering life-support system, building temporary housing, health program including counselling)
- Reconstruction:** Returning the community to normal in the long-term (rebuilding public infrastructure and houses)



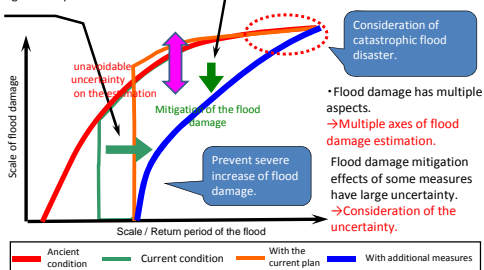
Source: UN/ JICA Project Team 4

1-3 Framework for Disaster Risk Reduction

Example on flood

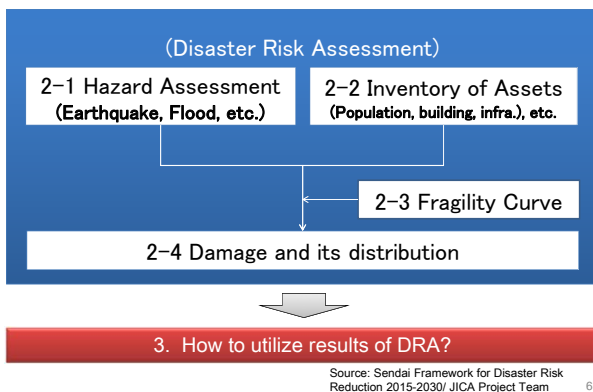
Effect of measures to lower the frequency of the flood damage. e.g. river improvement work.

Effect of measures to mitigate the damage caused by flood events. e.g. high standard levee, land use regulation in the flood risk area.

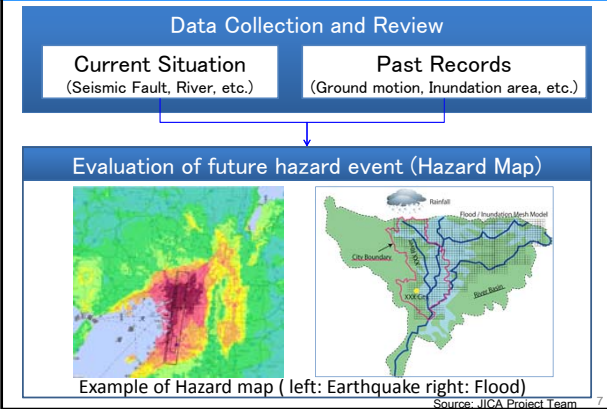


Source: Original Figure sourced from JICA Expert in OCD, Philippines, Mr. Itagaki, modified slightly by the JICA Project Team 5

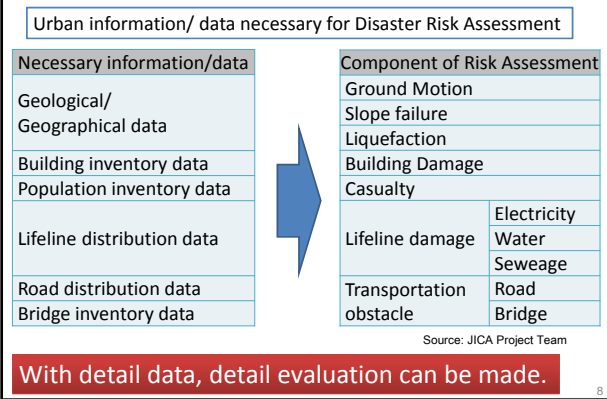
2. Procedure of Disaster Risk Assessment



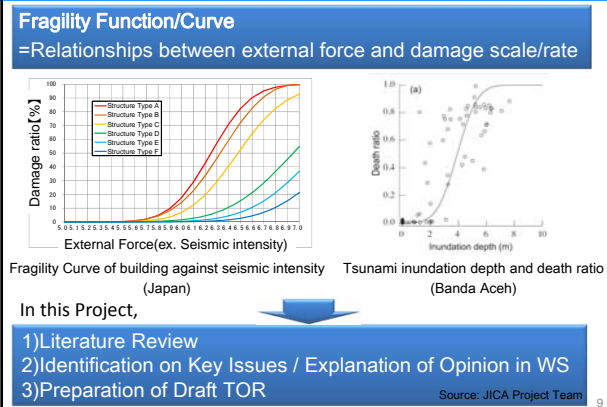
2-1 Hazard Assessment



2-2 Inventory of Assets (Urban Database)



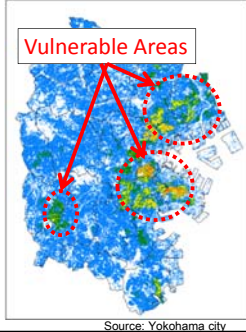
2-3 Fragility Function/Curve



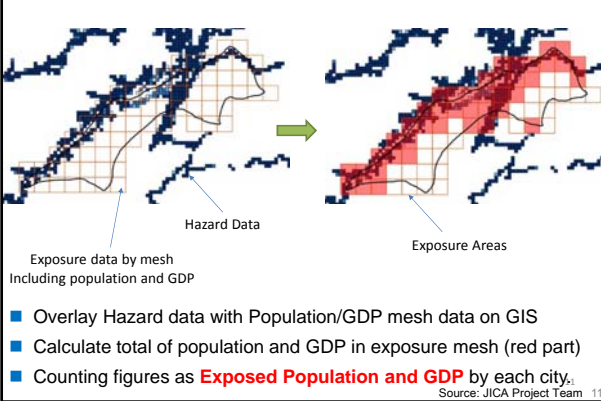
2-4 Results of Disaster Risk Assessment

Damage amount and its distribution can be identified

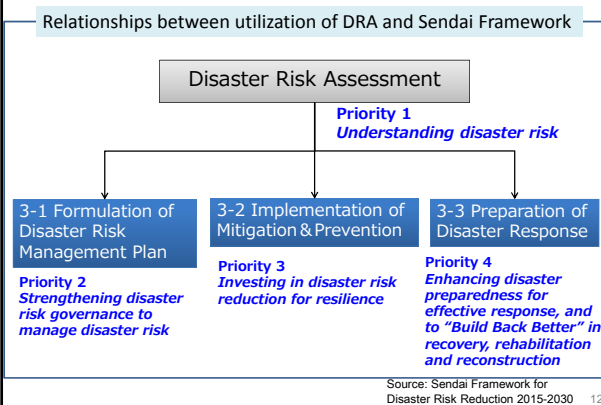
Category	Damage item/factor	Amount
Building damage	Earthquake	34,300
	Fire	77,700
	Liquefaction	204
	Tsunami	11
Casualties	Death	3,260
	Injure	21,700
Lifeline	Water outage household	399,000
	Sewage outage household	72,900
	Electricity outage household	266,000
Transportation	Bridge damage	1
	Road obstacle	183
Others	Evacuee	577,000
	Disaster Wastes	1,670
	Economic damage	11.7



Reference) Preliminary Risk Assessment in this Project



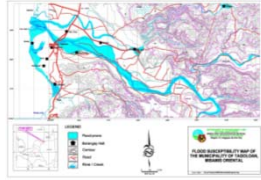
3. How to utilize results of DRA? (Sendai Framework)



3-1 Formulation of Disaster Risk Management Plan

LOCAL DISASTER-RISK REDUCTION MANAGEMENT PLAN (2012-2016) (Philippines)

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 Chapter V-GENERAL IMPLEMENTING ARRANGEMENT



Chapter II -DISASTER AND HAZARD PROFILE



Chapter V-GENERAL IMPLEMENTING ARRANGEMENT

Source: Municipality of Tagoloan, Philippines 13

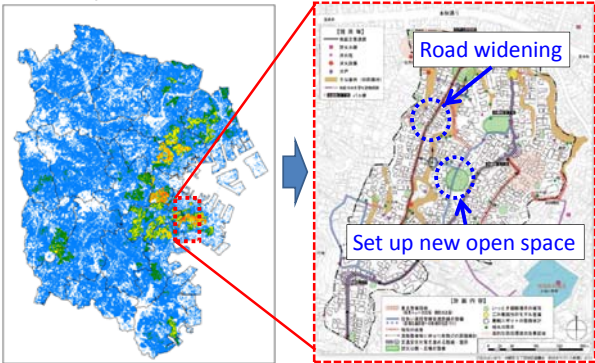
Example: Chapter III- THE MUNICIPAL DISASTER RISK REDUCTION PLAN CONTENT AND THE FIVE YEAR FINANCIAL PROJECTION , in the Philippines

No.	Action Plan	Activity	In-Charge							Year	(P/P)	Status	To do list
			DPWA	SECDO	PROVIN	HEALTH	BARANG	PLANNING	RELATION				
1	Socialization of the Project	1) Presentation to the LGU/DRRMCO	⊗									Report updates are presented to the LGU DRRMCO in regular meetings	1. Assist the LGU in conducting meetings with local residents about the Project
		2) Explanation for local residents	○			⊗				1,200.00			
		3) Selection of pilot baranghays	○				⊗						Pilot baranghays in the City
2	Pre-implementation	4) Periodical lectures	○	○	○	○	⊗	○	○			1) Conducting Actual Simulation Maps and DRRM Plan for actions and meeting schedules	
		5) Social set-up of flood warning level in Tagulayan Bridges	○				⊗						1. Identify and request for long-term assignment of at least 2 DRRM staff for training
3	Monitoring/Plan	2) Practice in monitoring weather/ flood warning information, including flood water level in Tagulayan Bridges	○				⊗			45,000			2. Acquire a computer as the tool for monitoring of
		1) Social set-up of flood warning level in Tagulayan Bridges	○				⊗						

Source: Municipality of Tagoloan, Philippines 14

3-2 Implementation of Prevention & Mitigation

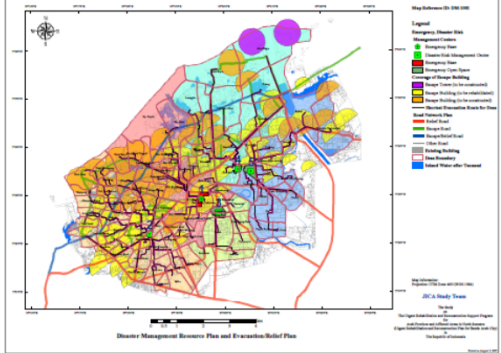
Example: Risk-sensitive Urban Planning (Yokohama city)



Source: Yokohama City 15

3-3 Preparation of Disaster Response

Example: Evacuation/Relief Plan, Project in Indonesia



Source: JICA Aceh Project

Thank you very much!
