

DEPARTMENT OF FINANCE (DOF)
DEPARTMENT OF PUBLIC WORKS AND HIGHWAYS (DPWH)
DEPARTMENT OF INTERIOR AND LOCAL GOVERNMENT (DILG)
THE REPUBLIC OF THE PHILIPPINES

**THE URGENT DEVELOPMENT STUDY ON
THE PROJECT ON
REHABILITATION AND RECOVERY
FROM TYPHOON YOLANDA
IN
THE PHILIPPINES**

FINAL REPORT (I)

MAIN REPORT

**VOLUME 1: RECOVERY AND
RECONSTRUCTION PLANNING**

JUNE 2015

JAPAN INTERNATIONAL COOPERATION AGENCY

**ORIENTAL CONSULTANTS GLOBAL CO., LTD.
CTI ENGINEERING INTERNATIONAL CO., LTD.
PACIFIC CONSULTANTS CO., LTD.
YACHIYO ENGINEERING CO., LTD.
PASCO CORPORATION**

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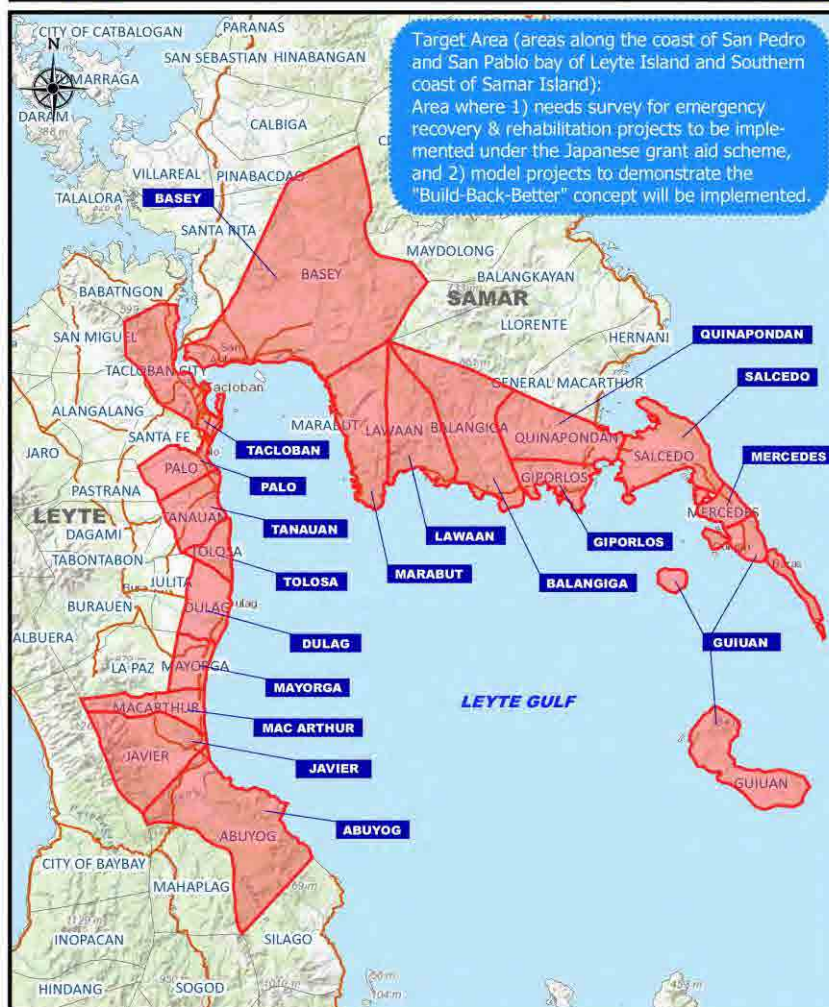
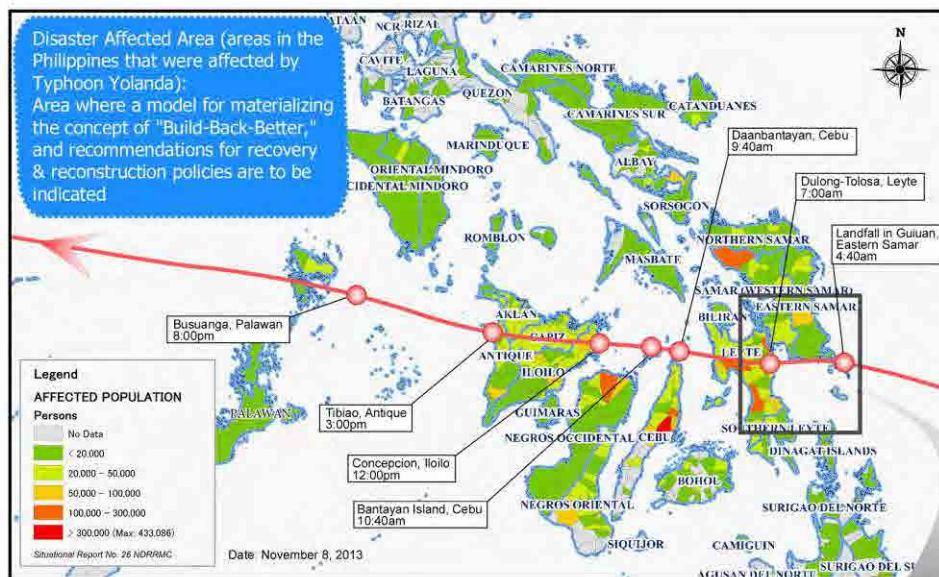
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Composition of Final Report (I)

Summary		
Main Report	Volume 1	Recovery and Reconstruction Planning
	Volume 2	General Grant Aid Project
	Volume 3	Quick Impact Projects
Appendix		Technical Supporting Report

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Map of the Disaster Affected Area and Target Area

Republic of the Philippines
The Urgent Development Study on
The Project on Rehabilitation and Recovery from Typhoon Yolanda

Main Report
Volume 1: Recovery and Reconstruction Planning
Part1

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Abbreviations

ALS	:	Alternative Learning System
AusAID	:	Australian Agency for International Development
BFAR	:	Bureau of Fisheries and Aquatic Resources
BHS	:	Barangay Health Stations
CCC	:	Climate Change Commission
CDP	:	Comprehensive Development Plan
CDRA	:	Climate and Disaster Risk Assessment
CFS	:	Child-friendly Space
CICL	:	Children in Conflict with Law
CLUP	:	Comprehensive Land Use Plan
CSO	:	Civil Society Organization
CSWDO	:	City Social Welfare Office
DA	:	Department of Agriculture
DENR	:	Department of Environment and Natural Resources
DILG	:	Department of Interior and Local Government
DEPED	:	Department of Education
DOE	:	Department of Energy
DOF	:	Department of Finance
DOH	:	Department of Health
DOLE	:	Department of Labor and Employment
DORELCO	:	Don Orestes Romualdez Leyte Electric Cooperative
DOST	:	Department of Science and Technology
DPWH	:	Department of Public Works and Highways
DRRM	:	Disaster Risk Reduction Management
DSWD	:	Department of Social Welfare and Development
EVRMC	:	Eastern Visayas Regional Medical Center
ESAMELCO	:	Eastern Samar Electric Cooperative
FAO	:	Food and Agriculture Organization
FLET	:	Fishery Law Enforcement Team
GBV	:	Gender Based Violence
GDP	:	Gross Domestic Product
GIZ	:	Gesellschaft für Internationale Zusammenarbeit
GRDP	:	Gross Regional Domestic Product

GRSDG	:	Guiuan Recovery and Sustainable Development Group
GRP	:	Gross Regional Product
Ha	:	Hectare
HFEP	:	Health Facility Enhancement Program
HLURB	:	Housing and Land Use and Regulatory Board
hPa	:	hecto Pascal
IEC	:	Information, Education, and Communication
INGO	:	International Non-government Organizations
ICT	:	Information and Communications Technology
IOM	:	International Organization for Migration
IT	:	Information Technology
ITCZ	:	Inter Tropical Convergence Zone
JICA	:	Japan International Cooperation Agency
JRC	:	Joint Research Center
LDC	:	Local Development Council
LGU	:	Local Government Unit
LDRRM	:	Local Disaster Risk Reduction and Management
LEYECO	:	Leyte Electric Cooperative
LMWD	:	Leyte Metropolitan Water District
MFARMC	:	Municipal Fisheries and Aquatic Resource Management
MFDC	:	Municipal Fisheries Development Center
MHC	:	Main Health Center
MHO	:	Municipal Health Office
MHPSS	:	Mental health and Psycho-social Program
MICE	:	Meeting, Incentive, Convention and Event
MDRRMO	:	Municipal Disaster Risk Reduction and Management Office
MRF	:	Materials Recovery Facility
MSWD	:	Municipal Social Welfare Development
MW	:	Mega Watt
NAFC	:	National Agriculture and Fishery Council
NAMRIA	:	National Mapping and Resource Information Authority
NBZ	:	No Build Zone
NDRRMC	:	National Disaster Risk Reduction and Management Council
NDRRMP	:	National Disaster Risk Reduction and Management Plan
NEDA	:	National Economic Development Agency
NGCP	:	National grid Corporation of the Philippines

NGO	:	Non-government Organizations
NHA	:	National Housing Authority
NOAA	:	National Oceanic and Atmospheric Administration
NSCP	:	National Structural Code of the Philippines
NOAH	:	Nationwide Operational Assessment for Hazards
OCD	:	Office of Civil Defense
OPARR	:	Office of the Presidential Assistant for Rehabilitation and Recovery
OSCA	:	Office for Senior Citizens Affairs
OSY	:	Out-of-school youth
PAGASA	:	Philippines Atmospheric Geophysical & Astronomical Services Administration
PAR	:	Philippine Area of Responsibility
PARR	:	Presidential Assistant for Rehabilitation and Recovery
PCA	:	Philippine Coconut Authority
PD	:	Presidential Decree
PDFI	:	Pailig Development Foundation, Incorporation
PDO	:	Planning and Development Office
PFDA	:	Philippine Fisheries Development Authority
PFZ	:	Philippine fault zone
PhATS	:	Philippine Approach Total Sanitation
PHIVOLCS	:	Philippine Institute of Volcanology and Seismology
PIDSR	:	Philippines Integrated Disease Surveillance and Response
PLUC	:	Provincial Land Use Committee
PNP	:	Philippine National Police
PRAP	:	Poverty Reduction Alleviation Program
PWD	:	People With Disabilities
RA	:	Republic Act
RHO	:	Regional Health Office
RHU	:	Rural Health Unit
RRP	:	Recovery and Reconstruction Plan
RAPID	:	Resilience and Preparedness for Inclusive Development
RAY	:	Recovery Assistance for Yolanda
SDCC	:	Social Development Center for children
SNS	:	Social network Services
SPED	:	Special Education
SPEED	:	Surveillance Post Extreme Emergencies and Disasters

SWM	:	Solid Waste Management
TESDA	:	Technical Education and Skills Development Authority
TFP	:	Total Factor Productivity
UN	:	United Nations
UNDP	:	United Nations Development Programme
UNICEF	:	United Nations International Children's Emergency Fund
VAW	:	Violence Against Women
WFS	:	Women-friendly Space
WHO	:	World Health Organization
ZO	:	Zoning Ordinance

Part 1

General. The Study Background and Objectives

1 Background of the Project

The Republic of the Philippines (hereinafter, “the Philippines”) experienced severe damage in thirty-six of its provinces from the devastating typhoon “Yolanda,” which occurred on the 8th of November 2013 (recorded maximum wind velocity: 87.5m/sec). Many of the cities and municipalities were vastly affected, with some areas having nearly 90% of houses being destroyed. Resulting allot of casualties were reported caused by storm surge in Region VIII, particularly on the eastern coasts of northern Leyte Island and on the southern coasts of Samar Island. Various damages were also brought to social infrastructure and assets in these areas, such as destruction of roads and bridges, disruption of airport and port functions, large ships being carried away to inland areas, loss of electricity and stagnation of the water supply, and dis-functioning of medical services. Following those in the Autonomous Region in Muslim Mindanao and in Region XII, high rates of poverty are observed among the people of Region VIII. With damage brought not only to the daily lives of the residents, but also to the main industries in the area; coconut farming and fisheries, there are worries for securing the livelihoods of local residents even for the coming several years.

Responding to such situation, the Government of the Philippines has commenced action for early recovery of local government functions and infrastructure in order to promptly deliver aid to the disaster hit areas. Simultaneously, the Government asked the international community for their support in emergency relief. In response, international organizations and donors are currently providing support for the “emergency” phase such as delivery of food and water, medical and hygienic relief, construction of evacuations sites, and clearing of debris. Considering that the subsequent phase will be “recovery and reconstruction,” a multilayered approach for disaster relief, comprised of both measures for reconstructing social infrastructure as well as those for formulating a society / region that is more resilient to disasters, should be applied by donor organizations aiming at materializing the concept of “Build-Back-Better.”

From 26th of November 2013, Japan International Cooperation Agency (JICA) has dispatched an expert team for international emergency relief to the Philippines to identify the needs for reconstruction and recovery as well as to find actual projects that can support immediately. As a result, two subjects were identified as priority projects targeting the severely hit coasts of San Pablo and San Pedro of Leyte Island and the southern coasts of Samar Island as a model area: 1) Preparation of recovery & reconstruction plans (RRPs) and recommendations for further expanding of the plans to areas outside of the model area, implementation of pilot projects, and planning and designing of emergency recovery & reconstruction projects which are expected to be implemented through Japanese grant aid; and 2) Early recovery of the weather radar system in Guiuan on Samar Island that was damaged by Typhoon Yolanda, which is essential for weather observation in Region VIII. This project aims to cover “item 1)” of the above.

2 Objectives and Coverage

The Project, which was implemented as a Development Study-Type Technical Cooperation, aims to comprehensively support the process of recovery and reconstruction; early recovery & reconstruction of the areas affected by Typhoon Yolanda and the formulation of a disaster resilient nation / society, taking into view the lessons learned from past disasters in Japan.

Priority recovery & reconstruction projects that was identified in the course of the Project have been implemented within the Project frame, with due consideration to local participation. At the same time, efforts were made to link other priority needs to other Japanese assistance schemes including grant aid and loans. In order to facilitate collection of information, and preparation & implementation for such priority activities in a prompt manner, project formulation and technical support (design and cost estimation) was also be carried out through this Project.

3 Beneficiaries

Direct beneficiaries: Population on the eastern coastlines of Leyte Island and southern coastlines of Samar Island that were affected by Typhoon Yolanda (approximately 842 thousand people)

Indirect beneficiaries: Total population affected by Typhoon Yolanda (five million people)

4 Relevant Organizations

The Study is implemented in collaboration with the following organizations of the Government of the Philippines.

Main Oversight Agency: Department of Finance (DOF)

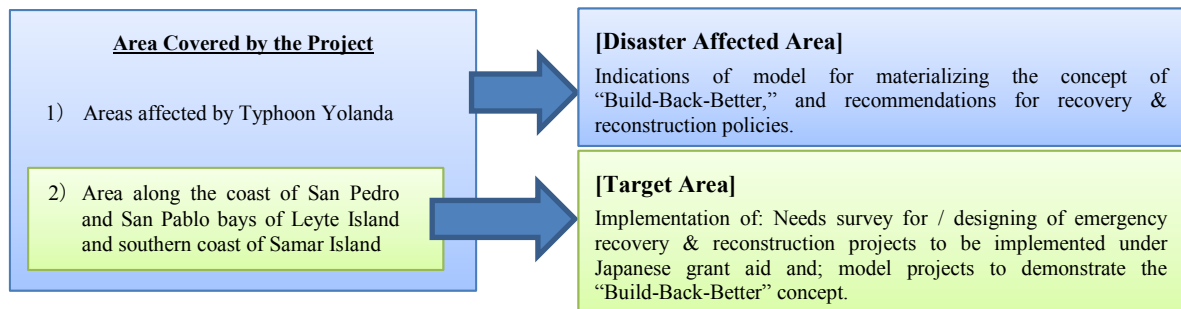
Other Oversight Agencies: Department of Interior and Local Government (DILG), Office of the Presidential Assistant for Rehabilitation and Recovery (OPARR)

Relevant Organizations: Department of Public Works and Highways (DPWH), National Economic and Development Authority (NEDA), Office of the Civil Defense (OCD), Department of Health (DOH), Department of Education (DepEd), Department of Energy (DOE), Department of Agriculture (DA), Department of Environment and Natural Resources (DENR), Department of Science and Technology (DOST), Department of Labor and Employment (DOLE), Department of Transport and Communication (DOTC), and concerned Local Government Units (Provinces of Letre, Samar and Eastern Samar, Tacloban City and Municipalities in the Target Area)

5 Areas Covered by the Project

In a wide sense, the Project covered the whole area affected by Typhoon Yolanda (Disaster Affected Area). For the Disaster Affected Area, the Project indicated a recovery & reconstruction

model for materializing the concept of “Build-Back-Better,” and provides recommendations for recovery & reconstruction policies. The Target Area consists of 9 Local Government Units (LGUs) of Leyte Province, along the San Pedro coast and San Pablo bay, and 2 LGUs of Samar Province and 7 LGUs of Eastern Samar Province, along the southern coast of Samar Island in which 1) a needs survey for emergency recovery and rehabilitation projects was implemented under the Japanese grant aid scheme, and 2) model projects to demonstrate the “Build-Back-Better” concept were implemented.



Source: JICA Study Team

Figure 1 Area Covered by the Project and Range of Activities

6 Expected Outcomes

6.1 Outcomes related to general issues on recovery and rehabilitation of disaster damage

- Hazard maps (multi-hazard, including information on the area inundated by the storm surge caused by Typhoon Yolanda), and plans for land-use, zoning plans, and a logistic network for emergency relief are prepared.
- Technical design, material and construction methods of architectural structures are improved.
- The general direction for recovery and rehabilitation is determined and Recovery & Reconstruction Plans (RRPs) are prepared for model areas.
- A plan for implementation and management of no-build zones is prepared.
- An institutional plan for delivering disaster resilient public services is prepared.
- Projects that shall demonstrate a model for building a disaster resilient country / towns are implemented to materialize their concepts.
- Necessary non-structural measures required at times of disaster are materialized (evacuation plans, plans for elimination of road obstacles, etc.).

6.2 Formulation of Recovery & Reconstruction Projects

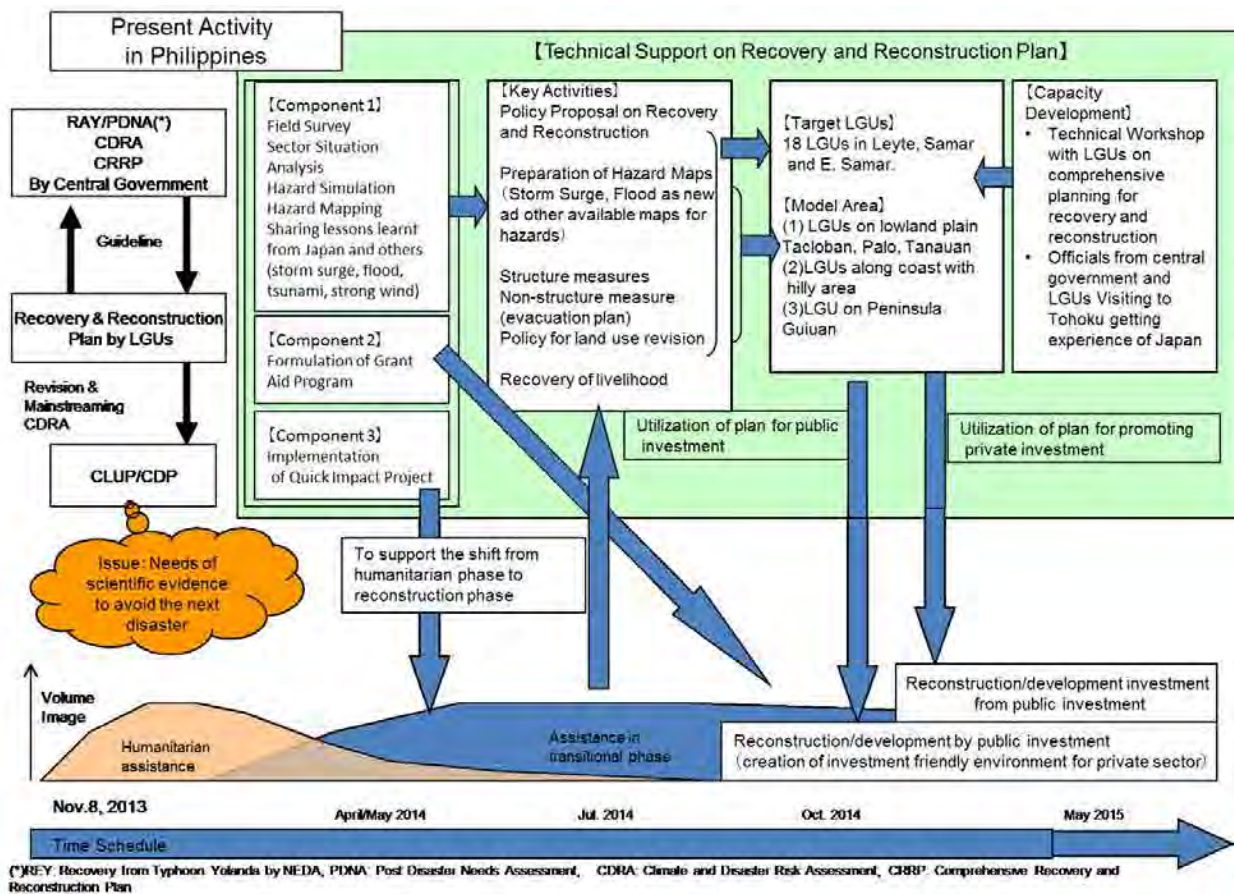
- A project list and project profiles of Recovery & Reconstruction Projects are formulated.
- Emergency Recovery & Reconstruction Projects are planned (including technical design and preliminary cost estimation).
- A guideline for recovery & reconstruction of public facilities is prepared.

- Priority Projects, which should be promptly implemented, are prepared.

6.3 Implementation of Emergency Recovery & Reconstruction Projects as Quick Impact Projects (improvement of livelihood, strengthening of public services, etc.)

- Emergency Recovery & Reconstruction Projects (Quick Impact Projects) are implemented.
- Abilities of formulating a disaster resilient society / region are strengthened.

Figure 2 shows the overall conceptual diagram of JICA Study explaining the study objectives. The detailed explanation starts from Chapter 1 of Part 1 in the Main Report.



Source: JICA Study Team

Figure 2 Overall Conceptual Diagram of JICA Urgent Development Study

Chapter 1 Introduction

1.1 The Framework for the Policy Recommendations

1.1.1 Purpose of the Report

The policy in this report aims to integrate and accelerate post Yolanda the recovery and reconstruction efforts and process to restore the economic and social conditions in accordance with the principle of “Build-Back-Better.”

Particularly the objectives of the policy are described below:

- To build safer cities for protection of lives and property, to restore the economy and promote industries, and to recovery people’s daily lives;
- To clarify the basic principles of the recovery and reconstruction policy and necessary actions in the reconstruction process in order to promote investment and financial assistance from the private sector;
- To support recovery and reconstruction of LGUs in the long-term by assisting in reducing the hazard level, and to reconstruct in a manner that will create a safe and secure region;
- To promote cooperation and collaboration of municipalities, city, province, national line agencies, civil society organizations, the private sector, communities, and citizens, and build linkages among these stakeholders, by clarifying the direction of recovery and reconstruction; and
- To propose policy recommendations and a template for a recovery and reconstruction plan which is applicable to other regions in the country.

This policy covers recovery and reconstruction of physical environment including disaster risk reduction and mitigation (DRRM) measures, land use, infrastructure, facilities, and lifelines; social sectors such as health, social welfare, education, community, livelihoods, and living environment; and economic sectors, i.e., fisher, agriculture, commerce, and tourism. The cross-cutting issues, such as gender mainstreaming, environmental protection, poverty, cultural sensitivity, and people’s rights to better live, safety and information are taken into consideration in the policy. It is also directed to mainstream DRRM in social, economic, and physical development plans in the long-run.

1.1.2 Policy Planning Period

The policy planning period is approximately 8 years from the occurrence of the disaster in November 2013 until the end of the reconstruction period. The planning period is divided into the phases with the goals, in accordance with the National Disaster Risk Reduction and Management

Plan (NDRRMP), as described below.¹

- Emergency response and early recovery: approximately until 6 months since occurrence of the disaster.
 Protect lives and meet the basic subsistence needs of affected population during or immediately after a disaster.
- Short-term: up to 3 years since occurrence of the disaster,
 Restore livelihood and economic and business activities, provide safe and disaster-resilient shelter and other buildings/ facilities, and repair lifelines and basic infrastructure.
- Medium-term: from 3 to 6 years after the disaster
 Reconstruct disaster-resilient infrastructure and public utilities, expand business activities for vibrant economy, and rebuild living environment with disaster risk reduction and mitigation measures
- Long-term: beyond 6 years after the disaster.
 Achieve long term recovery of “Build-Back-Better” and mainstream disaster risk reduction and management in a development process



Source: JICA Study Team

Figure 1.1-1 Planning Period

1.1.3 Target Area

The Target Area of this study includes 18 LGUs along the Leyte Gulf: namely,

- Leyte Province: Tacloban, Palo, Tanauan, Tolosa, Dulag, Mayorga, Macarthur, Javier, and Abuyog;
- Samar Province: Basey and Marabut;
- Eastern Samar Province: Lawaan, Balangiga, Giporlos, Quinapondan, Salcedo, Mercedes, and Guiuan.

1.1.4 Responsibility for Recovery and Reconstruction

The primary responsibility for recovery and reconstruction lay in the hands of the individual

¹ This planning period is proposed as a practical operation period. It does not necessarily correspond to the Reconstruction Assistance on Yolanda.

disaster victims. Local residents of the disaster hit areas must play a central role in deciding which way they want to head towards and to find how they can materialize this in order to recover and reconstruct their hometowns as a place that they would want to live in. Available resources such as those of the government, community, private sectors, NGOs and donor agencies must be linked to the needs of the local residents in order to support them in reconstruction. Such “linkages,” not only between local residents and external support, but also between the various supporting organizations are expected to further create synergic effects on reconstruction of the region.

1.1.5 Relation of the Recovery and Reconstruction Plan to Other Local Plans

(1) Requirement of Preparation of Recovery and Rehabilitation Plan (RRP)

The preparation of a Recovery and Rehabilitation Plan (RRP) is required by the Republic Act (RA 10121) as one of the priority areas as well as Prevention and mitigation, Disaster preparedness, and Disaster response. After Typhoon Yolanda, all the affected LGUs were advised to prepare their own RRP in the frame of RA 10121 under the instruction of the Presidential Office.

NDRRMP states that Rehabilitation and Recovery covers areas like employment and livelihoods, infrastructure and lifeline facilities, and housing and resettlement, among others. These are recovery efforts that are done after the people have left the evacuation centers.

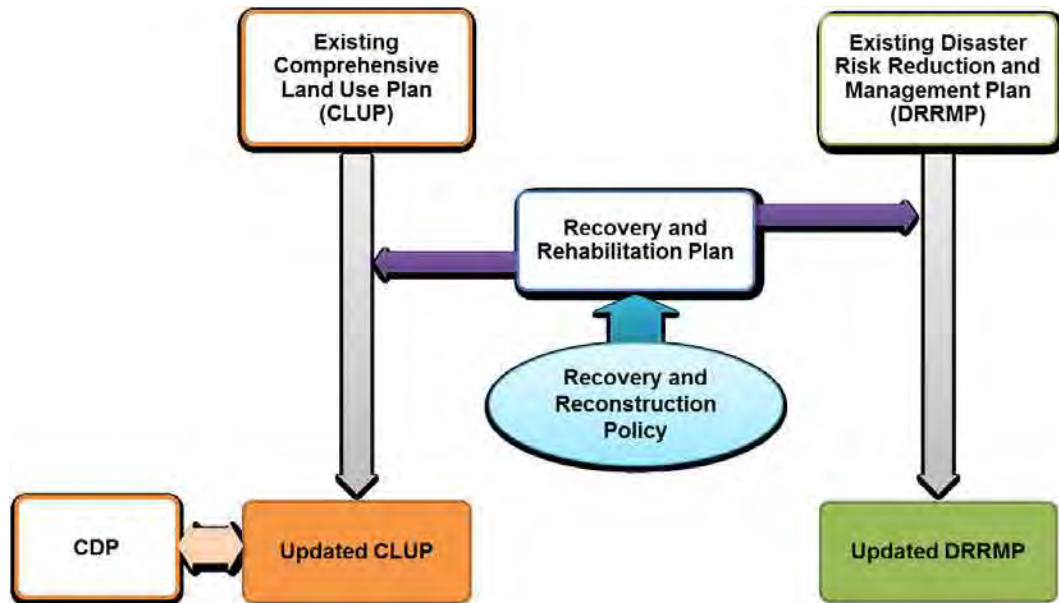
(2) Relation of the Recovery and Reconstruction Plan to Local Development Plans

RA 10121 also requires that LGUs should prepare Local Disaster Risk Reduction Plans (LDRRMPs), which include analysis of hazards, vulnerability programs and projects for disaster prevention/mitigation, preparedness, response, and rehabilitation and recovery. LDRRMPs are prepared by the Local Disaster Risk Reduction and Management Offices (LDRRMOs), and are approved, monitored and evaluated by the Local Disaster Risk Reduction and Management Councils (LDRRMCs) led by the executives of the LGUs. As of July 2014, six of the 18 LGUs in the study area have their own LDRRMPs.

Additionally, local government units (LGUs) are mandated to develop a Comprehensive Land Use Plan (CLUP) and Comprehensive Development Plan (CDP). A CLUP is a long-term plan for development and management of a local territory with a zoning ordinance, of which the planning period is a minimum of 10 years. While a CDP is a multi-year and multi-sectoral comprehensive development plan, covering all development sectors. A CDP is an action plan under a long-term framework of CLUP to develop and implement priority sectoral and cross-sectoral programs and projects within a six year planning period for a mid-term CDP.

The proposed policies and technical approaches that have been initiated since Typhoon Yolanda and used in the preparation of the RRP may be reflected in the planning of CLUP, CDP, and LDRRMP. The existing LDDMP will be updated, integrating the disaster risk reduction and mitigation measures, i.e., evacuation plan and education, proposed in the recovery and reconstruction policy as a step toward comprehensive disaster risk reduction and management.

The principles and directions of recovery and reconstruction on human settlement including land use and infrastructure, economy and social sector, shall be linked to CLUP as a long-term viewpoint, will be operated under the projects and programs of CDP. It is recommended to establish the concept of DRRM in the local development plans of CLUP and CDP to build a disaster resilient physical environment and community. The relationships among RRP, LDRRMP, CLUP, and CDP are described in Figure 1.1-2, and shall be further discussed in Part II.



Source: JICA Study Team

Figure 1.1-2 Relation of the Recovery and Rehabilitation Plan to Other Plans of LGU

1.1.6 Relation of Part 1 and Part 2 of this Report

The first part of the Report is called Part 1, describes the proposed policies for recovery and reconstruction in the target area. The latter part of the Report is called Part 2, refers to the output and outcomes of the technical assistance for five selected model LGUs.

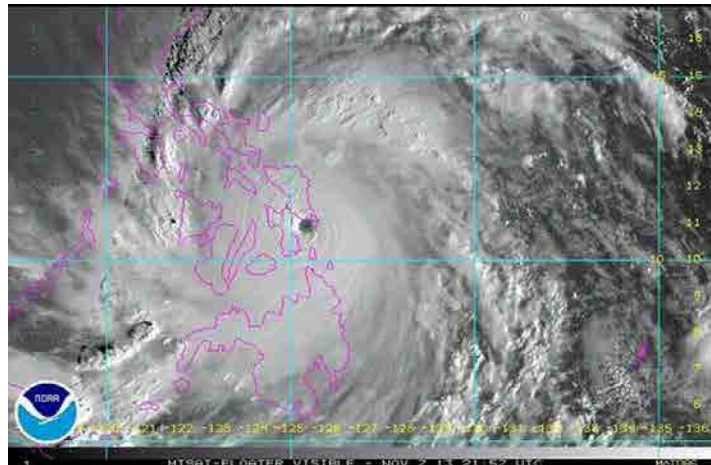
The JICA Study Team's activities for the model LGUs described in Part 2 shall be regarded as the application of the proposed recovery and reconstruction policy to the existing recovery and reconstruction plans of the LGUs. As illustrated in Figure 1.1-2, the application results are expected to contribute to fine tuning of existing CLUPs and LDRRMPs. The detailed relation between the proposed objectives / policies in Part 1 and main items of plans in LGUs is shown in Table 1.3-2 in Part 2.

Due to the wide variety of the characteristics of the model LGUs, all of the proposed policies in Part 1 cannot always be reflected into the existing RRP of the model LGUs. At the very least, the proposed programs/projects in Part 2 for the model LGUs are covered by the policies in Part 1 and have been feed backed in Part 1.

1.2 Typhoon Yolanda Disaster

In the early morning of Friday, November 8, 2013, Typhoon Haiyan (locally known as Yolanda in the Philippines), one of the strongest typhoons to strike land on record, slammed into the Visayas region. Over a 16 hour period, the super typhoon or cyclone, with a force equivalent to a Category 5 hurricane and clouds that covered two-thirds of the country, directly swept through six provinces and affected over 10 % of the population of the Philippines.

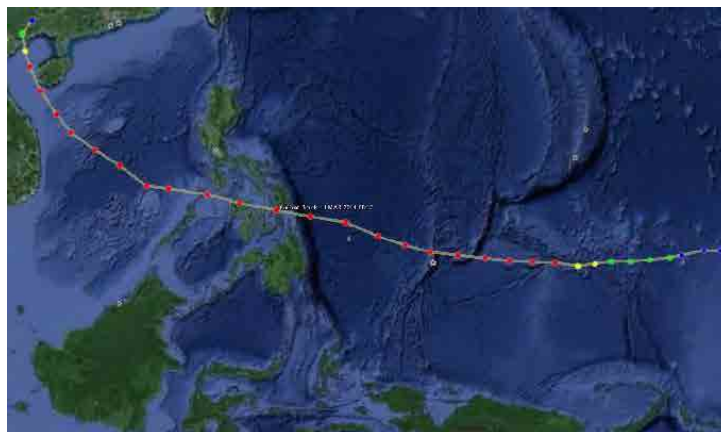
Typhoon Yolanda's estimated wind speeds were 195 mph at its peak with wind gusts of up to 235 mph. Several hundred thousands of people reportedly fled their homes in advance of Yolanda's arrival. Many of those displaced were moved to evacuation centers.



Source: NOAA (from PAGASA Presentation file)

Figure 1.2-1 Typhoon Yolanda and its Eye

Typhoon Yolanda entered the Philippine Area of Responsibility (PAR) on November 6, 2013 and made first landfall in Guiuan, Eastern Samar as well as Tolosa, Leyte. After the above landfalls, Yolanda went to Busuanga, Palawan and exited PAR on November 9, 2013. The track of Yolanda is shown in Figure 1.2-2.

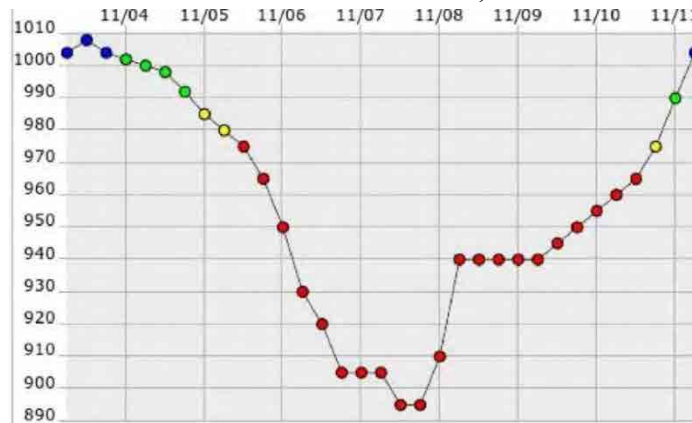


Source: <http://agora.ex.nii.ac.jp/digital-typhoon/>

Figure 1.2-2 Track of Typhoon Yolanda

Figure 1.2-3 shows the change of the central atmospheric pressure of Yolanda from November 4 to November 11, 2013, which indicates the development of the typhoon. According to this chart,

the lowest pressure of 895 hPa was recorded on November 7, 2013.



Source: <http://agora.ex.nii.ac.jp/digital-typhoon/>

Figure 1.2-3 Change of the Central Atmospheric Pressure of Yolanda during Nov.4 to Nov.11, 2013

1.3 Damage caused by Yolanda

At 6 PM on November 7, 2013, NDRRMC issued Situation Report No. 4 for Yolanda. It included information for Easter Samar, Samar, and Leyte, the Public Storm Warning Signal was Signal No.4, a storm level with winds of more than 185 kph and is expected to arrive in around 12 hours. There is a possibility that the PAGASA prediction was not recognized at the site as a clear message.

1.3.1 Macroeconomic Impact

According to Reconstruction Assistance on Yolanda (RAY)² on 16 December, 2013, macroeconomic damage from typhoon Yolanda is estimated to be PhP 101.79 billion, which is equal to 0.9 percent of Gross Domestic Product (GDP). Among the regions, Region VIII, Eastern Visayas, recorded the highest amount of damage and losses, estimated at around PhP 48.79 billion, which is equivalent to 17.4 percent of the GRDP in 2013.

1.3.2 Human Damage

The casualties included **6,300 individuals** dead as of April 17, 2014 in the whole country. The injured and still missing are 28,689 and 1,061 persons, respectively, according to NDRRMC Update dated last April 17, 2014.

The total affected families are 3,424,593 (16,078,181 individuals) in Regions IV-A, IV-B, V, VI, VII, VIII, X, XI and CARAGA, of which 890,895 families (4,095,280 individuals) were reportedly displaced. Out of the displaced, 20,924 families or 101,527 individuals are in 381 evacuation centers and outside evacuation centers there are 869,971 families or 3,993,753 individuals.

At the Provincial level, the numbers of deaths, the injured and the missing individuals are shown

² Reconstruction Assistance on Yolanda Build Back Better, 16 December, 2013 National Economic and Development Authority

in Table 1.3-1. Most of the human damage was generated in Region VIII, which embraced the Target Area.

Table 1.3-1 Casualties in the Country

Region	Province	Deaths	Injured	Missing
Region IV-A		3	4	-
Region IV-B		19	61	24
Region V		6	21	-
Region VI		294	2,068	27
Region VII		74	348	5
Region VIII		5,895	26,186	1,005
	<i>Eastern Samar</i>	267	8,018	20
	<i>Leyte</i>	5,402	15,672	931
	<i>Samar</i>	225	2,378	54
	<i>Biliran</i>	8	118	-
Region IX		1	1	-
Region XIII		1	-	-
TOTAL		6,300	28,689	1,061

Source: NDRRMC April 03, 2014

Referring to the table above, Leyte Province had the higher number of casualties with 5,402 comprising 91% of the total deaths in Region VIII. The number of missing showed a similar tendency because the deaths and the missing are assumed to be correlated. According to the survey by GIZ, the main killer was the strong waves from the storm surge.

The number of the injured recorded was also high in Leyte Province, with 15,672 individuals while Eastern Samar had 8,018 individuals on report. Unlike in Leyte, the main cause of injuries in Eastern Samar was due to the strong winds brought by the typhoon.

Table 1.3-2 shows the summary of personal damage and mortality rate in the Target Area. The number of deaths due to the typhoon is 5,253 in the Target Area, with Tanauan having the highest mortality rate at 4 percent. Tacloban and Palo also showed high mortality rates of 1.4 percent and 2.2 percent, respectively.

Table 1.3-2 Summary of Mortality Rate in the Target Area (18 LGUs)

No.	Name of Municipality	Population	Casualties				Mortality Rate
			Dead	Injured	Missing	Total	
Leyte Province							
1	Tacloban	221,174	2,394		594	2,988	1.40%
2	Palo	62,727	1,089	5,887	292	7,268	2.20%
3	Tanauan	50,119	1,252		754	2,006	4.00%
4	Tolosa	17,921	32			32	0.20%
5	Dulag	41,757	26	1,240	3	1,269	0.10%
6	Mayorga	14,694	4	141		145	0.00%
7	Macarthur	18,724	10	255		265	0.10%
8	Javier	23,878	5	63		68	0.00%
9	Abuyog	57,146	33	13		46	0.10%
	Sub-total	508,140	4,845	7,599	1,643	14,087	1.30%

No.	Name of Municipality	Population	Casualties				Mortality Rate
			Dead	Injured	Missing	Total	
Samar Province							
10	Basey	50,423	193	320	25	538	0.40%
11	Marabut	15,115	30	2,058		2,088	0.20%
	Sub-total	65,538	223	2,378	25	2,626	0.40%
East Samar Province							
12	Lawaan	11,612	11	238		249	0.10%
13	Balangiga	12,756	14	328		342	0.10%
14	Giporlos	12,040	14	2,004		2,018	0.10%
15	Quinapondan	13,841	10	190		200	0.10%
16	Salcedo	19,970	29	782		811	0.10%
17	Mercedes	5,369	1	469		470	0.00%
18	Guiuan	47,037	106	3,626	16	3,748	0.30%
	Sub-total	122,625	185	7,637	16	7,838	0.20%
	Total	696,303	5,253	17,614	1,684	24,551	1.00%

Source: LGUs

1.3.3 Physical Damage

As for physical damage, a total of 1,084,762 houses (partially damaged: 595,149 / totally destroyed: 489,613) were damaged during the onslaught of typhoon Yolanda. In addition, Table 1.3-3 shows the cost of damage for infrastructure and agriculture in Regions IV-A, IV-B, V, VI, VII, VIII, X, XI and CARAGA (NDRRMC SitRep No.108). The cost of damage for infrastructure and agriculture amounted to PhP 19.5 billion and PhP 20.2 billion, respectively.

Table 1.3-3 Cost of Damage by Typhoon Yolanda in the Country

Damage to Infrastructure	Cost of damage in PhP
-Roads/Bridges and other structures	15,746,727,686
-Flood Control	230,393,000
-Health facilities	1,272,434,800
-Schools	2,309,823,650
Sub-Total (=A)	19,559,379,136
Damage to Agriculture	Cost of damage in PhP
-Crops (rice, corn, others)	9,491,493,471
-Livestock	2,890,306,123
-Fisheries	5,996,896,091
-Irrigation facilities	231,000,000
-other agricultural infrastructures	1,652,423,030
Sub-Total (=B)	20,262,118,716
Grand Total (=A+B)	39,821,497,852

Source: NDRRMC April 03, 2014

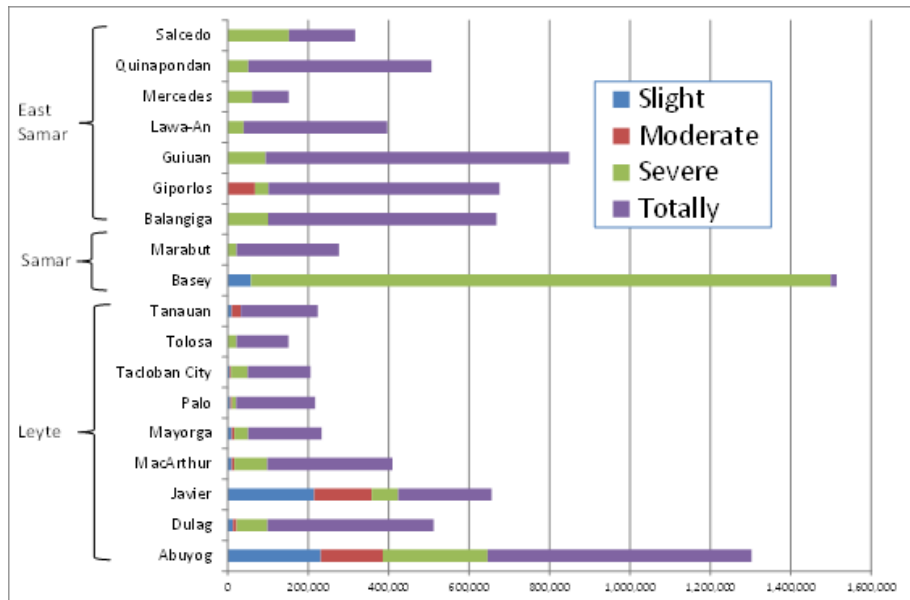
Another report from NDRRMC dated April 17, 2014 shows the total damage by the typhoon Yolanda reached PhP 89.5 billion including infrastructure, production, and social sectors and cross-sectoral fields (Table 1.3-4).

Table 1.3-4 Cost of Damage by Sector in the Country

Sector	Cost of damage in PhP
-Infrastructure	9,584,596,305
-Productive	21,833,622,975
-Social	55,110,825,740
-Cross-Sectoral	3,069,023,613
Total	89,598,068,635

Source: NDRRMC April 03, 2014

According to the data of the Philippine Coconut Authority (PCA), the total number of damaged coconut trees in the Target Area is 9.2 million as of February 15, 2014. The number of damaged coconut trees by the target LGU is shown in Figure 1.3-1. The Figure indicates the breakdown of the damaged trees in accordance with the severity of the damage from slight, moderate, severe to totally damaged. The totally damaged coconuts trees are concentrated in LGUs of Eastern Samar. The number of severely damaged coconut trees in Basey exceeds 1.4 million; however, the number of totally damaged trees there is quite small compared with other LGUs.



Source: PCA

Figure 1.3-1 Number of Coconut Trees in Target LGUs Damaged by Typhoon Yolanda

1.3.4 Recovery and Reconstruction Needs

The National Economic and Development Authority (NEDA) estimated an amount of PhP 360.8 billion requirements for recovery and reconstruction investment until 2017 in the aforementioned RAY as presented in Table 1.3-5. According to Office of Presidential Assistance for Rehabilitation and Recovery (OPARR), the required funding for priority projects from 2014 to 2016 is estimated at PhP 170.92 billion. The resettlement cost accounts the highest share of 44.3%, followed by infrastructure (20.6%), livelihood (19.7%), and social services (15.5%). Approximately PhP 37.42 billion or 21.9% of the total has been funded as of the end of July 2014 (see Table 1.3-6).

Table 1.3-5 Recovery and Reconstruction Investment Needs in RAY (PhP billion)

Sector	Immediate	Short-term (2014)	Medium-term (2015-17)	Total
1. Shelter & Resettlement	15.6	57.5	110.2	183.3
2. Public Infrastructure	8.2	2.3	17.9	28.4
3. Education & Health Services	1.5	20.8	15.1	37.4
4. Agriculture	4.3	3.4	11.0	18.7
5. Industry & Services	1.2	2.7	66.7	70.6
6. LGUs	2.0	2.0	-	4.0
7. Social Protection	1.9	1.5	15.0	18.4
Total	34.7	90.2	235.9	360.8

Source: People's Budget 2014, DBM

Table 1.3-6 Funding Requirements for Priority Projects (as of 28 July 2014)

Cluster Plan	2014-2016		Funded	Balance	
	PhP billion	USD Million	PhP billion	PhP billion	USD Million
Infrastructure	35.15	811.93	23.21	10.85	250.72
Social Services	26.41	609.98	2.84	23.56	544.28
Resettlement	75.68	1,748.18	2.44	73.24	1,691.85
Livelihood	33.68	778.08	8.92	24.76	571.95
Total	170.92	3,948.17	37.42	133.50	3,083.77

Source: OPARR. Yolanda Rehabilitation and Recovery Efforts consolidated as of 28 July 2014.

Note: Based on BSP Exchange Rate as of 16 July 2014: PhP 43.29 to US\$

The RAY has disbursed PhP 1.8 billion from the funds of the Department of Interior and Local Government (DILG) and the DPWH in April 2014 as shown in Table 1.3-7 of which PhP 1.1 billion, equivalent to 62% of total RAY disbursement, was allotted to the project target areas of Tacloban City and 17 municipalities.

Table 1.3-7 Disbursement of RAY (PhP million)

Areas Disbursed	Investment for Structures				Sources			
	Hall	Public Mkt	Civic Center	Total	DILG	DPWH	JICA	Total
1. Total RAY Disbursement	538.3	689.6	541.0	1,768.9	938.4	793.7	36.8	1,768.9
2. Leyte Province	348.5	613.4	411.3	1,373.1	801.8	571.3	-	1,373.1
Project Target LGUs	205.7	452.7	136.3	794.7	395.1	399.6	0.0	794.7
3. Samar Province	73.3	33.9	10.7	117.8	16.5	85.5	15.8	117.8
Project Target LGUs	70.8	32.9	7.5	111.2	9.9	85.5	15.8	111.2
4. E. Samar Province	112.7	39.5	106.1	258.2	100.2	137.0		237.2
Project Target LGUs	73.1	25.2	88.6	186.9	76.0	89.9	21.0	186.9
5. Total Disb. to Study Areas	349.6	510.8	232.4	1,092.8	481.0	575.0	36.8	1,092.8
% in Total Disbursement	65%	74%	43%	62%	51%	72%	-	62%

Source: DILG

1.4 Issues for Rehabilitation and Recovery

1.4.1 Issues in Infrastructure and Public Facilities

(1) Electricity

Powersupply to the Target Area is totally dependent on the National Grid operated by the National Grid Corporation of the Philippines (NGCP). Electricity supplied from the national grid to the Target Area is then distributed to the service users.

Because the transmission towers were toppled by Yolanda's extremely strong winds, electricity supply to the Target Area was shut down completely. Toppled towers supporting transmission lines for supplying electricity to the Area resulted to an unexpectedly long period of electricity supply shutdown. Distribution systems to the service users in the Area by the respective cooperatives were hindered by toppled/ broken electric poles. One sub-station was seriously damaged by the Tsunami-like storm-surge while some sub-stations suffered minor damage after being hit by strong winds containing debris.

Issues derived from the damage condition analyses are the following:

- The strength of the poles, towers, and fixture were not strong enough to stand against the wind and the storm surge, and
- Inappropriate location of a sub-station resulted in serious damage to the facilities.

(2) Telecommunications

The people in the Target Area faced the complete breakdown of telecommunications. Landline and cellphone systems were both entirely collapsed due to the toppling or breaking of the communication poles and loss of electricity. The cellphone system cable connections between the cell sites were slashed in association with the damage to the site facilities. The landline system was also out of service due to lack of electricity. The Target Area was completely isolated from outside areas in terms of telecommunication. Intra-telecommunication systems of the Target Area also totally failed. As a result of the damages inflicted by the typhoon, information gathering was seriously hampered. Consequently post disaster reactions were, at least partially, disturbed for functioning timely and adequately.

Issues derived from the damage condition analyses are the following:

- The satellite telecommunication systems, which provide redundancy to secure the communication access to the outside, were lacking,
- The cell sites with stand-by generator and appropriate stocks of fuel are necessary for continued functioning, and
- The structural standards for poles and fixture, and selection of locations need to be reviewed for the telecommunication systems.

(3) Transport Network

Damage to the major roads in the Target Area was limited to some structural damage on bridges and some sections of pavement. The damage to the bridges is noticeable although the incidents are marginal compared to the total number of the bridges. The port structure and the runway of the airport in Tacloban suffered only minor damage, though buildings, facilities and equipments were completely destroyed or washed out.

However, the roads were obstructed by fallen trees and poles, and debris from damaged houses and buildings just after the incident sidetracked relief operations and led to the delay of emergency response. Freight traffic concentrates in Tacloban and most relief goods passed through the distribution center in Tacloban. Thus, traffic congestion usually occurred at this location during peak hours.

The following items are identified as issues for recovery and rehabilitation.

Issues related to transport network

- Most of the roads pass through disaster risk areas, and there is no substantial alternative road,
- The airport and the access road were inundated by the tsunami – like storm surge and air transport was not available immediately after the incident due to debris on the road,
- Traffic congestion occurs at peak hours. Increase in road traffic is expected, rather than marine transportation, due to the shortage in land, loading equipment, and handling capability of containers at the port,
- Damaged bridges and coastal roads need to be fixed, and pavement condition should be improved, and
- The heavy equipment for road cleaning must be recovered.

(4) Public Buildings

A number of public buildings, including municipal and barangay halls, government offices, schools, health centers, etc. were heavily damaged mainly by the extremely strong winds of Typhoon Yolanda. In addition, the unexpected level of storm surge water caused submergence, damage, and washed out the interior facilities, equipment, and materials inside the buildings. Many of the public structures may not have satisfied the building standards in the Philippines, due to the inadequate strength caused by aging, design flaw, and/ or inappropriate construction processes/ materials. The locations of public facilities adjacent to the coast, which are disaster-prone areas, were also one of reasons of the serious destruction.

When a disaster occurs, the local government offices in each LGU and the regional offices of the central government agencies mostly located in Palo Municipality have to play a central role in emergency response and relief and recovery activities. Medical facilities, which include the Regional Hospital and the District Hospital in addition to Rural Health Units (RHUs) and

Barangay Health Stations (BHSs), also have to lead relief activities after a disaster. School buildings of mainly elementary schools tend to be used as evacuation shelters for surrounding communities. Those public buildings must endure the severe disaster impacts to sustain and to continue the expected functions of emergency response and relief, and recovery and reconstruction. However, because these buildings were also affected, their administrative services did not function well in the aftermath of Yolanda.

Issues regarding public buildings are the following:

- Many of public buildings require repair, improvement, or reconstruction,
- Many public buildings are located in hazard-prone areas,
- Public buildings must be designed and constructed in the way that they have adequate strength to withstand against disasters, and
- Disaster preparedness of public facilities should be enhanced, including storage of goods and materials, stand-by generators with appropriate fuel stocks, protection of important equipment and documents, etc.

1.4.2 Issues in Recovery of People's Life

(1) Health Service, Social Welfare, and Education

Medicines, materials, space, electricity, water and transportation were lost after buildings collapsed due to high tide and strong winds. Damage on the communication system caused hospitals and RHUs failure to report their situation and ask the Department of Health (DOH)/RHO for logistics assistance nor sufficiently implement medical treatment, in spite of the fact that there were many patients. Although they have enough medicines and materials at present because of donors' support, the level of medical services was still not the same as pre-Yolanda due to a lack of facilities, equipment, electricity and water supply. With the increase in the number of patients, mental health care is becoming recognized as important, but it is not sufficiently implemented because of the lack of knowledge, skills, human resources, equipment etc.

Similarly, more than 2,500 schools and 2,500 daycare centers were either totally destroyed or partially damaged by the Yolanda disaster.³ The devastating impact on the educational facilities posed structural vulnerabilities to disasters and the education sector's lack of capacity on disaster risk reduction. Though Child Friendly Space (CFS) and Temporary Learning Spaces (TLS) were established for pre-school and school-aged children and youth, some of the CFS and TLS were faced with under-capacity to respond to the individual needs of the school children particularly their psychosocial needs and special needs of children with disabilities. Given the lack of access and availability of functional educational facilities, the children, who were evacuated in shelters away from a school or under financial constraints, as well as other vulnerable children, are at risk of dropping out of school. Furthermore, many high school and college students may not go back to

³ "Education Cluster Brief", 19 June 2014.

school due to the additional financial burden.

There is the need to improve living environment at congested tent cities and temporary shelters. Lack of treatment of sludge, poor sanitation and hygiene conditions could lead to epidemics in these settlements. In particular, the lives of the vulnerable groups, namely women, children, senior citizens, and PWD, are threatened with a lack of livelihood and support, violence, unsafe housing conditions, isolation, and so on. Social workers cannot provide sufficient care and services for the people in need of support for overloaded tasks and responsibilities during the aftermath of the Yolanda.

The issues identified include:

- Health, educational and social welfare facilities are vulnerable to disasters and need to be repaired or reconstructed.
- The patients and victims, particularly the vulnerable, cannot receive necessary health care due to damage and loss of health facilities and lack of access to these services,
- Certain children are experiencing difficulties in accessing education, posing risk of dropping out of school,
- The poor sanitation and hygiene conditions of temporary shelters may cause health problems,
- The vulnerable groups, including women, children, senior citizens, and PWD, are facing great difficulties, e.g., loss of livelihoods, Gender-based Violence (GBV), unsafe and unstable housing conditions, segregation, lack of access to assistance, etc., and
- Too many responsibilities are shouldered by the insufficient number of social workers and health personnel, without proper training, especially in psychosocial care.

(2) Debris Disposal and Solid Waste Management

In the aftermath of Yolanda, the massive amount of debris became a serious problem. The LGUs could not handle and manage it entirely by themselves because the generated debris amount was far beyond their transport capability. For instance, in Tacloban City, as of March in 2014, approximately 100 trucks were transporting debris every day in cooperation with international donors. This situation led to a shortage of landfill sites. Therefore, two big-scale temporary storage yards were established in Tacloban City for debris generated by Yolanda. As of March 2014, no debris have been dumped to these places, so it is not clear when they will utilize these sites. However, problems such as soil contamination etc. are anticipated judging from the present surface water conditions. There is a residential area near there so that pollution of ground water used as drinking water was anticipated, as well as the odor problem due to the leakage of waste water derived from the debris. The experience of the Yolanda posed the following issues.

- Inter-governmental cooperation is required for debris disposal, and
- Open dumpsites should be closed, and sanitary landfill should be developed for prevention of

pollution.

(3) Shelter and Relocation Site

Due to Yolanda, 156,500 houses were damaged in the Target Area covering 18 LGUs in Leyte, Samar, and Eastern Samar. Nearly half of those 156,500 houses were totally destroyed. Therefore, the need for secure shelter assistance has been identified as necessary in the region immediately after the typhoon. Emergency shelter assistance such as provision of tents was provided without delay after Yolanda hit the region. However the number of shelters provided was not adequate and there are unfilled gaps in provision of temporary shelters and permanent shelters.

The President declared that the areas within 40 meters from the shoreline should be established as no-build zones where a hazard risk too serious to be mitigated threatens people's lives and properties. In the Target Area, several LGUs, including Tacloban City, Tanauan and Palo Municipalities, enacted their own ordinances to establish no-build zones or no-dwelling zones. Later, no-dwelling zones are modified into safe, unsafe and controlled zones of which clarification shall be defined. Development of resettlement sites is awaited by the affected families specifically from the hazard areas; however there are a number of issues involved in provision of shelters, which include.

- Temporary and permanent shelters in safe areas are not sufficiently provided,
- A newly introduced policy of no-dwelling zones (NDZs) (safe, unsafe and controlled zones) lacks clarification on the definition and implementation procedure,
- Development of relocation sites and shelters tends to be delayed due to difficulties in acquisition of lands, and
- Relocation sites tend to have problems of insufficient public facilities, lack of livelihood opportunities, isolation from the community of the origin, etc.

1.4.3 Economic Sector

(1) Agriculture

Typhoon Yolanda caused devastation of epic proportions to the agriculture sector of Eastern Visayas, from which more than half of its population earns livelihoods and contributes 20.5 % of the regional economy. About 80% of the area was razed. Crops were dislodged, trees uprooted, and mortality to poultry and livestock was very high (see Table 1.4-1). The damage to agricultural crops, especially coconut, has made a dent in the regional economy. This exacerbated the yield loss, investment loss, opportunity cost, clearing operation, etc. that farmers have to contend with while waiting for conditions to normalize.

Table 1.4-1 Crop damage in Eastern Visayas (prepared by DA VIII command center)

Province	No. of Farmers Affected	Area Affected (ha)	Production Loss	
			Volume (Mt)	Value (Pesos)
REGIONAL TOTALS	1,287,479	1,011,677.38	1,315,423.85	18,859,879,924.66
Rice	28,497	30,284.32	34,570.33	227,026,707.91
Corn	5,722	3,875.03	5,352.74	96,918,430.00
Vegetables	51,001	2,220.61	4,461.50	125,998,397.75
Fruit Trees	2,390	1,406.63	2,837.10	22,374,375.00
Root Crops	4,037	3,712.26	18,998.64	82,923,725.00
Banana	16,993	17,652.15	42,032.90	317,444,186.00
Livestock (head)	12,406	648,940.00	1,201,121.27	206,431,860.00
Fisheries	1,339	31.00	-	101,330,000.00
Infrastructure	-	-	-	834,780,435.00
PCA (Coconut)	1,160,336	295,191.53	-	16,604,449,183.00
FIDA (Abaca)	4,759	8,363.86	6,049.38	233,643,625.00

Source: NDRRMC April 03, 2014

Coconut, the primary agricultural product of the region, was most seriously damaged. Region VIII is the third largest coconut producer in the country before Yolanda hit. The coconut farm land occupies 58 percent of the agricultural land area in the region; Region VIII had 52.1 million coconut trees planted. In this region alone, about 34 million coconut palm trees were damaged or destroyed. Among them, 15 million coconut palm trees were damaged beyond recovery and 9 million trees were severely damaged, resulting in total losses of PhP 17.7 billion equivalent to 396 million US dollars.

Almost 1.7 million people directly and indirectly depended on the coconut industry including copra traders and wage earners in the various coconut value chains in the region. More than a million workers related to the coconut industry were adversely affected. Therefore the devastation created knock-on effects in the region.

Table 1.4-2 Coconut Damage by Province

Region8/ Province	Degree of Damage (no. of trees)				Total No. of Damaged Trees
	Slight	Moderate	Severe	Totally	
Samar	424,000	-	2,456,900	276,556	3,157,456
Eastern Samar	1,153,105	1,398,960	958,192	3,057,358	6,567,615
Leyte	23,790	182,987	2,702,658	9,690,991	12,600,426
Region VIII Total	4,989,042	4,849,289	9,063,645	15,045,430	33,947,406
National Total	8,028,485	7,762,467	11,041,951	17,290,834	44,123,737

Source: PCA. Coconut Damage Report.

The issues in the agriculture sector include:

- The devastating damage to the agriculture sector resulted in loss of livelihood of farmers which could threaten lives of millions of population depending on the industry in the region over several years after the disaster,
- An urgent action is needed to recover the agriculture sector,

- Particularly, coconut industry requires an immense amount of efforts to recover, including clearing damaged trees, replanting, and assisting livelihoods of coconut farmers, and
- The efforts for diversification of monocultures and introduction of disaster resilient varieties must be made to reduce disaster risk as well as dependence on coconut farming.

(2) Fishery

In 2011, total volume of fish production in Eastern Visayas (Region 8) reached 209,778 metric tons (MT) or 4.2% of the country's fish production, which accounted for 5% of the regional economy. Before the disaster, aquaculture has expanded by almost three times in the last ten years from 2002 to 2011. However, production of municipal and commercial fisheries slowed down as a result of a decline in fishery resources.

The Bureau of Fisheries and Aquatic Resources (BFAR) reported that 49,090 fisherfolks, consisting of those involved in capture fisheries, aquaculture and post-harvest, out of 60,300 registered fisher folks, were affected by Typhoon Yolanda in Region VIII. The most severely damaged provinces are Leyte and Eastern Samar. It was estimated that, in Leyte, 10,264 bancas and 24 commercial fishing boats were lost or destroyed by the storm surge, while 1,723 fish cages were washed out in Eastern Samar. Fisher folks in Samar have also lost fishing capacity due to damaged or lost fishing boats, fishing gear and aquaculture infrastructures (Food Security Cluster, 2014).

Table 1.4-3 Fisherfolk affected by Typhoon Yolanda

	Leyte	Samar	E. Samar	Regional VIII total
Capture fisheries	10,648	1,654	8,369	21,062
Aquaculture	4,659	4,796	17,670	27,260
Post-harvest	656	20	132	818
Total	15,913	6,472	26,171	49,090

Source: BFAR

The estimated total damage to the fishery sector in Region VIII is about PhP 1.66 billion⁴. Of the five provinces in the region, Eastern Samar was most affected with an estimated loss of PhP 648 million, followed by Leyte, Samar, Biliran and Southern Leyte. A number of BFAR facilities were also badly hit by very strong winds, which blew off the roofs and the heavy rain coming through soaked everything inside.⁵ The damage could cost PhP 244 million.

⁴ BFAR. 2014. Typhoon Yolanda Damage Report.

⁵ Yolanda-hit BFAR facilities are BFAR Regional Office, Guiuan Marine Fisheries Development Center, Regional Freshwater Aquaculture Production Center, Laoang Mariculture Park, Leyte West Fisherfolk Center, Carigara Fisherfolk Center, etc.



**Figure 1.4-1 Damaged fish cages
(Brgy. Cambayan, Basey, Samar)**



**Figure 1.4-2 Hatcheries of Guiuan Marine
Fisheries Development Center**

The issues identified in the fishery include:

- Livelihood assistance is required for fisher folks who have lost their bancas, fishing gear and equipments, and aquaculture infrastructure,
- In addition to recovery of the fishery industry, it is essential to promote sustainable fishery and make fishery infrastructure disaster resilient, and
- Damaged fishing research facilities of BFAR should be rehabilitated.

(3) Commerce and Industry

Strong winds and tsunami-like storm surge devastated many of the local markets as well as most of the business entities' base building structures and their equipment/ facilities for production. Wholesale-based commercial systems that were distributing commodities from regional/ national centers suffered substantial capital losses due to loss of stocked commodities after the disaster in addition to the physical damage to the warehouses and other structures and facilities. The huge building structure within the ICT industrial park located in Palo, which accommodated the call center business with 1,000 jobs, was devastated by Yolanda. The ICT Park, which took advantage of existing backbone telecommunication line connecting Luzon and Mindanao, lost its advantage on the call center business. The disaster, in association with the consequent power cut and communication breakdown, seriously hampered all the economic activities in the Target Area.

The following are the issues regarding economic restoration and enhancement to attain resilience and sustainability of the Target Area:

- Limited product(s)/ service(s) with external earning capability other than copra, and
- Development of local market oriented basic commodities produced in the Area.

In the aftermath of Yolanda, water supply was stopped and the transportation network was disrupted, so it was hard to secure food and provide emergency aid. Looting, due to lack of food and drink, loss of assets and livelihood, and physical damage, erupted at convenience stores, fast-food chain branches and shopping centers in the area, especially in Tacloban City. Underground water pipes were dug up and automatic teller machines were also destroyed.

Secondary human-caused disaster was also an essential issue to recover and rehabilitate from Yolanda.

(4) Loans to the Private Enterprises affected by the Yolanda

1) Calamity Loan Scheme

Most of the enterprises of Region VIII are categorized as the micro, small and medium enterprises (MSMEs). Soon after the Yolanda, the Government-owned banks such as the Land Bank of the Philippines (LBP) and Small Business Guarantee and Finance Corporation (SBC) have set up the various loan schemes to those MSMEs affected by the Yolanda and have been putting the lending in effect as follows in Table 1.4-4.

Table 1.4-4 Calamity Loan Schemes

	LBP	SBC
A. Terms and Conditions of Loan		
1. Loan Denomination	Calamity Rehabilitation Support (CARES)	Enterprise Rehabilitation Funds (ERF)
2. Credit Line of the Scheme	P. 30 billion	P. 700 million
3. Credit Line per borrower	From 80% to 90% of total project cost	From P. 0.2 million up to P. 5 million
4. Loan Period	Up to 10 years	Up to 5 years
5. Interest Rate	<ul style="list-style-type: none"> • Fixed rate of 6% for the collateralized. • 8% to 12% for the non-collateralized 	<ul style="list-style-type: none"> • 6% and 8% • No collateral up to P. 2 million
B. Actual Operation as of January 2015		
1. Number of Borrowers	100 enterprises	470 approved among 588 applicants
2. Loan Amount approved	Ranges from P. 1.0 million to P. 250 million (Big poultry processing industry)	P. 5 million to P. 6 million

Source: Interviews by JICA Study Team

According to the Leyte Chambers of Commerce and Industry, the SBC credit line set up in November 2013 helped so much to restore the business activities in the region, because the private banks freeze the additional loans after the Yolanda and micro-financing of private sector required a high interest rate from 12% to 16%. Many MSMEs wish to borrow from the SBC because they cannot afford the collateral and the SBC does not require the collateral up to Php. 2 million, but the remaining credit line is so small. Thus, the Chamber requested the SBC to increase more the credit line. The Chamber estimated at least Php. 7 billion necessary for 90% of the 16,500 MSMEs in the jurisdiction of the Chamber that are returning to the business again.

2) Property Damage Insurance

The damage of the properties affected by such perils as typhoon, flood, earthquake and landslide are generally covered by a fire insurance. The fire insurance is common in the Philippines and dealt by the various non-life insurance companies. The premium of the fire insurance in Tacloban City is around 3.2% of insured property value assessed by the market price according to a Manila-based company. The extra perils are covered subject to the additional premium.

According to the Chamber, most of the MSMEs in the Leyte Province do not insure for their

properties. However, after the Yolanda, they are coming to understand the importance of insurance because the bank loan is not sufficient to recuperate the whole lost properties and business activities.

3) Fiscal and Non-fiscal Incentives to Encourage Investment

For the National Level, the BOI and the PEZA provided the fiscal incentives such as income tax holiday and non-fiscal incentives to encourage the investments in the Philippines.

For the local government level, DILG promotes to formulate the investment incentives code with the initiative of the LGUs. In Leyte Province only the following three cities have formulated and enacted the Ordinance for Investment Incentives Code - Baybay City, Ormoc City, and Tacloban City.

Tacloban City enacted “Ordinance No. 2000-05 - an ordinance revising the Tacloban City Investment Incentives Code of 1997”, that provides the codes such as the investment priority sectors of industry, qualifications of enterprises and the fiscal and non-fiscal incentives. However, according to the City and the DTI, the “Tacloban City Investment Promotions Center (TPICP)”, so to speak an executing agency, prescribed in the Ordinance has not been created and the ordinance itself has not been put in effect up to now.

1.4.4 Government Response

(1) Preparedness and Emergency Response by Local Governments

On November 7, 2013, the Statement of President Aquino on Typhoon Yolanda⁶ was made public in order to remind the people of the need for their preparedness. It was forecasted that Typhoon Yolanda would have extremely low pressure and a “Public Warning Storm Signal #4 was disseminated over some areas. The Republic Act No. 101211, or the Philippine Disaster Risk Reduction and Management Act of 2010 states that LDRRMCs or Barangay Disaster Coordinating Councils (BDCC) headed by the local executives recommend the implementation of forced or preemptive evacuation of local residents. In the Study Area, evacuation orders were issued by the City and Municipalities, following information from the Regional DRRMC, and Provincial DRRMC. Barangays, under the initiatives of the City or Municipal DRRMCs, or on their own merit in more progressive barangays, called for evacuation to their constituents before the landfall of Yolanda. Though a significant number of people preferred to stay at their homes upon the initial call for evacuation; however, the majority of those who decided to stay home also started their attempts to evacuate, when houses started to get severely damaged. The evacuation sites seemed to have been designated by the LGUs at the time of evacuation.

At the time whentphoon Yolanda hit the region, not all LGUs including the barangays had their LDRRMPs, and the LDRRMOs or Barangay DRRM Committees fully functional even if they were already established, despite the RA No. 101211 mandating LGUs to prepare LDRRMPs

⁶ <http://www.gov.ph/2013/11/07/english-statement-of-president-aquino-on-typhoon-yolanda-november-7-2013/>

and to establish LDRRMO or BDRRMCs, which are responsible for implementation of a multi-hazard warning system, and operation of local emergency response teams. In most of the LGUs, only one official had been assigned as LDRRMO, sometimes holding the other positions. It can be said that, therefore, the LGUs, including operation of a multi-hazard early warning system, issuing evacuation orders, designation of evacuation sites, and emergency responses, were not fully prepared and did not have capacity and human resources to deal with such as a super typhoon.

The lack of disaster preparedness resulted in delay of emergency response. A proclamation declaring a National Calamity (Proclamation No. 682, s.2013) was rather late for issuing on 11 November 2013, due to the sluggish report of the damage situation from the field to the center. Yet, this is partially because of the seriousness of the disaster beyond expectation. Most of the City and Municipal Halls were ravaged and equipment, documents, and personnel were either lost or severely damaged by the disaster. Even small amount of stocks of food and emergency supplies stored by a LGU were all washed away by the storm surge. The LGUs in the affected areas did respond to the disaster by conducting emergency relief operations to the maximum extent of their capacity. With aid from the UN and other humanitarian organizations, the LGUs confirmed the status of the officials and staffs, treated the injured victims, cleared roads and debris, distributed relief goods, and made an effort to maintain the security.

At the barangay level, after assessing the damage situation, the barangays requested the C/MLGUs for support in terms of relief goods and guidance. However, it took four days after the typhoon before the barangay officials started their efforts since they were also victims of the disaster. Before relief materials were distributed, a list of household residing the area has to be prepared which took more time. Simultaneously, some barangays experienced difficulty in contacting higher level of government units and had to wait for several days to weeks before relief materials arrive, since telecommunication lines were damaged and roads were not passable. Clearing of debris from roads, taking care of the bodies of the deceased, and formulation of vigilance groups were mostly done under the initiatives of the LGUs. Once relief materials came, the functions of the barangays concentrated more in coordination for relief distribution; however, there was no prefixed protocol for dealing with the external organizations, so the barangays responded to the instructions of individual aid organizations.

In a nutshell, early response by the LGUs did not function very well and the affected people could not receive emergency service, such as relief materials, immediately due to the lack of preparedness. Nevertheless, three barangays in Guiuan, Basey, and Palo managed to suffer no human casualties, since the barangay officials proactively urged their constituents to evacuate before the arrival of Yolanda, based on their own training or prepared Barangay Disaster Risk Reduction and Management Plan (BDRRMP). This experience highlighted the importance of preparedness and evacuation for prevention of disaster.

(2) Government Response Coordination

In the disaster response during the aftermath of Typhoon Yolanda, coordination among the government agencies as well as the Government of Philippines, and international aid and humanitarian organizations came up as one of the critical issues. Despite the promulgation of the Philippine DRRM Act or RA No. 10121, the Government had not prepared well for such a gigantic disaster like Typhoon Yolanda. There existed no disaster response plan when the typhoon struck the country thus, responsibilities and roles that each national agency was supposed to play in disaster response were not clearly specified yet. They started their activities based on their own judgment and initiatives. In addition to that, the lack of information of the damage delayed the emergency response at the beginning due to the breakdown of the communication systems and the impacts on the LGUs who are supposed to report the damage to Manila.

With the news of devastating damage caused by the storm surge of Yolanda, international aid and humanitarian organizations, and rescue missions rushed from around the world into Region VIII the most seriously affected. The United Nations Office for Coordination of Humanitarian Affairs (OCHA) and the World Food Program (WFP) took the lead in management and coordination of relief activities, distribution, and logistics, adopting a cluster approach. Nevertheless, it was reported that overlapping activities were implemented by different clusters because of limited coordination among the clusters specifically at the early stage, which resulted in confusion and waste of resources. It was also observed that concentration of rescue activities in certain areas, such as Tacloban, were exposed to the media. Enormous relief goods and medical supplies donated from abroad were piled up at the major airport hubs, even before the official request of assistance from the Government of the Philippines. Because of this, certain goods and materials, e.g., medicines, medical supplies, and foods which were not approved in the country became unusable and wasted.

From the lessons learned from the disaster of Typhoon Yolanda, the Office of Civil Defense (OCD) has drafted the National Disaster Response Plan (NDRP) for the case of hydro-meteorological hazards in 2014, with the Department of Social Welfare and Development (DSWD), as vice chairperson for disaster response, under the JICA's technical assistance. In the preparation of NDRP, after the disaster response activities during the Yolanda disaster were assessed, the course of actions in response to disaster are clarified by taking a scenario-based approach, and the roles and responsibilities of relevant agencies were defined through the consultation and coordination among the agencies. This was done in accordance with the modified disaster response clusters as a reaction from the different UN clusters. Among the issues addressed by NDRP on disaster response during Yolanda included management of the dead and missing (MDM), one-stop shops and handing of relief goods from abroad, and rapid damage and needs assessment (RDANA) among others. In order to improve obtaining disaster damage information, NDRP proposed automatic deployment of the Rapid Deployment Team/s for RDANA and Aerial surveys and establishment of the National Operation Center(s), as such Yolanda's case, if no damage report is sent from the affected LGU from 6 to 12 hours after the landfall.

Meanwhile, DILG updated the Disaster Preparedness Manual in 2015, which provides LGUs with guidelines on the actions to be taken, in accordance with the three levels of disaster. The Manual specifies LGUs' activities step by step in three periods of pre-, during, and post-disaster and by three action areas of preparation, response and monitoring. The topics covered by the Manual included mobilization of the LDRRMC, rescue and resource needs, utilization of the LDRRM Fund, deployment of cluster teams, evacuation center standards, etc.

Chapter 2 Basic Principles of Recovery and Reconstruction Policy

2.1 Principles for Recovery and Reconstruction

2.1.1 The Principles for the Philippine Recovery and Reconstruction Policy

The principles for recovery and reconstruction policy of the Target Area proposed in this report are derived from the principles of the Philippine recovery and reconstruction policy and lessons learned from a mega disaster in the past. The recovery and reconstruction policy must be consistent with the national policy framework for recovery and reconstruction. A recovery process is accelerated by constant efforts across different regions, plans, and programs under shared goals and objectives.

The recovery and reconstruction from Typhoon Yolanda is guided by the overall principle of “Build-Back-Better.” This principle aims with a long-term perspective of building a community, which is less vulnerable and is equipped with expanded capacities to respond to future disaster.⁸ Under this principle, the core principles stated for implementing RAY underline the importance of:

- Institutional arrangements that combine strong central coordination and oversight with flexible implementation at the local level, focusing on coordination between government agencies and engagement with international donors, civil society organizations, and the private sector, and the responsibility of the local government in implementation, for locally adjusted reconstruction and promotion of community participation, ownership and sustainability,
- Proactive recovery and reconstruction, which ensure to address inclusiveness and sustainable livelihoods, aiming at alleviation of poverty in the affected areas, and
- Incorporation of gender into the design and implementation of post-disaster interventions to address pre-existing gender inequality and empower women.

The Comprehensive Rehabilitation and Recovery Plan published by OPARR articulates the objectives in the interventions for recovery and reconstruction as:

- To restore, rehabilitate or reconstruct damaged infrastructure necessary to sustain economic and social activities in the affected areas;
- To repair houses or rebuild settlements and basic community facilities and services that are more resilient to natural calamities;
- To restore the people’s means of livelihood and continuity of economic activities and businesses; and
- To increase resilience and capacities of communities in coping with future hazard events.

⁸ OPARR. Yolanda Rehabilitation and Recovery Efforts consolidated as of 28 July 2014.

2.1.2 Lessons Learnt from the Great East Japan Earthquake

Learning from past experiences in recovery from a mega disaster is incorporated in setting the recovery reconstruction policy. Adaption of this approach to policy making for recovery and reconstruction can contribute to accumulation of scientific knowledge and wisdom on natural disaster and improvement of the recovery and reconstruction interventions and disaster mitigation measures, through learning from cases of failure and success.

In the case of Japan, after the Great East Japan Earthquake in 2011, quite a few governmental agencies, committees and documents have published a large number of the lessons learned respectively. An incorporated foundation, which is the “Japan Institute of Country-ology and Engineering (JICE)”, has tried to organize such lessons carefully. Lessons learned from the Great East Japan Earthquake are summarized in Table 2.1-1, which were selected or extracted in view of reference to the recovery and rehabilitation from the damages caused by Typhoon Yolanda. Among the lessons, the policies of “linkage building” and “disaster risk reduction” particularly are identified important to be applied for this recovery and reconstruction policy.

Table 2.1-1 Lessons Learned from the Great East Japan Earthquake

	Lessons Learnt
External force of earthquake or tsunami	Needs for a new way of thinking for disaster countermeasures: <ul style="list-style-type: none"> • There is a risk to rely on the assumptions of disaster, which are applied for designs of structural measures. A possibility of a disaster “beyond the expectation” or “beyond the assumption” should not be neglected in planning of DRRM measures.
Countermeasures against natural disasters	Needs for a comprehensive multiplex system for securing safety: Protection of life first <ul style="list-style-type: none"> • A comprehensive multiplex system must be taken for securing safety of people’s lives. In any case, protection of human lives is the top priority. A set of multi-layered countermeasures combining structural and non-structural measures should be applied to withstand the different magnitudes of disasters, since structural measures, such as coastal embankments do not guarantee the safety against a tsunami which occurs once in a thousand years. Only evacuation works in that case.
	Various applications of accumulated lessons learned without allowing the experiences to fade away <ul style="list-style-type: none"> • Lessons learnt in the past disaster tend to be forgotten as time goes by. The lessons learnt should be accumulated and stored, in consideration of human characteristics of forgetfulness.
Disaster resilient facilities/infrastructure	Strengthening disaster resilience of major structures to stand against a mega-disaster <ul style="list-style-type: none"> • Breakwaters or sea embankments should have resilient effectiveness by heightening or strengthening its walls in the event of tsunami exceeding the tsunami height they were designed for.
	Developing disaster-resistant transport networks <ul style="list-style-type: none"> • Transport network should be made disaster resilient in rehabilitation and reconstruction. The disaster prevention functions of the trunk transport network must be strengthened further by improving earthquake resistance, enhancing resilience, and ensuring “substitutability through multiplexing” (redundancy).
Strengthening of non-structural countermeasures	Strengthening disaster education for encouraging people’s spontaneous evacuation <ul style="list-style-type: none"> • Disaster education should be conducted with emphasis on the preciousness of life, and should nurture an ability to obtain information, make judgments and decisions, and take actions so as to be able to survive major disasters. Also, deeper understanding must be gained regarding the possibility of major disasters of unexpectedly large scale. • To pass on the lessons learned from past disasters to the next generations and utilize the experiences gained for implementation of disaster countermeasures, disaster case studies and lessons learned from disasters should be recorded and accumulated/organized/shared as archives.
	Needs for more resilient disaster information system <ul style="list-style-type: none"> • The reliability of information and communication systems should be improved for the time of a large-scale disaster, by establishing redundancy/ back-up in information systems. • A disaster information platform should be developed for sharing real-time disaster information regarding risk and safety, evacuation, etc. so that effective emergency activities can be realized for the society as a whole.
	Needs for improvement of disaster warning systems

	<ul style="list-style-type: none"> Tsunami early warning information or evacuation orders represent the primary information for the government or residents for immediate evacuation action. It is necessary to improve disaster warning systems such as the contents of early warnings as well as information and communication technology.
Philosophy for reconstruction	<p>Materialization of a new vision of affected areas</p> <ul style="list-style-type: none"> In addition to recovery and rehabilitation of the damaged facilities and settlements, it is necessary to materialize a new vision of disaster-affected areas by maximizing the diversity and tapping the full potential of the region in an integrated manner.
Approach in recovery	<p>Promotion of self-help, mutual support, and public assistance during and post disaster</p> <ul style="list-style-type: none"> Self-help, mutual support, and public assistance are important for protection of life and reconstruction of community during and post disaster. Recovery and reconstruction should be directed to enlarge an ability of individuals for self-protection through education, to promote community cooperation by developing a community evacuation plan, etc., and to strengthen institutional capacity of the government with capacity building training, preparation of a disaster management plan etc. <p>Building linkages and networks within and across regions</p> <ul style="list-style-type: none"> Linkages and networks within and across regions were found as crucial assets particularly in the operation of emergency relief activities, and for recovery efforts, to supplement resources and capacity lost or damaged by the disaster. Various networks connecting individuals, communities, governments, CSOs/NGOs and the private sectors should be encouraged to be built.

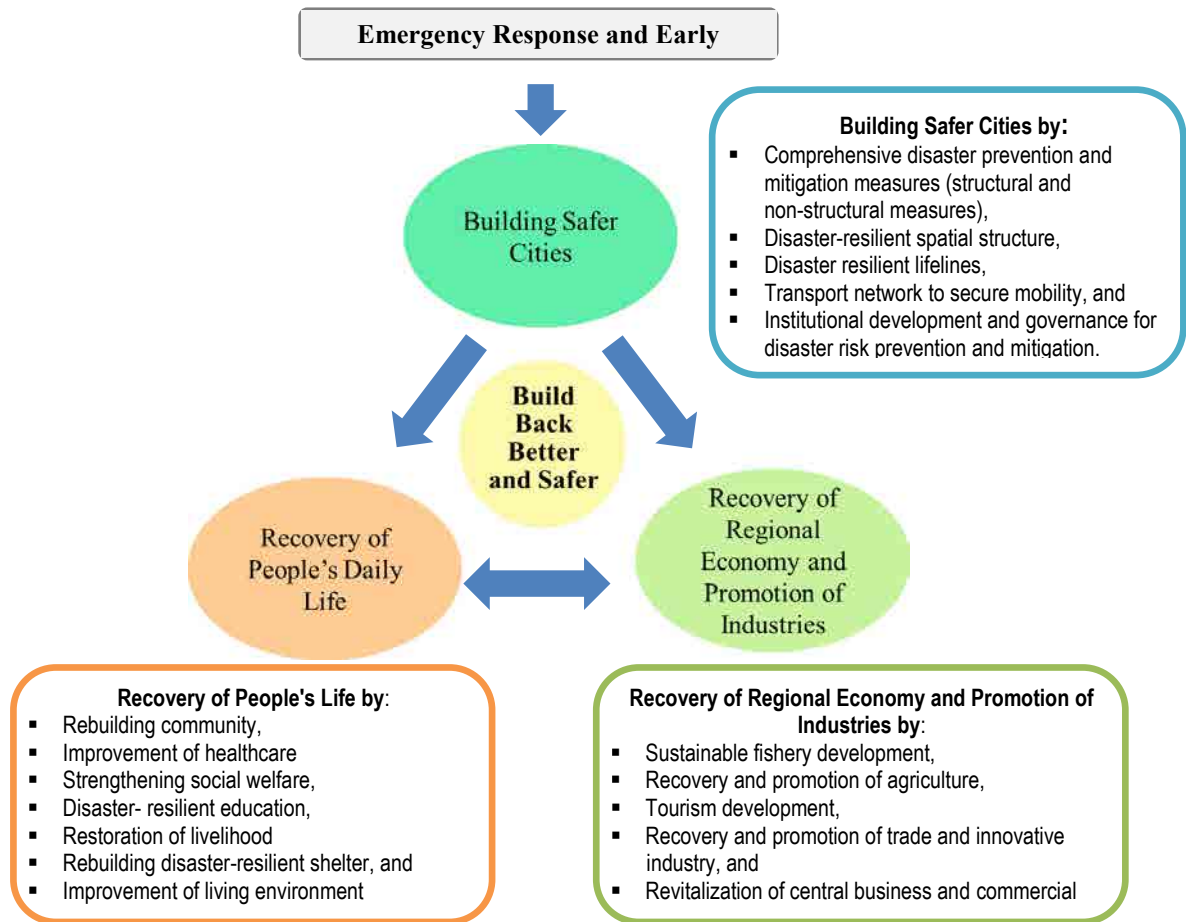
Note: Edited and compiled the contents from the sources, and supplemented by the JICA Study Team.

Source: Japan Institute of Country-ology and Engineering (JICE), 2012. What is “Lessons Learned from the Great East Japan Earthquake” specifically (“Higashi nihon daishinsai no kyokun” towa gutaiteki ni nanika), available at http://www.jice.or.jp/sinsai/sinsai_kyoukun.html (in Japanese).

Towards Reconstruction “Hope beyond the Disaster”, 25 June 2011 Report to the Prime Minister of the Reconstruction Design Council in response to the Great East Japan Earthquake

2.1.3 Principles of Recovery and Reconstruction Policy

Three principles served as policy guide for recovery and reconstruction process of the Study Area: (1) Building safer cities, (2) Recovering people’s daily lives, and (3) Restoring the regional economy and promoting industries (see Figure 2.1-1). The post disaster recovery is divided into two phases: (1) emergency response and early recovery, and (2) recovery and reconstruction. Emergency response and early recovery mostly focused on relief operations to respond to the immediate needs of the affected population after a disaster, as will be discussed in the following chapter. The recovery and reconstruction phase gains momentum after emergency response and early recovery operation; however, the three principles are carried out throughout the entire recovery process.



Source: JICA Study Team

Figure 2.1-1 Three Principles of Recovery and Reconstruction Policy

To begin with, recovery and reconstruction aimed at building safer cities. Safety of people’s lives and properties is the foundation of the society stability and development of the region. Safer cities can be built by taking a comprehensive approach incorporating structural and non-structural measures for disaster prevention and mitigation, and developing disaster-resilient spatial structure, lifelines and transport network to secure mobility. Institutional development and good governance are essential to guide development of cities in the way that disaster risk reduction and mitigation measures can be integrated in it.

The efforts to bring back normality to people’s lives can contribute to self-recovery support and adaptive capacity building of the community regarding disaster. For the sake of recovery of people’s lives, the proposed policies include: rebuilding of community, improvement of health care, reinforcement of social welfare, development of disaster-resilient education, restoration of livelihoods, reconstruction of disaster-resilient shelters, and improvement of living environment. These policies are developed to ensure access to all people, especially the vulnerable, to social services, while improving disaster resilience of the service provision systems and living environment.

Restoring the economy and promoting industries are essential to accelerate the recovery and reconstruction process of the region. This is achieved by adapting policies for making fishery sustainable, recovery and promotion of agriculture, trade and innovative industry, support for tourism development, and revitalization of central business and commercial districts. The major economic sectors of the region should not only be recovered but also strengthened by addressing pressing issues or structural weakness, such as sustainability of production or diversification of commodities. Meanwhile, new industry development may be promoted.

The three principles are closely interconnected so that the recovery and reconstruction policies proposed under these principles are occasionally overlapped in certain fields. Particularly, livelihood support and economic promotion policies are practically inseparable. In the proposed policy framework here, livelihood support in the recovery of people's lives focuses on the affected families such as farmers, fisher folks, the vulnerable, etc., while the policies for recovery of economy intend to rebuilding economic sectors, namely agriculture, fishery, industry, manufacturing or commerce. These interrelated policies can be integrated and coherently implemented so as to create synergy for bouncing back from the disaster. The three principles of (1) Building safer cities, (2) Restoring the regional economy and promoting industries, and (3) Recovering people's daily lives are achieved by implementing the following approaches.

2.2 Approach to Building Safer Cities

2.2.1 Direction of Policy Formulation

The recovery and reconstruction approach aims at disaster mitigation primarily for protection of human lives. Development of recovery and reconstruction policy requires careful consideration of topography and spatial structure of urban settlements for comprehensive evaluation of preventive effectiveness, costs, and construction periods of various countermeasures. Based on such deliberation, the policy proposes a combination of various soft and hard countermeasures as a holistic prevention and mitigation approach, including structural measures such as tide embankments, upgrading of roads, etc. as well as land use regulations and restriction on residences, upgrading of building and structural design codes, and development of evacuation centers and routes. In addition, there is a need for creating redundancy in countermeasures from a perspective of prevention and mitigation of disaster. In nutshell, it should be underlined, however, that in the design of safer cities, evacuation should be a primary strategy.

2.2.2 Hazard Analysis

(1) The Objectives of Hazard Analysis

Hazard analysis is essential in exploring and determining countermeasures against expected disasters. Hazard maps prepared as outcomes of hazard analysis provide planners with information important for planning of recovery and reconstruction. In general, there are two objectives in making "Hazard Maps". One objective is to inform disaster risk to citizens. The other is, targeting

government officers, to utilize the hazard maps for planning of land use, an evacuation plan, structural measures, and so on.

In particular, information on hazard maps such as intensity and frequency of a disaster, and hazard-prone areas are examined in the planning process in order:

- To identify hazard prone areas,
- To estimate potential damage to human and property,
- To select appropriate disaster risk prevention and mitigation measures,
- To design structural measures, such as tidal embankment, sea walls, river dike, etc.,
- To determine land use, including identification of safe, unsafe, and controlled areas and protection areas, appropriate locations for public facilities and infrastructure development, appropriate areas for residential development, etc., and
- To develop an evacuation plan, i.e., selection of evacuation sites, evacuation routes, and timing to evacuate.

In this study, hazard maps of storm surge, flood inundation and tsunami are prepared. In particular, simulation analysis was conducted for hazard analysis of storm surge and flood inundation as described in Table 2.2-1.

Table 2.2-1 Objectives, Procedures, and Outputs of Hazard Analysis

Hazard	Objectives	Procedures	Hazard Maps (Information)
Storm Surge Simulation Analysis	<ul style="list-style-type: none"> • Clarification of mechanism for storm surge and factors causing the storm surge disaster • Establish the target level or magnitude of external forces to be reflected into the planning for DRRM • Determination of information items to be indicated on the hazard maps 	<ol style="list-style-type: none"> (1) Establishment of the simulation model by using the data collected and setting of the simulation scenarios. (2) Performance of the simulation of storm surge and inundation analysis by Typhoon Yolanda. (3) Setting of the details of assumed typhoon by clarification of conditions of the past storm surge events. (4) Performance of the simulation for the assumed typhoon and determination of the information items on the hazard maps 	Storm surge hazard map a) Inundation area b) Inundation depth c) Arrival time of storm surge (Not described)
Wind Simulation Analysis	<ul style="list-style-type: none"> • Evaluate the wind speed caused by Typhoon Yolanda. • Prepare a wind speed distribution map • Estimate the distribution of the wind speed as well as its time series variation to determine timing of evacuation 	<ol style="list-style-type: none"> (1) Data collection: collection of topographical data of the land area (2) Establishment of simulation model: creation of terrain model, fixing ground roughness for forests and other areas (3) Calculation of wind speed ratio (4) Wind speed distribution map: creating wind speed distribution map 	Wind speed distribution maps (10-min sustained wind speed) a) Maximum value b) Every 30 minutes from 4:30 am on Nov. 8 2013 to 7:30 am on Nov. 8 2013.
Flood Inundation Simulation	<ul style="list-style-type: none"> • Evaluate flood hazard as a part of the multi-hazard analysis 	<ol style="list-style-type: none"> (1) Data collection (2) Rainfall analysis (3) Flood condition survey (4) Evaluation of flood characteristics (5) Flood inundation analysis (6) Flood inundation mapping 	Flood inundation map a) Inundation area b) Inundation depth

Source: JICA Study Team

(2) How to Use Hazard Maps for Planning of Structural and Non-Structural Measures

1) Understanding External Force

It is important to choose the level of external force (magnitude of the storm surge) that fits the purpose of “Hazard Maps”. In general, hazard maps are made based on the maximum external force that is predicted to happen.

The idea of external force level is easily understood in relation with measures to be taken against each external level. External force is the maximum level of force against which structural measures or non-structural measures withstand or are effective in preventing disaster. As defined in Table 2.2-2, if the measures are improved, the external force becomes larger.

Table 2.2-2 Magnitude of External Force by Level

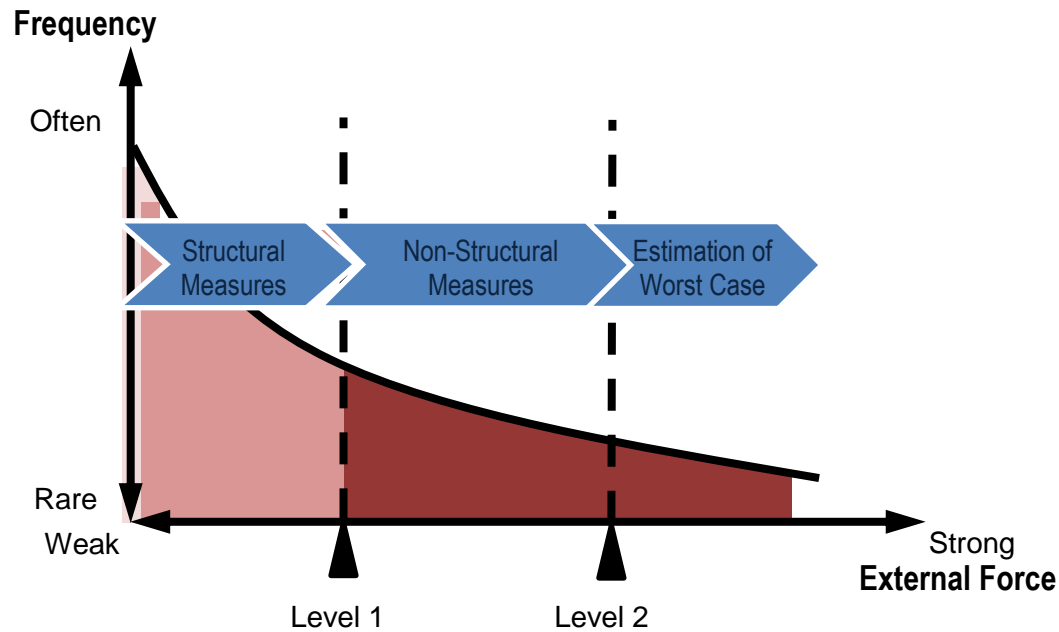
	Magnitude of External Force	Purpose
Level 1	Maximum force that can be protected by Structural Measures.	To plan Structural Measures to prevent disasters.
Level 2	Maximum force that can be protected by Non-Structural Measures.	To plan Non-Structural Measures to reduce damage or disaster risk.

Source: JICA Study Team

The external force of storm surge brought by Typhoon “Yolanda” exceeded Level 2. In the JICA Study, a “Storm Surge Hazard Map” was prepared based on the external force exceeding Level 2.⁹

Figure 2.2-1 shows the relationship between the external force (magnitude of storm surge) and the frequency of such force to happen. There are two stages of countermeasures to be taken. For the external force up to Level 1, disasters can be prevented by structural measures. For the external force from Level 1 up to Level 2, the damage can be mitigated by non-structural measures. For the external force over Level 2, serious damage may be inevitable even with non-structural measures.

⁹ The discussion on External Force Level is based on “Tsunami and Storm Surge Hazard Map Manual” published in Japan. “Tsunami and Storm Surge Hazard Map Manual (津波・高潮ハザードマップマニュアル)”. Coastal Development Institute of Technology (April 2004), Available only in Japanese.



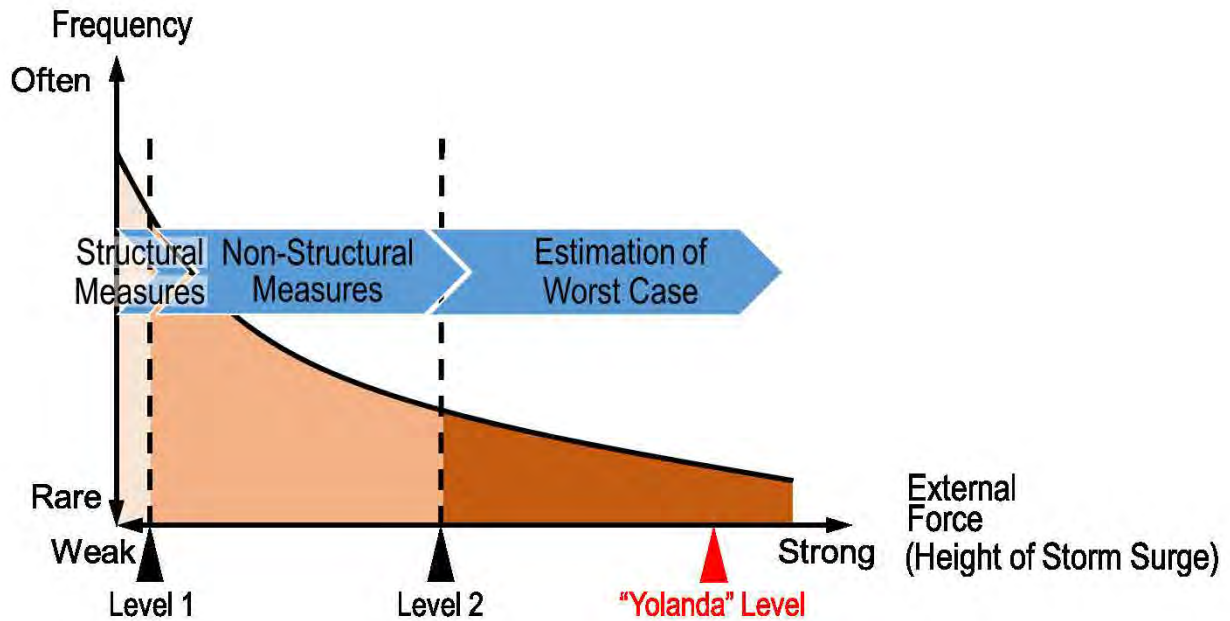
Source: JICA Study Team

Figure 2.2-1 Disaster Mitigation Measures to be Taken against Different Levels and Frequency of External Force

2) The Current Status of Disaster Reduction Measures against Storm Surge in the Study Area

The current status of disaster reduction measures in the Study Area is presented in Figure 2.2-2. Because there is almost no structural measure in the Area, the maximum force that structural measures can deal with, namely Level 1 external force, is very low. Furthermore, because an evacuation plan has not been sufficiently developed yet, the maximum force Level 2, at which non-structural measures can prevent a disaster, is also very low. Thus, the Study Area is vulnerable to the Typhoon Yolanda level extreme storm surge, which can result to a devastating level. The two findings illuminated by Figure 2.2-2 include:

- Improvement of Structural Measures is needed, and
- Non-Structural Measure including evacuation plan is essential.



Source: JICA Study Team

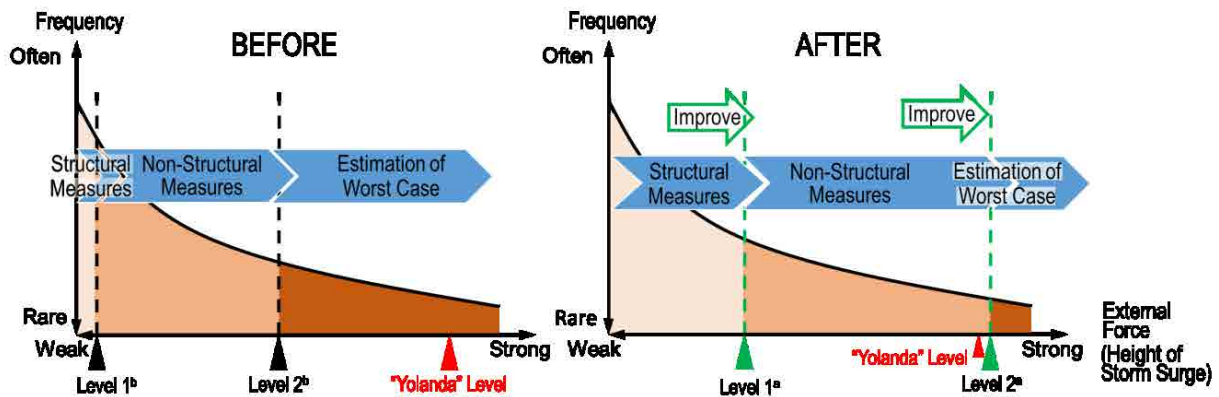
Figure 2.2-2 Current Situation of Disaster Mitigation Measures against Storm Surge in the Study Area

3) Planning of Disaster Risk Reduction Measures Utilizing a “Hazard Map”

A direction for disaster risk reduction measures in the Study Area is suggested in Figure 2.2-3 where “BEFORE” indicates the present situation, while “AFTER” describes the situation with sufficient measures installed.

By improving structural measures such as heightening an existing road, urban areas can be protected from the storm surge with stronger external force of Level 1^a than the external force of Level 1^b. In case of road heightening measures, the appropriate height of the road can be determined through storm surge height analysis.

As for non-structural measures, an evacuation plan can be improved by examining the locations of evacuation centers and evacuation routes. It results in increase of the external force from Level 2^b to Level 2^a, or in other words, evacuation can save more lives even in the case of much stronger storm surge. As shown in Figure, by improving countermeasures against storm surge, it is possible to prevent disaster even if an enormous typhoon such as “Yolanda” strikes the region again.



Source: JICA Study Team

Figure 2.2-3 Before and After Improvement of Disaster Mitigation Measurements

2.2.3 Structural Measures

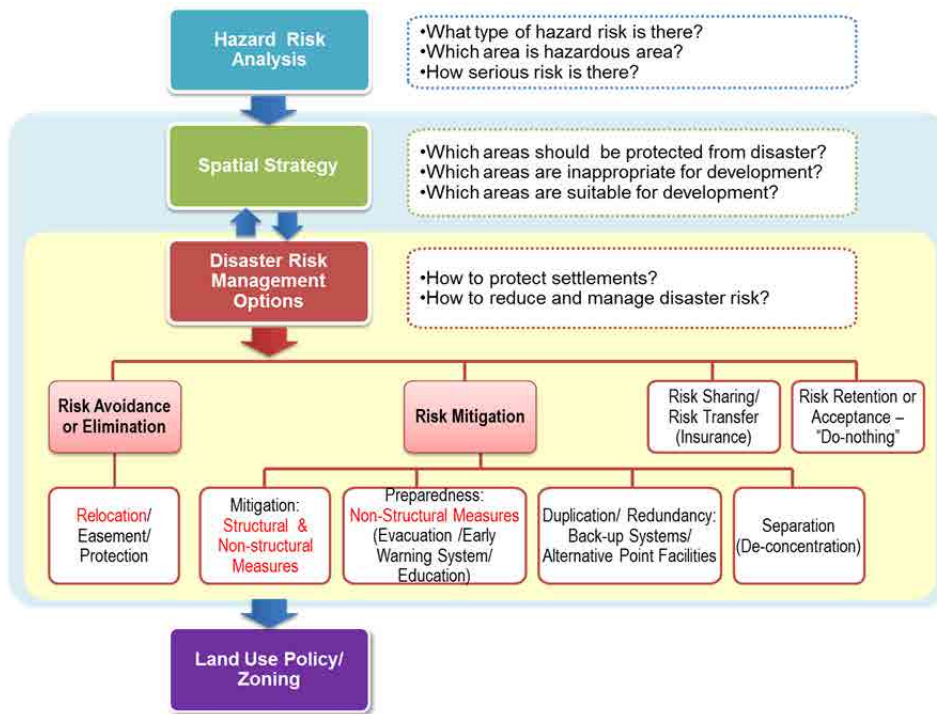
Appropriate structural measures such as embankments or floodgates are necessary to protect human lives and properties, since lack of structural measures resulted in an increase of casualties in the region. Due to variations in topography, the natural environment, socio-economic conditions, etc., scientific, technical, and economic analysis is crucial in selecting appropriate structural measures and also to decide locations of such structures, or in other words, to decide what is to be protected. The structural design standards of tide embankments or dikes such as strength should be decided based on careful consideration of hazard level, probability of occurrence of disaster, etc., and anticipated damage. It should be noted that structural measures are not perfect to guarantee safety of lives and properties. Non-structural or soft countermeasures, e.g., evacuation plans, or land use regulations shall be integrated with the entire plan in a way that these different types of countermeasures complement each other.

Structural measures require periodic inspection and maintenance to evaluate their strength and the level of deterioration, and to sustain their effectiveness in prevention of disasters. Necessary maintenance or reinforcement work should be done on the structures in accordance with a maintenance plan.

2.2.4 Non-Structural Measures

(1) Consideration of Disaster Hazard Risk in Land Use Policies

Land use policies for recovery and reconstruction need to be developed by taking account of disaster hazard risk, and prevention and mitigation measures. The land use policy development process is presented in Figure 2.2-4.



Source: JICA Study Team

Figure 2.2-4 Land Use Policy Development Process

Hazard maps are powerful tools to develop spatial strategies and land use policies. Based on examination of hazard risks, the existing land use and development pressure, spatial strategies need to be clarified for the areas to be protected from disaster, the areas inappropriate for development, or the areas to be reserved for development in future, etc. At the same time, appropriate disaster risk management and strategies, such as relocation, tide embankment, or evacuation centers and plans, can be selected for each of land use zones/ areas. Land use policies and disaster risk reduction and mitigation measures corresponding to each area are determined, evaluating the inundation level and anticipated damage caused by storm surge, flood, and tsunami, (or the level of intensity and implication for damage on of other types of hazards), as shown in hazard maps (see Table 2.2-2). Formulated land use policies integrating disaster mitigation measures in land use regulations specified in zoning, which include use of lands, density, structure and engineering design, distribution and location of infrastructure/ public facilities, evacuation centers, and so on.

Table 2.2-3 Inundation Depth and Damage Implications of Tsunami

Inundation Depth (meter)	Implications
10 meter and over	A 3-story building is completely submerged
5 meter to 10 meter	A 2-story building is submerged
2 meter to 5 meter	Most wooden houses are completely damaged
1 meter to 2 meter	If involved, most people die.
0.3 meter to 1 meter	People cannot move. Evacuation becomes impossible.

Source: Ministry of Land, Infrastructure, and Transport, Japan. 2012. Manual for Setting Tsunami Inundation Assumption, Ver. 2.

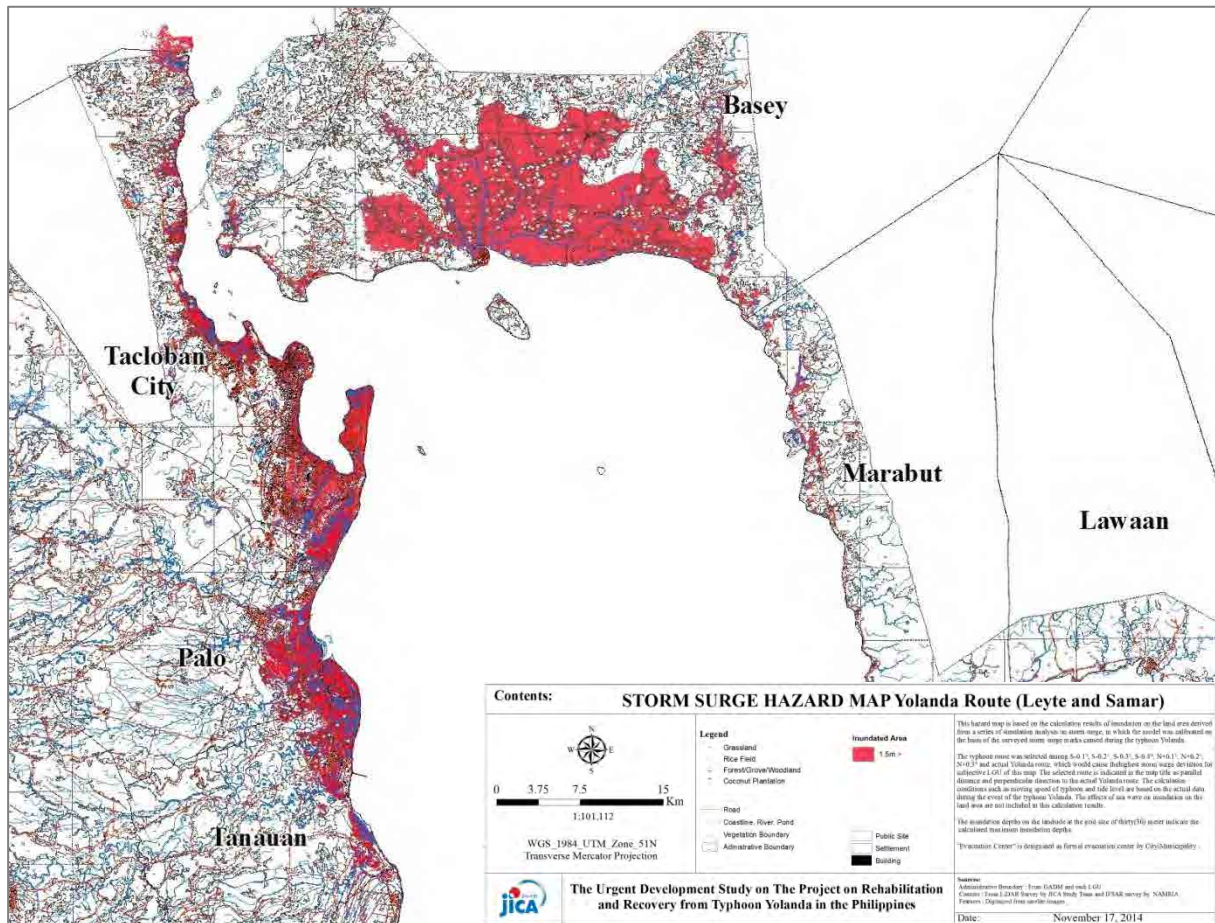
By coordinated effort among the national agencies, guidelines for classification of hazard zones of hydro-meteorological hazard such as typhoons, floods, landslides and storm surges, and land use activities in the zones were prepared in November 2014. According to the Joint DENR-DILG-DND-DPWH-DOST Memorandum Circular No. 2014—01¹⁰, hazard zones are classified into three categories of “High”, “Moderate” and “Low” susceptibilities with recommended restriction on land use activities accordingly, including evacuation centers, disaster risk mitigation measures, etc. The construction of evacuation centers are not recommended in any of the three categories if their structural resilience and height are not proven. The classifications of storm surge and flood hazards are presented in Table 2.2-4. The high hazard areas of storm surge in the Study Area where inundation depth exceeds over 1.5 meters and are not recommended for dwelling and other land use activities, i.e., no-dwelling zones are initiated in Figure 2.2-5. This information provides valuable inputs for preparation of land use policy and evacuation plan.

Table 2.2-4 Classification of Hazard Zones and Land Use Activities

		High	Moderate	Low
Storm Surge	Classification	Storm surge flood height of greater than 1.5 meter	Storm surge flood height of greater than 0.5 up to 1 meter	Storm surge flood height of 0.5 meter or less
	Land Use Activities	<ul style="list-style-type: none"> • Evacuate during storm surge • Do not establish evacuation centers. • Establish natural and man-made coastal defenses, such as mangrove, break water, etc. • Not suitable for commercial, industrial, residential, and institutional development. • Install storm surge warning signage 	<ul style="list-style-type: none"> • Dwelling may be allowed, but evacuate during storm surge • Do not establish evacuation centers. 	<ul style="list-style-type: none"> • Dwelling may be allowed and people may stay in their homes during storm surge, provided that their houses have a second floor, and are structurally sound • Do not establish evacuation centers unless they have vertical evacuation capabilities.
Flood	Classification	Flood height of greater than 1 meter and/ or flood duration of more than 3 days	Flood height of greater than 0.5 up to 1 meter and/ or flood duration of more than 1 to 3 days	Flood height of 0.5 meter or less and/ or flood duration of less than 1 day
	Land Use Activities	<ul style="list-style-type: none"> • During flood, evacuate except disaster response personnel • Do not establish evacuation centers. • Use floodplains as retention basins. These places maybe transformed into recreational areas, provided possible flood heights in the design. • Recommend appropriate flood control mitigation structure to be approved by DPWH, • Not suitable for commercial, industrial, residential, and institutional development. • Install flood warning signages 	<ul style="list-style-type: none"> • During flood, evacuate except disaster response personnel • Do not establish evacuation centers. • May allow dwelling and development with provision of possible flood heights and structural integrity in the design. 	<ul style="list-style-type: none"> • During flood, people may stay in their dwellings and workplace provided that these are structurally sound and early warning system and preparedness plans are in place. • Do not establish evacuation centers unless these are structurally sound and have vertical evacuation capabilities. • May allow dwelling and development with provision of possible flood heights and structural integrity in the design.

Source: Joint DENR-DILG-DND-DPWH-DOST Memorandum Circular No. 2014-01. “Adoption of hazard zone classification in areas affected by Typhoon Yolanda (Haiyan) and providing the guidelines for activities therein,” November 5, 2014.

¹⁰ Joint DENR-DILG-DND-DPWH-DOST Memorandum Circular No. 2014-01. “Adoption of hazard zone classification in areas affected by Typhoon Yolanda (Haiyan) and providing the guidelines for activities therein,” signed on November 5, 2014.



Source: JICA Study Team

Figure 2.2-5 High Hazard Zone of Storm Surge in the Study Area

Relocation is one of the most important issues in land use policy development. A newly proposed no dwelling zone policy to specify safe, unsafe and controlled zones after the Yolanda calls for a careful study of its effectiveness and impact on the community. For the delineation of safe, unsafe and controlled zones, LGUs may develop their own criteria acceptable to their citizens, examining hazard maps and anticipated damages as shown in Table 2.2-5. A need for relocation and selection of relocation sites should be scrutinized based on consultation with the community, because relocation significantly affects people’s lives such as livelihoods and access to public services. LGUs may be required to develop a city/ municipal ordinance on safe, unsafe, and controlled zones, which specifies criteria for each zone and requirements for relocation, compensation, eligible residents, a procedure for relocation etc.

(2) Land Use Policies

Land use policies are summarized in Table below.

Table 2.2-5 Land Use Policies

Land Use	Land Use Policies
Residential area	<ul style="list-style-type: none"> • Develop residential areas in safe areas or less hazard risk areas – Residential area first in protection • Promote compact development by increasing density to maximize use of land • Allocate critical facilities and important infrastructure in safe areas

	<ul style="list-style-type: none"> • Minimize exposures to disaster and hazard risk <ul style="list-style-type: none"> - Control development of danger areas - Relocate the existing settlements from high risk areas • Reduce vulnerabilities <ul style="list-style-type: none"> - Enforce appropriate building and structural design standards - Develop risk mitigation structures: tide embankments, seawalls, river dikes, flood control, etc. - Introduce non-structural measures: evacuation places and routes, education, evacuation drills, increase of preparedness, etc. - Promote community-based evacuation/ disaster mitigation
Commercial/ Business area	<ul style="list-style-type: none"> • Can be developed in safe areas, less hazard risk areas, and hazard-prone areas (no-dwelling zones) • Protect critical facilities and infrastructures in hazard-prone areas by protection measures • Promote mid-rise/ high-rise building development • Reduce vulnerabilities <ul style="list-style-type: none"> - Enforce appropriate building and structural design standards and monitor the compliance to the regulations - Provide evacuation places and routes for visitors and workers, educate business owners, employers, and workers, and prepare an evacuation plan - Designate high-rise buildings as evacuation places - Apply additional special disaster mitigation measures, such as a tsunami tower and evacuation procedure in hazard-prone areas
Industrial area	<ul style="list-style-type: none"> • Can be developed in safe areas, less hazard risk areas, and hazard-prone areas (no-dwelling zones) • Protect critical facilities and infrastructures by protection measures in hazard-prone areas • Reduce vulnerabilities <ul style="list-style-type: none"> - Enforce appropriate building and structural design standards and monitor the compliance to the regulations - Provide evacuation places and routes for visitors and workers, educate business owners, employers, and workers, and prepare an evacuation plan - Designate a high-rise building as evacuation place - Apply additional special disaster mitigation measures, such as a tsunami tower and evacuation procedure in hazard-prone areas
Institution	<ul style="list-style-type: none"> • Develop in safe areas or less hazard risk areas • Develop back-up offices or redundancy of the systems, for maintaining their functions and provision of public services • Improve preparedness to function as a center of emergency response operations and to accommodate evacuees at the time of crisis • Minimize exposures to disaster risk <ul style="list-style-type: none"> - Relocate the critical facilities from high risk areas • Reduce vulnerabilities <ul style="list-style-type: none"> - Enforce special building and structural design standards for institutional buildings, and monitor the compliance to the regulations - Introduce non-structural measures: evacuation places and routes, education, evacuation drills, increase of preparedness (such as stock of foods and materials, first aid and medical kits, battery and generators, and contingency plans), etc.
Infrastructure and utilities	<ul style="list-style-type: none"> • Strategically develop transport networks to guide settlement development in safe zones, to prevent development of hazard-prone areas (including cutting access to hazard prone areas), and to develop a compact city • Allocate and improve distribution systems to guide settlement development in safe zones • Provide protection and mitigation measures for the systems • Develop back-up or redundancy of the systems for continuity of service provision
Production (Agriculture)	<ul style="list-style-type: none"> • Minimize environmental impacts by promoting sustainable production • Promote agro-forest in upland/ slop areas, and select appropriate cultivation methods and varieties, in accordance with the susceptibility to disaster. • Introduce risk-sharing scheme (crop/ property insurance)
Protection (Forests/	<ul style="list-style-type: none"> • Protect/ preserve/ conserve/ rehabilitate forests, water bodies, shores, watershed, and

Water Bodies/ Open space/ Parks	coastal environment, especially in environmentally sensitive areas <ul style="list-style-type: none"> • Enforce easement and monitor the compliance • Convert hazard-prone areas to protection areas as buffer zones • Promote reforestation of hazardous and watershed areas • Develop open space/ parks in hazard prone areas after relocation • Protect bio-diversity • Implement inter-governmental watershed management/ environmental management
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Source: JICA Study Team, developed based on Supplement

(3) Development of Evacuation Plans

A primary strategy for disaster mitigation is evacuation because weather disasters such as typhoons are more or less predictable. The level of community preparedness greatly impacts the risk and vulnerability to disasters so that promotion activities for evacuation, such as evacuation drills and education, development of evacuation centers, selection of evacuation routes, identification of high risk areas and the vulnerable, etc. should be provided for the community in advance. A community evacuation plan describing evacuation strategies needs to be prepared based on hazard map analysis.

1) Evacuation Plans

The Study Team prepared hazard maps of the Target Area with crucial inputs for effective evacuation planning. This part examines a) installation of evacuation facilities and b) designating evacuation routes at the LGU and Barangay levels by utilizing the hazard maps.

2) Installation of evacuation facilities

A large number of lost human lives were derived from underdevelopment of evacuation facilities and belated evacuation in the affected areas. Evacuation facilities can be properly designed by considering the following prerequisites described in Table 2.2-6.

Table 2.2-6 Prerequisites for Evacuation Facilities

Prerequisite	Explanation
Structure	<ul style="list-style-type: none"> • Structures should be considered based on the target cause of damage such as strong wind or inundation by salt water • Hazard map is utilized to design high-floored facilities in a flooded area • Facilities should be designed to be friendly for vulnerable population such as the elderly
Capacity	<ul style="list-style-type: none"> • Capacity of the facilities should be confirmed by beneficiaries for proper management of the facilities • Capacity should be estimated with maximum number of evacuees and their emergency stockpile
Location	<ul style="list-style-type: none"> • Hilly areas are most desirable to construct evacuation facilities since tsunami such as the storm surge of Yolanda devastated buildings on the coastal side and low land.

Source: JICA Study Team

3) Designating evacuation routes

In order to designate proper evacuation routes, the hazard map is utilized to determine the areas of lower risk of inundation. It is desirable for the evacuation routes to detour around riverside areas considering the speed of inundation when a typhoon strikes. More than one evacuation route

should be designated in anticipation of rapid inundation and damage to the road.

4) Roles of administration for evacuation

For designating evacuation routes and facilities, the LGU is the appropriate institution to allocate evacuation facilities at the Barangay level and design its evacuation routes in the context of regional development. Considering the capacity of an administrative unit, the Barangay is the unit that should implement actual evacuation actions and management of the evacuation facilities. The Barangay is responsible for recognizing the capacity of the evacuation facilities and report to an upper institution for the proper facility planning. The Barangay level may also consider its evacuation plan such as early evacuation for children and the elderly and securing emergency stockpiles in the evacuation facilities. The hazard maps and evacuation maps are utilized for administrators to investigate how and where to evacuate, and for residents to recognize dangerous places in case of disaster and place for evacuation.

(4) Culture of Disaster Mitigation

A culture of disaster mitigation needs to be developed and maintained to perpetuate and disseminate lessons learned from the past disasters and to prevent occurrence of such disasters in the future. Disaster education needs to be provided to students and youths; the experience of and learning from disasters can be compiled into a consolidated form; and a memorial park or monument commemorating the disaster could be developed as a symbol of pledge for building safer cities and prevention of disasters.

2.2.5 Tools for Building Safer Human Settlements

Tools for recovery and reconstruction of safe human settlements are proposed in line with four categories of major disaster prevention facilities, disaster prevention and evacuation facilities, buildings, and land use regulations.

Table 2.2-7 Tools for Recovery and Reconstruction of Safe Human Settlements

Facilities		Development Policy for the Facilities
Major structures for disaster prevention	Breakwaters at river mouth Tide embankment River embankments	<ul style="list-style-type: none"> - Breakwater at river mouths and tide embankments are primary disaster prevention facilities to protect human settlement from storm surge. - River embankment development needs to take account of tide embankments and surrounding land use, installation of floodgates, elevation of river dike, etc.
	Coastal forests	<ul style="list-style-type: none"> - Coastal forests are developed in front of or behind embankments - Coastal forests are used for recreation purpose of the citizens, in addition to preventive functions/ buffer zones of storm surge or tsunami.
	Highways, arterial roads, and coastal roads	<ul style="list-style-type: none"> - Development of highways, arterial roads and coastal roads are integrated with new settlement areas. The routes are changed as necessary and are elevated for disaster prevention. - These roads function as evacuation routes and emergency supply routes at the time of disaster, and are used as community roads and for regional linkages and promotion of industrial development in ordinary times. - Elevated roads function as a growth boundary to prevent further urban expansion and sprawl.
Disaster prevention and evacuation facilities	Evacuation routes	<ul style="list-style-type: none"> - Evacuation routes provide good access to high ground or hilly areas for quick evacuation. - Evacuation routes should have appropriate and universal designs and allocation of sidewalks, stairs or slopes, etc. to provide safe and easy access for vehicles and pedestrians.

Facilities		Development Policy for the Facilities
		<ul style="list-style-type: none"> - Lighting facilities should be installed with emergency battery systems for night time evacuation and power loss.
	Memorial (disaster prevention) parks	<ul style="list-style-type: none"> - Memorial parks or facilities are developed in the land inappropriate for building development due to high hazard risk, subsidence or topographical conditions, in order to perpetuate and disseminate the disaster experience and learning to the next generation.
	Parks on higher ground	<ul style="list-style-type: none"> - Parks need to be developed in safe higher grounds near residential areas, plants, business and industrial districts, etc. - Parks function as temporary shelters at the time of disaster. - They provide open space for recreation for the residents during normal times.
	Relocation to safe and higher ground	<ul style="list-style-type: none"> - Residential areas are relocated to safe and higher grounds while maintaining a sense of community. - Appropriate methods for relocation should be selected with a holistic examination of topography, disaster prevention facilities, life style and livelihoods, and economic perspectives.
Buildings	Tide prevention buildings, evacuation buildings/towers	<ul style="list-style-type: none"> - Tide prevention buildings function to suppress the strength of storm surge in coastal areas. - Commercial, public, or other facilities with more than three stories are identified as temporary shelters in areas that are far from safe higher grounds. - Evacuation towers should be built near beaches and port areas where tide prevention or evacuation buildings do not exist in adjacent areas.
	Public facilities (Facilities for the disadvantaged)	<ul style="list-style-type: none"> - Core public facilities such as municipal/ city halls, hospitals, etc. need to be appropriately distributed for development of compact urban areas. - Public facilities should be located in safe areas and constructed in line with appropriate structure design standards, as the central facilities for search and rescue, and medical treatment at the time of disaster. - Appropriate means for evacuation should be provided in the facilities for the vulnerable, such as hospitals, schools, and welfare facilities, for quick and secure evacuation.
Land Use Regulation	Commercial and business district (Urban Core)	<ul style="list-style-type: none"> - Compact and mixed use development is promoted in the CBD or urban core, accommodating public facilities, commercial facilities, and residences. - Downtown or poblacion is redeveloped as the center where people gather, celebrate festivals, and enjoy various events together.
	Industrial areas, business districts	<ul style="list-style-type: none"> - Industrial areas and business districts are appropriately allocated with the consideration of distribution of disaster prevention facilities such as tide embankments and accessibility to key facilities like harbors, fishing ports, interchanges, etc. as well as provision of evacuation means.
	Parks and open space	<ul style="list-style-type: none"> - After relocation of the residences, parks and open space can be developed in the hazardous areas. - Parks, open space, or buffer zones should be developed between the tide embankments and residential areas in urban areas and rural settlements. - Parks and open space function as recreational space and improve the urban environment and enhance amenities and attractiveness of cities.
	Agricultural areas	<ul style="list-style-type: none"> - Agricultural areas are used as buffer zones between tide embankments and residential areas in urban areas and rural settlements. - Farm lands have functions of environmental protection and scenery preservation in addition to food production.
	Forest areas	<ul style="list-style-type: none"> - Coastal forests (mangroves) should be protected and nurtured to impede the strength of storm surge or tsunamis and to be used as buffer zones - Forests function to provide environmental protection and scenery preservation.

Source: JICA Study Team

2.2.6 Recovery and Reconstruction Patterns

In the recovery and reconstruction process, building safer cities requires a holistic approach entailing an appropriate combination of structural and non-structural measures. The recovery and reconstruction patterns of human settlements are proposed in Table 2.2-8.

Table 2.2-8 Recovery and Reconstruction Patterns of Human Settlements

		Level of Damage	
		Large	Moderate
Land use pattern	Built-up (urban area)	A. <u>Reconstruction of settlement with a holistic approach</u> ✓ Major facilities for disaster prevention ✓ Disaster prevention and evacuation facilities	B. <u>Improvement of settlement by reinforcement of disaster prevention and mitigation measures</u> ✓ Disaster prevention and evacuation facilities ✓ Buildings

		<ul style="list-style-type: none"> ✓ Buildings ✓ Land use regulation 	<ul style="list-style-type: none"> ✓ Land use regulation
	Rural settlement	C. <u>Relocation of settlement.</u> <ul style="list-style-type: none"> ✓ Disaster prevention and evacuation facilities (evacuation towers) ✓ Buildings (evacuation routes) ✓ Land use regulation (agriculture/ forest) 	D. <u>Combination of relocation and improvement of settlements</u> <ul style="list-style-type: none"> ✓ Disaster prevention and evacuation facilities ✓ Buildings ✓ Land use regulation (agriculture/ forest)

Source: JICA Study Team

Figure 2.2-6 illustrates an example of development of structural measures of tide embankments and elevated roads in the Target Area. Type A reconstruction can be applied for the area from Tacloban City to the government complex in Palo Municipality and the built-up area of Tanauan Municipality that are protected by embankments and elevation of the existing roads in the figure.

An image of Type A Reconstruction is described in Figure 2.2-7. After construction of embankments and elevated roads, coastal mangrove forests are planted along the shoreline. The affected areas are specified as no-dwelling zones by zoning or land use regulations and residences and business establishments are relocated to the area protected by the elevated roads. The core facilities such as city/ municipal halls and hospitals are relocated to higher grounds that will be designated evacuation areas. Evacuation routes are designated, connecting residential areas to the evacuation areas in higher grounds. An example of application of this reconstruction pattern to the Target Area is presented in Figure 2.2-8.



Source: JICA Study Team

**Figure 2.2-6 Image of Development of Structural Measures in the Target Area
 (with Embankments and Elevated Roads)**

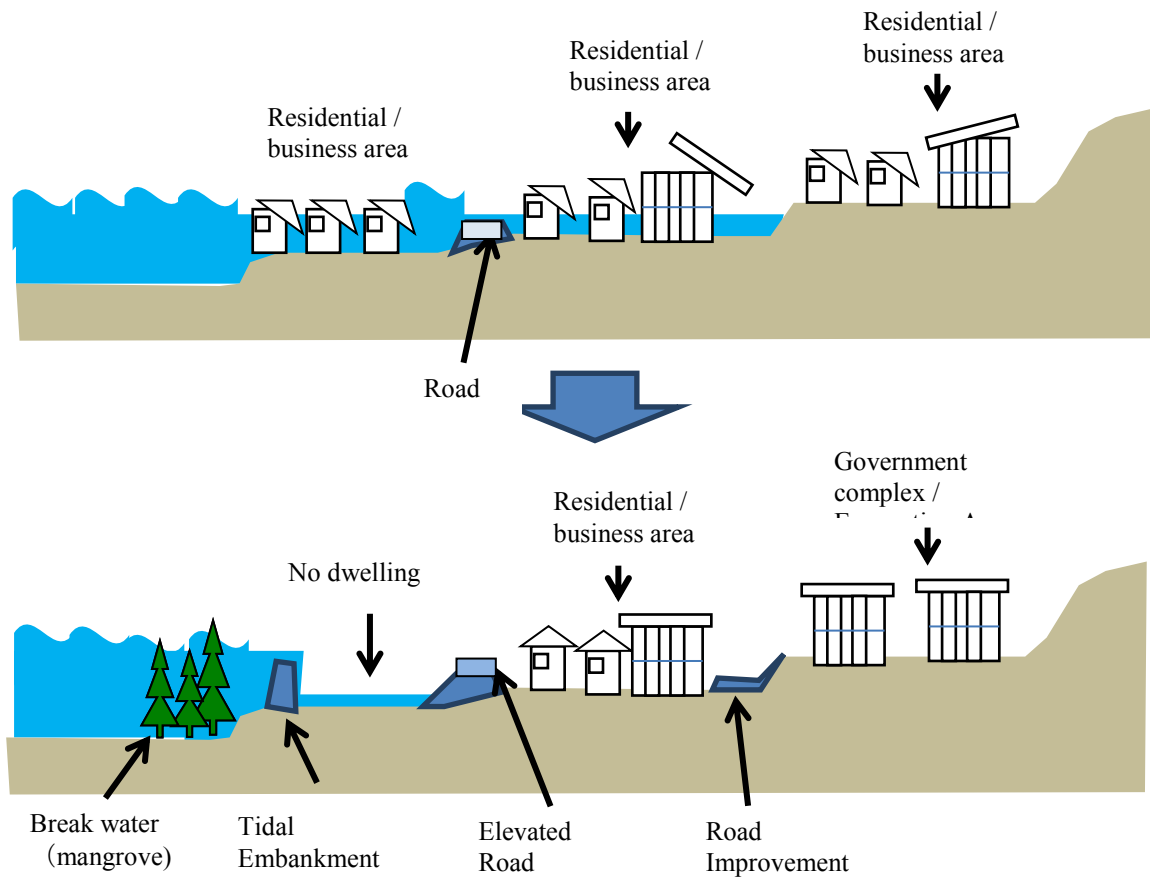
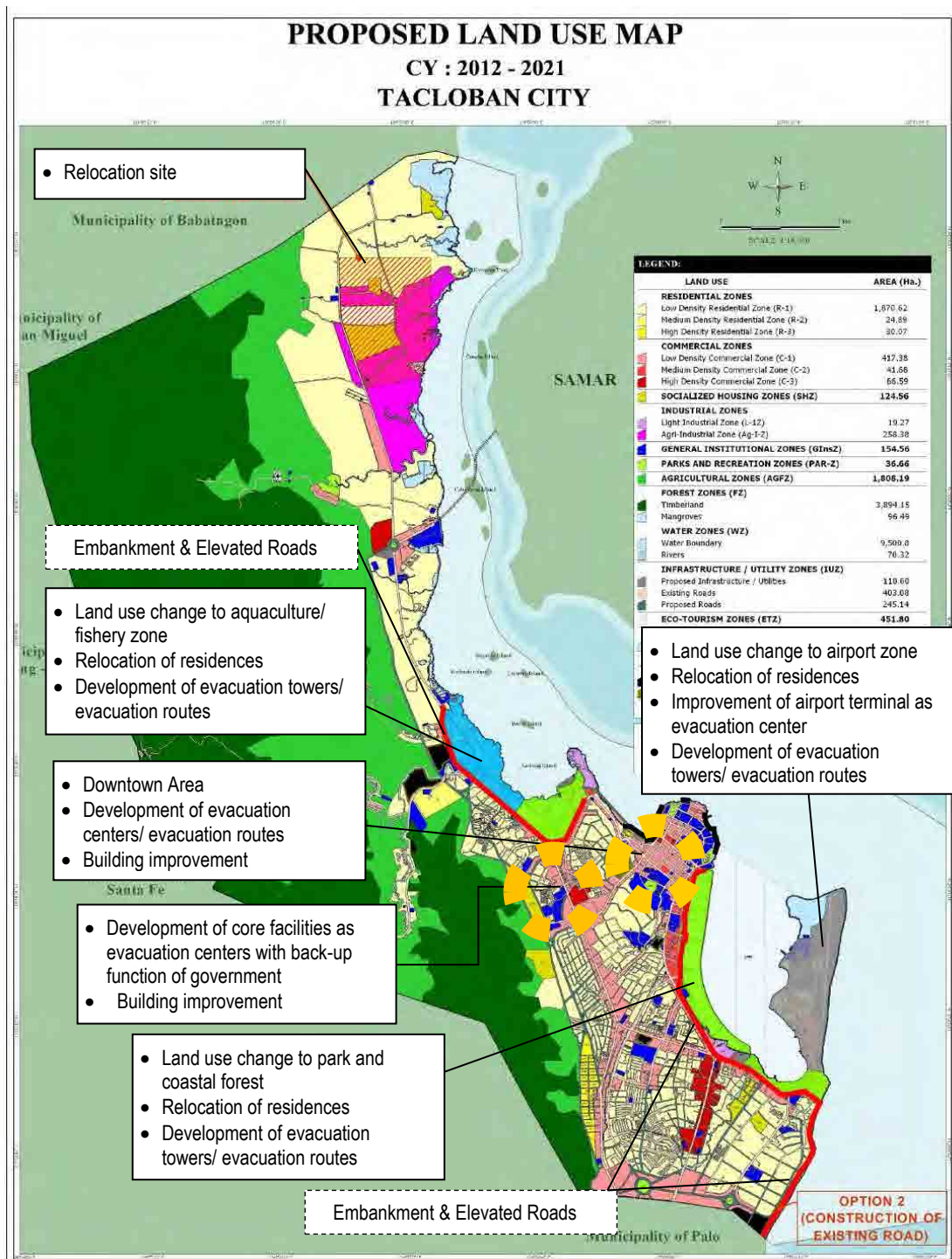


Figure 2.2-7 Type A Reconstruction Pattern



Source: JICA Study Team

Figure 2.2-8 An Example of Reconstruction Pattern in the Target Area

2.3 Recovery of People's Daily Life

Typhoon Yolanda is said to have damaged more the one million houses and 16 million people in the whole country and the islands of Leyte and Samar suffered most. Numerous efforts have been made by a wide range of stakeholders including the government, development partners, NGOs, private entities and moreover, the people themselves to recover the lives that they once had, but

the road ahead is yet long. Resuming daily lives of local residents is one of the core issues for disaster recovery and reconstruction. In order to support the affected people to do so, a basic environment must be first rehabilitated where people can live their lives in normal ways. The approach to be applied should be to empower the community in order to formulate a system for livelihood support; and resuming and strengthening access to basic public services including health, social welfare and education.

For the sake of development of the regional community, it is necessary cherish social ties and connections between people. This is because, particularly in the Philippines, many people, particularly low income families, are making a living relying on ties and networks in the local community. The disruption of the local community could also lead to a loss of income opportunities.

2.3.1 Rebuilding Communities

The community formulates the basis for people's ways of living such as; providing means of livelihood, fulfilling the need for companionship, enabling mutual support among its members, formulating and instilling norms and common values, for public services such as education and social welfare programs. Moreover, communities also function as the primary supporting body at times of disasters. The community which is able to perform such functions is the communities that are less vulnerable to disasters and able to bounce back to the pre-disaster level due to their adaptive capacity. In other words, they are disaster resilient communities.

Under the slogan of "Build-Back-Better process," a community should not simply go back to the pre-disaster state, but gain the disaster resilience. The measures to improve the disaster resilience of a community include ones to enhance physical strength of the community, e.g., repair and construction of community evacuation centers, facilities, and shelters, and more importantly those to build social capitals, such as barangay DRRM institutions, ties and networks for mutual support. Empowerment of the community can also result in the creation of a driving force for recovery and reconstruction, where the community itself proactively participates in its planning and execution.

Also, one important issue regarding disaster recovery and reconstruction is relocation of local residents. In reaction to Typhoon Yolanda, the government has already been relocating people who are residing in hazard prone areas. Although relocation will provide the people with physically safer living environments, improvident execution may result in weakening community ties and functions. The families subject to relocation should be involved in a planning process of relocation and information about relocation are shared and disseminated among IDPs. Participation of residents should be extended to development and implementation of barangay recovery and reconstruction plans. Organizing community events such as fiestas or banca races can contribute to integrating a community by experiencing activities shared by a community. Livelihood programs, social services, and the support to the vulnerable should be initiated based on their needs, with consultation with the residents.

2.3.2 Social Services

Numerous public facilities including healthcare, social welfare and education were damaged and their staff affected by the devastating typhoon. The administrative function of the government in providing public services was also impaired due to loss of records, equipment and staff. Such physical damage from Typhoon Yolanda needs to be promptly addressed in order to recover the systems for providing healthcare and social welfare services to the residents. Particular attention should be paid to relocation sites and temporary shelters, so that all residents can have access to such public services. Furthermore, physical and organizational capacities for providing social services should be strengthened so that they can provide continuous support at the times of calamities.

(1) Healthcare

Restoring healthier communities is an urgent task in post disaster recovery. Health services needs to be promptly recovered in order to respond to increasing demands for health services. The progress in recovery and rehabilitation of health facilities affects the quality of services that the residents can receive. Thus, it needs to be undertaken in the way that assured the vulnerable and residents in remote areas and relocation shelters of access to health services and needed specific care. In addition to relief operations for the injured and sick patients, the upmost issue is the mental care for the people traumatized by the devastating experiences during and after the calamity. Importance should be attached to the provision of proper care so that the mental burdens of the affected people can be reduced and so that they can live healthier lives. Potential outbreaks of epidemics must be addressed to prevent a secondary disaster after natural calamities, by promoting monitoring, education and activities to improve Water, Sanitation and Hygiene (WASH) conditions. The recovery of the health sector aims at establishing disaster resilient health systems. The measures to integrate DRRM aspect in health care entail capacity building of health personnel, contingency plan development, application of structural requirement for health facilities, building the robust logistic system and stockpile system.

(2) Social Welfare

A strategy to lead reconstruction and recovery in the field of social welfare aims to build more inclusive community for the vulnerable groups, including women, children, senior citizens, and PDW, whose needs are often neglected in relief and recovery and who are more likely to be suffered from instability and confusion during and post disaster period. The damaged social welfare facilities are repaired and reconstructed to ensure access to social welfare services. In particular, social welfare service facilities should be developed in or accessible from the transitional and permanent relocation sites that tend to be developed far away from the existing settlements. While recovering the physical facilities, an attempt is made to transform social welfare systems more disaster resilient. The policies for that sake include capacity building of the officials in social welfare sector on child protection and GBV, training of LGUs on protection of

the vulnerable during disaster, enhancement of the system for prevention of GBV and support to the victims, increase of the number of Social Workers in each LGU, community-based referral mechanisms, and involvement and integration of vulnerable groups in community DRRM activities and an inclusive approach of livelihood assistance.

(3) Education

The recovery and reconstruction of the education sector is directed at recovering and increasing access to and availability of disaster-resilient education. Firstly, access to education should be guaranteed. This is primarily achieved by repair and reconstruction of damaged education facilities; however, special attention is paid to securing access of the vulnerable children who are displaced or relocated, or under financial constraints, or who are with disabilities. Mental care for children and youth affected by the typhoon is considered with particular importance, to prevent dropping out from school and to reintegrate those who dropped out of school due to the disaster. In addition to children and youth, psychosocial support should be extended to include teachers in relief and recovery assistance. Also, in consideration that school buildings are widely distributed throughout the Target Area, improvement of disaster-resilience of schools and integration of disaster risk reduction and management in school curriculums benefit not only the education sector, but also the entire community, because the adaptive capacity is increased and the vulnerability declines.

2.3.3 Restore Livelihood of the Affected Families

Expanding livelihood opportunities has been a much needed policy even before the Yolanda hit the region, since the poverty incidence of the Region VIII has been among the highest in the country. The disaster simply has made the situation worse by taking away the livelihood of millions of people in the region. An approach to restore livelihood of the affected families targets the three major groups of farmers, fisher folks, and the vulnerable, and proposes appropriate interventions in accordance with their different needs. For the two groups of farmers and fisher folks, the policies for livelihood restoration intend to support their livelihood while making an effort to regain the production capacities through provision of equipment, tools, and other inputs to restart farming or fishing. Such policies promote expansion and improvement of the livelihood by enlarging their primary activities, i.e., agro-processing or marine products, in order to help a living of farmers and fisher folks after the recovery period. The vulnerable, including women and IDPs, whose lives are jeopardized due to squeezed livelihood opportunities by the disaster or by relocation, must be empowered by creating livelihood opportunities. The approach to livelihood creation of the vulnerable includes emergency assistance, promotion of new agricultural products, vocational training, and micro-credit financing.

2.3.4 Rebuild Disaster-Resilient Shelter

A policy direction in provision of shelters focuses on improvement of disaster resilience of shelters by regulating residential development of hazardous areas and improving housing

structures, and acceleration of shelter provision to the affected families. Rebuilding disaster-resilient shelters is an impending issue for recovery of people's daily life. The best solution to this issue is to prevent residential development in danger zones and relocate the existing residences from those areas to safe areas, while, structure of housing itself may need to be strengthened with improving the building code and its enforcement. To pursue this policy, appropriate regulatory actions can be undertaken, including ordinances on regulation of safe, unsafe and controlled areas, amendment of zoning, or requirements of structural design and inspection of construction. Needless to say, temporary and permanent shelters should be urgently provided to the families who lost houses or still stay in danger zones. The programs and projects to accelerate housing provision also ensure safety of settlements from disasters, access to public facilities, provision of livelihoods, and special needs of the vulnerable.

2.3.5 Improve Living Environment

Safe and healthy living environment can be built through improving water and sanitary conditions and reducing disaster risk in living environment. One of critical issues in the aftermath of the disaster is increased population lacking access to safe water and clean sanitation. To cope with this issue, measures to be taken for provision of safe and adequate water and sanitations consist of improvement of disaster-resilience of water supply, upgrade of water distribution systems to fulfill the gaps existed before the disaster, improvement of sanitation access, introduction of septage treatment, and provision of hygiene education.

Sound environmental management contributes to improvement of safety of living environment. A policy is proposed for environmental management for disaster risk reduction and mitigation focusing on coastal, river, and watershed areas. Protection and improvement of coastal and river environment as well as watershed areas are encouraged, because coastal and watershed forests work as buffer zones to mitigate the force of disasters such as tsunami and storm surge, and water containers to absorb rainfall and to decrease water flow of rivers. Well-maintained forests and coastal lines also improve amenity of living environment. Danger zones where high disaster risk is identified are converted to parks and open spaces commemorating the disaster and victims. People can enjoy fresh air by strolling shorelines, trekking and camping in forest areas, and sports and recreation activities in parks.

2.3.6 Disaster Debris Disposal and Improvement of Solid Waste Management System

Debris generated by the disaster should be removed and disposed as soon as possible in order not to disturb relief operations and to support the recovery process. Nevertheless, rapid disposal of huge volume of debris requires inter-governmental cooperation, since a LGU alone could not handle and manage it entirely by themselves. Thus, a proposed policy direction in debris disposal is cross-regional and cross-sectoral cooperation systems across the central, provincial, city and municipal levels, and in cooperation with international agencies, NGOs, private sectors. Meanwhile, LGUs have to establish a comprehensive SWM system based on 10-year long-term

solid waste management plan, as mandated by Republic Act No. 9003, because the current open dumpsites used by LGUs may adversely affect health and quality of life of residents near the sites, causing pollution and degrading surrounding environment.

2.4 Restoration of Regional Economy and Promotion of Industries

Fostering of local industry usually takes a substantial amount of time. Prevailing industries in a certain region are the result of a complex combination of factors including local resources, macro-economic background, and political and historical characteristics. In consideration of regional resources and the industrial structure of eastern Leyte and southern Samar, which are largely dependent on agriculture and fishery, immediate and substantial changes in the regional economic structure will not be deemed as a practical option. Therefore, the main pillar for restoring the regional economy and promoting industries will be to reconstruct the two main industries in a form that is more sustainable and disaster resilient.

In addition to fishery and agriculture, attempts can be made to further enhance the future regional economy by adding values to locally produced products and by exploring opportunities for new industries. The proposed policy directions for the expansion of the regional economy shall include: formulation of regional market; coordinated tourism promotion and development; and innovative technology based industry and ICT industry promotion. In the recovery and reconstruction policy, the following approaches shall be taken for restoring the regional economy and promoting industries.

2.4.1 Sustainable Fishery Development

The approach for sustainable fishery development consists of three strategies: prompting recovery of local fishery activities, shifting from capture fishery to fish culture, and adding value and promoting market development. Most of the fisher folks in the disaster hit areas lost their “banca” (local boats used for fishing) and fish-pens due to the storm surge that occurred at the time of the typhoon. The first step for reconstruction of the fishery industry will be to support the affected fisher folks in terms of finance and equipment for restarting their fishery activities.

Meanwhile, commonly practiced capture fishery in the area is dependent on natural resources. This not only results in unstable income from fishery activities, but also pressures local natural resources which are only available to a limited extent. In recent years, fisher folks practicing fish culture have been increasing in the area particularly for fish such as lapu - lapu and milkfish which are widely accepted in the market. Shifting from capture fishery to culture shall be further promoted in order to stabilize and improve the income of local fisher folks, and at the same time, in order to sustainably manage the limited marine resources. Disaster resilient technologies shall also be introduced for fish culture practices in order to minimize future damage by natural disasters.

Furthermore, one of the major constraints for fishery in the region is the limited post-harvest and market distribution systems. Basic infrastructure for distribution of fish shall be established and

measures should be taken to develop new markets for local fish produce so that the industry can further expand its scale and contribute to the regional economy.

2.4.2 Recovery and Promotion of Agriculture

Agriculture in the Target Area mainly consists of coconut and rice. While coconut fields were severely damaged by the strong winds, damage to rice was somewhat limited because many farmers managed to harvest the rice before the typhoon. In order to revitalize agriculture in the Target Area, coconut fields must be reclaimed and farming resumed.

The first step for reconstructing coconut farming would be to replant the damaged coconut trees. While efforts for production and distribution of seedlings are already being made by the PCA and other donor organizations, it is said that the trees will require from five to ten years to bear fruit in sufficient amounts. Under this situation, alternative means of income generation must be developed and introduced to the affected farmers in order to sustain their livelihoods during this period. Cash for work activities that were widely conducted in the Target Area are expected to have had a significant impact on the affected farmers during the time of emergency response. However, a more stable mechanism that can utilize the resources remaining in the hands of the affected farmers (land resources, biomass, etc.) should be examined.

Furthermore, technologies should be sought to increase the resiliency of the farmers and coconut fields towards future disasters. This should be done in two approaches: by adapting coconut varieties and practices that are physically resilient to strong winds, and by seeking measures to increase the market value of agricultural products through means of market development and adding value in order to increase the resiliency of farmers in terms of their financial situations.

2.4.3 Tourism Development

The islands of Leyte and Samar are blessed with numerous potential tourism resources. Although there are still some obstacles for the boosting of the tourism industry in the region, tourism is considered to have good potential in contributing to the regional economy in the future. The following approach shall be applied for tourism development in the Target Area.

Existing tourism resources shall be efficiently identified and studied in order to evaluate their potential values. Resources are not limited to only blue and green tourism (marine, forests, mountains, lakes, caves, etc.) and historical (architecture, monuments, etc.), but also should include cultural (fiestas, traditional arts, local foods, hospitality, etc.). Such resources should be effectively combined in order to formulate attractive tourist destinations. In parallel, sufficient information infrastructure should be developed to disseminate touristic information about Leyte and Samar. Transport networks and infrastructure should also be developed in order to attract a wide range of tourists.

Furthermore, longer term measures should be implemented such as human resource development in the tourism sector, securing security, and increasing the hospitality of the region as a whole, in

order to increase the attractiveness of Leyte and Samar as a tourist destination.

2.4.4 Recovery and Promotion of Trade and Innovative Industry

Considering that economic development of the region also contributes to increasing its resiliency towards disasters in terms of early recovery, it is important to recover and promote trade and other industries related to agriculture and fishery as well as to explore the potential of new industry based on innovative technology. The approaches to be taken for the first objective include; development and value adding of products for creating external earning, development of regional markets for locally produced commodities, and restoration of the wholesale-based market system for imported commodity distribution. Meanwhile, there are potentials tapped by use of innovative technologies such as the energy industry, i.e., biomass energy and highly activated carbon production and deep-sea water power generation, and ICT industry promotion.

2.5 Japan Grant Aid Projects and Quick Impact Projects in Recovery and Reconstruction

As part of the project, Grant Aid Projects and Quick Impact Projects (QIPs) were launched to accelerate the recovery and reconstruction process, guided under the three principles of recovery and reconstruction. A combination of the projects for reconstruction of facilities, livelihood supports and economic recovery aims at responding to immediate needs of the communities in the period of emergency response and early recovery, and stimulating a long term process of recovery and reconstruction. Each of the project components contributes to the three principles as shown in Table 2.5-1. The project objectives and components in relation to each recovery and reconstruction policy will be provided in the subsequent chapters.

Table 2.5-1 Japan Grant Aid Projects and Quick Impact Projects in Recovery and Reconstruction

Grant Aid Projects/ QIPs	Location	Major Project Components	Recovery and Reconstruction			Emergency Response and Early Recovery
			Building Safer Cities	Recovery of People's Lives	Recovery Economy	
Grant Aid Projects	Reconstruction of Elementary Schools (8 schools)	Polo, Tanauan, Tolosa, Dulag, Mac Arther, Marabut, Giporlos	• Construction of school buildings	✓	✓	✓
	Reconstruction of Medical Facilities	Tacloban	• Construction of outpatient quarter in EVRMC	✓	✓	✓
	Reconstruction of Rural Medical Facilities and Equipment (RHU)	Dulag, Abuyog, Marabut, Lawaan	• Reconstruction of RHUs • Provision of medical equipment	✓	✓	✓
	Rehabilitation of Electrical Equipment	DOE	• Provision of electrical equipment	✓		✓
	Recovery of Construction Equipment	DPWH	• Provision of construction equipment	✓		✓
	Rehabilitation of Equipment for National Maritime Polytechnic	NMP	• Provision of equipment for education and training			✓
	Rehabilitation of Equipment for Guiuan Marine Fisheries Development Center	Guiuan	• Provision of equipment for fishery development			✓

	Rehabilitation of Equipment for Tacloban Airport	Tacloban	• Provision of equipment for airport	✓			✓
	Reconstruction of Local Government Office	Marabut, Lawaan	• Construction of municipal halls	✓	✓		✓
Quick Impact Projects (QIPs)	QIP-1, 8	Regenerating Livelihood Through Introduction of Disaster Resilient Submersible Fish Cage	Basey/ Guiuan	• Livelihood Support for Fishermen • Development of disaster resilient aquaculture		✓	✓
	QIP-2	Recovery of Rural Health Service Support System Through Reconstruction of Provincial Health Office	Palo	• Rehabilitation of PHO buildings • Procurement of equipment	✓	✓	✓
	QIP-3	Regenerating Local Livelihood Through Processing of Agriculture and Fishery Products by Small-Scale Community Groups	Tolosa	• Reconstruction of a multipurpose livelihood building • Training for women's groups		✓	✓
	QIP-4, 5	Training on Disaster Resilient Construction Technologies Through Reconstruction of National Agricultural School/ National High School	Balangiga/ Dulag	• Construction technique training through the repair and reconstruction		✓	✓
	QIP-6, 7	Reconstruction of Day Care Center for Community Rehabilitation (Vitalization of People's Dialogue)	Salcedo/ Guiuan	• Reconstruction of Day Care Center	✓	✓	✓
	QIP-9, 10, 11, 12	Improving Municipal Capacity for Disaster Resilient Construction Management Through Reconstruction of Public Markets and Slaughter House	Guiuan/ Mercedes/ Mayorga/ Dulag	• Collaborative implementation from design to construction and supervision	✓		✓
	QIP-13	Promotion of Local Products to Improve Livelihoods for the Survivors of Typhoon Yolanda	Tacloban	• Promotion of products at a promotion center			✓
	QIP-14	Regenerating Livelihood Through Production of Coco Charcoal Briquette	Mercedes	• Production of coco charcoal briquette		✓	✓
	QIP-15	Integrated Culture of Oyster and Milkfish Improvement for Sustainable Aquaculture and Livelihood	Tanauan	• Recovery of the oyster farming • Livelihood Support for Fishermen		✓	✓

Source: JICA Study Team

Chapter 3 Emergency Measures for Relief and Recovery from Typhoon Yolanda

3.1 Emergency Response after the Typhoon Yolanda

After Typhoon Yolanda hit the region on November 8, 2013, a proclamation declaring a National Calamity¹¹ was issued on November 11 by President Benigno S. Aquino III based on the recommendation of the NDRRMC stipulated in Sec.16 of RA No.10121. The proclamation covered the area affected by Typhoon Yolanda, including Samar, Leyte, Negros, Cebu, Bohol, Capiz, Aklan, Antique, Iloilo and Palawan. Accordingly the government provided about Php 2.6 billion worth of relief assistance to nine affected regions. A total 35,417 personnel, 1,351 vehicles, 118 sea craft, 163 aircraft and 28,361 other assets from national, local, and foreign agencies, responders, and volunteer organizations deployed to various areas to support relief and medical operations¹².

In line with the Memorandum Orders issued after the disaster, the tasks and responsibilities in emergency relief were designated to respective government agencies. The central government officials, namely the secretary of the Department of Finance, the director of the Technical Education and Skills Development Authority, the secretary of the Department of Transportation and Communications were designated as coordinators in the preparation and distribution of the relief packages needed in the affected areas.¹³ All government heads including LGUs' were authorized to mobilize their assistance in relief and rehabilitation efforts.¹⁴ The Department of Health was temporally enabled to direct supervision and control over sanitation when LGUs' service and facilities in the affected areas were not available or in inadequate condition.¹⁵ In response to the urgent needs of relief and recovery, information regarding the affected areas were consolidated and passed on to the GIS personnel established at the NDRRMC in coordination with the Department of Science and technology (DOST).¹⁶ Interest free loans by government financing institutions (GFIs) were granted pursuant to Section 17 (d) of RA No. 10121 and a six-month moratorium on the payment of outstanding loans of individuals and entities directly affected by Typhoon Yolanda was mandated.¹⁷ On December 6, 2013, the OPARR was founded to coordinate

¹¹ <http://www.gov.ph/2013/11/11/proclamation-no-682-s-2013/>

¹² NEDA(2013), Reconstruction Assistance on Yolanda,pp.3.

¹³ Memorandum Order No. 60, s. 2013, "Designating Coordinators for Relief and Recovery Efforts in Connection with the Calamity Arising from Typhoon Yolanda," on November 14, 2013.

<http://www.gov.ph/2013/11/14/memorandum-order-no-60-s-2013/>

¹⁴ Memorandum Circular No.57, s. 2013 "Directing all department and secretaries and heads of agencies, bureaus, or officers of the government, including government-owned and controlled corporations, and authorizing and encouraging local government units, to mobilize their respective officials and employees in the relief and rehabilitation efforts in response to the calamity arising from typhoon Yolanda" on November 15, 2013

¹⁵ Memorandum Order No. 61, s. 2013¹⁵ "Directing the Department of Health to temporarily assume direct supervision and control over health and sanitation operations of local government units affected by typhoon Yolanda" on November 18 2013.

¹⁶ Memorandum Circular No. 58, s. 2013 "Directing all concerned heads of departments and agencies/offices, and encouraging concerned local government units to provide timely information to be used by the geographical information system relating to the relief and rehabilitation efforts in response to the calamity arising from typhoon Yolanda," November 19, 2013.

¹⁷ Memorandum Circular No. 59, s. 2013 "Directing all government financial institutions to grant a moratorium on loan

with NDRRMC and its member agencies; consultation with LGUs in the formulation of plans and programs for the rehabilitation, recovery, and development of affected areas, propose funding support for the implementation of the plans and programs; and exercise oversight over the relevant government agencies with respect to the implementation of the plans and programs. President Benigno Aquino offered the position of Secretary of PARR to former Senator Panfilo Lacson.¹⁸

On 18 December 2013, President Aquino held a briefing for the Philippines development partners on RAY¹⁹, which was prepared by NEDA co-organized by the Department of Foreign Affairs (DFA) and the DOF. The President expressed his commitment to “Build-Back-Better”, a principle of building more resilient communities in the areas devastated by Typhoon Yolanda. RAY also states the priority of the emergency response and early recovery in the first six months on repairs of housing and the provision of temporary shelter; reactivating social services; rehabilitating water supply and sanitation systems, transport and power infrastructure; restoring livelihoods and temporary employment; and resuming national and local government services. NEDA estimated an amount of PhP 360.8 billion requirements for recovery and reconstruction investment until 2017. According to DILG, RAY has disbursed PhP 1.8 billion from the funds of DILG and DPWH in April 2013, of which PhP 1.1 billion, equivalent to 62% of total RAY disbursement, was allotted to the project target areas of Tacloban City and 17 municipalities.

Eighteen LGUs in the Study Area, i.e., Tacloban City and 17 municipalities prepared their RRP by the end of March 2014. The investment amounts proposed in the RRP are summarized and aggregated into five sectors of social, economy, infrastructure, environment, and governance. In terms of investment amount, the social sector ranked 1st (44.7%), followed by the infrastructure (27.4%). The RRP of Leyte and Samar Provinces were approved by OPARR in May 2014.

Based on Post Disaster Needs Assessment (PDNA) completed in March 2014, the Comprehensive Rehabilitation and Recovery Plan (CRRP) was submitted from the Secretary of OPARR on August 1 and approved by President on October 29, 2014. The CRRP estimated investment needs of the PhP 170.9 billion in four sectors: PhP 75.6 billion for resettlement, PhP 35.1 billion for infrastructure, PhP 33.6 billion for livelihood, and PhP 26.4 billion for social services as described in Chapter 1.

3.2 Emergency Response to Early Recovery

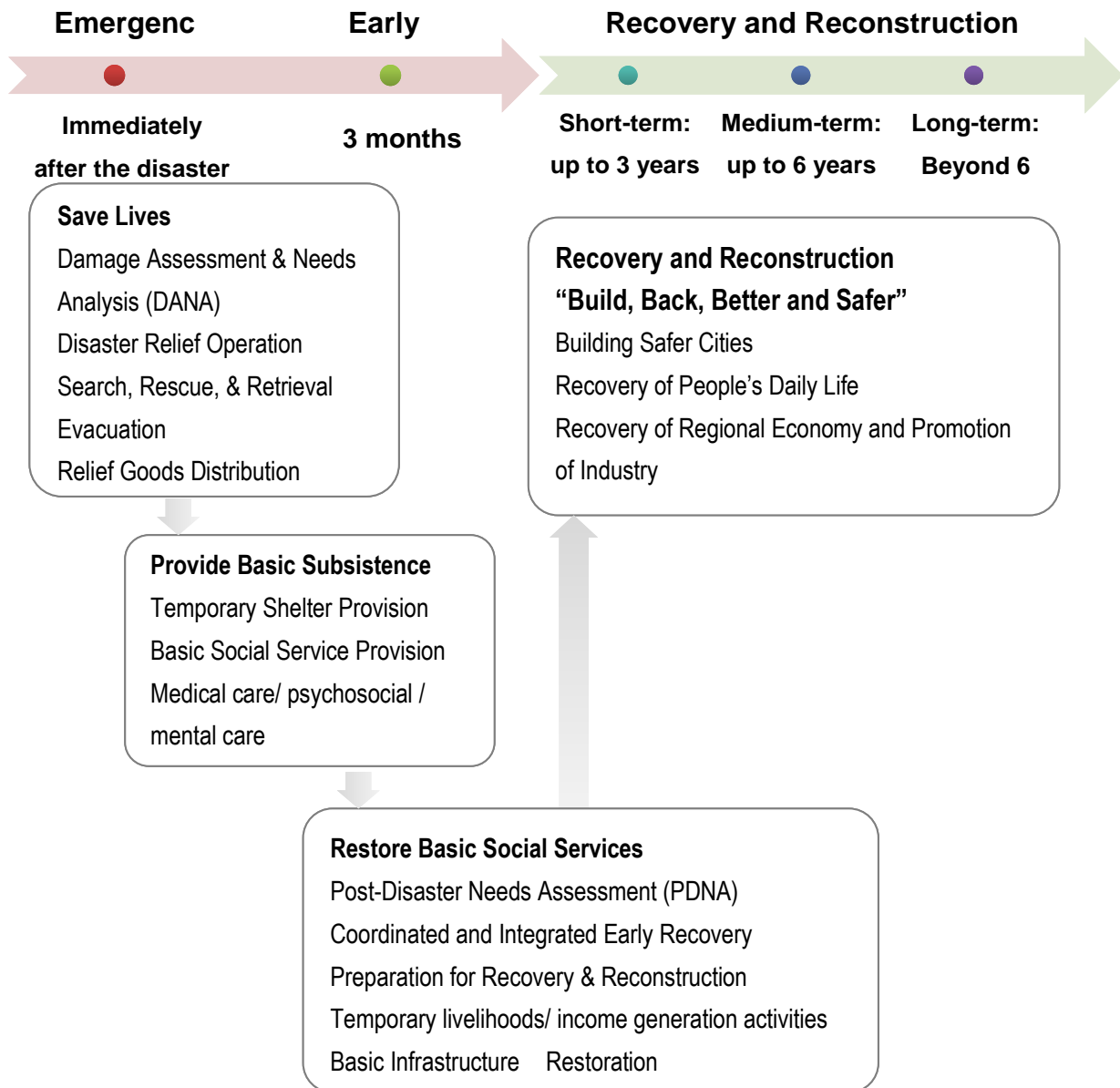
Emergency response and early recovery take place before recovery and reconstruction start. Emergency response aims at saving lives and providing basic subsistence by providing emergency services and public assistance immediately after the disaster. Emergency response gradually shifts to early recovery which is directed to two objectives of humanitarian assistance and sustainable

payments of, and extend interest-free loans to, individuals and entities directly affected by the calamity arising typhoon Yolanda,” on November 26, 2013.

¹⁸ Memorandum Order No. 62, s. 2013 “Providing for the function of the Presidential Assistance for Rehabilitation and Recovery” on December 6, 2013. <http://www.gov.ph/2013/12/06/memorandum-order-no-62-s-2013/>

¹⁹ <http://www.gov.ph/2013/12/18/speech-of-president-aquino-at-the-briefing-on-reconstruction-assistance-on-yolanda/>

development toward a recovery and reconstruction process.²⁰ The activities from emergency response to early recovery are organized to achieve three objectives: 1) save lives, 2) provide basic subsistence, and 3) restore basic social services (see Figure 3.1-1).



Source: JICA Study Team, developed based on NDRRMP.

Figure 3.2-1 A Process from Emergency Response, Early Recovery, to Recovery and Reconstruction

In emergency response, disaster relief operation is conducted to prevent further loss of lives and injuries, while evaluating damage and needs of the affected people through Damage Assessment and Needs Analysis (DANA) immediately after the disaster. The affected families are evacuated and/ or provided with temporary shelters such as tents; Search, Rescue and Retrieval (SRR) operations are conducted; and relief goods are distributed. To support people’s life in the

²⁰ Definitions of emergency response and early recovery – see “disaster response” in RA No. 101211 and “early recovery” in IRR Rule 2 Section 1.

disaster-affected areas, basic subsistence services are provided, including, medical and health services, psychosocial and mental care, water supply and sanitation, child protection, etc. Roads are cleared by removing debris and rubble for delivery of relief goods and operations. Post-Disaster Needs Assessment (PDNA) will be conducted one month after the disaster to identify programs, projects, and activities and to develop a recovery and reconstruction plan. Meanwhile, temporary livelihood support and income generation activities are launched targeting the affected families who lost means of livelihoods and face financial difficulties. Restoration of damaged basic infrastructures, such as transport facilities is started in a process toward recovery and reconstruction.

3.3 Emergency Response to Early Recovery Operations

3.3.1 Damage and Needs Assessments

(1) Damage Assessment and Needs Analysis (DANA)

The first priority to be conducted immediately after a disaster is Damage Assessment and Needs Assessment. DANA is a rapid assessment of situations of damage, its causes, repair and rehabilitation needs, and the remaining functions and operational capacity of the systems, conducted within 24 to 28 hours after the disaster.²¹ The data collected through interviews, survey, and inspections are compiled into a DANA report by a DANA Team. The report will suggest required inputs, activities and operation systems in post-disaster, with a certain time frame.

In order to conduct damage assessment promptly, a DANA Team should be organized as a part of activities under disaster preparedness, with provision of training. A standardized format and criteria for DANA also need to be prepared by relevant national agencies and disseminated through the nation.

In the aftermath of Yolanda, the sector-level damage and loss assessments were conducted in accordance with internationally recognized post-disaster assessment methodology²² and the outcomes were used for the preparation of RAY. The overall recovery and reconstruction needs were estimated from the best available quantitative and qualitative data applying the ratio of public to private ownership and by sector, and divided into short- and medium-term recovery and reconstruction needs. The assessment was done in the way that allows to compare post-disaster assessments in the Philippines and with other countries.²³ The field assessments were continued until March as Post-Disaster Needs Assessments as described below.

(2) Post-Disaster Needs Assessments (PDNA)

Post-Disaster Needs Assessment is an assessment of damages, losses, and needs for identifying

²¹ NDRRMP. 2011.

²² For example, UN-ECLAC. 2003. Handbook for Estimating the Socio-Economic and Environmental Effects of Disasters. United Nations Economic Commission for Latin America and the Caribbean

²³ RAY. 2013

and prioritizing programs, projects, and activities for the disaster affected areas.²⁴ The PDNA is to conduct one month after the disaster led by OCD, taking a multi-sectoral and multi-disciplinary approach covering hazard and vulnerability assessment, infrastructure, livelihood and economy, social sector, and resettlements. It provides inputs for development and implementation of a rehabilitation and reconstruction plan.

In the case of Yolanda, PDNA was conducted by seven teams consisting of the national, regional and local government units in the 171 municipalities and cities located within the 50-km radius of the Typhoon Yolanda track. It was completed in March 2014 and the report was submitted to President in May 2014. The results of PDNA highlighted the damage equivalent to PhP 89.60 billion, loss of PhP 42.76 billion and PhP 104.64 billion for reconstruction needs. It shows some gaps between the assessment in RAY and PDNA, which focuses on government financing needs especially for physical reconstruction. Based on PDNA, thus, the assessment of disaster impacts in RAY was reviewed and CRRP was developed by OPARR.²⁵

For effective and rapid implementation of PDNA, responsible agencies and organizations need advance preparation of it, including identification of the contents of assessment, e.g., assessment items and criteria, a procedure of assessment and analysis, and the methods of goal setting and project identification and prioritization. A composition of the PDNA team and coordination mechanism should be developed during normal time.

Respective organizations may need to conduct an additional assessment of damage and needs, to examine causes of specific damage not covered by the overall PDNA and to propose countermeasures to address the causes. Similar to PDNA, the preparation work for such assessment is required in advance and should be included in their disaster risk reduction and management plan. Professional organizations or expert groups can be called for to assist in conducting a supplemental assessment of damage and needs.

3.3.2 Evacuation and Temporary Shelters

(1) Evacuation

The affected families whose houses are damaged or lost, or located in danger zones must be immediately evacuated in safe places, to prevent a secondary disaster. To do so, the areas to be evacuated, i.e., hazardous zones, need to be identified at first. Evacuation places may include various public facilities designated by the government such as schools, gymnasium, government facilities, churches, etc. When Yolanda struck the region, temporary evacuation centers where people evacuated were mostly schools. However, it became an issue, because the use of schools as evacuation centers for extended time resulted in delay in resuming schools, and posed burden on the school administrations with considerable costs for cleaning up the schools. From this experience, the other public facilities such as sport and cultural facilities, and community centers

²⁴ NDRRMP. 2011. ditto.

²⁵ NEDA. Reconstruction Assistance on Yolanda: Implementation for Results.

are recommended as more preferable options for evacuation centers.²⁶

The damaged evacuation centers should be repaired and their safety should be confirmed. Barangay officials and other community leaders should take the lead in evacuation of residents, management and operation of evacuation centers, distribution of relief goods to the evacuation places, and communication between communities and the government. This evacuation is transient before temporary shelters become ready. The temporary shelters should be provided as soon as possible, since a long stay in evacuation centers has resulted in health and safety issues among evacuees due to the poor or damaged facilities and congestion of many of the evacuation centers. The evacuation places should be identified in safe areas, with preparation of stocks of emergency foods and supplies for the expected number of evacuees before the disaster, in accordance with an evacuation plan.

(2) Temporary Shelter Provision

Temporary shelters should be provided in designated relocation sites or safe zones to relocate the families from hazardous zones as soon as possible, while people are evacuated in evacuation centers. The Shelter Cluster organized various activities to support provision of shelters, including distribution of construction materials, coordination of activities of concerned organizations, monitoring and evaluation of progress in shelter provision, development of technical guidance on disaster resilient shelter design, etc., under the leadership of DSWD. The Cluster has also helped to articulate a policy guideline on shelter provision, including the issues concerned the 40 meter no-dwelling zone policy. Specific meetings and assistance groups were organized for Tacloban, Guiuan, and coastal municipalities. Emergency shelter assistance such as provision of tents, makeshift houses, tarpaulins, and other materials were provided for the affected families by the national and local governments, international organizations, and humanitarian organizations, during the aftermath of the disaster. By June 2014, emergency shelter assistance such as tents and tarps, and self - recovery assistance e.g. roofing materials and core shelters were provided to 358,600 families (73%) and 116,750 families (24%) respectively among damaged or destroyed houses of 492,850 in Region VIII.²⁷

Safety of the families in danger zones and in evacuation sites has to be assured by provision of temporary shelter assistance before the next typhoon season for prevention of a second disaster. Special attention needs to be paid to the vulnerable, e.g., women, infants, children, the handicapped, and senior citizens. Temporary shelter sites should be equipped with adequate water supply and sanitation and accommodate daycare centers, child friendly spaces, and health stations, so as to provide safe and healthy living environment for everyone, and specifically for the vulnerable. It is also necessary to set minimum standards for temporary shelters and site development, including associated facilities for social services. Public spaces such as parks, and open space, or government-owned lands are utilized as temporary shelter sites. Private owned land

²⁶ NEDA. Ditto.

²⁷ Shelter Cluster. Typhoon Haiyan (Yolanda) Region VIII Shelter Cluster 6th June 2014. (140606 ICM Region VIII shelter Cluster presentation.pdf)

may be rented after debris is removed, in coordination between the government and the land owners, if sufficient public lands are not identified.

Repair kits and construction materials are provided for damaged houses in safe zones which are still inhabitable after repair, to increase provision of the shelters. The repair of damaged houses in danger zones or zones with high disaster risk should be suspended until the policy and the land classification for safe, unsafe and controlled zones, or disaster risk mitigation measures are clarified. For safety of the residents, it is necessary to conduct damage assessment of houses to evaluate whether or not the damaged houses are inhabitable, before repair of houses is started.

3.3.3 Basic Social Service Provision

(1) Provision of Medical and Health Services/ Psychosocial and Mental Care

In the aftermath of the disaster, donors have been implementing various activities in health care sector, such as provision of logistical support and medical treatment, dispatch of staff members, construction of facilities, monitoring and provision of training etc. The efforts were directed to meet the increased demands for health and mental care after the disaster, and to provide adequate supplies and equipment lost due to storm surge and strong wind. A great deal of training for both normal and emergency cases, including the training for mental health treatment at the community level was provided by DOH/RHO, DSWD, and donors. DOH/RHO and DSWD started collaborating for implementation of mental health treatment at the community level.

Many donors have been also actively involved in WASH programs such as installation of temporary latrines, distribution of sanitary kits, provision of hygiene promotions and training, monitoring, etc., to prevent epidemics and keep living environment clean. However, many latrines have been installed in the wrong locations and are of poor design. There were no specific activities conducted in order to prevent secondary infections.

During emergency response and early recovery, medical and health services must be provided to prevent further death and injuries. The damage and conditions of health facilities as well as available health personnel should be assessed at first to determine the capacity for immediate provision of health services to the victims. Accordingly, a rehabilitation and reconstruction plan of the damaged health facilities shall be developed and implemented. Temporary health facilities need to be established while the damaged health facilities are under repair.

Medical consultation and nutritional assessment should be provided for the affected families, and those who feel out of sorts. The special health needs of the vulnerable population including pregnant and lactating women, senior citizens, and persons with disabilities (PWDs) have to be cared for. It is also important to provide mental health and psychosocial care to the victims for treatment of trauma and stresses. A referral system needs to be established for quick treatment of patients.

Epidemics should be prevented through monitoring under the Philippine Integrated Disease

Surveillance and Response (PIDSR) system, Surveillance Post Extreme Emergencies and Disasters (SPEED) and the Event Based Surveillance system. Water quality, and sanitation and hygiene conditions must be assessed, specifically in congested evacuation sites and temporary shelters and the countermeasures should be taken if necessary. It is also important to conduct hygiene education at community level through health workers based on a fact-finding survey on the situation of environmental hygiene and water-related diseases.

A capacity building training on disaster risk reduction and emergency response can be provided for health personnel including a Minimum Initial Service Package for Reproductive Health in a Crisis Situation (MISP) and mental health and psychosocial care during normal time. Public officials working in the offices related provision of health care, social welfare and other relevant public services also have to be trained in first aid and basic health care, since those offices would be major actors in relief activities after a disaster.

The reconstruction of **medical facilities and support for rural health services** in Grant Aid Projects and QIPs can contribute to strengthening response capacities and activities during the emergency response and early recovery period. After the reconstruction and rehabilitation in the projects, Eastern Visayas disaster resilient Regional Medical Center (EVRMC) and Provincial Health Office (PHO) are expected to be the center of the operation of emergency health services, in coordination with Rural Health Units (RHUs) located in municipalities. A referral system may be developed, connecting EVRMC, PHO, and RHUs, in which functions and roles of each of the facilities are specified, for example, health care and treatment offered, amounts of stockpiles of medicines and first aid kits, management of emergency operation and dispatch of relief and medical teams, procedures of patient treatment, etc.

(2) Provision of Basic Social Welfare and Protection of the Vulnerable

The cluster system was activated in the aftermath of Yolanda to facilitate closer coordination between the Government and humanitarian agencies. Issues of gender and social welfare were covered by various clusters such as protection, education, health, nutrition, water, hygiene and sanitation, shelter and early recovery and livelihoods. Within the Protection Cluster, the Child Protection Working Group and GBV Working Group were established at both national and local levels. Later, the cluster coordination handled by UN agencies and NGOs was handed over to the Government. However, relevant departments and LGUs were not equipped with necessary knowledge and capacity to take appropriate leadership and coordination roles when Yolanda hit the region. The lack of capacity of the respective departments, including DSWD, to continue the ongoing humanitarian efforts remains a challenge. The multiple coordination responsibilities overburdened DSWD staff and social workers who were also assigned to perform other unfamiliar roles and the numerous responsibilities.

In response to the protection needs, agencies such as UNICEF, UNFPA, Plan International, Save the Children and Oxfam supported the temporary establishment of CFSs, Women Friendly Spaces (WFS), and Women and Children Protection Desks (WCPDs) to improve the physical and

psychological safety of affected women and children. Thirty-eight female police officers specialized in women's and children's protection were deployed across Leyte and Eastern Samar to conduct patrol as well as awareness-raising and psychosocial support. However, the geographical coverage of GBV prevention and response remains limited. Additionally, because of the limited space and the lack of funding, WFSs and CFSs have yet to be set up at bunkhouse sites, increasing women and children's exposure to GBV.

All sub-clusters under the Protection Cluster including the Ageing and Disability Task Force need to be activated in order to effectively respond to the special needs of vulnerable groups including women, children, senior citizens and PWDs. In addition, the Rapid Family Tracing and Reunification system for unaccompanied and separated children and follow-up activities for the vulnerable children should be implemented. It is essential to provide access to temporary communal facilities such as WFSs, CFSs, WCPDs, health stations and multi-purpose halls under sustained camp management assistance for IDPs at evacuation centers, tent cities, transitional shelters and spontaneous settlements. Assessment of the damaged social welfare facilities including WCPDs, senior citizens' centers and crisis centers needs to be conducted to formulate a rehabilitation plan for the facilities and should be repaired and reconstructed. An inclusive approach to livelihoods can be taken from the beginning to reintegrate the vulnerable groups, including poor women, female heads of households, senior citizens, GBV survivors and PWD, into the communities.

In QIPs, day care centers will be reconstructed in the way that makes them disaster resilient. The day care centers can act as shelters and provide physical and mental support for children, mothers, and the vulnerable groups, during the emergency response period. The day care centers can be a hub of various community activities for mutual help among the affected families and strengthen community solidarity, from livelihood programs, psychological consultation, sports and cultural events, etc.

(3) Educational Support

Educational support must be provided for the affected children. One of the main forms of assistance provided by the Government and humanitarian agencies in the education sector was the establishment of CFSs and TLSs to temporarily replace dysfunctional daycare centers and schools. They served as a much needed safe and healthy space for school-aged children. However, some of the CFSs and TLSs were faced with under-capacity. At CFSs, Daycare Workers and volunteers were often unable to respond to individual needs of the children particularly their psychosocial needs and children with disabilities.

In temporary shelters and evacuation centers, CFSs and TLSs should be established as temporary safe spaces for pre-school and school-aged children and youth whose educational facilities were affected. In the aftermath of a disaster, though many school buildings and educational facilities are used as evacuation place, access to educational facilities should be ensured, specifically for vulnerable pre-school and school-aged children and youth (e.g. the displaced and the disabled),

and IDPs should be smoothly relocated to temporary shelters. Provision of means of transportation also needs to be considered for ensuring continuous education of the children of IDP families. Psychosocial support has to be provided for the affected pre-school and school-aged children and youth. For the sake, teachers must be given special training for psychosocial care of the children. Repair and reconstruction of the damaged educational facilities have to be planned and proceed promptly. Educational materials and equipment, such as textbooks and teaching materials should be provided to smoothly resume education and to maintain the quality of the education.

The **disaster resilient school buildings** to be reconstructed by Grant Aid Projects can contribute to continuation of education even during the emergency response period, by providing safe education space. At the same time, DRRM programs including evacuation, psychosocial care, and other emergency response activities should be initiated at the schools, involving children, parents, and teachers. The disaster resilient schools will be used as evacuation centers for the surrounding communities as well.

(4) Debris Disposal

Debris must be promptly removed from roads and sites for evacuation and temporary shelters after disaster in order to secure access to the disaster hit areas and develop shelters. The LGUs responsible for clearing debris could not handle the clearance of debris immediately after the Yolanda disaster due to the enormous amount of debris. Donor agencies and NGOs assisted LGUs in debris disposal by providing transportation such as trucks. Debris transportation from barangays to road sides was done mainly by residents of barangays. From road sides to dump sites, various agencies such as DPWH, UNDP, CRS, TZUCHI, MMDA, NGOs and the private sectors etc. transported debris. In cooperation with international organizations, each LGU worked for and completed clearance of debris within four months after Typhoon Yolanda. This is regarded as rather quick compared to other cases of devastating disasters. The debris was transported directly into the existing dump site of each LGU, or temporary storage areas.

The debris being transported seems to be mixture which contains various materials. However, recyclable materials such as metal, timbers, plastic bottles and some of the fragments of concrete and concrete blocks were separated by residents before discharging them as debris. In addition, waste pickers are segregating mainly plastics at dump sites. As a result, recycling seemed to be conducted in rather good conditions except biodegradable waste. Thus, after debris transportation was settled down, main issues lie in final disposal.

From the lessons learned, a coordination system among LGUs, DPWH, donors, and international organizations and NGOs should be established for fast debris disposal. Debris disposal sites require to be designated in advance. It is also necessary to assign an emergency road network and to open emergency roads according to a set plan.

One of the Grant Aid Projects is **provision of construction equipment** for DPWH which could be used for debris disposal. Though debris disposal during the aftermath of Yolanda was relatively

smoothly carried out, roles of and a coordination mechanism among DPWH, Philippine National Police (PNP), the Armed Forces of the Philippines (AFP), LGUs, NGOs, and other private sector organizations should be reexamined and clarified for better coordination among them in advance, in accordance with the newly prepared National Disaster Response Plan. It would be advisable to develop an inventory of available equipment and building consensus of the owners of the equipment in the region that could be mobilized for debris disposal.

3.3.4 Livelihood Assistance and Income Generation Activities

(1) Livelihood Assistance for Fisherfolk

Fisher folks suffered from loss of their fishing boats, gear, and equipment, and marine culture facilities. The first toward reconstruction of the fishing industry is to support the affected fisher folks in terms of finance and material for restarting their fishery activities, with careful consideration of balance between fishing capacity and available fish resources.

Immediate assistance needed for fisher folks include, but not limited to: assessment of fishery damages, provision of fishing boats and materials for the repair of fishing boats, replacement of engines and fishing gears, rehabilitation of cages for marine culture, distribution of food packs, promotion of women-targeted livelihood activities, etc. The government, such as BFAR, NGOs, and private sectors have been actively involved in helping fisher folks in the Yolanda-hit areas. One of them is BFAR's AHON (Rise in English) Project, which distributes basic boat-building materials, implemented under a public-private partnership (PPP).

The need for fishing boats has been considered a high-priority and thousands of boats have already been built /repaired/ distributed under programs of various organizations. The efforts to provide fishing boats to coastal fisher folks may be good for emergency assistance but there might be a risk in the long run because of the possibility of overfishing. Thus, programs for fishing boat distribution or repair must be coordinated in a way that does not compromise sustainability of fishing resources for short-term benefits.

(2) Livelihood Assistance for Farmers

Livelihood assistance to support farmers whose livelihood is threatened due to the damage on agricultural products and farms, specifically in coconut industry. The assistance for farmers begins with the assessment of damage to agricultural products, lands, infrastructure, and farmers. The compilation of the assessment results would be helpful in comparing among the affected LGUs. Essential seedlings, equipment, and facilities may be provided based on the result of the assessment. At the same time, debris and rubble in farms has to be cleared first. During the aftermath of Yolanda, millions of fallen coconut trees had to be cleared before initiating the recovery activities. The delay in clearing farms not only deters resumption of production but also could lead to spread of plant disease or breeding of vermin.

A soft loan system to restart these activities needs to be provided to the affected farmers to restart

their agricultural activities. Direct support for livelihood, such as distribution of food packages and securing water supply may also be provided, depending on the needs of the affected farmers. Aquiculture related income generation programs should be designed and implemented. It may be important to consider whether or not there is any use of damaged agricultural products. A livelihood program of coco charcoal production using fallen coconut trees is one of such attempts to produce agro-processing products using damaged agricultural products. Creative ideas for livelihood programs must be sought under the cooperation of the affected farmers. While urging the disaster response and early recovery operations, it is also essential to examine the structural weakness, such as monoculture, and explore new sectoral strategies of the agriculture, which will set a direction of the recovery and reconstruction.

After the hit of Yolanda, the support to the recovery of agricultural industry started immediately. The governments, international authorities, foreign governmental agencies, NGOs and private firms have been giving helping hands to the affected people. In order to exchange information and opinions among administrations and donors concerned, cluster meetings have been organized weekly in the affected areas, namely, at Tacloban and Ormoc in Leyte, and Guiuan in East Samar. Especially “Food Security & Agriculture Cluster” and “Early Recovery & Livelihoods Cluster” are intimately connected with assistance to agricultural sector. The major components included Cash-for-Work, food, domestic use of water, agricultural input, repair of rural infrastructure, supply chain, vocational training and education for educationally displaced children etc.

(3) Income Generation Activities

Income generation activities should be promoted to support the lives of affected families. The livelihood programs and activities were organized under the Early Recovery and Livelihoods Cluster led by the Department of Trade and Industry (DTI) in cooperation with ILO and UNDP. The approach adapted by the ILO consists of two components: 1) immediate short-term employment for restoration of public assets and community access until 4 months after the disaster and 2) sustainable livelihood activities from 4 months to 12 months.²⁸

Cash for work programs are beneficial to many of the affected people in the immediate period because a number of people lost their jobs, means of livelihoods were damaged, and a pile of works needs to be done for recovery and rehabilitation in the Target Area. Many of international donors, humanitarian organizations, the central government agencies, and the LGUs carried out various activities on cash for work, including debris cleaning, collecting damaged coconut trees, carpentry, construction work, construction of public facilities, etc. In Region VIII by June 2014, 83,754 and 67,887 persons were engaged in cash for work/ early emergency employment by government agencies and humanitarian agencies respectively.²⁹

Skills training, micro enterprise and small business support were also provided by the cluster partner organizations. Vocational training can be integrated into income generation activities for

²⁸ ILO. Typhoon Haiyan (Yolanda): Emergency Employment and Sustainable Livelihoods. January 2014.

²⁹ Typhoon Haiyan (Yolanda) ERL Cluster Brief 19 June 2014.

expansion of earning capacity.

To fulfill the needs for livelihood supports, QIPs have conducted to **assistance to fisher folks, famers, and women's groups** throughout the region. In addition, **vocational training in disaster resilient construction works** were also incorporated in QIPs which may assist early recovery of facilities and increase of job opportunities during the emergency response period. The details of QIPs are provided in the following chapters.

3.3.5 Restoration of Public Facilities, and Lifelines and Basic Infrastructure

(1) Restoration of Public Facilities

The storm surge of Typhoon Yolanda brought about devastating impact on public facilities, including schools, hospitals, community centers, sport facilities, churches and other religious facilities, and government offices and facilities, etc.

These public facilities are used as evacuation centers and operation hubs of relief activities in the period of emergency response and early recovery. The safety of the public facilities should be assessed and if required, ensured by providing emergency measures, before starting activities or accepting the evacuees. The assessments need to be implemented in two steps, rapid assessment to determine actions for emergency measures, and full-scale assessment to examine the causes of the damage and to prepare a recovery plan of the facilities, including relocation of public facilities from hazardous areas, improvement of structural design standards, construction inspection, etc.

The Philippine Government has implemented restoration projects for damaged buildings in collaboration with donor agencies and international organizations. Cash for Work programs were applied for restoration of various public facilities.

The Grand Aid Projects focus on **rehabilitation of the public facilities** including school buildings, a hospital and health units, and municipal halls. Making public facilities disaster resilient is crucial to improve the government's capacity to respond to disaster, because these facilities become hubs of rescue and relief operation, distribution of foods and goods, and treatment of victims, which directly affect people's survival, mitigation of disaster damage. The quick response activities organized at the key public facilities can lead to faster recovery and reconstruction from a disaster.

(2) Restoration of Lifelines and Basic Infrastructure

Restoration of lifelines and basic infrastructure needs to be started promptly for protection of lives of affected people. In particular, damaged lifelines, including water supply, electricity, and telecommunication must be restored immediately after the disaster to provide essential services for people's life, though an aspect of disaster risk reduction and mitigation measures should not be neglected.

Assessment of damage and loss of lifelines and infrastructure should be conducted in two steps as same as the case of the public facilities. During the period of emergency response and early

recovery, restoration of lifelines and basic infrastructure should be prioritized, focusing on lifelines, emergency roads, critical and important facilities, and evacuation places and temporary shelters. Recovery of electricity supply or provision of stand-by generators required for resuming water supply need to be given priority in the restoration. With repair of the systems, water quality and safety of power cables should be evaluated before resuming the service. Water tank trucks and generators or solar panel electricity supply systems should be arranged and distributed to evacuation places, temporary shelters, and other areas while waiting for completion of the restoration of the systems and facilities. The government offices and critical facilities must be equipped with stand-by generators and satellite telecommunication systems for secured communication access in the case of damage of the communication system. For fast recovery of lifelines, a contingency plan should be prepared in advance.

Ports, airports and other important entry points and emergency transport routes connecting them with critical facilities must be designated and cleared immediately after the disaster. The damage of those facilities and roads needs to be repaired so as not to delay the relief operations, though the damage to such infrastructure was rather minimal in the Yolanda case. Emergency routes may be designated in advance as part of measures for preparedness and disaster risk reduction and mitigation. It includes identification of alternative routes avoiding high hazard risk areas and improvement and repair of the arterial roads. For example, improvement of the arterial road at Salcedo is essential because seriously damaged pavement continued for several kilometers due to inadequate maintenance, which is considered as a bottle neck in the arterial road. A coordination mechanism may need to be developed for information sharing on damages of infrastructure and restoration activities for efficient allocation of resources and quick recovery.

In the aftermath of the Yolanda, restoration of lifelines and basic infrastructure was started with the initiatives of the government and international organizations. Because restoration of lifelines and infrastructure takes time, emergency assistance was provided for the sake of life-saving. For water supply, the WASH Cluster assisted the restoration of water systems of various levels, while distributing water kits (jerry can and hyposol) and temporary water services (i.e. water tankering) as emergency humanitarian assistance. Power from generators was established to non-operational systems and the repair of water lines. Water treatment units, generators, bladders for storage and water trucking were installed for provision of safe alternatives. Desalination water treatment plant was developed in Tacloban. Training for water quality surveillance was also initiated.³⁰ In the communication system, provisional and limited accesses by cell phone systems in conjunction with satellite systems were provided to the key governmental offices and immediate relief teams on the following day. A day after and the following, the local residents acquired the free call stations using the same system. Restoration of cell site networks followed with generator operations under continuing public electricity unavailability.

Fortunately significant damage was not observed in the roads, and the structure of the port and

³⁰ Various WASH Cluster Briefs, Response Bulletins, & Summary.

runway, except the facilities attached to them. DPWH was responsible for the repair of the national roads and bridges, which could be an obstacle in distribution of foods and relief goods. DPWH took the initiative to clear debris on the emergency road network, and secured at least one lane on the national roads within a week after the disaster. The government contracted with the private company, ICTSI, on operation of the Tacloban Port including cargo handling in the port, with the Port Authority. Storage facilities as well as other logistic matters were designated and coordinated by the Logistic Cluster.³¹

Electrical equipment and equipment for Tacloban Airport are to be provided under the **Grant Aid Projects** to improve the emergency response and accelerate early recovery of electricity and airport operation. For quick relief operation, cooperation between the governments, particularly DPWH and utility firms is sought through preparedness and response activities, such as joint operation for recovery of utilities, and road clearing.

3.3.6 Preparation for Recovery and Reconstruction

Preparation for recovery and reconstruction must be started in the period of emergency response and early recovery. As discussed, eighteen LGUs in the Study Area completed preparation of their RRP within five months and the RRP of Leyte and Samar Provinces were approved by OPARR in May 2014.

A recovery and reconstruction council should be founded, involving government officials of LGU and line agencies, elected officials, representatives from relevant organizations, communities, civil society organizations, professional organizations, etc. The council is responsible for development of a plan and operation of temporary settlements, and preparation of a recovery and reconstruction plan.

Planning and operation of temporary settlements is important for protection and continuity of people's lives during the emergency response and early recovery period. Temporary settlements often consist of evacuation centers and temporary shelters, temporary spaces for livelihood activities, commercial entities and business establishments, other temporary facilities, and damaged buildings or facilities but still usable with rehabilitation. A temporary settlement plan shall include designation and operation of evacuation centers and temporary shelters, provision of basic social services, classification of safe, unsafe and controlled zones, etc. The council is initiated by LGU but organized community associations or groups are expected to take the initiative in designing and operating shelters, facilities and services. The community associations could also contribute to assessment of damage of buildings. The temporary settlement plan prepared by the council provides inputs for a recovery and reconstruction plan of a LGU.

³¹ Logistic Cluster, Tacloban. Philippines: Typhoon Yolanda – Meeting Minutes on 21 November 2013.

Recovery and Reconstruction Policies

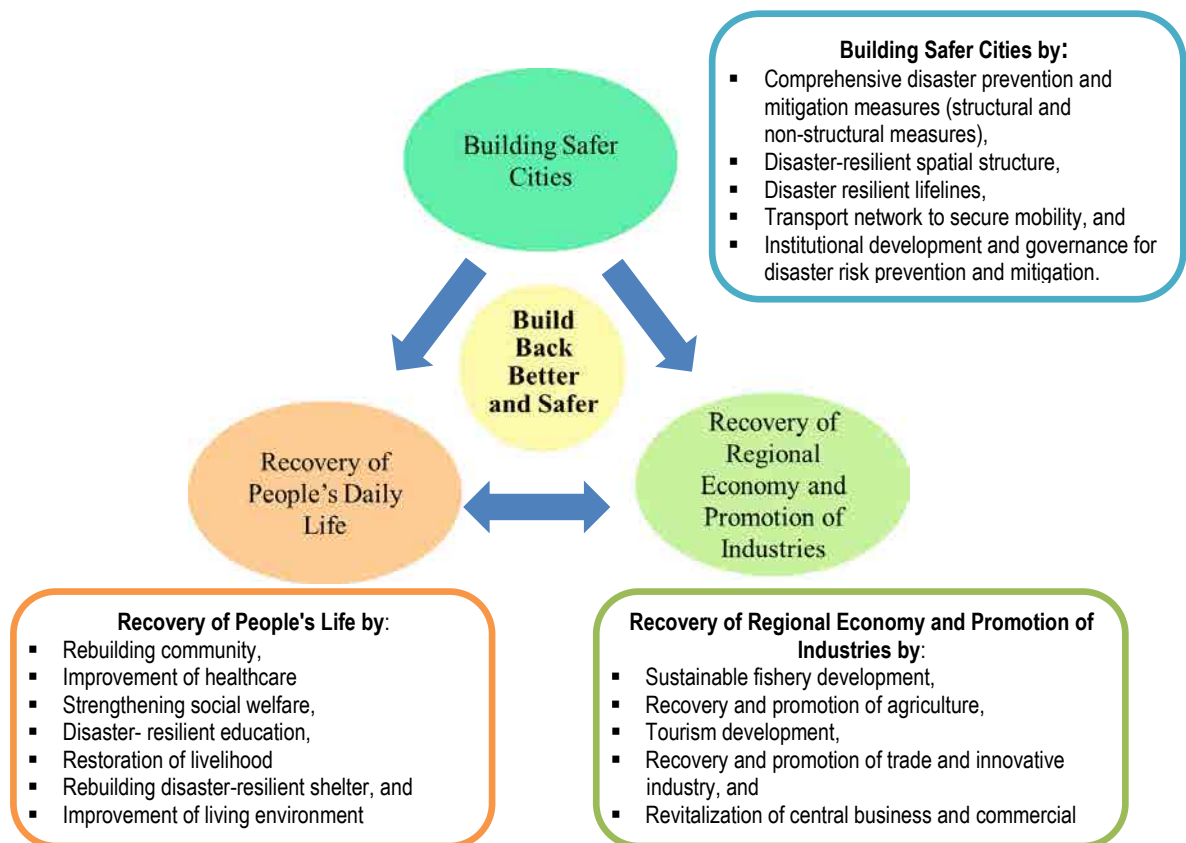
Recovery and Reconstruction Policies

Recovery and reconstruction policies from Yolanda are proposed in subsequent three chapters, in accordance with the three basic principles to achieve “Build Back Better and Safer.” The policies discussed in three chapters are summarized:

Chapter 4: Policies for *Building Safer Cities*

Chapter 5: Policies for *Recovering People’s Daily Lives*

Chapter 6: Policies for *Restoring the Regional Economy and Promoting Industries*



Policy Descriptions

The policy descriptions provided in the following chapters include: 1) issues and policy direction, 2) a table of an overview of policy components, and 3) descriptions of policy component and a table of proposed programs and projects including policy objectives, programs and projects, organizations or agencies responsible for their implementation, and implementation term. The objectives and contents of Japan Grant Aid Projects and QIPs are also explained in the relevant policy descriptions.

Chapter 4 Building Safer Cities

4.1 Comprehensive Disaster Prevention and Mitigation Measures

4.1.1 Issues and Policy Direction

The major affected areas of Typhoon Yolanda are the coastal urban areas in Leyte and Samar Provinces because these areas are located in flat lowlands and susceptible to storm surge and tsunami. Structural measures against coastal disasters such as storm surge and tsunami were not developed compared to that of fluvial disasters, and these affected urban areas did not have facilities for protection from storm surge. Hence, the cities were directly damaged by storm surge. Damage of the storm surge was exacerbated not only by lack of effective structural measures but also by insufficient non-structural measures, such as lack of evacuation and safe evacuation places, the low level of people's awareness, and underestimation of disaster. In heavily damaged areas, one of the reasons of devastating damage and large number of loss of human lives by storm surge was that victims had the misconception of the scale of disaster and could not evacuate in proper timing.

In order to reduce disaster risk effectively, firstly, disaster risk management system should be established at the LGU level. Secondly, a comprehensive approach consisting of both structural and non-structural measures is proposed to prevent and mitigate disaster risk and damage.

4.1.2 Policy for Comprehensive Disaster Prevention and Mitigation Measures

Objectives	Policy	
To reduce and manage disaster risk for disaster prevention and mitigation	Establish a disaster risk management system	Develop disaster risk information management system
		Strengthen disaster management capacity and information dissemination system
		Enhance capacity of local governments
		Strengthen emergency response system
		Strengthen disaster communication and information dissemination system
		Develop LDRRM plans
	Comprehensive disaster prevention and mitigation measures	Strengthen disaster management capacity of community
		Promote disaster education
		Build safer cities by structural measures
		Implement non-structural measures
	Develop major protection facilities against disasters such as tide embankments or breakwaters	
	Promote construction of structural measures throughout the country	
	Designate/ develop evacuation facilities and evacuation routes and prepare an evacuation plan	
	Establish early-warning system	
	Regulate land use and guide development for disaster-sensitive land use	

4.1.3 Establish Disaster Risk Management System

(1) Develop Disaster Information Management System

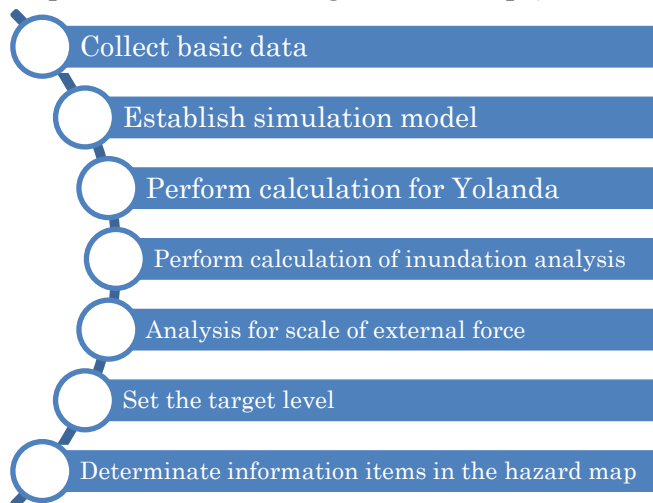
Development of disaster information management system is proposed, since accurate information of disaster risk is indispensable for selection of disaster risk reduction measures. Hazard maps of various natural disasters can be developed through scientific analysis. In the study, hazard maps of storm surge, strong wind and flood were prepared through simulation analyses of Typhoon Yolanda and past records of the disasters. A tsunami hazard map was developed based on the existing survey results from the Government of the Philippines. Especially, the results of storm surge analysis are shown by seven levels of inundation depth from less than 0.3 meters to more than 5 meters. In addition, history of local disaster records, such as the intensity of and damage caused by disasters, should be collected from the community and compiled into a database. Disaster risk, vulnerability, capacity and exposure can be scrutinized by triangulation of simulation analysis and examination of historic records of disasters. Digital data, hazard maps and analysis are integrated into a GIS-based disaster risk information system. Detailed analysis of disaster risk is essential in the identification of hazardous areas and what determination of and how to protect as well as how to evacuate, which are the critical inputs for development of non-structural measures.

Table 4.1-1 Proposed Projects and Programs (Develop disaster information management system)

Policy	Projects/ Programs	Organization/ Agency	Implementation term		
			Short-term	Mid-term	Long-term
Develop disaster risk information management system	Develop hazard maps grounded on sound scientific analysis	LGU/ DOST/ MGB			
	Compile disaster history and information in LGU	LGU/ Barangay/ Community			
	Develop GIS system for disaster information management	LGU/			

JICA Project: Development of Hazard Map

Preparation of Storm Surge Hazard Map (TSR Chap.5)



Collection of basic data

- Organization of data such as magnitude of typhoon, meteorological data, etc.
- Collection of topographical data/ information (Marine area and Terrain area)
- Acquisition of disaster information (flood level, depth, area, etc.)

: Survey for storm surge marks by Yolanda



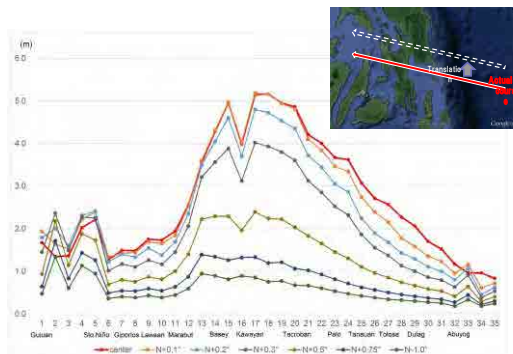
Preliminary result of storm surge mark survey

Establishment of simulation model

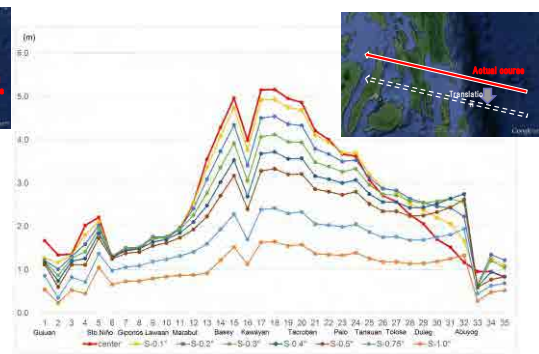
- Empirical Typhoon Model
 - : Setting of simulation scenarios (Track, scale and central pressure of typhoon)
 - : Calculation of wind speed and pressure
- Calculation of Storm Surge and Inundation
 - : Calculation of the deviation from normal sea level using a calculation result of wind and the atmospheric pressure
 - : Calculation of the inundation of land area using a calculation result of a chronological change of the deviation

Analysis for scale of external force

- Comparative analysis between the past disasters and characteristics of the typhoon (e.g. scale, track, etc.)
- Clarification of conditions of the past storm surge events
- Setting of the details of assumed typhoon (e.g. scale, track, etc.)
 - : Simulation of storm surge heights with the cases of shifted typhoon course to northern or southern sides

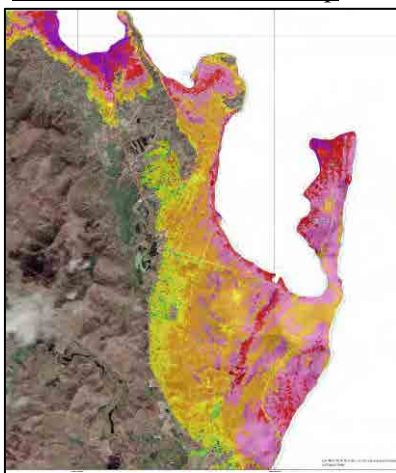


Shifted course to northern side



Shifted course to southern side

Formulation of Hazard map



Result of hazard map for storm surge in Tacloban city

Development of hazard maps for other disasters

Wind simulation analysis (TSR Chap.5)

Flood Inundation analysis (TSR Chap.5)

Earthquake and Tsunami (TSR Chap.5)

Landslide (TSR Chap.5)

(Main Report Part 2)

Development of hazard map



Utilize for plan (CLUP/ DRRMP)

- Formulate CLUP
- Select evacuation road
- Select emergency transportation road



(JICA Workshop in Guiuan, 2014.9)

(2) Strengthen Disaster Management Capacity of Local Governments

Local Government Units (LGUs) are primarily responsible for disaster management, in particular disaster preparedness, emergency response, and rehabilitation and recovery in the municipal level, while OCD is in charge of disaster management at the central government level. Currently, most of the LGUs have just established LDRRMOs and assigned DRRM Officers, hence, progress in the development of comprehensive LDRRMPs is relatively slow, although some LGUs already have annual LDRRMPs. And since disaster management administration is implemented at the LGU level, capacity enhancement of the present disaster management organizations and personnel is also essential.

When a disaster strikes, LGUs are the core entity to implement emergency response activities in cooperation with the national line agencies, the army, NGOs and international organizations. However, integrated and coordinated emergency response operations were not fully implemented in the last large scale disaster due to the lack of preparedness. LGUs should prepare an emergency response plan and develop an emergency response team accordingly. An emergency response plan has to clearly identify roles and responsibilities of different members/officers and also entail a disbursement plan of the Quick Response Fund, which is 30% of the LDRRM Fund. Necessary trainings for emergency response needs to be provided for the team, such as DANA, SSR, evacuation, provision of basic services and temporary shelter, etc.

Disaster information and early warning should be disseminated to LGUs and community at appropriate timing to allow LGUs and residents to evacuate to safe places and take necessary actions for disaster prevention. During and after disaster, information of damages and needs of community, and requests for emergency supports should be immediately conveyed to responsible government offices and organizations. Based on the NDRRMC Manual of Operation, disaster information is disseminated from PAGASA to LGUs over a designated route. Basically, after NDRRMC/OCD receives disaster information from surveillance agencies such as PAGASA, the information is disseminated in a vertical line of governmental organizations, which is NDRRMC → RDRRMC → PDRRMC → C/MDRRMC → BDRRMC. For emergency response, effective communication networks are necessary to connect the community, LGUs and DRRMCs, line agencies, such as DOH, DSWD, and DPWH, the army, and humanitarian organizations. That is, Two-way communication and disaster information dissemination system needs to be established.

Table 4.1-2 Proposed Projects and Programs (Strengthen disaster management capacity of local governments)

Policy		Projects/ Programs	Organization/ Agency	Implementation term		
				Short-term	Mid-term	Long-term
Strengthen disaster management capacity of local	Enhance capacity of local governments	Conduct capacity building training for LDRRMOs and LDRRMCs	LGUs/ ODC/ NDRRMC			
	Strengthen emergency response systems	Develop an emergency response plan	LGUs/ ODC			
		Develop an emergency response team and provide training regarding emergency response (e.g.,	LGUs/ ODC			

governments		DANA, SSR, evacuation, provision of basic services and temporary shelter, etc.)				
	Strengthen disaster communication and information dissemination system	Strengthen communication and information dissemination systems among LGUs, central government agencies, and other relevant organizations	LGUs/ ODC/ DRRMCs/ Central Government Agencies			
		Establish effective communication information dissemination systems between LGUs and community, and within community	LGUs (City/ Municipality, Barangays)/ Community			

(3) Develop Local Disaster Risk Reduction and Management Plans

The Philippine Government immediately developed recovery and reconstruction plans after the disaster. NEDA presented the policy of reconstruction as “Build Back Better” in RAY on 16, December 2013. By the end of March 2014, LGUs have drafted reconstruction policies based on RAY. Each recovery and reconstruction plan covers the necessary items to restore from the disaster, and lists priority projects. The majority of local level recovery and reconstruction plans end with a “to –do list” for the short term recovery needs. Hence, recovery and reconstruction plans need to be updated to include medium and long term goals and objectives, and an action plan. A comprehensive approach to recovery and reconstruction should be considered in the plans,, which addresses for example, three objectives of building safe cities, rebuilding of livelihoods, and reconstruction of the regional economy, taking structural and non-structural measures, as proposed by this report. In addition, it is noted that people’s needs and preferences may change as time goes by, particularly with issues requiring critical decisions in their lives, for example, relocation.

Recovery and reconstruction plans should be upgraded and integrated into LDRRMPs, which express LGUs’ vision and strategies for DRRM in four thematic fields of disaster prevention and mitigation, disaster preparedness, disaster response, rehabilitation and recovery. Meanwhile, the concept of disaster risk reduction and management should be mainstreamed in local development plans, such as, CLUPs and CDPs. The policies for DRRM proposed in RRs, such as development of structural and non-structural measures of tide embankments, evacuation plans, education, etc. lead to enhancement of disaster preparedness and improvement of capacity of community and LGUs for disaster prevention. To protect human lives and properties, land use control such as establishment of safe, unsafe and controlled zones is an essential component in non-structural measures, because land use policy specifies needs for relocation, location of evacuation centers, distribution of public facilities, and infrastructure development. Once the reconstruction and recovery works gets on track, it is therefore recommended to upgrade RRs into LDRRMPs and update CLUP and CDP by mainstreaming DRRM. Detailed land use policy is examined in the next section.

Table 4.1-3 Proposed Projects and Programs (Develop Local Disaster Risk Reduction and Management Plans)

Policy	Projects/ Programs	Organization/ Agency	Implementation term		
			Short-term	Mid-term	Long-term
Develop LDRRM plans	Update RRPs	LGUs			
	Develop comprehensive C/MDRRMPs based on RRPs	LGUs/ OCD			
	Mainstreaming DRRM in local plans	LGUs			

(4) Strengthen Disaster Management Capacity of Community

Barangay, the smallest local administrative body, is expected to play a leading role in organizing community level disaster management activities. Evacuation orders are either issued by C/MLGU and conveyed to barangays or the barangays itself independently disseminate warning messages to their communities. The same with LGUs, barangays are also mandated to develop BDRRMPs. Together with the community, they can be able to identify appropriate evacuation centers/ places and evacuation routes, develop evacuation plans, and establish early warning systems, which are to be incorporated into BDRRMPs. Barangay officials have to coordinate with every “Sona” or Zones,, a smaller subdivision or organization of households within a subdivided area in a barangay, in planning and organizing community evacuation. In order to improve warning message dissemination, specific and clear contents of the warning messages, publicity of warning among barangay officers and education for the public are essential. Evacuation drills also needs to be periodically carried out to make residents prepared and increase the capacity of community for disaster prevention and mitigation.

Table 4.1-4 Proposed Projects and Programs (Strengthen Disaster Management Capacity of Community)

Policy	Projects/ Programs	Organization/ Agency	Implementation term		
			Short-term	Mid-term	Long-term
Strengthen disaster management capacity of community	Develop Barangay DRRMPs	LGUs/ Barangays			
	Strengthen barangay-based evacuation systems	LGUs/ Barangays/ Community			

(5) Promote Disaster Education

Leyte Province is known as a disaster prone area considering its topographic characteristics. Survivors of the disaster are responsible for passing on their experience regarding disaster damage to future generations and their contribution is essential to develop disaster resilient societies, learning from the past experiences. Experiences and lessons learned from past disasters should be compiled into publications and disseminated through a disaster education program incorporated in school curriculum, or memorial events for recollecting the disaster. A disaster memorial park can be developed as a symbol commemorating the disaster and victims.

Table 4.1-5 Proposed Projects and Programs (Promote Disaster Education)

Policy	Projects/ Programs	Organization/ Agency	Implementation term		
			Short-term	Mid-term	Long-term
Promote disaster education	Dissemination of experiences of disaster	LGUs/ Barangays			
	Integrate a disaster education program into school curriculum	LGUs/ DepEd			

4.1.4 Comprehensive Disaster Prevention and Mitigation Measures

(1) Build Safer Cities by Structural Measures

Development of structural measures should be promoted if disaster risk and damage could be significantly reduced and prevented by installing structural measures such as tide embankments or seawalls. Structural measures are most appropriate and recommended for protection of built-up urban areas where economic and business activities are concentrated; where key government offices or important facilities are located; where there are planned residential areas with large number of residents; and most importantly where relocation is very difficult or almost impossible. In most cases,, construction of structural measures is a preferred option in terms of the cost and feasibility, compared to other options, especially relocation.

Designing structural measures requires careful examination of the types of hazard risk and their intensity, the existing land use pattern and infrastructure, future spatial structure, and needs for land. For example, taking storm surge and tsunami into considerations, road design can be modified into an elevated road and its alignment may be altered to protect vast areas which could be developed as residential areas in future when population increases.

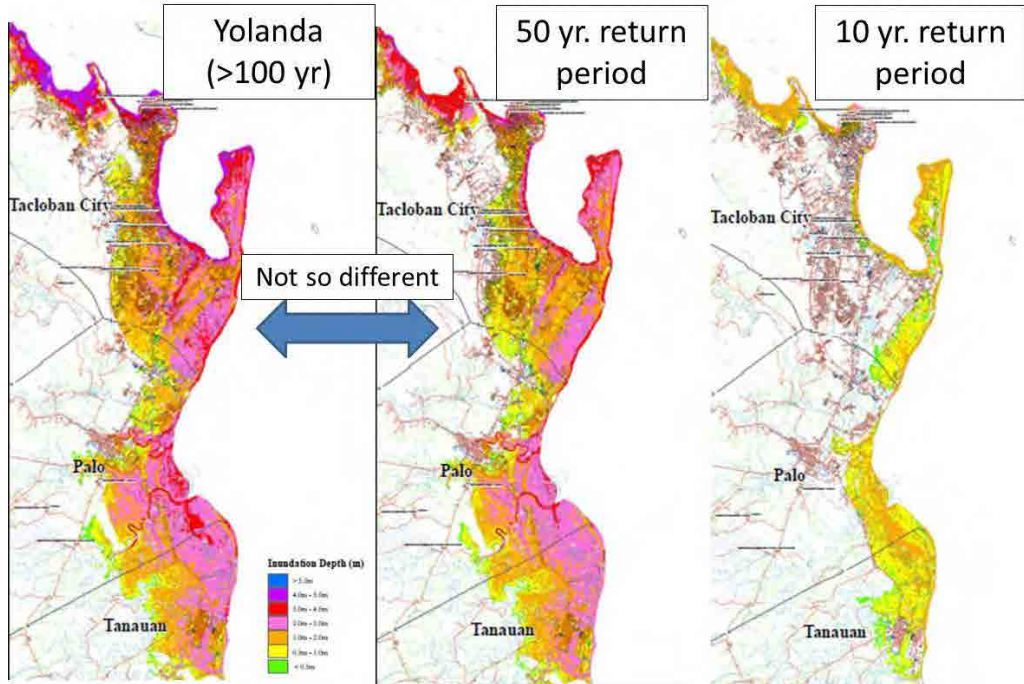
Coastal structures which are resistant to storm surge and tsunami should be gradually constructed based on the criteria to install structural measures against coastal disaster by the Government of the Philippines. For mitigating the damage along river side areas, construction of breakwaters at river mouths and river embankments will be needed. Learning from the experiences of Yolanda, disaster resilient nation building should be promoted by expanding the policies for installing structural measures to nationwide level.

Table 4.1-6 Proposed Projects and Programs (Build Safer Cities by Structural Measures)

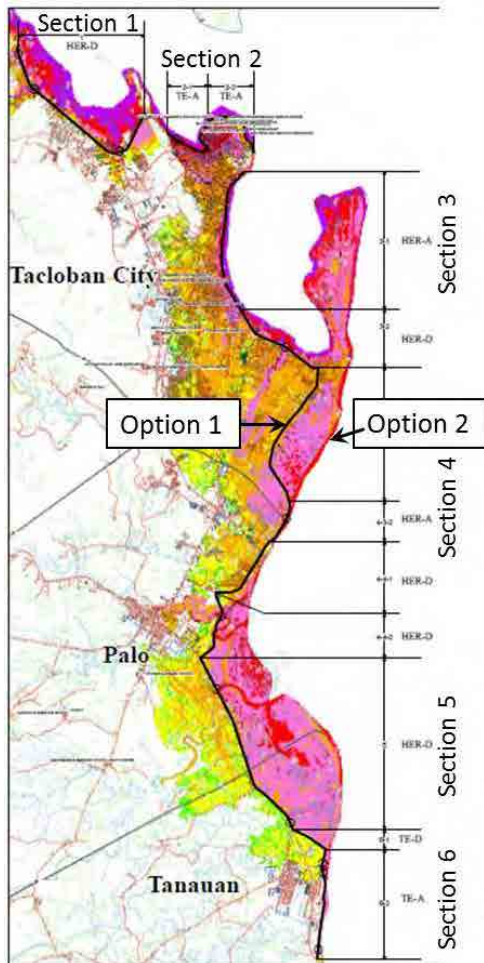
Policy	Projects/ Programs	Organization/ Agency	Implementation term			
			Short-term	Mid-term	Long-term	
Build safer cities by structural measures	Develop major protection facilities against disasters	Construction of tide embankments/ seawalls/ river dikes				
		Elevation of arterial roads				
	Promote structural measures throughout the country	Need assessment of structural measures throughout the country	DPWH/ LGUs			
		Construction of structural measures in priority areas	DPWH			

Storm Surge Hazard Map and the Application to Structure Measures

➤ Hazard mapping of storm surge



➤ Setting of Basic Condition and Basic Plan for Structure Measure as Case Study



Basic Condition and Basic Plan

Target Area	Tacloban-Palo-Tanauan
Target Hazard	Storm Surge
Target Return Period	50 years return period (more frequent than Yolanda)
Structure Measure	Combination of Existing Road Heightening and Tide Embankment
Total Length	26.9 km(Opt 1) 27.3 km(Opt 2)
Sections	Section 1: 4.2 km (Tacloban) Section 2 : 2.9 km (Tacloban) Section 3: 5.2 km (Tacloban) Section 4: Option 1: 7.4 km Option 2: 7.8 km (Tacloban-Palo) Section 5: 4.1 km (Palo-Tanauan) Section 6: 3.1 km (Tanauan)

(2) Implement Non-structural Measures

In disaster prevention, the best strategy is evacuation. Structural measures alone do not necessarily guarantee safety of life, but they rather compliment to non-structural measures. For example, development of tide embankments helps evacuation activities by lessening strength or force of storm surge or tsunami, and providing additional time for evacuation. Thus, adapting a comprehensive approach integrating structural and non-structural measures is essential to protect people's lives and cities. Structural measures, such as construction of major protection facilities should be planned with appropriate non-structural measures, such as evacuation plans, early warning system and land use control.

Designate/ develop evacuation facilities and evacuation routes, and develop an evacuation plan

Evacuation is the first action to be considered in disaster prevention. Evacuation facilities, safe places, and secure evacuation routes to evacuation sites, should be identified and compiled in an evacuation plan.

In planning of evacuation facilities, there are four key items to be considered, namely, location, access, capacity, and strength. Public facilities and buildings, such as schools, barangay halls, government facilities, churches, and gymnasiums are often designated as evacuation places. In the case of Yolanda, however, those places where people evacuated were located in coastal areas which were vulnerable to storm surge and strong wind. As a result, many of them were destroyed and casualties increased. Thus, evacuation facilities should be designed based on examination of hazard risk of the locations, and structural strength of the facilities, that is, the facilities have sufficient engineering and structural strength to withstand disasters. Moreover, evacuation facilities should be accessible to all residents and with adequate capacity to accommodate expected evacuees. Secure evacuation routes and spatial distribution of evacuation facilities needs to be considered so as to provide the vulnerable community/individuals, such as children, senior citizens, and the handicapped, with fast and safe evacuation. In addition, an evacuation plan should include an evacuation procedure and a plan of evacuation drills.

Important consideration for designation of evacuation facilities can be compiled to develop a national standard/ guideline for safe evacuation facilities development. To increase awareness for safety of evacuation facilities, a campaign of "CASTLes" – *Capacity, Access, Strength, and Location for Everyone's Safety* – can be promoted throughout the country.

Establish early-warning system

In order to initiate evacuation at proper timing, early-warning should be effectively disseminated across communities. In Leyte Province, several LGUs established early-warning system for flood-prone areas with assistance of a donor. Such early-warning system should be upgraded to deal with multi-hazard risk, with standardized warning messages. Evacuation drills need to be conducted to familiarize the residents with the system and evacuation process. On the other hand,

LGUs have to develop effective disaster information dissemination and communication systems among C/MLGUs, barangays, and community, and among the surveillance agencies such as PAGASA, OCD, various levels of DRRMCs, and LGUs, in order to retrieve necessary information in emergency situations.

Regulate land use and guide land development for disaster-sensitive land use

Land use regulation and development control is an essential component in non-structural measures. The population exposed to hazard risk is primarily determined by land use, i.e., where and how settlements are developed. Land use policy also influences distribution of public facilities and infrastructure development. An evacuation plan including locations of evacuation centers and evacuation routes should be adjusted to the existing and future land use pattern. Thus, a policy for disaster-sensitive land use has to be adapted to regulate land use and control development of hazardous areas especially for disaster prevention and mitigation. The following sections discuss the land use policy in detail.

Table 4.1-7 Proposed Projects and Programs (Implementing Non-structural Measures)

Policy		Projects/ Programs	Organization / Agency	Implementation term		
				Short-term	Mid-term	Long-term
Implement non-structural measures	Designate/ develop evacuation facilities and evacuation routes, and prepare an evacuation plan	Designate/ develop evacuation facilities and evacuation routes, and develop an evacuation plan	LGUs/ Barangays			
		Develop a national standard for evacuation facilities and conduct a "CASTLes" campaign throughout the country	LGUs/ DPWH			
	Establish early-warning systems	Establish early-warning systems	LGUs/ Barangays			
	Regulate land use and guide development for disaster-sensitive land use	Establish and implement land use regulations for disaster-sensitive land use	LGUs/ HLURB			

4.2 Develop Disaster-resilient Spatial Structure for Protection of People’s Lives

4.2.1 Issues and Policy Direction

One of the reasons why Typhoon Yolanda brought about devastating damage in the region is that hazard risk was not taken into account in the land use plan and spatial development. The Philippine Government’s initiatives in mainstreaming disaster risk and climate change adaption into land use planning were started with the enactment of the National Disaster Risk Reduction and Management Act 2010. However, many of the local governments were yet to develop a disaster risk-sensitive land use plan, and have not promoted disaster-resilient spatial structure development and land use change for that purpose. Hence, a number of households including informal settler families, business establishments, and public facilities were located in hazardous zones along the coasts. The government and residents in the region were not aware of hazard risk and not prepared to disasters such as storm surge. The spatial structures of the city and towns were vulnerable to natural disaster. As a result, the public facilities, such as schools, barangay halls, and churches, which were used as evacuation centers, adjacent to the coast were destroyed and the people who evacuated there were perished by the storm surge.

For protection of people’s lives, therefore, it is necessary to develop disaster-resilient spatial structure by adapting a disaster risk-sensitive land use policy, relocating settlements and public facilities from danger zones, developing evacuation centers and routes, and establishing disaster-resilient lifelines.

4.2.2 Policy for Disaster-resilient Spatial Structure for Protection of People Lives

Objectives	Policy	
Develop disaster-resilient spatial structure for protection of people lives	Develop disaster risk sensitive-land use policy as a basic principle of spatial development	Adapt a disaster risk sensitive-land use policy as a basic principle of spatial development
	Develop disaster-resilient spatial structure	Relocate residents from danger zones to safer locations
		Develop secure evacuation centers/places and evacuation routes
		Relocate public facilities into safer locations with improvement of their structural disaster resilience
		Establish disaster resilient lifelines

4.2.3 Develop Disaster Risk Sensitive Land Use Policy as a Basic Principle of Spatial Development

A disaster risk sensitive land use policy has to be adapted as a basic principle for spatial structure development in order to reduce disaster risk and vulnerability of community to disasters. A disaster risk sensitive land use plan is one in which the concept of disaster risk reduction and management is mainstream.. It is guided by spatial strategies to protect people’s lives and properties, covering not only the use of land, such as development of residential areas, commercial complexes, industry zones, and production and protection areas, but also distribution of public facilities, and evacuation centers, and development of lifelines and infrastructure.

Developing a disaster-risk sensitive land use plan requires careful analysis of disaster hazard risk

and vulnerability of community to disaster, based on accurate hazard maps and analysis of socio-economic conditions of community. A land use policy for high risk areas should be determined by examining the existing land use and future development potential, such as whether or not the areas should be transformed into open space, or protection or production zones where building/dwelling is prohibited, i.e., establishing no dwelling zones. If public facilities and infrastructure, including schools, health centers, day care centers, evacuation centers, roads, bridges, etc. are located in danger zones, appropriate measures, such as relocation or improving the structural designs have to be applied. The available lands in safe areas also need to be identified and preserved to fulfill demands for future land development.

Appropriate zoning regulations should be enacted and applied to hazardous areas with disaster prevention and mitigation measures if necessary. Zoning for disaster risk reduction measures can include regulations on density control and lot size requirements, set-back, other building codes for structural and engineering designs, open space and evacuation center requirements, etc.

Other local plans, such as CDPs and investment plans should also be adjusted to the disaster risk sensitive land use policy in CLUP, to transform the existing land use into disaster resilient spatial structure. A CDP is an action plan of CLUP specifying the short/medium term development agendas covering both physical development sectors as well as socio-economic sectors relevant to the land use plan. Social and economic sector components in building disaster resilient community which are not covered in CLUP must be reflected in CDP.

LGUs' planning capacity has to be enhanced for formulation of disaster-risk sensitive land use. Planning officers should have sufficient knowledge, analytical skill, and planning capacity for evaluation of disaster risk, vulnerability, exposure, and capacity, and integration of disaster risk reduction and mitigation measures into land use and zoning.

Table 4.2-1 Proposed Projects and Programs (Develop Disaster Risk Sensitive-land Use Policy)

Policy	Projects/ Programs	Organization/ Agency	Implementation term		
			Short-term	Mid-term	Long-term
Adapt a disaster risk sensitive-land use policy as a basic principle of spatial development	Analyze disaster risk and vulnerability of community	LGUs			
	Formulate a disaster risk sensitive land use plan by mainstreaming disaster risk reduction and management, and enact a zoning ordinance based on the land use plan	LGUs/ HLURB			
	Mainstream disaster risk reduction and management in CDP/ Investment Plan	LGUs			
	Improve LGUs' capacities in land use regulations for disaster risk reduction and management	LGUs/ HLURB			

4.2.4 Develop Disaster-resilient Spatial Structure

(1) Relocate Residents from Danger Zones to Safer Locations

In order to prevent and mitigate the damage and occurrence of disaster, people living in danger zones should be relocated to safer zones. The first step in such process is to identify hazardous areas where habitation or activities are restricted by classifying into safe, unsafe and controlled zones in accordance with a land use policy in CLUP and hazard maps. CLUP should provide a

clear standard and guidance to set up safe, unsafe and controlled zones, which are justifiable to be accepted by constituents. It may also be necessary to enact a city/municipal ordinance regarding setting up safe, unsafe and controlled zones.

Second, a relocation plan has to be prepared for relocation of the residents in hazardous areas including NBZs.¹ However, not all families in high disaster risk areas are subjects to relocation. In some areas, LGUs may decide to develop structural measures, e.g., tidal embankments or seawalls for protection of residential areas. A relocation plan should explore alternative options to relocation and other disaster risk mitigation measures, such as structural measures, and their feasibilities. The decision of relocation must be made on the residents’ preferences and consensus.

A relocation plan shall be designed to address temporary and permanent shelter development, public infrastructure and utilities provision, transport and accessibility needs, and livelihood programs with appropriate time frame. Safety of the families in danger zones has to be assured by provision of temporary shelter assistance before the next typhoon season for prevention of the second disaster. Special attentions need to be paid to the vulnerable, e.g., women, infants, children, the handicapped, and senior citizens.

Table 4.2-2 Proposed Projects and Programs (Relocate Residents from Danger Zones to Safer Locations)

Policy	Projects/ Programs	Organization/ Agency	Implementation term		
			Short-term	Mid-term	Long-term
Relocate residents from danger zones to safer locations	Identify safe, unsafe and controlled zones and enact city/ municipal ordinance	LGUs			
	Prepare a relocation plan	LGUs/ NHA			
	Develop relocation sites and shelters	LGUs/ NHA/ NGOs			
	Relocate residents, and assist transition and community development	LGUs			

(2) Develop Secure Evacuation Centers/ Places and Evacuation Routes

As discussed in the previous section, safety of evacuation centers/ places must be ensured by developing and designating evacuation centers in safer areas. Access to evacuation centers/ places also needs to be assured. A disaster-risk sensitive land use plan should specify the locations and distribution of evacuation centers. Specific evacuation facilities, such as tsunami tower or emergency evacuation place, may need to be developed for people who are engaged in various activities in high hazard risk areas where dwelling is not allowed, but economic activities are permitted. Zoning ordinance may incorporate standardized requirements and specific conditions for development of evacuation centers/ places in line with different zones of land use categories.

¹ No-build zones are defined as “the easement areas defined by the Water Code, Civil Code and Revised Forestry Code of the Philippines excluding areas for critical government infrastructure in support of economic development (i.e., ports, fish landings, etc.)” in Joint DENR-DILG-DND-DPWH-DOST Memorandum Circular No. 2014-01 on the subject of “Adoption on Hazard Zones Classification in Areas Affected by Typhoon Yolanda (Haiyan) and Providing the Guidelines for Activities Therein.”

For example, such detailed requirements for evacuation centers can be regulated by applying overlay zones.

Table 4.2-3 Proposed Projects and Programs (Develop Secure Evacuation Centers/ Places and Evacuation Routes)

Policy	Projects/ Programs	Organization/ Agency	Implementation term		
			Short-term	Mid-term	Long-term
Develop secure evacuation centers/ places and evacuation routes	Designate/ develop evacuation facilities and evacuation routes based on disaster-risk sensitive land use plan	LGUs/ Barangays			
	Incorporate requirements for evacuation centers/ places in zoning	LGUs			

(3) Relocate Key Public Facilities into Safer Locations with Improvement of Their Structural Disaster Resilience

Public facilities are essential as evacuation centers and as hubs to play a central role in emergency response operation just after the natural disaster. School buildings of mainly elementary schools tend to be used as evacuation shelters for surrounding community. Medical facilities, which include regional and district hospitals, RHUs and BHSs, have to be major actors in relief activities after the disaster. Moreover, at the time of disaster, various government offices, i.e., city and municipal halls, barangay halls, and regional offices of central government agencies, must maintain their functions as the control tower of relief operations, in order to provide people with emergency services and basic subsistence needs. Thus, public facilities, including schools, health centers, government offices, evacuation centers, etc. which are located in danger zones should be relocated or protected by appropriate structural measures. Enhanced building codes need to be applied to public facilities and buildings to make their structural design and strengths disaster resilient. In particular, government offices may need to develop back-up offices or to consider relocation of the entire administrative functions to safe locations, for the continuity of required government functions at the time of crisis.

Table 4.2-4 Proposed Projects and Programs (Relocate Key Public Facilities into Safer Locations)

Policy	Projects/ Programs	Organization/ Agency	Implementation term		
			Short-term	Mid-term	Long-term
Relocate public facilities into safer locations with improvement of structural disaster resilience	Identify public facilities to be relocated in accordance with hazard maps and a land use policy	LGU			
	Relocate public facilities to safer zone	LGU/ DPWH			
	Make public facilities disaster resilient by improving structural and engineering designs	LGU/ DPWH			

(4) Establish Disaster Resilient Lifelines

To secure provision of basic subsistence services for people at the time of crisis, lifelines, such as communication network, power supply, and water supply, should not be disrupted by disaster, and damaged lifelines must be quickly repaired to resume their services. Thus, similar to the case of public facilities, the lifelines located in danger zones should be relocated to safer zones if possible, or protected by appropriate measures. Disaster resilience of the lifelines has to be periodically evaluated and improved if necessary. For continuity of services, creation of redundancy in service networks or development of back-up facilities may be required to fulfill the loss or decline of the services caused by disaster. A contingency plan should be prepared by each of utility service providers in cooperation with LGUs and relevant government agencies. The following section discusses disaster resilient lifelines in more detail.

Table 4.2-5 Proposed Projects and Programs (Establishing Disaster Resilient Lifelines)

Policy	Projects/ Programs	Organization/ Agency	Implementation term		
			Short-term	Mid-term	Long-term
Establish disaster resilient lifelines	Identify lifelines to be relocated in accordance with hazard maps and land use policy	LGUs/ Utility Service Providers			
	Relocate lifelines to safer zone	LGUs/ Utility Service Providers			
	Make lifelines disaster resilient by improving structural and engineering designs	LGUs/ Utility Service Providers			

4.3 Disaster Resilient Lifelines

4.3.1 Issues and Policy Direction

In the aftermath of Yolanda, delay of recovery of infrastructure such as electricity as well as telecommunications was an impediment to the emergency response. Damage to the transport network led to the delay of emergency response. Administrative service for the disaster risk reduction and management, emergency response and relief, and recovery and reconstruction, was disrupted due to serious damage to public buildings.

The basic requirements of the lifelines and social infrastructures are to secure continuity of operations and to minimize the interruption periods of their operations. In addition, the pragmatic balance of cost-efficacy should be reflected in further deliberations.

Basically to strengthen infrastructure through installation of elevated facilities, equipment, storage, and evacuation destinations are essential considering associated secondary effects like loss of electricity. Especially the measures against storm surge in coastal urban areas are vital. However, non-structural measures are also necessary because of the limitation of resources. The placing of any structures in the disaster high-risk areas should be avoided as much as possible.

4.3.2 Policy for Disaster Resilient Lifelines

Objectives	Policy		
To reduce disaster risk and to secure continuation of service provision by reinforcing facilities and increasing preparedness for disaster	Formulate disaster management system	Quality control for public facilities	Repair and reinforce existing facilities/ equipment
			Install stand-by generators with appropriate fuel stocks in safe place
			Establish evacuation procedures on essential equipment/ facilities
			Reconstruct public buildings to ones with adequate robustness and design measures
		Secure information transition system	Install permanently the stand-by satellite telecommunication systems
			Entrench housing for the cell sites with stand-by generators and appropriate stocks of fuel necessary for continued functioning
			Install cable connecting functioning
	Enhance ethical awareness	Establish standalone satellite phone communication system down to municipality level	
		Conduct ethical awareness	
	Develop basic infrastructure	Relocate facilities/ equipment	
		Increase/ install facilities/ equipment	
		Equip for disaster risk	
		Secure stocks of the equipment and supplies for emergency needs in safe places	

4.3.3 Formulate Disaster Management System

(1) Quality Control for Public Facilities

Repair of the existing facilities/equipment is essential. If the existing buildings are too weakened to be used, due to their aging, designs, and/ or construction processes/ materials, these buildings should be reconstructed. The damaged municipal halls of Marabut and Lawaan were reconstructed by the Grant Aid Projects as described below.

For emergency response and management, public buildings should be equipped with appropriate facilities and equipment. For example, emergency response facilities should have emergency electricity supply, water reserves, food and beverages etc. Those equipment and facilities should be installed or facilitated in consideration of the hazard and damage.

Table 4.3-1 Proposed Projects and Programs (Quality Control for Public Facilities)

Policy/ Projects/ Programs	Organization/ Agency	Implementation term		
		Short-term	Mid-term	Long-term
Repair and reinforce existing facilities/ equipment	LGUs, WDs, ECs, NGCP, Telecom Companies, Private			
Install stand-by generator with appropriate fuel stocks in safe place	LGUs, WDs, Telecom Companies, Private			
Establish evacuation procedures on essential equipment/ facilities	LGUs, WDs, Telecom Companies, Private			
Reconstruct public buildings to ones with adequate robustness and design measures	LGUs, WDs, Telecom Companies, Private			

JICA Grant Aid Project: Reconstruction of Local Government Offices (Marabut, Lawaan)

The project is to construct facilities that are strong enough to withstand high winds and seismic activities, and that can function as emergency evacuation facilities.

Municipality	Main usage	Structure	Area	Activity
Marabut	MO (The same site with RHU)	RC, 2 Stories (piloti)	829 m ²	• Rebuilding of existing structure at the same site; Safety shelter for emergency evacuation; Piloti structure to avoid flood seawater; Emergency equipment stored
Lawaan	MO (the same site with RHU)	RC, 1 story	829 m ²	• Rebuilding of existing structure at the same site; Safety shelter for emergency evacuation; Piloti structure to avoid flood seawater; Emergency equipment stored

Effectiveness

- Beneficial population: Approximately 2.7 million population
- Recovery of function of government offices
- Improvement of maintenance cost
- Provision of safe buildings



(2) Secure Information Transmission Systems

The people in the Target Area faced the complete breakdown of telecommunications. Landline and cellphone systems both entirely collapsed due to the toppling of communication poles and loss of electric power. The cellphone system cable connections between cell sites were slashed off in association of the damage to the site facilities. Not only the local residents but also key governmental offices including visiting Secretaries lost communications with the outside areas, at least for a while. The landline system was totally nonfunctional mainly for the same reason as the electricity supply.

As for the measures for telecommunications, to protect existing systems or utilize alternative systems or equipment such as the stand-by satellite telecommunications systems are essential.

Table 4.3-2 Proposed Projects and Programs (Secure Information Transmission Systems)

Policy/ Projects/ Programs	Organization/ Agency	Implementation term		
		Short-term	Mid-term	Long-term
Install permanently the stand-by satellite telecommunication systems	Telecom Companies, NGAs, Province			
Entrench housing for the cell sites with a standby generator and appropriate stocks of fuel necessary for continued functioning	Telecom Companies,			
Install cable connecting functioning	Telecom Companies,			
Establish standalone satellite phone communication system down to Municipality level	Telecom Companies,			

(3) Enhance Ethical Awareness

To formulate a disaster management system, not only consisting of measures targeting administrative offices but also including educational activities or programs to enhance the ethical awareness of the residents are also essential. It is intended that the increased awareness will prevent the intentional cuttings offs of house connection.

Table 4.3-3 Proposed Projects and Programs (Enhance Ethical Awareness)

Policy/ Projects/ Programs	Organization/ Agency	Implementation term		
		Short-term	Mid-term	Long-term
Conduct ethical awareness raising activities	LGUs, WDs			
Conduct continuous ethical awareness raising activities that the act results in extra cost and burden to the society they belong	LGUs, WDs			

4.3.4 Develop Basic Infrastructure

If infrastructure such as roads, bridges, and others are located in hazardous zones, appropriate measures, such as relocation or improving the structural designs have to be proposed and applied. Appropriate zoning regulations should be applied to coastal built-up areas even if the areas are protected by structural measures.

As for electricity, to avoid locating important facilities, including sub-stations, in high-risk areas without necessary protection measures is a basic consideration. To increase the strength of the electricity poles and to strengthen the pole fixture to the ground are also essential as short-term measures. To equip stand-by generators with fuel enough to sustain operation for 5 - 7 days is required or safely installed solar panel electricity supply systems are options to sustain the

required operations. Measures that will protect the transmission systems are to reinforce the foundations of the towers, especially for the towers on slopes and to check and reinforce the tower structure itself if that is required. As medium-term measures for securing grid electricity supply, increase the redundancy of the national grid to secure alternative routes and increase independent power producers (IPP) strategically to cover sub-regions must be envisaged. For future plans, installing distribution lines underground may be considered.

As for water supply, to secure electricity supply for the pumping and treatment operations by installing stand-by generators with enough fuel to last through the cut off period, and reinforce protection of essential equipment and facilities including pumps, treatment facilities, generators, surface water intake and purification facilities, and pipe systems are the basic measures for the short term period. Furthermore, making logistical arrangements to secure stock of fuel and consumables necessary for a week of operation, and accessibility especially to the water sources and associated facilities for repair and supply of provisions are necessary for continuity of the services. As medium-term measures, replacement of the surface laid pipes with underground pipes or with robust durable pipes, application of measures for the surface laid pipes to protect them against damage, or increase of the depth of shallow underground pipes to a covering of at least 1.2 m under the roads and 0.6 m under the sidewalks along with application of sand beds if necessary are all essential for increasing the physical resilience of the structures along with continuous efforts for repair and maintenance. Also, re-installing feeder and connection pipes with underground water meters is another alternative, although this takes time and money.

Table 4.3-4 Proposed Projects and Programs (Develop Basic Infrastructure)

Policy/ Projects/ Programs	Organization/ Agency	Implementation term		
		Short-term	Mid-term	Long-term
Relocate facilities/ equipment	LGUs, WDs, ECs, NGCP, Telecom Companies, NGAs			
Increase/ install facilities/ equipment	LGUs, WDs, ECs, NGCP, Telecom Companies, NGAs			
Equip for disaster risk	LGUs, WDs, ECs, NGCP, Telecom Companies, NGAs			
Secure stocks of the equipment and supplies for emergency needs in safe places	LGUs, WDs, ECs, NGCP, Telecom Companies, NGAs			

4.4 Transport Network to Secure Mobility

4.4.1 Issues and Policy Direction

Although the use of the means of transport was temporarily interrupted after Yolanda, there were basically no serious problems regarding emergency logistics. However, obstructed roads with fallen trees, poles and debris led to the delay of emergency response. In order to avoid a significant shortage of supplies after a disaster, it is necessary to reduce the down time of transport for emergency response and because the economic development of the damaged area is delayed, some improvements to the transport network are needed.

4.4.2 Policy for Transport Network to Secure Mobility

Objectives	Policy	
To construct strong disaster-resilient transport network	Formulate disaster management system	Strengthen disaster management capacity for transport network
		Develop information transmission system
		Develop disaster management facilities
	Build safer cities through measures to infrastructure	Strengthen disaster prevention capabilities of transport network
Reinforce transport infrastructure and secure transport network		Ensure alternative routes
		Strengthen transportation capacity

4.4.3 Formulate Disaster Management System

(1) Strengthen Disaster Management Capacity for Transport Network

According to the DPWH, emergency transportation routes are not designated at the moment. In Japan, each road administrator designates emergency transportation routes to be used during a disaster. The routes connect disaster prevention centers, major ports and airports and so on which play important roles. Building of earthquake-resistant bridges, earthquake-resistant roadside buildings, and widening of the roads are given priority in the designated routes. If the designation in the target area is obvious, it is easy to acquire the budget for the improvement and maintenance of the road and to get assistance from donors.

Table 4.4-1 Proposed Projects and Programs (Strengthen Disaster Management Capacity for Transport Network)

Policy	Projects/ Programs	Organization/ Agency	Implementation term		
			Short-term	Mid-term	Long-term
Strengthen disaster management capacity for transport network	Designate emergency transportation routes	DPWH/ LGUs			

(2) Develop Information Transmission System

The large vessels which were washed up on the shore by Yolanda, obstructed the recovery of the roads. For prevention of such issues, the port administrator should request vessels which will navigate in the neighborhood or anchor in the port to evacuate beforehand, when a super typhoon is forecasted.

Table 4.4-2 Proposed Projects and Programs (Develop Information Transmission System)

Policy	Projects/ Programs	Organization/ Agency	Implementation term		
			Short-term	Mid-term	Long-term
Develop information transmission system	Provide warning information to large vessels	Port Authority /NDRRMC			

(3) Develop Disaster Management Facilities

Because the existing maintenance branch office was near the main office of DPWH, almost all vehicles in this office were washed away or damaged. It was the result of keeping almost all the vehicles at only one site in a hazardous area. Thus, vehicles should be decentralized to multiple sites. If the vehicles have to be kept in an area where flood risk is high, it is necessary to implement disaster prevention measures for the yards such as raising the floor level.

Most of the facilities and equipment, including vehicles for loading at the Tacloban port were seriously damaged and/ or washed away. Most of the buildings, facilities, and equipment including the airport terminal and administration building, crash fire rescue, etc., were utterly demolished by the strong winds at the Tacloban Airport. Facilities and equipment, together with the buildings, seemed to lack the appropriate protection measures. Suggested protection measures for early operation resumption include installation of protection walls for fixed facilities, robust buildings designed with raised or tightly shielded lower levels, and heightened evacuation places for movable equipment.

Table 4.4-3 Proposed Projects and Programs (Develop Disaster Management Facilities)

Policy	Projects/ Programs	Organization/ Agency	Implementation term		
			Short-term	Mid-term	Long-term
Develop disaster management facilities	Decentralize the rolling stock yards of DPWH	DPWH/ LGUs			
	Take disaster prevention measures for loading and operating equipment at Tacloban port and airport	Port Authority/ Civil Aviation Authority			

4.4.4 Build Safer Cities through Measures to Infrastructure

(1) Strengthen Disaster Prevention Capabilities of Transport Network

There were very few blocked roads caused by failure of the structure of the road at the time of Yolanda. However, more damage might occur at the time of other disasters. The locations that are vulnerable to disaster damage should be identified, inspected and classified according to the urgency of the necessary measures. Specifically, locations and scales of deterioration and deformation on the slopes, retaining walls, culverts and bridges require evaluation. Thereby, serious deterioration and deformation which might lead to damage of third persons should be checked.

At the present time, there are many high storm surge prone areas between Tacloban and Palo. In order to reduce the damage and to prevent the road from being flooded, the height of arterial roads can be raised, and at the same time will serve as a seawall.

Table 4.4-4 Proposed Projects and Programs (Strengthen Disaster Prevention Capabilities of Transport Network)

Policy	Projects/ Programs	Organization/ Agency	Implementation term		
			Short-term	Mid-term	Long-term
Strengthen disaster prevention capabilities of transport network	Check disaster prevention capabilities of the bridges, slopes, and shore protections on the route	DPWH/ LGUs			
	Raise the height of the arterial road in urban area	DPWH/ LGUs			

4.4.5 Reinforce Transport Infrastructure and Secure Transport Network

(1) Ensure Alternative Routes

Because the roads were not completely blocked after Yolanda, relief goods were transported by medium-sized vessels to Basey or Guiuan, and then by trucks to the neighboring areas. However, if in case the roads are blocked at multiple places, some areas might become isolated. Thereby, preventive measures for these areas should be considered. For instance, there is an especially steep topography near the road to Marabut, and it is not realistic to construct an alternative road in this condition. So, when the roads are blocked, emergency goods will have to be transported by small vessels to the isolated areas. Moreover, the area between Marabut and Giporlos is dotted with fishery ports and fishermen's landing places. Hence, it is very inefficient to use small vessels to transport the goods from Tacloban or Guiuan, where the relief goods are accumulated and stored, to the isolated areas. Relief goods should be transported by a large vessel from the port where they had been accumulated to the offing of the isolated area, and then loaded onto a smaller vessel which can use the fishery port temporarily. An efficient transport system may be achieved using the said procedure. However, for smooth implementation of this system, the partially damaged fishery ports at Lawaan and in other areas should be repaired and training on loading onto smaller boats should be conducted.

At present, Tacloban proposed in the RRP the development of a new parallel diversion road which was approved by DPWH, if this road will be developed, it can be a possible alternative route to the arterial road in Tacloban.

Table 4.4-5 Proposed Projects and Programs (Ensure Alternative Routes)

Policy	Projects/ Programs	Organization/ Agency	Implementation term		
			Short-term	Mid-term	Long-term
Ensure alternative routes	Secure marine transportation between Tacloban and Guiuan as alternative to the arterial road	DPWH/ NDRRMC/ LGUs			
	Execute existing plan bypass road in Tacloban	DPWH/ LGUs /Province			

(2) Strengthen Transportation Capacity

Tacloban proposed in the RRP to widen the arterial road between the north border and the airport to a 4 lane road. If the road is widened, not only the capacity for preventing disasters can be increased but also the capacity of traffic processing..

Currently, the handling capacity of the Tacloban equipment cannot be increased. Most of the relief goods were transported in containers at the time of Yolanda, and if this trend continues, it is forecasted that the ratio of containerization of the general goods will become higher in the future. For the rehabilitation of the area, it is necessary to increase the volume of the marine transport which is a low cost and mass transport means. Specifically, loading equipment and the container yard should be expanded.

Table 4.4-6 Proposed Projects and Programs (Strengthen Transportation Capacity)

Policy	Projects/ Programs	Organization/ Agency	Implementation term		
			Short-term	Mid-term	Long-term
Strengthen transportation capacity	Execute existing plan of 4-lane widening in Tacloban	DPWH/ LGUs			
	Install loading equipment and expand the container yard at Tacloban port	Port Authority/ LGUs			

4.5 Institutional Development and Governance for Disaster Risk Prevention and Mitigation

4.5.1 Issues and Policy Direction

An institutional development for disaster risk reduction and mitigation is still under way after the enactment of RA 10121. At the time when Typhoon Yolanda hit, not all the LGUs in the region had prepared LDRRMPs and established LDRRMOs. Lack of comprehensive LDRRMPs and weak capacity of LDRRMOs made the LGUs unprepared for the disaster. In particular, in the occurrence of the unexpected level of disaster, a lack of policies and activities in preparation, prevention and mitigation measures could result in expansion of damages and delay in recovery and reconstruction. Thus, capacity building training with appropriate guidelines or instructions for development of LDRRMPs should be provided for LGUs improvement analytical ability of hazard risks and vulnerability, and planning capacity of disaster prevention and mitigation measures.

Needs for horizontal and vertical linkage building among governments and various organizations and actors within a region and across regions are identified through the experience of the Typhoon Yolanda disaster. During disaster, LGUs, barangays, communities, and civil society organizations are expected to support each other. In the case of an enormous disaster, LGUs in the affected area alone are not able to respond to the needs of the people. The linkages among them can contribute to mutual support within the affected area and withdraw assistance from outside the region. A strategy of building linkages is creating safety nets beyond the community and the affected area, which makes the community more resilient to disaster.

4.5.2 Policies for Development of Institutions and Governance for Disaster Risk Prevention and Mitigation

Objectives	Policy/ Policy Components	
Improve governance for disaster risk reduction and management	Improve capacity of LGUs in DRRM-related policy making and implementation	
	Build cooperation mechanisms for disaster risk reduction and management	Promote cooperation linkages/ networks for disaster response
	Introduce a regional disaster risk reduction and management system	

4.5.3 Improve Capacity of LGUs in DRRM Policy Making and Implementation

Pursuant to RA 10121, the LGUs in the affected areas prepared LDRRMPs, which include analysis of hazards and vulnerability and programs and projects for disaster prevention/mitigation, preparedness, response, and rehabilitation and recovery. However, the contents of their LDRRMPs vary with different emphases on the components. Many of LDRRMPs do not devote much pages in preparation, preventive and mitigative measure components. This is attributed to a lack of a guideline or instructions for LDRRMPs from the OCD or NDRRMC and due to the different capacities of LGUs. Similarly, not all barangays had prepared BDRRMPs, except in the case of

Guiuan.

Thus, in order to support LGUs' efforts in formulating/ updating LDRRMPs, it is necessary for OCD and the NDRRMC to prepare and provide appropriate guidelines for LDRRMP formulation. They also need to assist LGUs in improving their capacities through assessment of existing hazard risks, community's vulnerability & adaptive capacities, exposure and developing appropriate measures for disaster prevention & mitigation, such as evacuation plans, community organizing, early-warning systems, and structural measures.

Table 4.5-1 Proposed Projects and Programs (Improve Capacity of LGUs in DRRM Policy Making and Implementation)

Policy	Projects/ Programs	Organization/ Agency	Implementation term		
			Short-term	Mid-term	Long-term
Improve capacity of LGUs in DRRM policy making and implementation	Develop a LDRRMP development manual	OCD			
	Provide capacity building training for LGUs	LGU/ OCD			

4.5.4 Build Cooperation Mechanisms for Disaster Risk Reduction and Management

Linkages and networks for mutual cooperation and assistance during and after a disaster should be established within a region and across regions. LGU can sign a Memorandum of Agreement with neighboring LGUs and different regions, or even with the other country, for cooperation and mutual assistance at the time of disaster. Based on the MOA or arrangement of sister cities or municipalities, LGUs are able to call for assistance during the crisis from the unaffected area or to evacuate citizens temporarily in the case of shortage of shelters. Such linkages are also effective to improve the capacity of LGUs, barangays and communities through mutual learning from experiences of each other. The best practices in DRRM activities can be shared among LGUs within the affected areas and across the regions. LGUs can also promote a student exchange program for disaster education. For regional cooperation on disaster prevention, a regional DRRM council based a geographical feature may be organized among LGUs when the impact of a disaster is expected to affect multiple LGUs. For instance, organizing a Leyte Gulf Disaster Risk Reduction and Management Council can be a good option for coastal LGUs surrounding the Leyte Gulf in promoting municipal cooperation.

Meanwhile, there is a need to promote and extend vertical linkages of governments not only in the response stage but also in the areas of rehabilitation and recovery, disaster preparedness, and disaster risk prevention and mitigation. Provinces or regional offices of central government agencies are expected to provide sufficient training or technical assistance to the lower levels of LGUs such as cities, municipalities and barangays, if they lack enough capacity, for example to develop LDRRMPs. On the other hand, a bottom-up linkage from barangays through cities, municipalities, and provinces is important to convey their needs, concerns, or interests to the higher level of institutions. Nevertheless, these types of vertical linkages need clarification of and streamlined procedures, responsibilities, functions, etc. for well-coordinated and effective

operations.

The other essential linkages to be established are connecting various actors among the governments, communities, NGOs and civil society organizations, professional organizations, and the private sectors. A community with multiple linkages is able to call for help from different organizations and people even outside the region, in addition to self-help from internal resources.

Table 4.5-2 Proposed Projects and Programs (Build Cooperation Mechanisms for Disaster Risk Reduction and Management)

Policy Component	Projects/ Programs	Organization/ Agency	Implementation term		
			Short-term	Mid-term	Long-term
Promote cooperation linkages/ networks for disaster response	Establish inter-governmental cooperation agreements within a region and across regions	LGUs/ Leagues of Cities/ Municipalities			
	Strengthen a vertical linkage by clarifying roles and functions	LGUs (Barangay/ City/ Municipality/ Province)/ Central Government Agencies)			
	Create networks connecting governments, NGOs & CSOs, and the private sector	LGUs/ NGOs/ CSOs/ Private Sector			
Introduce a regional disaster risk reduction and management system	Establish a regional disaster risk reduction and management council	LGU/ OPARR/ DILG/ NEDA			

Chapter 5 Recovery of People’s Daily Lives

5.1 Rebuilding Communities

5.1.1 Issues and Policy Direction

While Filipinos have the compassion of helping each other especially to provide support to those in need, it is generally an individual basis. Social ties are rather independent from the specific communities where they live. It may partly be because many Filipinos experience overseas and domestic migration for better livelihoods, creating less attachment to their own communities. Nevertheless, Filipino communities, in the form of “barangay”, play an important role before and after disaster. In the case of Yolanda, Barangay Councils played a key role in providing early warning to the community members, and many residents supported each other to survive before external support arrived, sharing food, searching for the missing and maintaining security.

In addition, communities can function as a safety net for IDPs. Some of the members displaced by Yolanda were completely separated from the barangay of origin after losing their houses. As the implementation of relocation plans has been delayed, the social isolation of the IDPs in tent cities and bunkhouses could prolong for years with limited access to livelihoods, health services and education. The situation could particularly increase the vulnerability of women, children, single parents, senior citizens and PWD. In addition, some of the IDPs relocated to new barangays are continuing their livelihood activities in the original barangays even by traveling far distances. The fluid movements of IDPs across barangays caused by the lack of alternative livelihoods have created a challenging environment to restore community ties.

Considering the inter-personal ties are generally well established in the Philippines, maintaining and strengthening the social ties within barangays should be emphasized to formulate strong communities in the Yolanda-affected areas. In particular, building social ties in new communities is critical for the relocated population to establish a mutual support system. Needless to say, it is a pre-requisite to strengthen disaster-resilience of the communities so that the devastation experienced by Yolanda will never be repeated.

5.1.2 Policies for Rebuilding Communities

Objective	Policy	
Rebuild and revitalize affected communities with stronger disaster resilience	Strengthen community's disaster resilience	Repair and reconstruct community evacuation centers
		Support shelter self-recovery process for the affected households
		Increase the capacity of Barangay DRRM Councils
		Develop community vulnerability maps in all barangays
	Build stronger and more inclusive communities	Ensure transparent and timely communication with the displaced population related to relocation plans
		Promote community dialogue on community reconstruction
		Promote community activities to strengthen ties among local residents
		Implement relocation plans with durable alternative livelihoods and social service programs
		Rebuild barangay halls and other community facilities
		Revitalize and strengthen community-based referral mechanisms for the vulnerable population

5.1.3 Strengthening Community's Disaster Resilience

Since almost all the community evacuation centers were damaged or destroyed by Yolanda, it is of utmost importance to assess the status and reconstruct them with effective mitigation measures. While the reconstruction of evacuation centers is taking place, LGUs also need to come up with temporary evacuation plans for short-term measures. Aside from the structural measures, community's DRRM capacity needs to be strengthened through Barangay DRRM Councils. Through technical assistance and monitoring and evaluation by Municipal DRRM Offices, effective DRRM plans should be developed and implemented by Barangay Councils with participation of community volunteers. Furthermore, in order to ensure the process of rebuilding communities is inclusive of vulnerable groups such as women, children, senior citizens and PWD, community vulnerability maps and evacuation routes for vulnerable groups need to be developed in each barangay. The activities can be done through mobilizing barangay-based systems and organizations including Senior Citizens' Associations, Women's Associations, Daycare Parents' Committees, etc.

Table 5.1-1 Proposed Projects and Programs (Strengthening Community's Disaster Resilience)

Policy	Projects/ Programs	Organization/ Agency	Implementation term		
			Short-term	Mid-term	Long-term
Repair and reconstruct community evacuation centers	Assess the status of evacuation centers and update the list of functional evacuation centers	LGUs, Barangay Councils			
	Repair and reconstruct structurally-resilient evacuation centers based on the building regulations and accessibility code	LGUs, Barangay Councils			
Support shelter self-recovery process for the affected households	Provide durable roofing solutions, tools and building materials to the displaced population	LGUs, Barangay Councils			
Increase the capacity of Barangay DRRM Councils	Conduct DRRM training for Barangay Council members to develop and implement effective DRRM activities	LGUs			
	Monitor and evaluate the implementation of barangay DRRM plans	LGUs			
	Mobilize community volunteers to participate in barangay DRRM activities	Barangay Councils			
	Establish a functional public address system in each barangay	Barangay Councils			
Develop community vulnerability maps in all barangays	Develop community vulnerability maps through participation of vulnerable groups including senior citizens and PWD	LGUs, Barangay Councils			
	Identify evacuation routes for the vulnerable population based on the vulnerability maps	LGUs, Barangay Councils			

5.1.4 Building Stronger and More Inclusive Communities

Participation of community members themselves in developing and implementing relocation plans and recovery and reconstruction plans is the first step for rebuilding communities. Barangay Councils should also create venues and opportunities for social interactions among community members in order to strengthen the social ties. The long-term efforts will contribute to the sense of ownership and belonging among the community members and community's stronger disaster resilience.

The implementation of relocation plans is one of the most challenging issues in recovery and reconstruction activities. Successful relocation can be attained through ensuring the communities' sustainable access to alternative livelihoods and social services including health, education and social welfare. Furthermore, the process of rebuilding communities should take an inclusive approach by establishing barangay-based referral mechanisms such as Barangay Councils for the Protection of Children (BCPC), Violence against Women (VAW) Desks, Senior Citizens' Associations and PWD Help Desks. While many barangays had already established these mechanisms prior to Yolanda except for PWD Help Desks, most of them were inactive. Therefore, LGUs should provide technical follow-up to reactivate and recapacitate the mechanisms as entry points to build more inclusive communities.

Table 5.1.-2 Proposed Projects and Programs (Building Stronger and More Inclusive Communities)

Policy	Projects/ Programs	Organization/ Agency	Implementation term		
			Short-term	Mid-term	Long-term
Ensure transparent and timely communication with the displaced population related to relocation plans	Organize regular information sessions on relocation plans with IDPs	LGUs, Barangay Councils			
Promote community dialogue on community reconstruction	Organize regular community-wide meetings on developing and implementing barangay recovery and reconstruction plans	Barangay Councils			
Promote community activities to strengthen ties among local residents	Organize community events such as barangay/sona fiestas or inter-barangay/sona competition events (e.g. banca (local boat) races or Christmas decoration contests)	Barangay Councils			
Implement relocation plans with durable alternative livelihoods and social service programs	Develop sustainable livelihood programs for the relocated population including vulnerable groups	LGUs, Barangay Councils			
	Establish sufficient social service systems (e.g. health, education, social welfare) in relocation sites	LGUs, Barangay Councils			
Rebuild barangay halls and other community facilities	Repair/reconstruct damaged community facilities including barangay halls, health stations, civic centers and tanods' offices	LGUs, Barangay Councils			
Revitalize and strengthen community-based referral mechanisms for the vulnerable population	Establish/reactivate BCPC, VAW Desks, Senior Citizens' Associations and PWD Help Desks	LGUs, Barangay Councils			

5.2 Healthcare

5.2.1 Issues and Policy Direction

While Typhoon Yolanda resulted in tremendous health needs among the affected population, health response was faced with challenges including the damage and destruction of more than half of all health facilities and the loss of medicines, equipment, electricity, water and transportation. Because of the collapse of the communication system, affected hospitals and RHUs could not report their situations to the DOH and Rural Health Office and request logistics assistance. Consequently, the coverage of services provided by temporary facilities was not sufficient particularly for vulnerable groups living in remote areas and who are impaired with mobility. In the area of WASH, environmental pollution and the spread of pathogens could occur due to the leakage of sludge caused by damaged latrines/pits. As for the living condition at temporary shelters, the ratios of latrine users satisfied the WHO standards but not the WASH standards. The environment in the temporary shelter premises is also not hygienic as the sludge tends to overflow from the pit and a lot of solid waste and wastewater have accumulated. To restore healthier communities including the vulnerable population with access to high quality health services and WASH is essential.

5.2.2 Policy for Healthcare and Social Welfare

Objectives	Policy	
Restore healthier communities with access to high quality health services and WASH including for the vulnerable population	Recover and secure access to health services	Repair and reconstruct damaged health facilities and water infrastructure
		Provide necessary health services in relocation areas such as construction of additional health centers based on the new health facility catchment areas
		Address the special health needs of the vulnerable population including pregnant and lactating women, senior citizens and PWD
		Coordinate with the education sector and social welfare sector to strengthen referral systems for violence against women and children and psychosocial care for the affected population
	Establish a disaster-resilient health system	Strengthen the capacity of health personnel on disaster risk reduction and emergency response including MISP and mental health and psychosocial care
		Develop contingency plans including surge capacity and revise relevant training manuals for stronger disaster response capacity of LGUs health and WASH
		Develop uniformed standards and build structurally resilient health facilities with strong communication systems (undertake relocation of facilities in geo-hazard areas as needed)
		Strengthen the logistics system and medical stockpile system for public health emergency preparedness
	Prevent outbreaks of epidemics	Conduct monitoring of disease outbreaks through the PIDSR system, SPEED and the Event Based Surveillance system
		Conduct hygiene education at community level through health workers based on a fact-finding survey on the situation of environmental hygiene and water-related diseases
	Provide mental health and psychosocial care for the affected population	Integrate mental health and psychosocial care in the emergency and reconstruction assistance

5.2.3 Recovering and Securing Access to Health Services

With the majority of the health facilities severely damaged, the coverage of services provided by temporary facilities has not been sufficient. Service areas of health facilities, including temporary facilities in relocation sites, shall be revised to enable access to health services. Particular attention shall be attached to the access by vulnerable groups living in remote areas and who have impaired mobility. Furthermore, the special health needs of senior citizens and PWD can also be considered. In order to further improve access to health services, coordination can be made with the education sector and social welfare sector in order to formulate efficient referral systems for vulnerable groups.

Table 5.2-1 Proposed Projects and Programs (Recovering and Securing Access to Health Services)

Policy	Projects/ Programs	Organization/ Agency	Implementation term		
			Short-term	Mid-term	Long-term
Repair and reconstruct damaged health facilities and water infrastructure	Mobilize the Government budget	DOH, LGU, INGOs			
	Explore INGOs' assistance to repair facilities				
	Installation of Jetmatic pumps and deep wells				
Provide necessary health services in relocation areas such as construction of additional health centers based on the new health facility catchment areas	Construct or rehabilitate/renovate to a more conducive health center to cater the relocated constituents	DOH, LGU, INGOs			
Address the special health needs of the vulnerable population including pregnant and lactating women, senior citizens and PWD	Establish birthing center and maternity waiting home at all Barangay Health Stations	DOH, LGU, INGOs			
	Establish outreach program				
Coordinate with the education sector and social welfare sector to strengthen referral systems for violence against women and children and psychosocial care for the affected population	Networking with other sectors and establish mental health institution	DOH, LGU, INGOs			

5.2.4 Establishing a Disaster Resilient Health System

In strengthening the health sector response to emergencies, health personnel need to be equipped with skills such as a MISP and mental health and psychosocial care. The capacity of LGUs in taking necessary measures for the WASH sector shall be improved in order to efficiently implement emergency response activities. Contingency plans shall be developed and relevant staff shall be trained based on revised training manuals. Disaster resiliency of existing facilities as well as those to be constructed in the future shall be increase through the development of uniform standards and relocation of facilities that are currently located in high risk areas. Logistic arrangements for stockpiling and distribution of medicines and other medical materials shall be reviewed from the viewpoint of emergency response.

In the Grant Aid Projects and QIPs, an outpatient quarter in EVRMC in Tacloban shall be constructed and the destructed RHUs in Marabut, Lawaan, Dulag and Abuyoga and the Provincial Health Office will be reconstructed in order to restore the rural public health service support system.

Table 5.2-2 Proposed Projects and Programs (Establishing a Disaster-Resilient Health System)

Policy	Projects/ Programs	Organization/ Agency	Implementation term		
			Short-term	Mid-term	Long-term
Strengthen the capacity of health personnel on disaster risk reduction and emergency response including MISP and mental health and psychosocial care	Implement the Mental Health and Psycho-social Program (MHPSS)	DOH, LGU DOH, LGU			
	Develop training curriculum and manuals, and carry on the periodical Mental Health training to health workers				
Develop contingency plans including surge capacity and revise relevant training manuals for stronger disaster response capacity of LGUs health and WASH	Develop training curriculum and manuals, and carry on the periodical training for disaster response to health workers	DOH, LGU, INGOs			
Develop uniformed standards and build structurally resilient health facilities with strong communication systems (undertake relocation of facilities in geo-hazard areas as needed)	Standardization of guidelines and policies from the national and INGOs on the support and delivery of health services	DOH, LGU			
Strengthen the logistics system and medical stockpile system for public health emergency preparedness	Set up of a centralized drug management system with a system for public health emergency preparedness	DOH, LGU			

JICA Grant Aid Projects: Construction of Outpatient Quarter in EVRMC (Tacloban) , and Reconstruction of RHUs (Marabut, Lawaan, Dulag and Abuyog)

The EVRMC project is to construct outpatient quarter facilities in EVRMC (Eastern Visayas Regional Medical Center) that are strong enough to withstand high winds and seismic activities, and that can function as emergency evacuation centers. Japanese high-quality design and construction technology are utilized.



Municipality	Main usage	Structure	Area	Activity
City of Tacloban	Regional Health Center	RC, 3 Stories	4,500 m ²	• Planned in plot owned by DOH in Barangay Cabalawan

The RHU project is to strengthen with protection against seismic and wind load, and generators installed to provide for emergency evacuees. The RHU shall be planned in an appropriate space for the future modification. Japanese high-quality design and construction technology are utilized.



Municipality	Main usage	Structure	Area	Activity
Marabut	RHU	RC, 2 Stories (piloti)	680 m ²	• Rebuilding of existing structure at the same site; Safety shelter for emergency evacuation; Piloti structure to avoid flood seawater; Emergency equipment stored
Lawaan	RHU	RC, 2 Stories	680 m ²	
Dulag	RHU	RC, 2 Stories	680 m ²	
Abuyog	RHU	RC, 1 story	680 m ²	

Effectiveness

- Banefit for many neighborhoods (Total population of 4,100,000 and 125,000 benefit by new EVRMC and RHUs, respectively)

- Contribution for regional health and medical service
- Improvement of maintenance cost
- Provision of safe buildings
- Effects by medical equipment procurement

JICA QIP No. 002: Recovery of Rural Health Service Support System through Reconstruction of Provincial Health Office

The Project aims at enhancing basic medical services across the Province and the formulation of a disaster resilient health services system.

Municipality	Counterpart Agency	Activities/ Components
Palo	DOH (Leyte Province)	<ul style="list-style-type: none"> • Rehabilitation of PHO building (mainly repair of roof, ceiling, walls, windows) • Procurement of equipment (air-conditioners, refrigerators and freezers for vaccines)

Effectiveness is to restore the health administrative service of Leyte with the functional recovery of Leyte PHO by the disaster resilient system.



5.2.5 Preventing Outbreaks of Epidemics

Under current sanitary conditions in the area, there is risk of outbreaks of infectious diseases. The situation shall be carefully monitored so that necessary countermeasures can be taken to prevent epidemics. Hygienic education at the community level needs to be promoted to further increase resiliency against disease outbreaks at the time of future disasters.

Table 5.2-3 Proposed Projects and Programs (Preventing Outbreaks of Epidemics)

Policy	Projects/ Programs	Organization/ Agency	Implementation term		
			Short-term	Mid-term	Long-term
Conduct monitoring of disease outbreaks through the PIDSR system, SPEED and the Event Based Surveillance system	Strengthen the surveillance system and conduct health education for preventing infectious diseases	DOH, LGU, INGOs			
Conduct hygiene education at community level through health workers based on a fact-finding survey on the situation of environmental hygiene and water-related diseases	Intensive advocacy campaign for hygiene and mobilize community health workers to conduct WASH activities	DOH, LGU, INGOs			

5.2.6 Providing Mental Health and Psychosocial Care for the Affected Population

At times of devastating calamities, the issue of mental health and psychosocial care shall be addressed from the very initial stages and continued until the mental burden is decreased. Measures should be taken to integrate such actions into both emergency response and reconstruction assistance.

Table 5.2-4 Proposed Projects and Programs (Providing Mental Health and Psychosocial Care for the Affected Population)

Policy	Projects/ Programs	Organization/ Agency	Implementation term		
			Short-term	Mid-term	Long-term
Integrate mental health and psychosocial care in the emergency and reconstruction assistance	Establish the strategy on mental health and psychosocial care	DOH, LGU			

5.3 Social Welfare

5.3.1 Issues and Policy Direction

In an emergency setting, vulnerable groups not only have greater concerns of poor living conditions and lack of access to assistance but are also at risk of violence, abuse and exploitation. In response to the increased risk of GBV, humanitarian support was provided to establish temporary WFS, CFS and WCPD for the physical and psychological safety of affected women and children. However, while data from LGUs have confirmed the increased reported cases of GBV post-Yolanda, the geographical coverage of GBV prevention and response remained limited mainly due to the lack of funding.

Furthermore, the socioeconomic situation of the vulnerable population, particularly senior citizens and PWD, has been aggravated by the disaster. They had received limited social welfare benefits prior to Yolanda, and the disaster response also did not provide sufficient assistance catered to their special needs including health, livelihood and shelter. In order to accelerate a more inclusive humanitarian response, some of the priorities include collection of data disaggregated by age, sex, ethnic groups, etc. to understand the disaster's different impacts on the lives of various vulnerable groups and promotion of their participation in designing and implementing recovery and reconstruction projects/programs.

With a mandate to address the concerns of vulnerable groups during disaster response, DSWD led four clusters and two sub-clusters for coordinated cluster response by the Government and humanitarian agencies. The multiple coordination and implementation responsibilities of DSWD overburdened its staff. Social Workers were particularly overstretched by numerous tasks including the management of IDPs, food distribution, WFS and CFS. In order to strengthen the social welfare sector response to emergencies, it is indispensable to address the shortage of Social Workers and increase their disaster response capacity including psychosocial skills.

5.3.2 Policy for Social Welfare

Objective	Policy	
Build more inclusive communities where vulnerable groups are socially and economically empowered	Recover and secure access to social welfare services	Repair and reconstruct damaged social welfare facilities
		Ensure availability of and accessibility to social welfare facilities in transitional and permanent relocation sites
	Establish disaster-resilient social welfare systems and services	Increase the capacity of DSWD/MSWD/CSWD as a Protection Cluster lead and their capacity on case management for child protection and GBV concerns
		Advocate and build capacity of LGUs on protection in disaster settings, including provision of a safe and accessible environment for PWD and senior citizens at transitional and permanent relocation sites
		Strengthen the system to prevent and respond to GBV through advocacy, capacity building and improved facilities for survivors
		Increase the number of Social Workers in each LGU to strengthen the availability of community social welfare services
		Revitalize community-based referral mechanisms
		Strengthen disaster resilience of vulnerable groups through integrating their concerns in community DRRM activities
		Implement an inclusive approach of livelihood assistance that facilitates integration of vulnerable groups into communities

5.3.3 Recovering and Securing Access to Social Welfare Services

In order to restore vulnerable groups' access to social welfare services, it is high priority for LGUs to repair and reconstruct institutions and facilities damaged by Yolanda, including Daycare Centers, women's crisis centers, WCPDs, Senior Citizens' Centers. In particular, those social welfare institutions and facilities that serve as community evacuation centers should be reconstructed in accordance with the building code and accessibility laws (see QIPs below). Furthermore, as the needs for social welfare services have increased particularly among the displaced population, access should be ensured in transitional and relocation sites through establishing additional facilities or upgrading the existing facilities such as Women-friendly Spaces and Daycare Centers.

Table 5.3-1 Proposed Projects and Programs (Recovering and Securing Access to Social Welfare Services)

Policy	Projects/ Programs	Organization/ Agency	Implementation term		
			Short-term	Mid-term	Long-term
Repair and reconstruct damaged social welfare facilities	Repair and restore disaster-resilient social welfare facilities, particularly those that serve as community evacuation centers	DSWD, LGUs, Police, OSCA			
	Enforce the national laws and ordinances on accessibility in reconstruction of social welfare facilities	DSWD, LGUs			
Ensure availability of and accessibility to social welfare facilities in transitional and permanent relocation sites	Establish permanent Women-Friendly Spaces to provide recovery and reconstruction assistance to affected women	MSWD/CSWD			
	Establish additional Daycare Centers or upgrade the existing Daycare Centers in relocation as required				

JICA QIP No. 006 & 007: Reconstruction of Daycare Center for Community Rehabilitation (Vitalization of Peoples' Dialogue) (Salcedo & Guiuan)

The buildings will be used for places for communication in the communities, to encourage discussion among residents on community rehabilitation, for places of disaster prevention education, in order to regenerate peoples' relations and improve the capacities of disaster prevention in nighttime or weekend.

Municipality	Counterpart Agency	Activities/ Components
Salcedo	Municipal Govt. of Salcedo	<ul style="list-style-type: none"> • Production and transport of prefabricated building units • Reconstruction of daycare centers (5 sites for 5 Barangays) • Site visits to observe construction process of daycare center
Guiuan	Municipal Govt. of Guiuan	<ul style="list-style-type: none"> • Production and transport of prefabricated building units • Reconstruction of daycare centers (2 sites for 2 barangays) • Site visits to observe construction process of daycare center

Effectiveness is to recover the function of the daycare center in Salcedo and promote the vitalization of community dialogues including disaster enlightenment through reconstruction of the daycare center by Japanese style of prefabricated building.



5.3.4 Establishing Disaster Resilient Social Welfare Systems and Services

While the Yolanda response has shed light on protection issues and increased the assistance particularly for the protection of women and children, LGU's capacity and resources need to be further enhanced to meet the special recovery and reconstruction needs of the vulnerable population. In order to enable this, advocating decision makers at municipal and barangay levels to prioritize support for the vulnerable population is crucial as the majority of the existing recovery and reconstruction plans by LGUs do not sufficiently integrate their concerns. With regard to specific social welfare services, the program to prevent and respond to GBV needs to be intensified and the systems to provide assistance to PWD and senior citizens need to be strengthened. Livelihood assistance inclusive of the vulnerable groups including female-headed households, senior citizens, PWD and GBV survivors is particularly effective in ensuring sustainability of their recovery. Furthermore, in the disaster-prone region, more disaster-resilient communities cannot be attained without increasing the DRRM capacity of vulnerable groups themselves and promoting their participation in community DRRM activities including evacuation planning.

Table 5.3-2 Proposed Projects and Programs (Establishing Disaster-Resilient Social Welfare Systems and Services)

Policy	Projects/ Programs	Organization/ Agency	Implementation term		
			Short-term	Mid-term	Long-term
Increase the capacity of DSWD/MSWD/CSWD as a Protection Cluster lead and their capacity on case management for child protection and GBV concerns	Provide training on the cluster system, particularly management of the Protection Cluster, to DSWD/MSWD/CSWD staff	DSWD/MSWD/CSWD			
	Provide standardized training on psychosocial skills to DSWD/MSWD/CSWD staff	DSWD/MSWD/CSWD, DOH			
Advocate and build capacity of LGUs on protection in disaster settings, including provision of a safe and accessible environment for PWD and senior citizens at transitional and permanent relocation sites	Advocate LGUs at municipal level on integration of social welfare concerns into their recovery and reconstruction planning and budgeting	DSWD/MSWD/CSWD			
	Advocate Barangay Councils on inclusion of vulnerable groups in their recovery and reconstruction efforts (e.g. ensure effective utilization of 1% IRA for PWD and senior citizens)	LGUs			
Strengthen the system to prevent and respond to GBV through advocacy, capacity building and improved facilities for survivors	Implement awareness-raising on GBV for Barangay Councils	MSWD/CSWD			
	Reactivate VAWC Desks in all barangays	MSWD/CSWD			
	Build capacity of Daycare Workers on GBV	MSWD/CSWD			
	Strengthen the multi-disciplinary function of municipal-level WCPU particularly psychosocial aspect	MSWD/CSWD, DOH, Police,			
Increase the number of Social Workers in each LGU to strengthen the availability of community social welfare services	Increase manpower of MSWD, particularly permanent social workers	LGUs			
	Recruit a focal person for PWD				
Revitalize community-based referral mechanisms	Produce/update the barangay lists of social welfare service clients including PWD and solo parents	MSWD/CSWD, Barangay Councils			
	Reactivate VAW Desks in all barangays				
	Reactivate BCPC				
	Establish/reactivate PWD Desks and Senior Citizens' Associations				
Strengthen disaster resilience of	Build capacity of senior citizens on DRRM through	MRRMO,			

vulnerable groups through integrating their concerns in community DRRM activities	OSCA and Senior Citizens' Associations	MSWD/CSWD, OSCA, SCA			
	Promote participation of senior citizens in DRRM planning at municipal and barangay levels	LGUs, Barangay Councils			
	Build DRRM capacity of daycare children and workers	MDRRMO, MSWD/CSWD			
Implement an inclusive approach of livelihood assistance that facilitates integration of vulnerable groups into communities	Ensure participation of vulnerable groups and their families in alternative livelihood training and capital assistance	MSWD/CSWD, TESDA, Barangay Councils			
	Provide vocational training for vulnerable affected women at WFS	MSWD/CSWD			

5.4 Education

5.4.1 Issues and Policy Direction

As a result of Yolanda, more than 2,500 of each of schools and daycare centers were totally and partially damaged.² The devastating impact on the educational facilities posed structural vulnerabilities to disasters and the education sector’s lack of capacity on disaster risk reduction. One of the main assistance provided by the Government and humanitarian agencies was the establishment of CFS and TLS to temporarily replace dysfunctional daycare centers and schools and serve as much needed safe and healthy spaces for pre-school and school-aged children and youth. However, some of the CFS and TLS were faced with under-capacity to respond to the individual needs of the school children particularly their psychosocial needs and special needs of children with disabilities. Furthermore, children and the youth in tent cities and bunkhouses are now forced to walk a far distance or take tricycles to school, creating financial burdens for their families. Given the lack of access and availability of functional educational facilities, vulnerable children and youth including those displaced and disabled are at risk of dropping out of school in a long term. The risk of increase in drop-out rates is particularly high among high school and college students in the region where the secondary and tertiary education enrollment rates were already low prior to Yolanda. Therefore, LGUs’ recovery and reconstruction plans in the education sector must urgently improve access and availability of schools at all levels with a focus on strengthening disaster resilience.

5.4.2 Policy for Education

Objective	Policy	
Recover and increase access to and availability of disaster-resilient education	Recover and secure access to education	Repair and reconstruct damaged education facilities
		Ensure access to education for vulnerable school children and youth
	Reduce vulnerability of affected school children, youth and teachers	Integrate psychosocial support for the affected school children, youth, and teachers in relief and recovery assistance
		Intensify reintegration programs for affected children and youth who dropped out of school as a result of the disaster
	Strengthen disaster resilience of schools as a safe space for communities	Build structurally resilient and protection-sensitive schools as safe evacuation centers for school children and youth, and communities
		Mainstream DRRM in school curriculums and build capacity of school personnel on DRRM

5.4.3 Recovering and Securing Access to Education

It is one of the highest priorities for LGUs to rehabilitate damaged school buildings and classrooms in order to facilitate restoration of community’s daily lives. As many school children and youth have less access to education due to the financial losses and displacement, various programs and projects need to respond to their special needs. These include the provision of transportation from transitional sites, special education programs for children with disabilities and the review of school catchment areas based on the relocation of displaced children and youth.

² “Education Cluster Brief”, 19 June 2014.

Table 5.4-1 Proposed Projects and Programs (Recovering and Securing Access to Education)

Policy	Projects/ Programs	Organization/ Agency	Implementation term		
			Short-term	Mid-term	Long-term
Repair and reconstruct damaged education facilities	Rehabilitate school buildings and classrooms	DepEd, LGU, DPWH			
	Provide school materials to teachers and students	DepEd			
Ensure access to education for vulnerable school children and youth	Upgrade schools in relocation sites	DepEd, LGU, DPWH			
	Enhance the SPED program for school children with disabilities	DepEd, LGU			
	Provide transportation to displaced children to help them commute to schools	DepEd, LGU			

5.4.4 Reducing Vulnerability of Affected School Children, Youth and Teachers

School children and youth affected by Yolanda are at great risk of dropping out of school. Many of them were traumatized by the disaster experience and in urgent need of psychosocial care. The psychosocial support should also be provided to the affected teachers who are equally traumatized with a risk of poor performance at schools. Furthermore, follow-up assistance to out-of-school children and youth needs to be intensified. Their reintegration to schools and society has long-term implications on communities' economic recovery.

Table 5.4-2 Proposed Projects and Programs (Reducing Vulnerability of Affected School Children, Youth and Teachers)

Policy	Projects/ Programs	Organization/ Agency	Implementation term		
			Short-term	Mid-term	Long-term
Integrate psychosocial support for affected school children, youth and teachers in relief and recovery assistance	Build capacity of teachers to provide psychosocial support to school children and youth	DepEd, LGU			
	Provide psychosocial care to school teachers	DepEd, LGU			
Intensify the reintegration programs for affected children and youth who dropped out of school as a result of the disaster	Provide the Alternative Learning System for out-of-school youth affected by Yolanda	DepEd, LGU, DSWD			
	Provide vocational training for out-of-school youth	DepEd, LGU, TESDA			

5.4.5 Strengthening Disaster Resilience of Schools as a Safe Space for Communities

As the majority of schools are identified as community evacuation centers, the school buildings should be reconstructed and repaired based on the building code that is resilient to disasters. Furthermore, the facilities should be accessible for senior citizens and PWD in case of evacuation, and proper WASH facilities for boys and girls should be established. Upon review of hazard maps updated by LGUs after Yolanda, schools in geo-hazardous areas must also be relocated to safer areas.

Disaster-resilient schools cannot be attained without the DRRM capacity of teachers and students. Schools at all levels must review their curriculums to better incorporate DRRM and strengthen their DRRM activities including school drills and development of evacuation plans. In addition, one of the lessons learned after Yolanda was the need to link school DRRM activities and community DRRM activities. Because the schools serve as evacuation centers for not only school teachers and children but also the surrounding communities, programs and projects should

facilitate the participation of communities in school DRRM activities in order to strengthen community-based disaster preparedness.


Eight elementary schools in the Study Area intend to be reconstructed by the Japan Grant Aid Projects. On the other hand, QIPs have been implemented to provide training on disaster resilient construction technologies through the reconstruction of schools in Balangiga Eastern Samar and Dulag Leyte.

Table 5.4-3 Proposed Projects and Programs (Strengthening Disaster Resilience of Schools as a Safe Space for Communities)

Policy	Projects/ Programs	Organization/ Agency	Implementation term		
			Short-term	Mid-term	Long-term
Build structurally resilient and protection-sensitive schools as safe evacuation centers for school children and youth, and communities	Construct/repair school buildings and classrooms in accordance with the standard building and accessibility codes	DepEd, LGU, DPWH			
	Establish proper WASH facilities at schools	DepEd, LGU, DOH, DPWH			
	Relocation of schools from geo-hazardous areas	DepEd, LGU			
Mainstream DRRM in school curriculums and build capacity of school personnel on DRRM	Update/improve the learning materials and manuals on DRRM and conduct TOT for school teachers	DepEd LGU			
	Enforce the implementation of multi-hazard drills at schools	DepEd, LGU			
	Develop disaster-resilient communities through strengthening the linkage between school and community DRRM activities	DepEd, LGU, Barangay Councils			

JICA Grant Aid Project: Reconstruction of Elementary School (8) (Palo, Tanauan etc.)

The project is to construct facilities that are strong enough to withstand high winds and seismic activities, and that can function as emergency evacuation centers.

Municipality	Main usage	Structure	Area	Activity
Palo	Arado ES	RC, Single story	8 Classrooms, 705 m ²	<ul style="list-style-type: none"> Rebuilding of existing school building at the same site; Safety shelter for an emergency evacuation 
Tanauan	Sto Nino CES.	RC, 2 stories (piloti)	8 Classrooms, 853 m ²	
	San Roque ES	RC, 2 stories (piloti)	12 Classrooms, 1,191 m ²	
Tolosa	CES	RC, 1 story	6 Classrooms, 536 m ²	
Dulag	CES	RC, 1 story	6 Classrooms, 536 m ²	
MacArthur	CES	RC, 1 story	6 Classrooms, 536 m ²	
Marabut	Osmena CES	RC, 1 story	6 Classrooms, 536 m ²	
Giporlos	CES	RC, 1 story	8 Classrooms, 705 m ²	

Effectiveness

- Beneficial population: Approximately 2,400 students (60 classrooms, 40 students per classroom), their families and local communities
- Recovery of basic education
- Improvement of building durability

• Provision of safe buildings

JICA QIPs No. 004 & 005: Training on Disaster Resilient Construction Technologies through Reconstruction of National Agriculture School & National High School

The contractor will employ the TESDA graduates, and TESDA will dispatch their trainers and the project will provide them opportunity to learn Japanese construction techniques under the supervision of JICA Study Team by inviting Japanese skilled specialists especially for the works from truss fabrication up to roofing installation works, which was a major cause of typhoon damage.

In addition, the training manuals will be enhanced and the training videos will be provided to TESDA to be utilized as one of their training tools.



Municipality	Counterpart Agency	Activities/ Components
Balangiga	TESDA	<ul style="list-style-type: none"> • Preparation of training programs • Construction technique training through the repair and reconstruction of TESDA Agriculture School buildings • Preparation of a training video and text
Dulag	TESDA, (DepED)	<ul style="list-style-type: none"> • Preparation of training programs • Construction technique training through the repair and reconstruction of High School buildings • Preparation of a training video and text

Effectiveness is to disseminate knowledge and skills on disaster resilient construction technologies through reconstruction of National Agriculture School and National High School, respectively.



5.5 Restoring Livelihood of the Affected Families

5.5.1 Issues and Policy Direction

Before the Typhoon Yolanda hit Eastern Visayas of Region VIII which has been one of the poorest regions in the country. In the Provinces of Leyte, Samar, and Eastern Samar, the poverty incidence among families in 2012 ranged from 31%, 44% to 55%, and the poverty incidence among the population reached 40%, 50%, and 64% respectively.

Typhoon Yolanda brought about devastating impacts on the families in the region by severely destroying agriculture and fishery sectors which afforded people's livelihoods as the leading industry absorbing 44% of employment of the region in 2012. Crops were dislodged, trees uprooted, and mortality to poultry and livestock was very high. About 80% of the farm land in the region was destroyed. The coconut industry yielding the third largest production in the country was seriously damaged. More than a half million coconut farmers were affected and 56% of coconut trees in the three provinces were damaged, including nearly a half of deadly damaged trees. Many of fisherfolk lost bancas, fishing gear and aquaculture facilities. The total loss to the fishery is estimated about PhP 1.7 billion in the region.

Hence, it is an urgent task to restore livelihoods of the affected families to support their lives. Besides efforts for the recovery of agriculture and fishery industry, assistance for livelihoods should be provided with the most severely affected families, including farmers, fisherfolks, the poor, women, and informal settler families. Livelihood support also has to be incorporated in the relocation plans for the families in danger zones.

5.5.2 Policy for Restoring Livelihoods of the Affected Families

Objectives	Policy/ Policy Components	
Restore Livelihoods of the Affected Families	Expand livelihood opportunities	Expand livelihood opportunities of farmers
		Enhance the livelihoods of fisherfolks
	Provide livelihood assistance for the vulnerable	Create employment opportunities in relocation sites
		Provide emergency assistance for support of the affected families
		Promote economic empowerment of women through inclusion of women in livelihood assistance

5.5.3 Expanding Livelihood Opportunities

Livelihood opportunities of the affected families need to be expanded. This policy focuses on the farmers and fisherfolk, the two major groups in the affected population, aiming not only at supporting their lives in the post-Yolanda but also at alleviating poverty in the long-run. The proposed projects include charcoal production, sustainable and disaster resilient aquaculture, food-processing and local product promotion, of which details are explained in the following chapter.

Table 5.5-1 Proposed Projects and Programs (Expanding Livelihood Opportunities)

Policy	Policy Component	Projects/ Programs	Organization/ Agency	Implementation term		
				Short-term	Mid-term	Long-term
Expand livelihood opportunities	Expand livelihood opportunities of farmers	Produce coco wood charcoal / briquettes	LGUs/ Farmers' & women's associations			
		Promotion of local products	DTI /LGUs/ Farmers' & fisher folks' groups			
	Enhance the livelihoods of fisherfolk	Introduce sustainable & disaster resilient aquaculture	BFAR/ Fishermen's groups/ LGUs			

5.5.4 Providing Livelihood Assistance for the Vulnerable

The families in hazardous zones who are subject to relocation should be supported by providing livelihood programs. Those families in danger zones, whose houses and properties were destroyed or washed away by the storm surge, are facing a difficulty in the temporary relocation sites. Relocation is a lengthy and complex process. The households may have to wait for years to receive permanent houses while staying in emergency shelters or in disaster prone zones. They may have to be relocated multiple times, from the original place to a temporary shelter and from the temporary shelter to a permanent shelter. Because there are all of the relocation sites prepared by the LGUs are located far from the original coastal barangays, the families might be forced to give up their previous jobs and have to look for a new livelihood opportunities after relocation. Thus, a need for livelihood support is in demand among those families to be relocated. Those households to be relocated also include a number of informal settler families. It is the case for socially vulnerable groups including the youth, senior citizens and persons with disabilities as well. Livelihood programs may include introduction of new agricultural products such as mushroom culture, agro-processing, vocational training, micro-finance program, etc. Besides, the programs for short-time employment opportunities, including cash for work in the disaster response period, should be prepared for emergency life support of the vulnerable.

The vulnerable groups also include women, whose economic contribution to household income is often unrecognized. Livelihood assistance should therefore include them, particularly the poor women, female-headed households, indigenous women and elderly women. In addition to the traditional occupations such as processing of agricultural and fishery products, the vocational skills training should provide them with non-traditional skills such as carpentry and fishing. Furthermore, the livelihood assistance need to attain sustainable women's empowerment through programs such as formulating women's groups, building their capacity on business management and facilitating women's participation in traditionally male-dominant farmer's and fisher's associations at barangay level.

Table 5.5-2 Proposed Projects and Programs (Providing Livelihood Assistance for the Vulnerable)

Policy	Policy Component	Projects/ Programs	Organization/ Agency	Implementation term		
				Short-term	Mid-term	Long-term
Provide livelihood assistance for the vulnerable	Create employment opportunities in relocation sites	Income generation through mushroom culture	DA/ LGUs/ Women's groups/ Residents' organizations			
		Launch micro-finance programs for groups of residents	LGUs/ NGOs			
		Conduct vocational trainings	LGUs/ DTI/ NGOs/			
	Provide emergency life support of the affected families	Provide employment programs	LGUs/ NGOs			
	Promote economic empowerment of women through inclusion of women in livelihood assistance	Provide women with vocational skills training including processing of agricultural and fishery products and non-traditional skills	LGUs/ Women's & Community Groups/ VSU, TESDA			
		Organize/reactivate women's associations and capacitate them on business management	LGUs, Barangay Councils			
		Promote women's participation in farmers' and fishers' associations	LGUs, Barangay Councils			

5.6 Rebuilding Disaster Resilient Shelter

5.6.1 Issues and Policy Direction

Due to Yolanda, 156,500 houses were damaged in 18 LGUs in the study area of Leyte, Samar, and Eastern Samar. Nearly a half of 156,500 houses were totally damaged and those affected include majority of poor and informal settler families. As a result, needs for secure shelter assistance has been very high in the region and the government and various organizations provided emergency shelter assistance to address such demand. Yet, there are unfilled gaps in provision of temporary and permanent shelters.

After the Typhoon Yolanda hit the study area, the President declared that the areas within 40 meters from the shoreline should be established as no-build zones (or safe, unsafe and controlled zones) where a hazard is too serious to be mitigated and threatens people's lives and properties. Several LGUs have enacted their ordinances to establish 40 meter no-build or dwelling zones. Though the newly introduced policy for safe, unsafe and controlled zones lacks clarification of their definition and implementation procedures, LGUs are expected to relocate a large number of households from danger zones.

Despite the efforts of LGUs and assistance from donors and NGOs, provision of shelters, however, tends to be delayed and the residents subject to relocation have to wait for a long time. Because relocation sites are often developed far away from the original coastal barangays, the residents suffered from a shortage of livelihood opportunities, isolation from the community of the origin, limited access to public facilities and services. Hence, it is a formidable task for LGUs to provide shelter assistance to the residents in hazardous zones and support reconstruction of housings in safer zones, while addressing the issues facing the affected families.

5.6.2 Policy for Rebuilding Disaster Resilient Shelter

Objectives	Policy/ Policy Components	
Rebuild disaster-resilient shelter	Develop a policy on safe, unsafe and controlled zones	Develop a land use policy and land use plan
		Enact a city/ municipal ordinance on safe, unsafe and controlled zones
	Support on-site shelter provision	Assist on-site reconstruction/ repair and retrofitting of housing in safe areas
	Relocate residents from danger zones to safer location	Provide temporary shelters in safe areas
		Provide rental support
		Construct permanent houses in safe zones and relocate residents from danger zones
	Improve housing structure	Update a building code and standard
		Enforce compliance to a building code and standard

5.6.3 Developing a Policy on Safe, Unsafe, and Controlled Zones

Shelter assistance is divided into two categories; on-site reconstruction and relocation by means of relocation. Thus, safe, unsafe and controlled zones should be determined to identify the households to be relocated, first is to evaluate the damages, hazard maps, and the existing land use policy, and refining the land use policy in CLUP. A City/ Municipality may need to update their zoning ordinances accordingly or to enact a new ordinance for clarification and the conditions for land use of hazardous areas.

**Table 5.6-1 Proposed Projects and Programs
(Developing a Policy on Safe, Unsafe and Controlled Zones)**

Policy	Policy Components	Projects/ Programs	Organization/ Agency	Implementation term		
				Short-term	Mid-term	Long-term
Develop a policy on safe, unsafe and controlled zones	Develop a land use policy and a land use plan	Update/ Revise CLUPs	LGUs			
	Enact a city/ municipal ordinance on safe, unsafe and controlled zones	Enact a city/ municipal ordinance on safe, unsafe and controlled zones	LGUs/ Sanggunian			

5.6.4 Supporting On-Site Shelter Provision

For families in safe zones, assistance for on-site shelter provision has to be provided. Shelter kits and materials can be directly provided to support reconstruction, repair, or retrofitting of houses. Meanwhile, as financial assistance for housing construction, the Community Mortgage Program (CMP) of the Social Housing Finance Corporation is intended to be applied to the community based-housing improvement. Special low-interest mortgage programs should be introduced to the disaster victims for encouragement of housing construction.

Table 5.6-2 Proposed Projects and Programs (Supporting On-Site Shelter Provision)

Policy	Policy Components	Projects/ Programs	Organization/ Agency	Implementation term		
				Short-term	Mid-term	Long-term
Support on-site shelter provision	Assist on-site reconstruction/ repair and retrofitting of housing in safe areas	Provide shelter kits/ materials for the affected families	LGUs/ DSWD/ NGOs			
		Introduce community mortgage programs (CMP)	LGUs/ SHFC			
		Introduce low-interest mortgage programs	Government/ Private sector			

5.6.5 Relocating Residents from Danger Zones to Safer Location

Relocation is required for the households in identified high hazardous zones where dwelling should be restricted. In order to secure safety of the families, temporary shelter assistances must be provided immediately for the relocation from the hazardous zones. Two types of temporary shelter assistance are proposed: provision of temporary shelters in safe zones and a rental support program. A family who identifies a site in a safe area by themselves is eligible to apply for on-site shelter assistance programs.

Relocation projects/ programs should be implemented as discussed in Section 4.2.4. The relocation projects should include the components of development of public facilities (e.g., school, health center, market, and church), utility services (e.g., water and power supply), and other infrastructure (e.g., access roads and public transport services). Evacuation centers and evacuation routes need to be incorporated in the design of relocation sites. Livelihood programs and vocational training have to be designed as part of the relocation plan in order to support the transition to relocation sites, specifically of informal settler and indigent families.

Table 5.6-3 Proposed Projects and Programs (Relocating Residents from Danger Zones to Safer Location)

Policy	Policy Components	Projects/ Programs	Organization/ Agency	Implementation term			
				Short-term	Mid-term	Long-term	
Relocate residents from danger zones to safer location	Provide temporary shelters in safe areas	Provide temporary shelters in safe areas	LGUs/ DSWD/ NGOs				
	Provide rental support	Introduce a rental support program	LGUs/ NGOs				
	Construct permanent houses in safe zones and relocate residents from danger zones and	Identify relocation sites	Identify relocation sites	LGU			
		Prepare a relocation plan	Prepare a relocation plan	LGU/ NHA			
		Develop relocation sites and construct shelters	Develop relocation sites and construct shelters	LGU/ NHA/ NGOs			
		Relocate residents, and conduct support programs for transition (e.g., livelihood programs, community development programs, etc.)	Relocate residents, and conduct support programs for transition (e.g., livelihood programs, community development programs, etc.)	LGU			

5.6.6 Improving Housing Structure

In order to make housing structure disaster-resilient, building code and standards should be examined and updated if the current engineering and structural design standards are not enough to withstand the force of anticipated disasters. “National Building Code of the Philippines (NBCP), 1977” is the building regulation and all buildings except small houses in order to obey NBCP, which regulates basic technical requirements, permission procedure and so on. The design loads of strong wind, waves by storm surge and tsunami and impact of swooping debris are insufficient and the revision is under the study. LGUs can develop a local building code supplement to the national building code by strengthening certain components in accordance with anticipated force or characteristics of local disasters. A local building code needs to be incorporated into zoning of their land use plan (CLUP), which is applied to high hazard risk areas.

Compliance on building code and standard is equally important in improving housing structure and is not fully enforced. Buildings and houses are not properly designed in many cases. Building design need to be completed in accordance with a relevant code and standard, with design conditions, calculation, structural design, specifications, drawing and B/Q. To ensure the compliance and building permit procedures have to be strictly executed by examining a site plan and building design. Construction practices do not necessary follow the specifications and drawings in many cases. Monitoring of construction practices and inspection based on proper guidelines considered to be strengthened.

Table 5.6-4 Proposed Projects and Programs (Improving Housing Structure)

Policy	Policy Components	Projects/ Programs	Organization/ Agency	Implementation term		
				Short-term	Mid-term	Long-term
Improve housing structure	Update a building code and standard	Revise a building code and standard	DPWH/ LGUs			
	Enforce compliance to a building code and standard	Improve a building permit procedure	LGUs			
		Conduct monitoring and inspection of construction practices	LGUs			

5.7 Improving Living Environment

5.7.1 Issues and Policy Direction

The quality of living environment has been downgraded by the Typhoon Yolanda. WASH - Water and sanitation access was one of the most serious concerns in the affected area during post-Yolanda. The water supply systems are categorized into Level I, II and III. Level I water supply systems, such as tube wells or hand pumps, were most severely damaged by the Typhoon, compared to Level II communal water supply systems and Level III piped water supply systems in urban areas, though these water supply was also interrupted. As a result, the households using unprotected water sources increased. In Samar, such families reached more than 30 percent in post-Yolanda. Because of destruction of private household toilets, access to sanitation facilities declined and open defecation increased, despite the assistance from donors for construction of temporary communal toilets, distribution of sanitary kits, and provision of hygiene promotion and training programs. For healthy and productive living, therefore, it is critical to secure provision of safe and stable water supply and improvement of sanitary and hygiene conditions of living environment. In particular, improvement of water supply and sanitation access in temporary shelters and relocation sites is an urgent task to lessen mental stress and upgrade quality of life of the residents.

5.7.2 Policy for Improving Living Environment

Objectives	Policy/ Policy Components		
Improve living environment	Improve safety and quality of living environment	Provide safe and adequate water supply	Improve disaster-resilience of water supply
			Upgrading water distribution system for provision of safe and clean water
		Improve sanitation and hygiene conditions	
	Promote environmental management for disaster risk reduction and mitigation	Introduce a coastal and river environment management	
		Protect watershed areas for disaster reduction and management	
		Develop open space or parks in disaster risk areas for commemorating the disaster	

5.7.3 Improving Safety and Quality of Living Environment

Provision of safe and adequate water and clean and sanitary conditions is indispensable for healthy and productive living. The water supply systems and toilet facilities damaged by Typhoon Yolanda should be repaired without delay and improved to fulfill gaps existed even before the disaster.

To secure uninterrupted water supply during disaster, disaster resilience of piped water supply systems need to be improved by procuring stand-by generators, applying appropriate design of water supply pipes, and improving construction, and operation and maintenance processes. In addition, the existing water supply system requires an upgrade for safe and stable water provision. Installation of water treatment facilities or chlorination system and replacement of deteriorated pipes are necessary to improve water quality and reduce water loss. The damaged Level II water supply systems need immediate repair, since the recovery of the systems can reduce the number of

population depending on Level I water supply and unprotected water sources, of which water quality may not satisfy the required potable water due to contamination. Moreover, water supply systems must be properly installed in newly developed relocation sites.

Sanitation and hygiene conditions particularly in temporary shelters have to be improved. The toilets constructed after the disaster are mostly for emergency use only, in which the design is not for long time purposes and will not withstand against strong typhoons and does not guarantee the quality of service issues in cleanness, maintenance, and privacy was raised, unlike private toilets. In addition, hand washing and bathing facilities has to be improved also in terms of their location, design, and operation.

Sludge treatment such as improvement of septic tank, and a design also needs to be introduced to prevent communicable diseases, such as diarrhea, waterborne and respiratory diseases. Education for students and capacity building for sanitary inspectors have to be provided for raising awareness and improving the quality of services.

Table 5.7-1 Proposed Projects and Programs (Improving Safety and Quality of Living Environment)

Policy	Policy Components		Projects/ Programs	Organization / Agency	Implementation term		
					Short-term	Mid-term	Long-term
Improve safety and quality of living environment	Provide safe and adequate water supply	Improve disaster-resilience of water supply	Secure electricity supply for pumping and treatment operations	LGUs/ LWDs			
			Implement structural measures for protection of equipment and facilities	LGUs/ LWDs			
		Upgrading water distribution system for provision of safe and clean water	Install water treatment facilities	LGUs/ LWDs			
			Replace deteriorated water supply pipes	LGUs/ LWDs			
			Improve Level II water supply	LGUs			
	Improve sanitation and hygiene conditions		Improve sanitation access	LGUs/ DOH			
			Introduce septage treatment	LGUs			
			Provide hygiene education	LGUs/ DOH			
			Conduct capacity building for public hygiene	LGUs/ DOH			

5.7.4 Promoting Environmental Management for Disaster Risk Reduction and Mitigation

Environmental management of coastal, river, and watershed areas is an effective approach for disaster risk reduction and mitigation. Mangrove and coastal forests as buffer zones can contribute to easing the force of storm surge and tsunami and delaying the arrival of the wave to inland areas. Those functions are to protect the shorelines from erosion. Reforesting the watershed areas increases water retaining capacity of the soil, which results in mitigation of flood in downstream areas. Joint-watershed management should be encouraged among municipalities and city in a watershed area across jurisdictions of LGUs, in cooperation with DENR. Meanwhile, waterways require periodical cleaning by removing garbage and obstacles, and dredging to maintain the smooth flow of water.

High risk areas of various disasters have to be converted to open space or parks for recreation purpose of citizens after relocation of residences. A memorial park and a monument can be developed to commemorate the disaster and victims.

A coastal, river, and forest environmental management policy should be reflected in land use plans (CLUPs) and forest land use plans (FLUPs), by altering zoning of the relevant areas to protection or conservation areas of mangroves or watershed forests, and specifying open spaces and parks on the zoning map. It is recommended organizing inter-municipal coordination meetings on land use planning and effective environmental management, with assistance of a provincial government or HLURB/ DENR. For better planning and implementation of environmental management, capacity building training needs to be provided for staffs of municipal/ city environmental and natural resource office.

Table 5.7-2 Proposed Projects and Programs (Promoting Environmental Management for Disaster Risk Reduction and Mitigation)

Policy	Policy Components	Projects/ Programs	Organization/ Agency	Implementation term		
				Short-term	Mid-term	Long-term
Promote environmental management for disaster risk reduction and mitigation	Introduce a coastal and river environment management	Replant and conserve mangrove	LGUs/ DENR/ NGOs			
		Protect shorelines from erosion	LGUs/ DENR/ DPWH			
		Capacity building of MENROs	LGUs/ DENR/			
		Clean and dredge waterways	LGUs			
	Protect watershed areas for disaster reduction and management	Replant and conserve forest in watershed areas	LGUs/ DENR/ NGOs			
	Develop open space or parks in disaster risk areas for commemorating the disaster	Develop a memorial park of disaster and open space in high hazard risk areas	LGUs			

5.8 Disaster Debris and Improvement of Solid Waste Management System

5.8.1 Issues and Policy Direction

Typhoon Yolanda generated a huge amount of debris in the areas; however, the LGUs could not handle and manage it entirely by themselves because the generated debris amount was far beyond their transportation capability.

Republic Act No. 9003 requires the local governments to formulate the “10-years’ Solid Waste Management Plan” and update periodically as needed. The plan constitutes fundamentally the long-term sectoral policies and strategies of SWM, and should assume an important role also in formulating RRP, DRRMP, CLUP and annual budget. However, according to the Environment Management Board (EMB) of DENR, only Tacloban City has formulated it and submitted to the EMB for approval. RA No. 9003 requires also planning and implementation of following key issues:

- To close safely an open dumpsite and develop a sanitary landfill
- To establish material recovery facilities (MRF) in barangays for waste diversion; and
- To evaluate the SWM service cost for optimization of the service

5.8.2 Policy for Disaster Debris and SWM System Improvement

Objectives	Policies
Handle and manage disaster debris quickly and smoothly	Develop cross-regional and sector cooperation systems
Improve SWM system	Establish comprehensive SWM system based on the long-term plan

5.8.3 Handling and Managing Disaster Debris

After all, most of the debris was removed and stored at the temporary vacant lots, and transported to the dumpsites with the enormous assistance of the various organizations such as DPWH, MMDA, UNDP, CRS, etc. As a result, most of the LGUs completed to dispose of debris in March and April 2014. Thus, to cope with the huge disaster waste management smoothly, the LGUs learned the importance and necessity of cross-regional and –sector cooperation systems including central government level, provincial level, city and municipal level, and cooperation with international agencies, NGOs, private sectors.

Table 5.8-1 Proposed Projects and Programs (Handling and Managing Disaster Debris)

Policy	Project/Program	Organization /Agency	Implementation term		
			Short-term	Mid-term	Long-term
Develop cross-regional and sector cooperation systems	Formulate the national disaster SWM guidelines	NSWM, DENR, PSWMB, LGU			

5.8.4 Improving SWM System

The present SWM system of Tacloban City, and Municipalities of Palo, Tanauan, Basey and Guiuan is summarized in the Chapter 10 of the Technical Supporting Report. The service coverage ratio varies from 20% in Basey to 70% in Tacloban. Most of the LGUs have once drafted the plan; however no scientific approaches were considered. Basically the SWM services have to be delivered in accordance with the plan. The plan must contain: waste characterization survey, waste generation estimate per capita, population projection, target waste type, collection rout, service time and frequency, recycling, final disposal plan, cost evaluation, public awareness activities, etc. Although the manpower and other resources are limited in every LGU, the plan has to be formulated soonest possible in envisaging the delivery of optimum service to citizens and in compliance with the guideline of the EMB.

Table 5.8-2 Proposed Projects and Programs (Improving SWM System)

Policy	Project/Program	Organization /Agency	Implementation term		
			Short-term	Mid-term	Long-term
Establish comprehensive SWM system based on the long-term plan	Formulate the 10-Years' SWM Plan	LGU			
	Develop a sanitary landfill	DENR, LGU			
	Promote recycling system	LGU			
	Evaluate the SWM cost	LGU			

Chapter 6 Recovery of Regional Economy and Promotion of Industries

6.1 Shifting from Capture Fishery to Aquaculture

6.1.1 Issues and Policy Direction

In Eastern Visayas, municipal fisheries (using bancas of 3 tons or less) produced 98,212 MT, while the productions of commercial fisheries (using larger boats of more than 3 tons) and the aquaculture sectors were 61,229 MT and 50,337 MT respectively (National Statistical Coordination Board, 2012). Aquaculture has expanded by almost three times in the last ten years from 2002 to 2011. The production of municipal and commercial fisheries slowed down as a result of a decline in fisheries resources.

Recent Demersal Fisheries Assessment conducted by DA-BFAR revealed that fisheries resources are scarce in Leyte Gulf. Thus, BFAR is trying to adopt a precautionary approach to the management of both municipal and commercial fisheries in Leyte Gulf. Similarly, FAO is stressing that any fisheries and aquaculture response in the Philippines must follow sustainable and good management practice (FAO Urgent Appeal). The recovery and reconstruction policy shares the same view on the direction of fisheries and aquaculture.

6.1.2 Policy for Shifting from Capture Fishery to Aquaculture

Objectives	Policy	
Provide fisherfolk families with sustainable livelihood opportunities	Recovery of Coastal Fishery	
	Provide fishing boats, engines and fishing materials	
	Provide freezers to help fisherfolk preserve their catch	
	Mariculture Development	
	Restore and improve the livelihood of fishing families by rehabilitation of mariculture	
	Bring Japanese typhoon resistant mariculture technology to substantiate the concept of "Build-Back-Better"	
	Create opportunities for fisherfolk (including women) to work on marketing, processing and value-adding of fish	
	Reduce the dependence on the utilization of wild juveniles and trash fish	
	Design the project with special consideration on easiness in operation and maintenance as well as reduction in operational cost	
	Post-Harvest Processing Technology and Marketing System	
Learn post-harvest processing technology from advanced areas		
Establish hard and soft infrastructure for distribution of fish		
Develop new markets for fish products		
Fishery for disaster management	Fishery Damage Compensation System	Help safeguard the livelihoods of fishing communities through disaster compensation system
	Appropriate Planning of Fisheries and Aquaculture Development	Make appropriate planning of fisheries and aquaculture development

6.1.3 Recovery of Coastal Fishery

BFAR launched AHON (Rise in English) Project, an initiative to distribute basic boat-building materials like plywood, copper nails, epoxy, paint and engines to the affected fisherfolk. This project has been carried out under a public-private partnership (PPP), involving government agencies, NGOs, the private sector and individual volunteers to work together in addressing the

immediate need of the fisherfolk. AHON is targeting 32,000 boats of which 18,904 will be distributed in Region 8. As of second week of August 2014, 16,726 fishing boats (88%) are already delivered on the ground.

According to the interview with a director of BFAR, many of fisherfolk-beneficiaries have already resumed their fishing activities through AHON. BFAR has begun to cover post-harvest equipment, particularly freezers to help fisherfolk preserve their catch.

NGOs and private sectors are actively involved in fisheries rehabilitation work (mainly provision of fishing boats) in the Yolanda-hit areas. Names of NGOs and private sectors appearing in the food security cluster net are as follows: Christian Aid, Concern Worldwide, iRelief, Oxfam, International Rescue, Active Citizenship Foundation, World Renew, Triangle GH, CARE, International Institute of Rural Reconstruction, Food for the Hungry Philippines and Save the Children.

Table 6.1-1 Proposed Projects and Programs (Recovery of Coastal Fishery)

Policy	Projects/ Programs	Organization/ Agency	Implementation term		
			Short-term	Mid-term	Long-term
Provide fishing boats, engines and fishing materials	AHON	BFAR			
	Provision of hybrid boats, fisheries program	NGOs, FAO			
Provide freezers to help fisherfolk preserve their catch	Distribution of chest freezers	BFAR			

6.1.4 Mariculture Development

Taking the low abundance of fish in Leyte Gulf into consideration, mariculture development should be one area of priority assistance. Thus, the JICA Study Team is currently working on the following mariculture projects as Japan Grant Aid Projects and QIPs:

- Rehabilitation of Equipment for the Guiuan Marine Fisheries Development Center
- Rehabilitation of Basey Mariculture Park
- Sustainable Grouper Cage Culture using Disaster Resilient and Environmentally-Friendly Technologies
- Integrated Culture of Oyster and Milkfish for Sustainable Livelihood

BFAR has also developed an action plan that includes mariculture related activities.

- Rehabilitation of Cages in Mariculture Parks (immediate term action)
- Operation and Maintenance of Mariculture Parks (short term action)
- Fingerlings/Seedstock Distribution (High Value & Milkfish Fingerlings) (short term action)

Table 6.1-2 Proposed Projects and Programs (Mariculture Development)

Policy	Projects/ Programs	Organization/ Agency	Implementation term		
			Short-term	Mid-term	Long-term
Restore and improve the livelihood of fishing families by rehabilitation of mariculture	Quick impact projects	JICA			
	Rehabilitation mariculture parks	BFAR			

Bring Japanese typhoon resistant mariculture technology to substantiate the concept of "Build-Back-Better"	Quick impact projects	JICA		
Create opportunities for fisherfolk (including women) to work on marketing, processing and value-adding of fish	Quick impact projects	JICA		
Reduce the dependence on the utilization of wild juveniles and trash fish	Quick impact projects	JICA		
Design the project with special consideration on easiness in operation and maintenance as well as reduction in operational cost	Quick impact projects	JICA		

JICA QIP No. 001 Regenerating Livelihood through Introduction of Disaster Resilient Submersible Fish Cage (Milk Fish)

In this project, milkfish farming will be regenerated in a disaster resilient form using unique Japanese technology. Municipality and BFAR will co-manage the equipment to be introduced, and will lent to the fish farmers. The fish farmers will do the farming activities and routine maintenance of equipment. A part of the produced fish will be processed with soft bone technique by the women's group for adding values and diversifying supply options for the products. This QIP will also support the promotion of the local products.

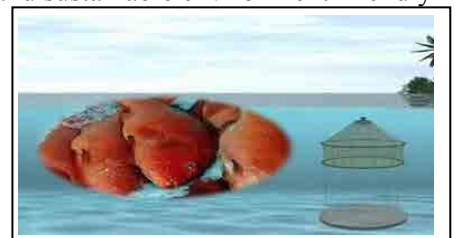


Municipality	Counterpart Agency	Activities/ Components
Basey	Municipal Govt. of Basey (BFAR)	<ul style="list-style-type: none"> • Introduction of the disaster resilient submersible fish cages and the "Gawabari" fish cages • Training for fishing families on the operation techniques of the disaster resilient submersible type fish cages • Introduction of fish processing techniques for women's groups • Promotion of milk fish products

Effectiveness is to restore and to improve the livelihood of fishing families in Basey by introducing disaster resilient submersible fish cage for milkfish farming.

JICA QIP No. 008 Regenerating Livelihood through Introduction of Disaster Resilient Submerged Fish Cage (Lapu-Lapu Culture)

The QIP introduces the disaster resilient submerged fish cages, and sustainable environment-friendly grouper (lapu-lapu) aquaculture system. Municipality and BFAR co-manages the cages and lent the fish farmers the cages. The fish farmers cultivate groupers and maintain the cages. BFAR trains the fish farmers in environment-friendly grouper aquaculture system and monitors cultivation activities.



Municipality	Counterpart Agency	Activities/ Components
Guiuan	Municipal Govt. of Guiuan (BFAR)	<ul style="list-style-type: none"> • Introduction of the disaster resilient and environmentally-friendly submerged fish cages • Training for fishing families on the operation techniques of the submerged fish cages • Trainings of environmentally-friendly culture technology

Effectiveness is to improve livelihoods of typhoon affected fisherfolk families in Guiuan through restoration of lapu-lapu fish farming with environmentally-friendly and disaster resilient fish cage culture system.

JICA QIP No. 015 Integrated Culture of Oyster and Milk Fish Improvement for Sustainable Aquaculture and Livelihood

In this QIP, Japanese side will provide the necessary equipment and materials, the fish farmers will conduct balanced culture of oysters and milk fish with the cooperation of environmental survey by BFAR Region VIII Office and Leyte Province. Tanauan Municipality will be responsible for the project implementation at the site in conjunction. The QIP will also support promotion of processed milkfish.

Municipality	Counterpart Agency	Activities/ Components
Tanauan	Municipal Govt. of Tanauan (BFAR)	<ul style="list-style-type: none"> • Removal of debris from cultivation sites through cash-for-work • Installations of oysters and milkfish farming facilities • Improvement of oyster farming technology • Training on smoked oyster processing technology with supply of tools • Provision of equipment for the Marine Boitoxin Testing Center and Monitoring (marine bio-toxin red tide)

Effectiveness is to manage community aquaculture resources and to secure the livelihood of typhoon affected fisherfolk families in Tanauan by establishment of integrated culture of oyster and milkfish as a strategy for sustainable aquaculture.



6.1.5 Post-Harvest Processing Technology and Marketing System

Before Typhoon Yolanda, fresh fish was destined to local market as post-harvest processing techniques are not widely used in Region 8. In order to increase market value and to create job opportunities, provision of necessary support for fishing families to strengthen post-harvest processing activities and market system is needed.

In JICA Project, a study tour to Dagupan City, Pangasinan was organized to gather information on processing of milkfish. The participant visited Dagupan Seafood Processing Complex in NIFTDC where milkfish is processed as deboned, vacuum-packed or frozen, and learned that smoked deboned milkfish can be a practical option in Leyte and Samar than the HACCP quality deboned vacuum packed frozen milkfish (as processed in Dagupan).

**Table 6.1-3 Proposed Projects and Programs
(Post-Harvest Processing Technology and Marketing System)**

Policy	Projects/ Programs	Organization/ Agency	Implementation term		
			Short-term	Mid-term	Long-term
Learn post-harvest processing technology from advanced areas	Quick impact projects	JICA			
	Fisheries program, fish processing project	FAO, ACAY			
Establish hard and soft infrastructure for distribution of fish	Quick impact projects	JICA			
	Fisheries program	FAO			
Develop new markets for fish products	Quick impact projects	JICA			

6.1.6 Fishery for Disaster Management

(1) Fishery Damage Compensation System

In the Philippines, natural or man-made disasters such as typhoons, floods, marine pollution, red tides, etc. significantly affect fisheries and livelihoods. This includes loss of or damage to fishing boats and fish cages, as well as decline in harvests. To help safeguard the livelihoods of the fishing communities, it is necessary to provide assistance to fisherfolk who are affected by major losses through the fishery damage compensation system.

In Japan, the government provides subsidies for fish catch insurance, aquaculture insurance and fishing gear insurance. Under this system, any losses due to natural or man-made disasters are covered by the insurance. Japanese experience serves as an example of the way in which Philippine government can support their fishing communities.

Table 6.1-4 Proposed Projects and Programs (Fishery Damage Compensation System)

Policy	Projects/ Programs	Organization/ Agency	Implementation term		
			Short-term	Mid-term	Long-term
Help safeguard the livelihoods of fishing communities through disaster compensation system	Fish catch insurance, aquaculture insurance, fishing gear insurance, etc.	National Government			

(2) Appropriate Planning of Fisheries and Aquaculture Development

Fisheries and aquaculture are often located in areas prone to disasters (tidal waves, red tide, oil spills, etc.). Poorly planned fisheries and aquaculture may increase the hazard and risk. Appropriate planning of fisheries and aquaculture development is needed to minimize exposure to these hazards.

Table 6.1-5 Proposed Projects and Programs (Appropriate Planning of Fisheries and Aquaculture Development)

Policy	Projects/ Programs	Organization/ Agency	Implementation term		
			Short-term	Mid-term	Long-term
Make appropriate planning of fisheries and aquaculture development	Training for disaster response and risk management in the fisheries sector	National Government			

6.2 Recovery and Promotion of Agriculture

6.2.1 Issues and Policy Direction

In the Eastern Visayas Region, the primary sector, except for mining, contributed 23% to the region's GDP (gross regional domestic production or GRDP) in 2012. A total of 45% of the land area is utilized for agriculture. Out of the agricultural lands, 70% is for coconut and 20% is for rice or corn.

The damage to agricultural crops by Yolanda, especially coconut, has affected the regional economy. Fruit trees suffered stress such that it will take 4–5 years for them to recover and regain their pre-disaster productivity level. This aggravated the yield loss, investment loss, opportunity cost, clearing operation, etc. that farmers have to cope with while waiting for conditions to normalize.

The marketing system for fruit and vegetables is still lagging behind. Modernizing this system would be mutually beneficial to producers and consumers. The secondary sector of industry which utilizes the local primary products must be promoted. This enterprise can create employment opportunities for rural women.

6.2.2 Policy for Recovery and Promotion of Agriculture

Objectives	Policy		
Restore and revitalize agricultural production and promote agri-business	Recovery of coconut industry	Support to individuals, families or organizations	Distribute seedlings
			Diversification of coconut variety
			Introduce intercropping
			Debris cleaning and livelihood through coco charcoal
	Recovery of other agricultural production	Support to individuals, families or organizations	New income generation through mushroom culture
			Support restart of agricultural activities utilizing soft loan system
	Processing, marketing, and mobilization	Product control and processing	Establish the large scale public warehouse for leasing spaces and facilities to wholesale traders
			Alternate leftover container vans to cold storage by installing solar panels, batteries, heat converters, and insulation
		Mobilization and marketing	Promote sale products from affected areas
			Improvement of marketing system
			Formulate producers' local cooperative/ associations for collective shipping/ marketing activities on products/ harvest
	Repair and reconstruction of management system and the Infrastructure	Establish regional initiatives for connecting the local cooperatives/ associations and for coordinating existing traders/ middlemen and customers/ suppliers in the destination markets	
	Agriculture for disaster management	Introduction of crop insurance	Relief by insurance
Disaster risk reduction by utilizing agricultural land		Utilize agricultural lands and infrastructure in disaster damage reduction	

6.2.3 Recovery of Coconut Industry

(1) Support to Individuals, Families and Organizations

For the short term, distribution of seedlings is essential to restart their work. A dwarf variety of coconut must be introduced in the storm prone areas. Dwarf coconut has a slender trunk, so it is less affected by the storm itself. Mixed planting with other wood crops such as fruit trees can weaken the wind effect. The multiplication capacity of seedlings is limited; therefore, mass propagation of coconut seedlings is needed. Actually, one laboratory, which belongs to the National Coconut Research Center in Baybay City, Leyte, that can undertake mass propagation of coconut seedlings through tissue culture is under construction. The laboratory is expected to contribute to the restoration of the coconut industry in the region through the mass propagation of homogeneous and disease-free seedlings of advanced varieties of coconut.

In the affected LGUs located in mountainous areas, plantation of annual and/or biennial crops in farms located on steep hillsides may cause soil erosion. Animal breeding under coconut trees can increase land productivity. The Philippine Carabao Center is carrying out the projects to provide dairy carabao and training on how to breed them to farmers' associations. This project also includes dairy processing training and can promote rural agri-business and generate the work opportunities for women in their community.

Though fallen coco wood is processed into coco lumber and utilized as building material, debris disposal to clean a huge number of fallen trees has been taking time. One of the reasons for this delay is the difficulty in transportation around the coconut farms. QIP initiated a livelihood support program through production of coco charcoal briquettes. Making charcoal out of cocowood can make it lighter and more portable. Charcoal making requires only little investment and a short time for training. And women's groups can be involved, making charcoal briquettes, because it is not heavy. Charcoal business can generate employment for women in rural areas. And wood vinegar is recommended for crop disease control, which is another possibility for income generation from the byproducts of charcoal making.

Table 6.2-1 Proposed Projects and Programs for (Support to Individuals, Families and Organizations for Recovery of Coconut Farmers)

Policy	Projects/ Programs	Organization/ Agency	Implementation term		
			Short-term	Mid-term	Long-term
Distribute seedlings	Assistance for PCA on transportation of coconut seedlings	PCA			
	Expansion of coconut seedling tissue culture laboratory	NCRC			
Diversification of coconut variety	Training on food processing for women group	NCRC			
	Provision of seed, fertilizer and cultivation technique	DA, LGU			
Introduce inter-cropping	Provision of livestock	DA, PCC, LGU			
	Coco wood charcoal making	LGU, Fa'mers' group			
Debris cleaning and livelihood through coco charcoal	Briquette making	LGU, Women's group			

JICA QIP No. 014 Regenerating Livelihood through Production of Coco Charcoal Briquette

Farmers' groups are established, and be provided necessary tools. They are also trained for building charcoal kiln and production. The member farmers individually produce the charcoal after they are trained in management and use of the tool. They will sell the quality charcoal, and low quality charcoal can be used for home consumption to reduce the expenditure. Further, possibilities for production of briquette using charcoal by sharing the low quality charcoal to add value will be examined. The QIP will also support promotion of charcoal.



Municipality	Counterpart Agency	Activities/ Components
Mercedes	Municipal Govt. of Mercedes (DA, PCA)	<ul style="list-style-type: none"> • Invitation of participant farmers and group formulation • Provision of necessary tools • Examine possibilities for charcoal briquetting • Provision of training

Effectiveness is to contribute to livelihood of the coconut farmers in Mercedes through introducing charcoal production technique.

6.2.4 Recovery of Other Farmers

(1) Support to Individuals, Families and Organizations

Rice cultivation thrives in Leyte Province. Although a lot of rice straw is available, it is not well utilized. Rice straw can be utilized as good mushroom bedding in a humid climate. Mushroom production can increase the work opportunities for rural women. And the mushroom bed material disposed of after cultivation is a very good organic fertilizer for crop production. Additionally the people who are staying in temporary shelters can also get income from mushroom cultivation, because the cultivation can be done under the eaves without any farmland. The Municipality of Tabontabon in Leyte Province had a good practice in 2010 to 2012 under the support of the ex-mayor. A QIP has supported a women's group with livelihood assistance through processing of agriculture and fishery products.

The introduction of a soft loan system to restart these activities can give a supportive push to affected farmers.

Table 6.2-2 Proposed Projects and Programs (Support to Individuals, Families and Organizations for Recovery of Other Farmers)

Policy	Projects/ Programs	Organization/ Agency	Implementation term		
			Short-term	Mid-term	Long-term
New income generation through mushroom culture	Technical training to municipality staff	DA RO8, LGU			
	Training to women's groups and people living in temporary shelter	Women's group, temporary shelter people			
	Establishment of Area Marketing Cooperatives (AMC)	LGU, AMC			
Support restart of agricultural activities utilizing a soft loan system	Legislation for soft loan	DA, DOF			

6.2.5 Processing, Marketing, and Mobilization

(1) Product Control and Processing

As stated above, disruption of the wholesale-based system seems to have resulted in price rises in general due to the need to import the goods from the super-regional/national center at retail prices. The situation regarding farm inputs and feed for livestock seems similar to that of the fisheries.

Recovery and reconstruction activities provide a good opportunity to employ new technology/ system for creating new product/ service. As build back better implies, the devastation of the entrenched practices is a chance to create new practices.

Table 6.2-3 Proposed Projects and Programs (Product Control and Processing)

Policy/ Projects/ Programs	Organization/ Agency	Implementation term		
		Short-term	Mid-term	Long-term
Establish a large scale public warehouse for leasing spaces and facilities to wholesale traders	City, Province			
Alternate leftover container vans to cold storage by installing solar panels, batteries, heat converters, and insulation	City, Province, Municipality, DTI, DOST			

JICA QIP No. 003 Regenerating Local Livelihood through Processing of Agriculture and Fishery Products by Small-Scale Community Groups

The Project will support the Municipality in promoting livelihood improvement activities. Furthermore, the food processing activities can be expanded to other municipalities. The QIP will also support promotion of processed products.

Municipality	Cooperating organizations	Activities/ Components
Tolosa	Municipal Govt. of Tolosa (VSU)	<ul style="list-style-type: none"> • Re-construction of Tolosa Multi-purpose Livelihood Building (including facility and equipment) • Guidance for the women's groups (processing techniques and management) • Promotion of processed products

Effectiveness is to contribute to sustainable livelihood activities for food processing of agriculture and fishery products by women's group in Tolosa through reconstruction of multi-purpose livelihood center for livelihood activities.



JICA Project: QIP No. 010 Improving Municipal Capacity for Disaster Resilient Construction Management through Reconstruction of Slaughter House

Design, quantity surveying, tender, contract and construction supervision are implemented with the engineers of Dulag Municipality and technical transfer of technical points to strengthen structure and construction management is promoted through the repair of slaughter house building.

Municipality	Cooperating organizations	Activities/ Components
Dulag	Municipal Govt. of Dulag	<ul style="list-style-type: none"> • Collaborative implementation of design, quantity surveying, tender and contract • Repair of the slaughterhouse building • Collaborative implementation of construction supervision

Effectiveness is to improve the capacity of disaster resilient project management of the Municipality and its engineers through reconstruction of Slaughter House in Dulag.



(2) Mobilization and Marketing

The establishment of direct sales stores in big cities can be helpful for the affected farmers in the region. Agricultural producers are not satisfied with the shortage of buyers or the farm gate prices, while consumers are not satisfied with the quality of products or their prices. Wholesale markets can set up a stable distribution route for farmers, improving at the same time the transparency of price formation. The raw wholesale price information can help farmers decide which crop to grow and when. The market price basically depends on the quality of commodities and the demand and supply balance. The price can be reasonable for consumers, and the competition between producers or producing areas will bring benefits such as quality improvement. A QIP has been implementing promotion activities of local products by establishing a promotion center, which are expected to support the livelihood of the affected families eventually.

Table 6.2-4 Proposed Projects and Programs (Mobilization and Marketing)

Policy	Projects/ Programs	Organization/ Agency	Implementation term		
			Short-term	Mid-term	Long-term
Promote the sale of products from affected areas	Establishment of direct sales stores in big cities to sell the products from affected area	DA RO8, LGU			
	Establishment of farmers' direct sales stores at roadside in Tacloban and Palo near cross-point of highways	LGU			
Improvement of marketing system	Establish wholesale markets for retailers near main towns	LGU, DTI			
	Establish wholesale markets for producers around production area	LGU, DTI			
Formulate producers' local cooperative/ associations for collective shipping/ marketing activities for products/ harvest		Municipality, City, DA, Province			
Establish regional initiatives for connecting the local cooperatives/ associations and for coordinating existing traders/ middlemen and customers/ suppliers in the destination markets		DA, Province, Municipality, City			

JICA QIP No. 013 Promotion of Local Products to Improve Livelihoods for the Survivors of Typhoon Yolanda

The task force will study the framework of promotion activities for the processed products produced by the disaster victims and implement the promotion activities. In the framework, the possibilities for promotion center will be studied, which may become a center to offer information about the QIPs and local products to internal / external people including buyers, and which may work as a billboard of the local products.

Municipality	Cooperating organizations	Activities/ Components
Basey, Mercedes, Tacloban, Tanauan and Tolosa	DTI (BFAR, Chamber of Commerce, DA, DOST, Relevant LGUs)	<ul style="list-style-type: none"> • Study of the framework of promotion activities for the processed products with the task force • Implementation of the framework of promotion activities for the processed products • Examine possibilities of a promotion center

Effectiveness is to establish a framework of promotion activities for local processed products by the disaster victims and to promote the sales of the local processed products in other QIPs.



(3) Repair and Reconstruction of Management System and the Infrastructure

Farm to market roads are important, enabling transportation of farming materials, daily access of farmers, and marketing of the products. The improvement of farm to market roads can assist production and marketing.

Table 6.2-5 Proposed Projects and Programs (Repair and Reconstruction of Management System and the Infrastructure)

Policy	Projects/ Programs	Organization/ Agency	Implementation term		
			Short-term	Mid-term	Long-term
Improvement of farm to market roads	Development of farm to market road network	DPWH, LGU			

6.2.6 Agriculture for Disaster Management

(1) Introduction of Crop Insurance

The Philippine Crop Insurance Corporation provides crop insurance as a governmental service. But the system does not cover all the crops. If the coverage of targeted crops can be expanded, it will be helpful to the restoration of agricultural activities after a disaster. Japan has a farmer's mutual aid fund system which is based on member farmers' premiums. It is aimed to protect the agricultural activities of member farmers through the payment from a fund to affected members. However, introducing a similar system here may not be easy.

Table 6.2-6 Proposed Projects and Programs (Introduction of Crop Insurance)

Policy	Projects/ Programs	Organization/ Agency	Implementation term		
			Short-term	Mid-term	Long-term
Relief by insurance	Crop insurance	PCIC			
	Farmers' mutual insurance	DA			

(2) Disaster Risk Reduction by Utilizing Agricultural Land

It is possible to utilize the farmlands and agricultural facilities in the fight against natural disasters, combining "the detailed hazard maps" and "the geographical and social condition of farmland location". For example paddy fields can be utilized as flood water reservoirs. Tree crops can protect against storm and landslide, irrigation water can be used for fire-fighting and farm space for checking the spread of the fire. Therefore, the LGUs may regard the farmlands and agricultural infrastructure as a part of the common assets in the community and build up their maintenance systems.

Table 6.2-7 Proposed Projects and Programs (Disaster Risk Reduction by Utilizing Agricultural Land)

Policy	Projects/ Programs	Organization/ Agency	Implementation term		
			Short-term	Mid-term	Long-term
Utilize agricultural lands and infrastructure in disaster damage reduction	Study on the DRRM by utilization of agricultural facilities	LGU			

6.3 Tourism Development

6.3.1 Issues and Policy Direction

According to Rebuilding Eastern Visayas Tourism³, the number of annual visitors was 709,498 in 2013, which showed an increase of 45% from 2012. The number of domestic tourists and foreign tourists in 2013 were 677,260 and 32,238 respectively.

Although the numbers of both domestic and foreign tourists increased rapidly, the number of accommodation facilities in Tacloban was reduced after Yolanda. For example, as of June 2014 the number was reduced to 33 from 50 prior to Yolanda.

Therefore, tourism facilities including accommodations should be recovered to the pre-Yolanda level. Furthermore additional measures are necessary to increase tourist arrivals to the region.

6.3.2 Policy for Tourism Development

Objectives	Policy	
Revitalize tourism industry through rediscovering existing tourism resources and developing the infrastructure	Rediscover existing tourism resources	Identify tourism resources for creation of attractive tourism
		Promote meeting, incentive, convention and event (MICE)
		Promote regional tourism partnerships
		Disaster areas as a tourism resource
	Develop tourism infrastructure and more attractive tourist resorts	Development of information infrastructure and dissemination of effective tourism information
		Improvement of transportation networks for land, sea and air
		Promotion for tourism industry
		Formulation of tourist resorts for domestic visitors and attract foreign tourists
	Promote tourists with safety, security and high hospitality	Promotion of long-stay tourism
		Development of an environment with safety and security for accepting visitors
		Improvement hospitality in the region
		Promotion of volunteer tourism
		Human resource development in tourism industry
	Cooperation with the other sectors	

6.3.3 Rediscovering Existing Tourism Resources

The attractive or appealing tourism resources of Leyte and Samar are remarkably important, which entices people to visit the area. In fact, there are some famous resources well known both in the Philippines and abroad such as abundant natural (e.g. water, forest), historical, and cultural resources, etc., while some of them are not yet known enough. Thus, it is proposed that, first of all, the existing tourism resources should be rediscovered or reexamined for creation or promotion of more attractive tourism.

Creation of lively scenes by holding events and festivals is an important factor for attracting tourists. In general in the Philippines, the “Fiesta” particularly is a major event with an enthusiastic atmosphere. Since such fiestas are to be held in various places in Leyte and Samar, the events should be promoted or improved in a way that tourists can enjoy from the bottom of their hearts. In addition, convention events such as Meetings, Incentives, Conventions and Events (MICE) should be promoted since the economic effectiveness of such events (e.g. domestic and

³ Rebuilding Eastern Visayas Tourism, 4th Eastern Visayas Business Conference, 14 June 2014, Calbayog City, Presentation Materials by Department of Tourism

overseas visitors, accommodations, foods, etc.) is expected to be significant. Then, a strategic program should be formulated in order to increase the number of the visitors throughout the year by reviewing the past achievements of Tacloban City, Palo Municipality, etc.

Regional tourism partnerships need to be promoted both within and outside of Leyte and Samar region so that the attractiveness of the entire region will be raised up. Accessibility of tourists to the region is to be improved and then the length of one’s stay in the region can be expected to be longer.

In the disaster struck area, there are still salient scars left by typhoon Yolanda such as stranded ships along the coast line. It is proposed that some of them should be maintained as disaster memorials in order to convey the memory or lessons learned from the disaster to future generations so that they will not be gradually forgotten. In addition, such memorials can be defined as “negative resources” to be utilized for creation of new tourism resources.

Table 6.3-1 Proposed Projects and Programs (Rediscovering Existing Tourism Resources)

Policy	Projects/ Programs	Organization/ Agency	Implementation term		
			Short-term	Mid-term	Long-term
Identify tourism resources for creation of attractive tourism	Utilize tourism resources of the sea, land, and historical and cultural resources	LGU, Department of Tourism (DOT), Travel agencies			
	Promote life & cultural learning experiences downtown, in markets, etc. as tourism resources	LGU, DOT, Travel agencies			
Promote meeting, incentive, convention and event (MICE)	Promotion of MICE	LGU, DOT, Travel agencies			
Promote regional tourism partnerships	Establishment of regional cooperation council for information exchange and formulation of partnership programs	LGU, DOT, Travel agencies			
	Promotion of alliance relationships with Cebu, Manila, etc. and proposition of detailed action plans of the partnership program to travel agents	LGU, DOT, Travel agencies			
Disaster areas as a tourism resource	Possible “negative resources” are to be listed for utilization of disaster memorial prior to planning and actual utilization.	LGU, DOT, Travel agencies			

6.3.4 Developing Tourism Infrastructure and More Attractive Tourist Resorts

Recently, many of the tourists have been making use of Social Network Services (SNS) or the Internet for obtaining relevant tourism information. In view of this current situation, it is quite indispensable to develop a sophisticated information infrastructure including dissemination of effective tourism information. In Eastern Visayas, such information infrastructure is unfortunately insufficient. Steady development of the infrastructure needs to be realized such as 1) attractive website with sufficient quality and quantity of information, 2) utilization or provision of information exchange platforms through SNS and 3) development of attractive contents, etc.

Besides the issues regarding information technology mentioned above, tourist information facilities (e.g. tourist information boards, guide signs, information centers, etc.) also need to be installed.

The existing transportation networks for land, sea and air in Leyte and Samar need to be improved

for attraction of tourists.

For the promotion of the tourism industry, it is important to understand the needs of potential tourists. Efforts are required for the effective promotion such as needs surveys, and improvement of the methods for providing the relevant information to travel agencies, etc.

In order to create the best domestic tourist resorts in Eastern Visayas compared with the various existing domestic tourist facilities, the establishment of attractive characteristics is indispensable. It is important to prepare flexible tourism routes and programs such as educational travel programs combined with disaster education for any style of stay (e.g. one day trip, short-term stay, etc.).

As for the promotion of foreign tourists, regional hospitality needs to be improved through effective organization of volunteer guides for the foreign tourists.

Long-stay tourism has abundant positive aspects such as economic ripple effects, interaction with the local people, repeat customers, etc. For the effective promotion of long-stay tourism, the improvement of accommodations, tourism resources, transportation and information provision are quite important. Moreover, various types of experimental programs for the tourists need to be developed by local initiatives.

Table 6.3-2 Proposed Projects and Programs (Developing Tourism Infrastructure and More Attractive Tourist Resorts)

Policy	Projects/ Programs	Organization/ Agency	Implementation term		
			Short-term	Mid-term	Long-term
Development of information infrastructure and dissemination of effective tourism information	Development of the systematic tourism information platform	LGU, DOT			
	Installations of tourist information boards	LGU, DOT			
Improvement of transportation networks for land, sea and air	Improve accessibility between major cities and the Tacloban airport	LGU,DPWH			
	Solve the traffic jams in the major cities such as Tacloban City, and the Municipalities of Palo , Tanauan, etc.	LGU,DPWH			
	Provide abundant options for ground transportation so that tourists can move around freely	LGU,DPWH			
	Improve the ship transport network, considering accessibility among isolated islands and various ports on an island	LGU,DPWH			
Promotion for tourism industry	Needs survey	LGU, DOT, Travel agencies			
	Establishment of liaison council, cooperating with relevant organizations including travel agencies	LGU, DOT, Travel agencies			
Formulation of tourist resorts for domestic visitors and attract foreign tourists	Establishment of a committee for raising up the attraction of the region	LGU, DOT, Travel agencies			
	Strategic meeting for increasing foreign tourists	LGU, DOT, Travel agencies			
Promotion of long-stay tourism	Planning for long-stay tourism program	LGU, DOT, Travel agencies			

6.3.5 Promoting Tourists with Safety, Security and Warm Hospitality

From the view point of securing safety for tourists or visitors when natural disasters occur, the countermeasures (i.e. emergency plan, organizations, basic procedure, roles, etc.) need to be formulated/ developed and shared among related organizations (i.e. police, fire and disaster

management agencies, etc.). Such countermeasures need to be consistent with the other relevant emergency plans. When natural disaster occurs, foreign visitors possibly tend to be information have-nots, then strengthening of the assistance for foreigners is necessary such as instant information provision, etc.

For further improvement of customer's satisfaction, the regional hospitality toward each tourist or visitor needs to be improved by not only tourism organizations but also the administration, public organizations, citizens, etc.

In Japan, "volunteer tourism", which combines volunteer activities and sightseeing tours, has been systematically adopted in the areas affected by the Great East Japan Earthquake. More effective economic rehabilitation is expected due to not only volunteer activities but also sightseeing.

There are quite a number of people engaging in tourism services such as transportation, accommodation, food and drink, entertainment, information services, etc. Thus, human resource development, engaging multiple roles in the tourism industry, is an urgent issue since the numbers of various visitors or tourists are expected to increase. Management ability also needs to be strengthened. In the region of Leyte and Samar, mutual educational systems, through cooperation within the region and the relevant sectors, may be practical methodology for effective development of human resources.

Cooperation with the other sectors (e.g. agriculture, forestry, fisheries, manufacturing, etc.) is also an important issue. Cooperative activities such as experimental tourism in agriculture, forestry and fisheries including hand-made goods for souvenirs are recommended in terms of development of attractive tourism symbols.

Table 6.3-3 Proposed Projects and Programs (Promoting Tourists with Safety, Security and Warm Hospitality)

Policy	Projects/ Programs	Organization/ Agency	Implementation term		
			Short-term	Mid-term	Long-term
Development of an environment with safety and security for visitors	Promotion of safety and security for visitors	LGU, DOT,			
Improvement of hospitality in the region	Improvement and development of hospitality	LGU, DOT, Travel agencies			
Promotion of volunteer tourism		LGU, DOT, Travel agencies			
Human resource development in the tourism industry		LGU, DOT, Travel agencies			
Cooperation with the other sectors		LGU, DOT,			

6.4 Recovery and Promotion of Trade and Innovative Industry

6.4.1 Issues and Policy Direction

Yolanda severely damaged many of the local markets and fishermen's landing places as well as most of business entities' base building structures and their equipment and facilities for production. Physical damage to warehouses and subsequent disposition of stocked commodities resulted in disruption of the wholesale-based commercial system for distributing commodities from regional/national centers mainly due to the enormous capital loss of the business entities. The huge building structure within the ICT industrial park located in Palo, which accommodated a call center business with 1,000 jobs, was devastated by Yolanda. The lack of a regional market system supported by a logistic chain, including cold storage and delivery vans, a qualified slaughterhouse, processing facilities, and market trading system limits the effects of livelihood support programs, especially production support such as farm input provisions for promoting coconut inter-cropping and livestock. Harvests from these supports easily satisfy the local demands, which means failure to sell or cheaper prices for the harvests. The primary sector's productions, including farming, livestock raising, and fish culturing, have been suffering due to the higher price of inputs due to lack of locally available inputs, which means that the goods must be imported from outside of the area. It is essential to pursue economic restoration and enhancement through increasing external earnings and increasing the resilience of the regional economy.

6.4.2 Policy for Recovery and Promotion of Trade and Innovative Industry

Objectives	Policy	
Pursue economic restoration and enhancement through external earning increase and resilience increase in regional economy	Revitalize central business districts	Immediate assistance for recovery of damaged shops and develop facilities to increase the number of visitors and supports for production of tools for information dissemination
	Restore wholesale-based commercial system for imported commodity distribution	Study the possibility of utilizing Eastern Visayas Regional Growth Center (EVRGC) in Tacloban North as a regional logistic center
		Encourage businesses to commence wholesale trading in the Area by offering attractive incentives
		Promote establishment of hyper activated carbon production plant using coconut trees and shells
	Create regional market for locally produced commodities	Formulation of uniform local market associations for basic commodity gathering and trading with installation of cold storage facilities
		Establishment of regional network of local markets centered in Tacloban
	Employ innovative technology/ systems for creating external earnings and import substituting products	Enhancing branded marketing promotion and design oriented improvement of handicrafts
Deep-sea water utilization for power generation, sea water nutrition, bottling, cosmetics, etc.		
	Support to develop IT industry or other new industries	

6.4.3 Revitalizing Central Business Districts

Economic depression in the disaster stricken areas has been a serious concern. The city centers, however, are expected to be recovered immediately well enough to provide those functions fully for increasing of employment, business startups, brisk production activities of small companies or individuals, etc. The maximum priority should be given to the restorations of bustling and lively city markets, restaurants and canteens which will be the symbol or the torch of

recovery/reconstruction, bringing robust vitality to the people in the areas as well as expressing lively atmosphere to the visitors.

In addition, maximum efforts need to be taken in order to sufficiently develop the functionality of the city centers (e.g. socio-economy, lifestyles, culture, environment, energy, disaster management, etc.) in the near future. Further, it is necessary to accumulate the various social-economic functions (e.g. commerce, service industry, residence, administration, culture, medical/welfare service, education, office, etc.) compactly within the centers, which contributes to increase of user's accessibility and efficiency. Besides the above, future tourism revenue from the visitors can be expected since there are some famous historical tourist places nearby some of the city centers.

Table 6.4-1 Proposed Projects and Programs (Revitalizing Central Business Districts)

Policy	Projects/ Programs	Organization/ Agency	Implementation term		
			Short-term	Mid-term	Long-term
Immediate assistance for recovery of damaged shops and develop facilities to increase the number of visitors and supports for production of tools for information dissemination	Development of information dissemination centers, utilizing vacant stores	Municipality/ City/ DTI			
	Supports for production of tools/contents for information dissemination such as gourmet map, etc.	Municipality/ City/ DTI / Private/			
	Supports for business startups, utilizing vacant stores or establishment of supporting fund	Province/ Municipality/ City/ DTI/ Private/			

6.4.4 Restoring Wholesale-based Commercial System for Imported Commodity Distribution

Disruption of wholesale-based commercial system seems to have resulted in commodity price rises in general due the need to import the goods from the super-regional or national center at retail prices. The situation regarding farm inputs and feed for livestock seems similar to that of the fisheries. Coordinated shipping from Cebu by the wholesale traders, in association with the planned and opened supermarkets, could be an option for minimizing transport cost.

Table 6.4-2 Proposed Projects and Programs (Restoring Wholesale-based Commercial System for Imported Commodity Distribution)

Policy/ Projects/ Programs	Organization/ Agency	Implementation term		
		Short-term	Mid-term	Long-term
Study the possibility of utilizing Eastern Visayas Regional Growth Center (EVRGC) in Tacloban North as a regional logistic center	Private			
Encourage businesses to commence wholesale trading in the Area by offering attractive incentives	Province/ Municipality. City/ DTI			
Promote establishment of hyper activated carbon production plant using coconut trees and shells	Private/ Municipality. City/ PCA/ DOST			

6.4.5 Creating Regional Market for Locally Produced Commodities

Creation of a regional market for locally produced commodities is indispensable to absorb fluctuations and concentration of products and to widen the economic base of the Area. It is

necessary to establish a logistic chain for product gathering and distribution including a cold chain that will contribute to supporting higher market access and restoration of wholesale-based distribution systems for the imported commodities.

The regional market center has to be equipped with qualified slaughterhouses and other quality food processing facilities for regional distribution and possible export. Linkage with the industrial zone in Tacloban North has to be considered for synergy effects. Utilization of converted leftover container vans to mobile cold storage units is a viable option for implementing the physical facility development.

Establishment of a regional fishermen’s landing center/ central market is a recommendable project as well as the establishment of a central vegetable and meat market.

Disaster resilient public markets are reconstructed in Guiuan, Mercedes, and Mayorga by QIPs, with provision of technical training on construction management. Through a regional logistic chain, these local markets shall be effectively connected into the regional market center for efficient distribution system and economic development.

**Table 6.4-3 Proposed Projects and Programs
(Creating Regional Market for Locally Produced Commodities)**

Policy/ Projects/ Programs	Organization/ Agency	Implementation term		
		Short-term	Mid-term	Long-term
Formulation of uniform local market associations for basic commodity gathering and trading with installation of cold storage facilities	LGUs, Private			
Establishment of regional networks of local markets centered on Tacloban	LGUs, Private			

JICA QIP No. 009, 011, & 012 Improving Municipal Capacity for Disaster Resilient Construction Management through Reconstruction of Public Market (Guiuan, Mercedes & Mayorga)

Design, quantity surveying, tender, contract and construction supervision are implemented with the engineerw of each Municipality and technical transfer of technical points to strengthen structure and construction management is promoted through the repair of public market building.

Municipality	Cooperating organizations	Activities/ Components
Guiuan	Municipal Govt. of Guiuan	<ul style="list-style-type: none"> • Collaborative implementation of design, quantity surveying, tender and contract • Repair of the public market building • Collaborative implementation of construction supervision
Mercedes	Municipal Govt. of Mercedes	
Mayorga	Municipal Govt. of Mayorga	

Effectiveness is to improve the capacity of disaster resilient project management of the Municipality and its engineers through reconstruction of Public Markets.



6.4.6 Employing Innovative Technology/ Systems for Creating External Earnings and Import Substituting Products

Recovery and reconstruction activities provide a good opportunity to employ new technology/ systems for creating new products/ services. As build back better implies, the devastation of the entrenched practices is a chance to create new practices.

Table 6.4-4 Proposed Projects and Programs (Employing Innovative Technology/ Systems for Creating External Earnings and Import Substituting Products)

Policy/ Projects/ Programs	Organization/ Agency	Implementation term		
		Short-term	Mid-term	Long-term
Enhance branded marketing promotion and design oriented improvement of handicrafts	DTI, LGUs, Private, Cooperatives			
Deep-sea water utilization for power generation, sea water nutrition, bottling, cosmetics, etc.	DTI, DOE, DOST, LGUs, Private (IPPs)			
Support to develop IT industry or other new industries	LGUs, DOST, DTI (PEZA), Private, Academia			

Part 2

Chapter 1 Approach and Methodology of Technical Assistance for LGUs affected by Typhoon Yolanda

1.1 General

The main target area of JICA Study is the administrative area of 17 municipalities and 1 city along the southern coast of Eastern Samar and the coastal towns of Leyte Gulf in Eastern and Western Samar and Leyte.

The target areas are the most severely affected by typhoon Yolanda. While other areas had actually less damage than the JICA's target area, such areas shall also be recovered and reconstructed as soon as possible regardless of the degree of damages. In addition, they have been affected more seriously if the typhoon Yolanda passed in different route.

In Part 1 of the Interim Report 2, the basic policies focusing on the target area were proposed for further recovery and reconstruction in the near future. In order to apply some of the proposed policies, JICA Study Team selected five (5) municipalities or city in the target area and worked together with them in terms of the comprehensive recovery and reconstruction planning activity.

In this chapter, at first the purpose of this activity is explained and the approach and methodology will be followed, mentioning how the output of JICA's activity can be reflected into the planning for LGUs. After that, the selection of LGUs will be explained.

1.2 Purpose

The purpose of the technical assistance is as follows:

- (i) Capacity building for LGUs officials regarding planning activity in general;
- (ii) Input of a new approach, namely the hazard map based approach, for land use, recovery and reconstruction planning;
- (iii) Input of more concrete viewpoint of disaster prevention in DRRMP;
- (iv) Presentation of cross-cutting sector consideration in RRP.

The background for the above purposes is explained below.

- (i) After Typhoon Yolanda, LGUs have prepared their own recovery and reconstruction (or rehabilitation) plans responding to the order by the central government. Most of the recovery and reconstruction plans by LGUs focus on the recovery of damaged facilities or utilities and have the characteristics of a wish-listing. Each sub-sector is preparing their own recovery plan and proposing projects, but the integration among the plans and projects is not done yet.
- (ii) Recovery and reconstruction plans should be made based on hazard maps, especially storm surge hazard maps because of Typhoon Yolanda brought up the unexpected storm surge damage. The current RRP's are not referring hazard map with scientific basic data. Using

hazard map, the planning for structure measures should be examined considering the costs and effects.

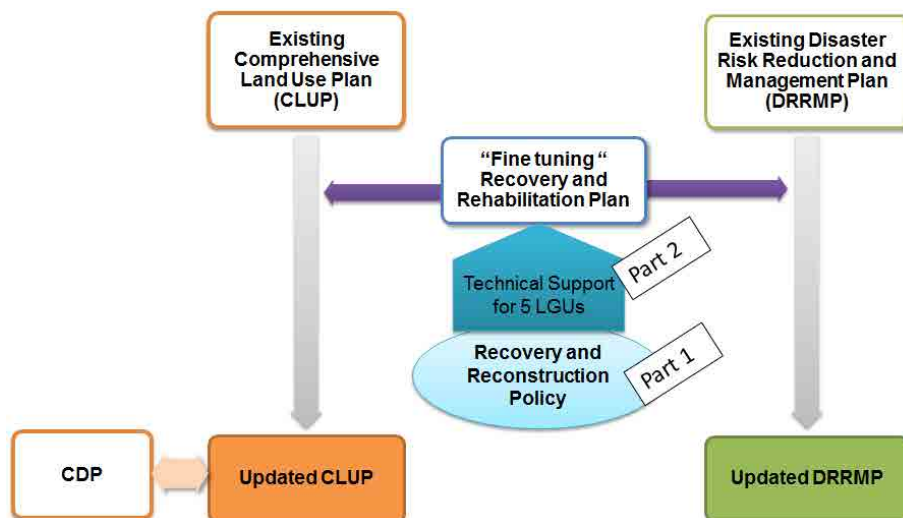
- (iii) The disaster by Typhoon Yolanda revealed the significance of non-structural measure, especially early evacuation. The physical aspects such as new construction or rehabilitation of evacuation center are included in the RRP; however, evacuation plans and drill plans, which are based on the scientific hazard map, can be included in the DRRMP of LGUs.
- (iv) In the RRP, the “better” aspect among “Build-Back-Better” policy can be emphasized to promote livelihood enhancement and restoration of local economy, depending on building safer cities. The programs and projects from each sub-sector should be integrated in systematic manner.

1.3 Approach and Methodology of Technical Assistance for LGUs

1.3.1 Application of Proposed Policy in Part 1

(1) Translating the Recovery and Reconstruction Plan to LDRRMP, CLUP and CDP

In Part 1 of this report, an integrated set of policy for recovery and reconstruction planning, which will materialize the Build-Back-Better policy by GOP, was proposed. Part 2 of this report is on technical support for model areas (5 LGUs) for the purpose of fine tuning Recovery and Rehabilitation Plan as shown in Figure 1.3-1.



Source: JICA Study Team

Figure 1.3-1 Relation of the Recovery and Reconstruction Plan with JICA Approach

For LGUs, the derived programs and projects based on the policy are expected to be inputted into the current local plans. While the recovery and reconstruction plans have been formalized and some of the proposed projects are already implemented or funded, in the long run such plans can be continued to be updated for years. Also DRRMPs have been prepared in some LGUs based on RA10121 and they are expected to be updated based on people’s disaster experience, new

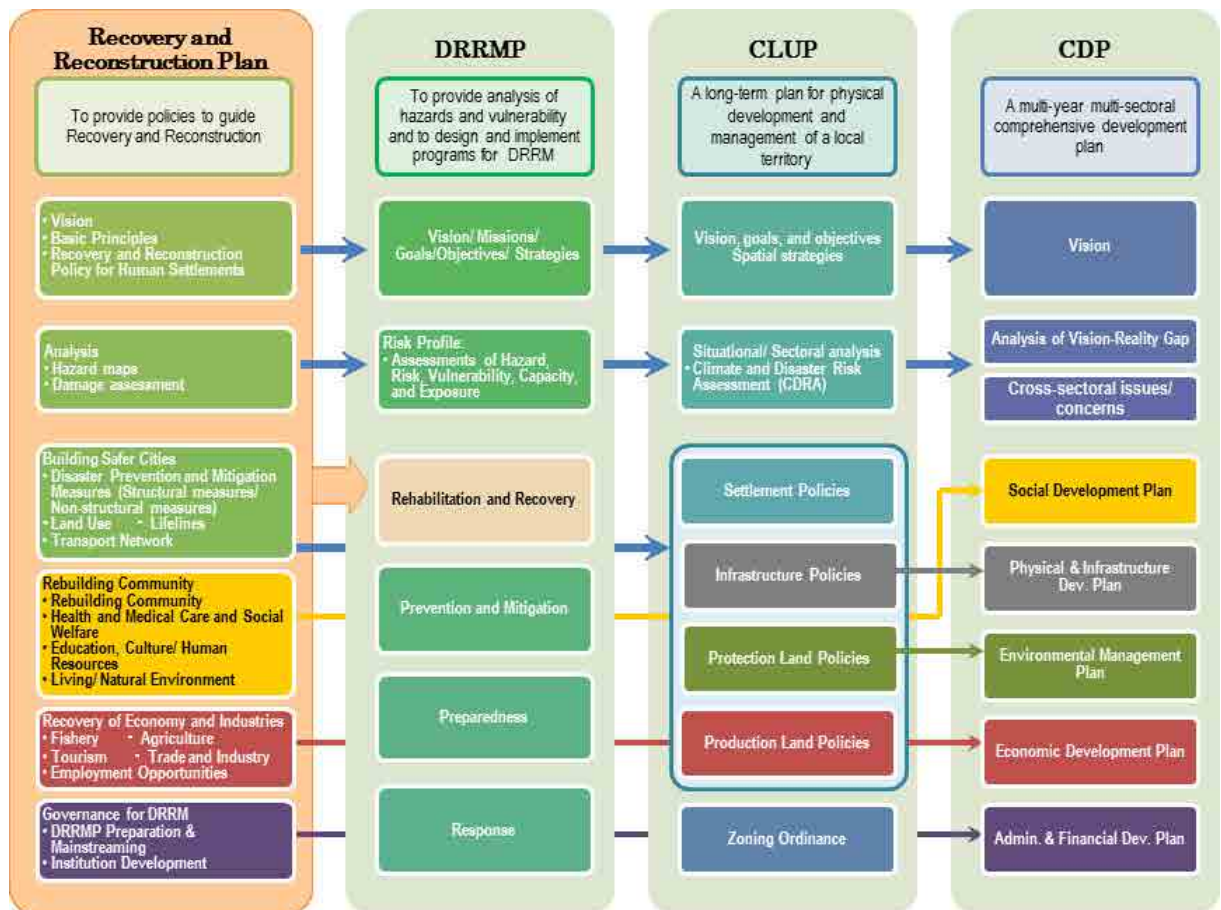
technology and knowledge from international communities.

Recovery and Rehabilitation Plans in Japan are generally recognized to cover a wide range of areas including cover cross cutting concerns as well as individual areas such as the recovery of people's lives and restoration of the local economy. Such range of coverage is also recommended for DRRMPs for the Philippines even though their operational time is comparatively short.

Among the four (4) DRRM priority areas such as 1) prevention and mitigation, 2) disaster preparedness, 3) disaster response and 4) rehabilitation and recovery, certain cross cutting concerns have been recognized in the NDRRMP. These include health, human-induced disasters, gender mainstreaming, environmental protection, cultural sensitivity or indigenous practices, and the rights based approach. They are a combination of issues and approaches that can be taken into consideration in each of the priority areas.

The cross cutting concerns, as well as recovery people's lives and restoration of the local economy can be included / reflected in the CLUP of each municipality as a long-term development and management plan.

The proposed policies and technical approaches that have been initiated since Typhoon Yolanda and will be used in the preparation of the RRP shall also be linked to the planning of CLUP and DRRMP as well as CDP. In such case, the materialized programs and projects under the JICA proposed policy can be incorporated into the existing various plans. In addition, the proposed program and projects shall become direct references for the updating of mandated local government plans such as the Comprehensive Land Use Plan and Comprehensive Development Plan, Annual Investment Program, and Executive- Legislative Agenda (ELA). The areas to be reflected from the 3 principles into DRRMP, CLUP and CDP are illustrated in Figure 1.3-2.

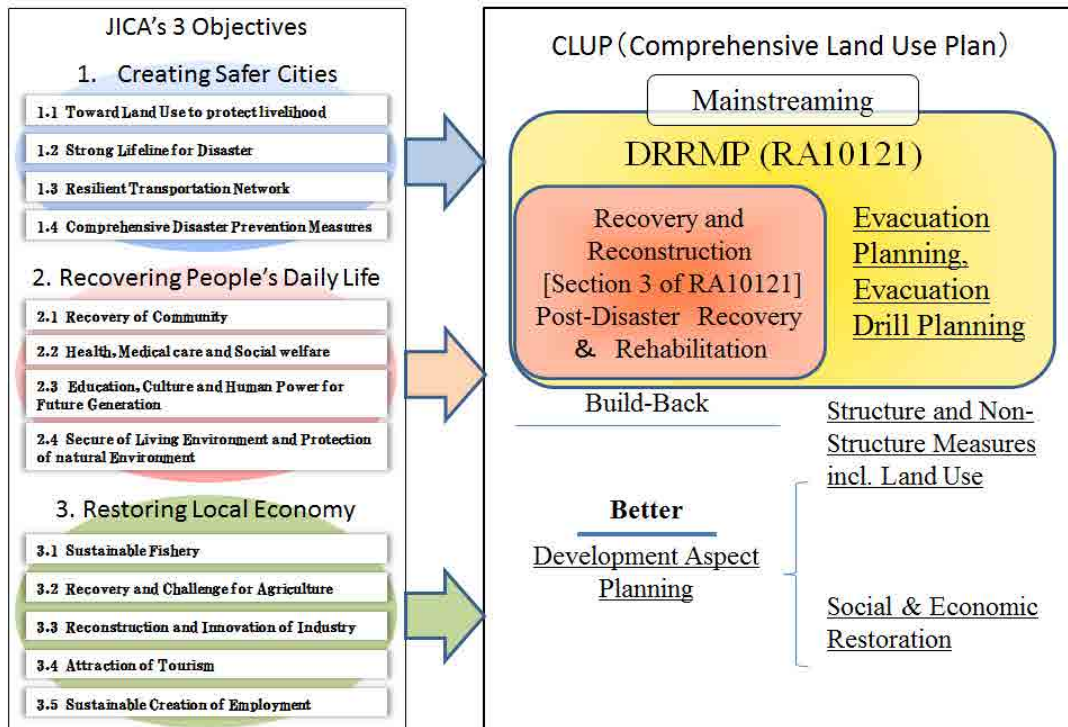


Source: JICA Study Team

Figure 1.3-2 Relationships among LDRRMP, CLUP and CDP

(2) Supporting Rehabilitation and Reconstruction Planning for Build Back “Better” and Mainstreaming of DRRM

As described in Part 1 of this report, the set of policy is composed of thirteen (13) fields under the three (3) main objectives as shown in Figure 1.3-3.



Source: JICA Study Team

Figure 1.3-3 Application Field of JICA’s 3 Objectives for Planning

JICA Study Team’s support for rehabilitation and reconstruction focuses on “Better” aspect of Build-Back-Better concept and mainstreaming of DRRM in CLUP. Due to LGUs’ time constraints for preparing a Recovery/ Rehabilitation and Reconstruction Plan (RRP), the Plan’s major concerns were limited to “Build-Back” aspect.

“Better” aspect involves development feature in general and direct resilience enhancement against the disaster impacts which also means DRRM. Development feature, especially in economy sector, correlate with resilience enhancement in general.

The Study Team shall support the model area (5 Municipal/ City LGUs) by 3 categories of “Creating Safer Cities”, “Recovering People’s Daily Life”, and “Restoring Local Economy” through conducting workshops.

Significances of each category are as follows:

1) Creating Safer Cities

Creating Safer Cities Component involves disaster prevention/ mitigation/ reduction plans both by structural/ physical and non-structural/ action-performing measures. They include tidal embankment or similar concept structure plans, construction/ reinforcement of/ for robust and resilient building with facility considerations, evacuation plans with evacuation center placements/ routing/ drilling plans, infrastructure improvement/ development for resilience enhancement, and plans for emergency transport/ logistics. These measures should be supported by land use plan.

The planning works for the above plans are conducted based on the hazard/ damage maps comprehension/ analyses.

Synthesizing hazard maps based on the mathematical simulation model with precise geographical data and fact-based calibration is one of the JICA Study Team's advantageous activities.

The Team has provided the appropriate methods and technical know-how on comprehension of hazard maps for the responding plans stated above through the workshop practices. Systematic planning methods and processes have also been provided through the practices.

2) Recovering People's Daily Life

The Team has provided practical reflection of DRRM aspect in to social sector planning. The factors reflected include considerations for risk locations, continuation of operations, use of facilities/ structures for evacuation, education for disaster responses, emergency responses, post disaster responses, and for post disaster change in population distribution.

Since the frameworks for the social sector plan is basically to be oriented from ones usually derived from MDGs (Millennium Development Goals) and/ or BHN (Basic Human Needs), which are agreeable for the stakeholders, the Team did not modify the sector vision and sub-sector goals.

Further to the reflection the Team's experts provided the balancing considerations for inter and intra sub-sector planning emphasizes considering the current conditions.

3) Restoring Local Economy

Resilience of the economic sector is heightened by reinforcing strength of economy itself in principle and by fostering internal and external human/ economic linkages.

The economy sector's framework formulation is quite dependent on the potential and current condition of the particular LGU's territory including location in association with the wills of the local people in development directions. It means the formulation of the economy sector framework associates huge degree of freedom.

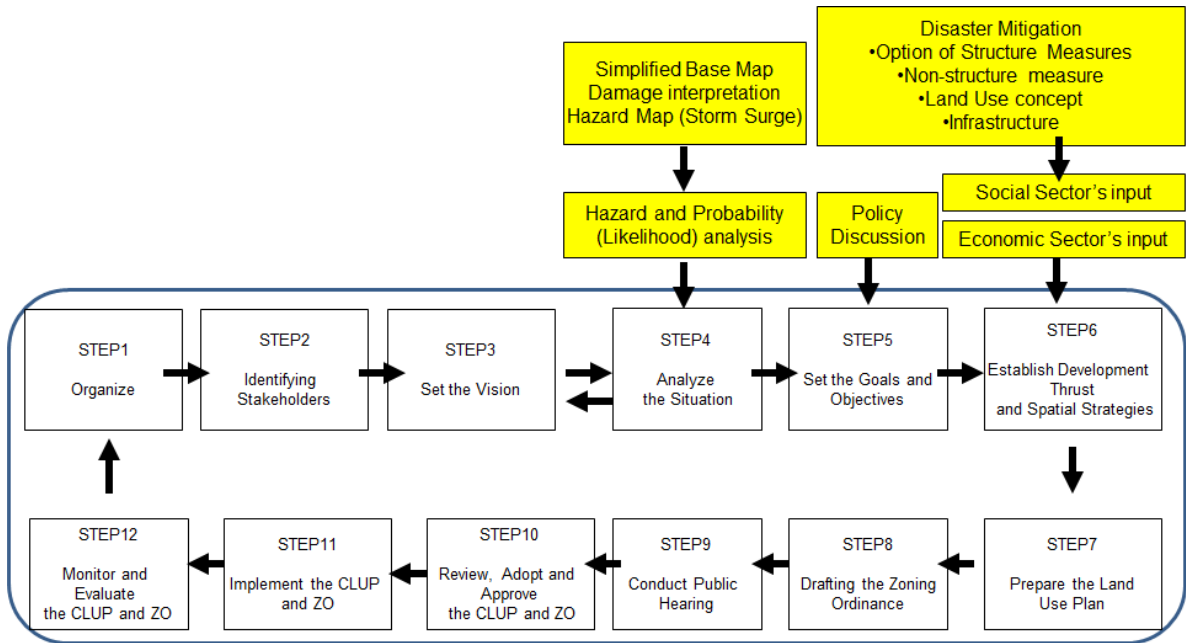
The Team provided support for LGUs to formulate a focused sector vision and goals with objectives in hierarchically well-connected manner and their achieving strategies taking their relative advantages into consideration. In addition, Japanese experts in agriculture and fishery provided technical input for the respective sub-sector planning.

Special consideration for participation of local people and entities were incorporated in to the plans for further resilience factor of human network enhancement.

(3) Relationship between Newly Added CDRA and Team's DRRM Planning

Recently HLURB issued the new CLUP "Supplemental Guidelines on Mainstreaming Climate and Disaster Risks in the Comprehensive Land Use Plan, 2014" (hereinafter-called Supplemental Guideline). The Supplemental Guideline defined twelve (12) steps for CLUP Planning process and specified special consideration for climate and disaster risk assessment for Step 4. Some LGUs have already started an activity to follow the Supplemental Guideline in order to update their CLUP. Figure 1.3-3 shows the twelve (12) steps for CLUP Planning process and the possible

fields of input by JICA activity.

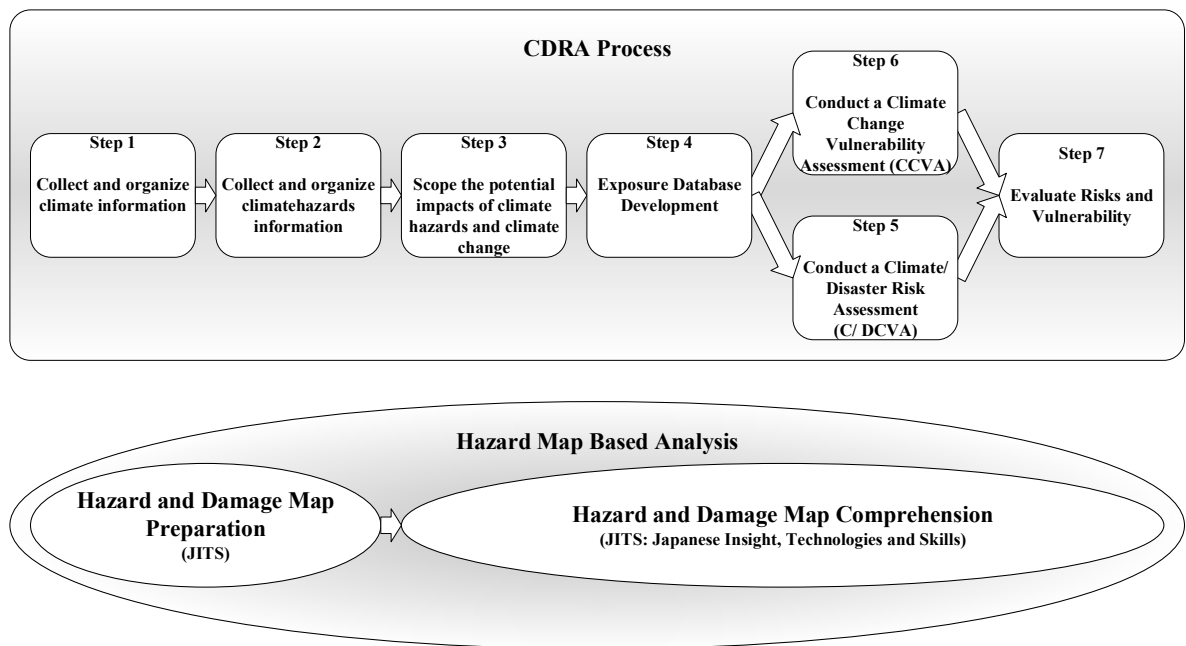


Source: JICA Study Team

Figure 1.3-4 Field of JICA Input for CLUP Planning Process

In the guideline, Climate and Disaster Risk Assessment (CDRA) is newly introduced as part of the essential process of CLUP's "Step 4 Analyze the Situation".

Implementation of the CDRA process is imperative in preparing CLUP to be approved by HULRB.

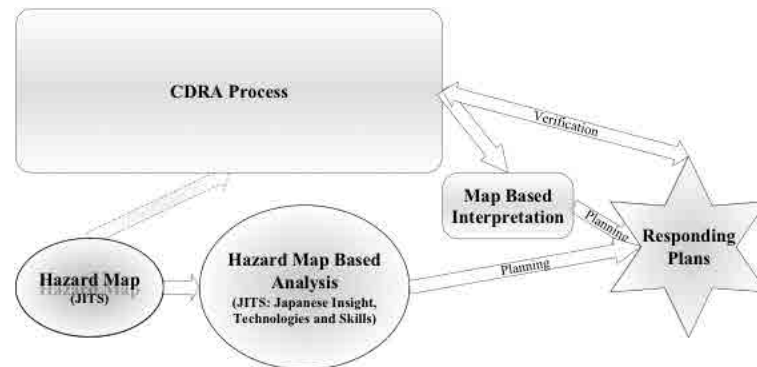


Source: JICA Study Team

Figure 1.3-5 CDRA Process (top) and Corresponding JICA's Hazard Map Based Analysis(bottom)

The planning process utilizing CDRA results for responding plan against disaster risk is basically the same as the one of “Creating Safer City” component based on “Hazard Map Based Analysis” as shown in Figure 1.3-5. CDRA’s Step1 and Step 2 correspond with “Hazard and Damage Map Preparation” and the rest of the Steps correspond with “Hazard and Damage Map Comprehension”.

The responding plans attained through the workshops, however, are able to be utilized as the responding plans based on the CDRA process by verification of the attained plans by the CDRA results as shown in Figure 1.3-6.



Source: JICA Study Team

Figure 1.3-6 Relationship of CDRA Process and JICA’s Hazard Map Based Analysis

1.3.2 Methodology

As explained in 1.3.1, the subjects to be refined in the recovery and reconstruction planning are wide ranging.

The JICA Study Team conducted a series of workshop with LGUs from July 2014 to September 2015. The workshop is titled as JICA Collaborative Workshop on Comprehensive Planning after Typhoon Yolanda.

The general process of the workshop is shown in Table 1.3-1.

JICA Study Team dispatched the experts of the following fields.

- Planning on development, land use, recovery/reconstruction, disaster prevention
- Hazard analysis on storm surge, flood and tsunami
- Social sector such as education, health, social welfare and solid waste management
- Economic sector such as agriculture and fishery

LGU side dispatched the following personnel.

- Municipal Mayor
- Officer of Municipal Planning and Development Office
- Office of Municipality Social Development and Welfare

- Fishery and Agriculture Office
- General Affair and Treasury Office
- Tourism

Table 1.3-1 General Process of JICA Collaborative Workshop on Comprehensive Planning after Typhoon Yolanda

Timing	Main Purpose	Remarks
Orientation (July 2014)	To explain the purpose and methodology of the collaborative workshop for comprehensive planning after Typhoon Yolanda for officials of LGU in various sectors.	JICA Study Team requested LGU to provide data on the planning.
1st Workshop (July 2014)	To make 3 groups for building safer cities, recovering people's daily life and restoration of local economy and discuss on the issues and strategies for the future.	To provide hazard maps (storm surge, flood and tsunami) and let LGU check the recovery/reconstruction plan in terms of the compatibility of the hazard.
Sector Discussion (September 2014)	Based on the issues and strategies discussed on July, to make similar sector group and discuss how to solve the issues and problems.	To confirm the output of the 2nd workshop.
2nd Workshop (September 2014)	To confirm the policy and proposed program and project for each sector.	To confirm the output of the 2nd workshop shall be presented in the November seminar (a year anniversary of Typhoon Yolanda in Tacloban)
JICA Seminar (planned on November)	To present the output of workshops since July by LGU officials. To discuss on outcome after the seminar	
Updating of LGU's current plans such as CLUP, RRP	To monitor the progress of updating works by LGUs.	

Source: JICA Study Team

The output from these collaborative workshops for each LGU shall be documented as Recovery and Reconstruction Plan as its title.

1.3.3 Usage of Output and Outcome

The output of the workshop as Recovery and Reconstruction Plan has a wide variety of content in terms of sector.

The workshops were held to make three (3) groups for discussion, such as building safer cities, recovery of people's daily life and restoration of local economy.

The group of building safer cities made use of newly produced storm surge hazard map and flood(except Guiuan), and Tsunami to review the physical structure aspects of the existing RRP, to study structural measure and non-structural measure such as evacuation planning. Especially for evacuation planning, JICA Study Team provided a guidance on necessary data preparation with LGUs and LGUs prepared their own planning base data in order to finalize the plan.

The group of recovery of people's daily life used a model matrix form which was derived from Tacloban CLUP document. In the current CLUP of Tacloban there are Integrated Social Sector

Analysis Matrix and Priority Programs and Projects. JICA Study Team recognized that those matrixes can reflect the hazard situation after Typhoon Yolanda and proposed 5 LGUs to use the revised matrix as shown in Table 1.3-2. By including all discussion results in the Matrix, the Matrix form will have more practical and planning-oriented outcomes.

Table 1.3-2 Sample Form of Social Sector Analysis Matrix used in Workshops with 5 LGUs

Technical Findings/ Observations	Implications (Effects)	Policy Options/ Interventions (Programs & Projects)	Responsible Organization s/Offices	Timeframe
<ul style="list-style-type: none"> Inadequate school buildings and overcrowded classrooms 	<ul style="list-style-type: none"> Poor quality education 	<ul style="list-style-type: none"> Construction of new school buildings/classrooms 	DepEd, DPWH	2014-2020

Source: JICA Study Team

The group of restoration of local economy sector focused on drawing of vision and goals with objectives in hierarchically well-connected manner from participants related with economic sector. The participants were enlightened by the facilitation of the JICA Workshop and their buried idea and plans were drawn out as the outcome of the workshop.

The result of the collaborative work with the selected LGUs is expected to be used as a direct reference for the updating of mandated local government plans such as the Comprehensive Land Use Plan and Comprehensive Development Plan, Annual Investment Programme, and Executive-Legislative Agenda (ELA).

Table 1.3-3 shows how the RRP can be translated into LDRRMP, CLUP, and CDP.

In terms of Outcomes, which refer to “what difference is there”, it is stressed as shown in the following table, they shall be reflected into other plans such as LDRRMP, CLUP, and CDP.

For fine-tuning of Local DRRMP, CLUP and CDP, the result of workshop in building safer cities can be regarded as that they are proposed based on the hazard maps. Those in recovery of people’s daily life reflect the hazard situation after typhoon Yolanda. Those in restorations of local economy reflect the mutual discussion with LGU officials on vision/strategies/policies based on the LGU’s desire and some experiences in Japan. Some practical (concrete) projects proposed in the workshop shall be the main subjects to be further discussed in LGUs with line agencies in order to refer in the preparation of CDP.

Table 1.3-3 Translating the Recovery and Construction Plan to DRRMP, CLUP and CDP

Recovery and Reconstruction Plan		LDRMP				CLUP				CDP					
Items		Rehabilitation & Recovery	Disaster Prevention & Mitigation	Disaster Preparedness	Disaster Response	Settlement Policy	Protection Land Policy	Production Land Policy	Infrastructure Policy	Social Development	Economic Development	Physical & Infrastructure	Environmental Mangament	Admin. & financial development	Cross-sectoral Issues/ Concerns
1.	Basic Principles for Recovery and Reconstruction														
	1.1. The Objectives of Recovery and Reconstruction Policy	•				•	•	•	•	•	•	•		•	•
	1.2. 3 Basic Principles for Recovery and Reconstruction	•				•	•	•	•	•	•	•			•
	1.3. Recovery and Reconstruction Policy of Human Settlement	•				•	•	•	•	•	•	•			•
2.	Building Safer Cities														
	2.1. Comprehensive Disaster Prevention and Mitigation Measures	•	•	•		•									
	2.1.1. Structural Measures	•	•	•		•			•			•			
	(1) Construction of Embankments, Dikes, etc.	•	•	•		•	•		•		•				
	(2) Evacuation Centers and Evacuation Routes	•	•	•	•	•	•		•						•
	2.1.2. Non-Structural Measures	•	•	•		•									
	(1) Evacuation Plan	•	•	•	•	•				•		•			•
	(2) Building Code	•	•	•		•			•		•				•
	2.2. Land Use	•	•	•		•					•				•
	2.3. Lifelines	•	•	•	•			•	•		•				
	2.4. Transport Network	•	•	•	•			•	•		•				
3.	Recovery of People's Daily Life														
	3.1. Community Development	•	•	•						•					
	(1) Rebuilding Community	•	•	•		•				•					
	(2) Community-based Disaster Mitigation	•	•	•	•	•				•					
	3.2. Health and Medical Care and Social Welfare	•	•	•	•					•		•			
	(1) Health and Medical Care	•	•	•	•	•			•		•				
	(2) Social Welfare and Gender	•	•	•	•	•			•		•				
	3.3. Education, Culture and Human Resources	•	•	•						•		•			
	(1) Recovery of Education	•	•	•					•		•				
	(2) Disaster Education	•	•	•	•					•					
	3.4. Improvement of Living Environment and Protection of Natural Environment	•	•	•											
	(1) Improvement of Living Environment	•	•	•		•					•				
	(2) Protection of Natural Environment	•	•	•			•					•			
4.	Restoration of Regional Economy and Promotion of Industries														
	4.1. Fishery	•		•				•	•		•		•		
	4.2. Agriculture	•		•				•	•		•		•		
	4.3. Tourism	•		•				•	•		•		•		
	4.4. Trade and Innovative Industry	•		•				•	•		•		•		
	4.5. Employment Opportunities	•		•				•			•		•		
5.	Improving Governance for Recovery and Reconstruction and toward DRRM														
	5.1. Mainstreaming DRRM in Local Plans	•	•	•		•	•	•	•	•	•	•	•	•	•
	5.2. Institutional Development	•	•	•	•									•	•

Source: JICA Study Tea

1.4 Selection of Model Area

1.4.1 Criteria of LGU Selection

The basic viewpoints for the selection by the JICA Study Team are as follows:

- (i) Number of victims by Typhoon Yolanda is comparatively large.
- (ii) Variation in terms of the topography such as plain area, hilly area and peninsula.
- (iii) Having highly urbanized areas as an economic growth center

The number of victims by typhoon Yolanda is the most important factor because of the significance of disaster risk reduction in the target area. The topographical variation is also important because the contents of the RRP and CLUP are closely depending on it and consideration of future application of JICA Study for other LGUs.

1.4.2 Selection of LGUs in Target Area

Among the target area in JICA Study (18 LGUs), five (5) LGUs have been selected for the collaborative workshop style's technical assistance in terms of the comprehensive recovery and reconstruction planning activities.

Table 1.4-1 shows the population in 2010, the number of victims by Typhoon Yolanda, and other physical damage for 18 LGUs. Regarding the number of victims who lost their lives, it is quite clear that the number of the victims which is more than 100 is concentrated on some specific LGUs, namely Tacloban, Palo, Tanauan (in Leyte Province), Basey (in Samar Province) and Guiuan (in Eastern Samar Province).

Table 1.4-1 Basic Features of 18 LGUs in Target Area

No.	Name of Municipality/ City	Population (2010 C)	Damage Data					
			Casualty			Building Damage		
			Dead	Missing	Total	Totally damaged	Partially damaged	Total
[Leyte]								
1	Tacloban	221,174	2,542	594	3,136	12,270	46,553	58,823
2	Palo	62,727	1,088	292	1,380	13,481	1,435	14,916
3	Tanauan	50,119	1,252	754	2,006	6,670	3,994	10,664
4	Tolosa	17,921	32	0	32	2,397	1,416	3,813
5	Dulag	41,757	26	3	29	8,104	780	8,884
6	Mayorga	14,694	4	0	4	2,063	1,191	3,254
7	Macarthur	18,724	10	0	10	3,741	243	3,984
8	Javier	23,878	5	0	5	3,159	1,921	5,080
9	Abuyog	57,146	33	0	33	4,270	8,006	12,276
	Sub-total	508,140	4,992	1,643	6,635	56,155	65,539	121,694
[Samar]								
10	Basey	50,423	194	38	232	1,161		1,161
11	Marabut	15,115	30	0	30	2,272	858	3,130
	Sub-total	65,538	224	38	262	3,433	858	4,291
[East Samar]								
12	Lawaan	11,612	11	0	11	2,866		2,866
13	Balangiga	12,756	14	0	14	2,919	370	3,289
14	Giporlos	12,040	14	0	14	1,000	2,971	3,971
15	Quinapond	13,841	10	0	10	2,538	582	3,120
16	Salcedo	19,970	29	0	29	2,561	1,344	3,905
17	Mercedes	5,369	1	0	1	183	1,142	1,325
18	Guiuan	47,037	106	16	122	10,008	1,601	11,609
	Sub-total	122,625	185	16	201	22,075	8,010	30,085
	Total	696,303	5,401	1,697	7,098	81,663	74,407	156,070

Source: JICA Study Team

In terms of the topographical variation of those five (5) LGUs, the three (3) LGUs are located in the Leyte plain whose urban areas are flat and Basey Municipality in Samar Province has the limited flat area because of the hill in backyard. Guiuan Municipality is located on the eastern edge (peninsula) of Eastern Samar Province as well as composed of large and small islands. In this line, these five (5) LGUs have a wide variation in terms of topography, to result into the wide variety of issues on disaster prevention according to the topography.

In terms of LGUs population, among 18 LGUs, five (5) LGUs have more than 50,000 total number of population. They are Tacloban, Palo, Tanauan, Abuyog and Basey. These LGUs are regarded as economic growth center due to the population and historical background in Region VIII.

Considering those facts, the selected LGUs are as follows:

- 1 Tacloban City (Leyte Province)
- 2 Palo Municipality (Leyte Province)
- 3 Tanauan Municipality (Leyte Province)
- 4 Basey Municipality (Samar Province)
- 5 Guiuan Municipality (Eastern Samar Province)

The location and basic feature of the selected LGUs are shown in Figure 1.4-1 and Table 1.4-2, respectively.

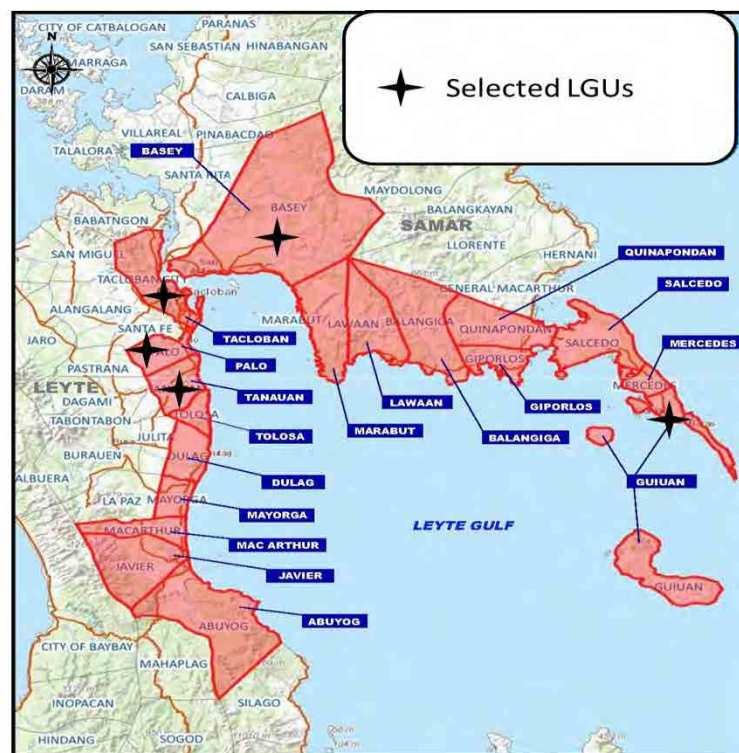


Figure 1.4-1 Location Map of Selected 5 LGUs

Table 1.4-2 Basic Feature of selected 5 LGUs

LGU	Topography	Socio Economy	Damage by Yolanda	Planning Status and Target Plan	Activity of other Donors
Tacloban	Wide plain along the coast	Economic Center in Region VIII Highly Urbanized City(HUC) Capital of Leyte Province Concentration of commercial activity, factories, agriculture-fishery and airport Population 221,000	Large damage of building, people, fisher boat by storm surge along the coast Inundation damage in central business area Large damage of facilities of sea port and airport Large damage on building and electrical line by strong wind	Recovery and Rehabilitation Plan (RRP) prepared by support of UNHABITAT, CLUP was approved but needs to be updated for new HLURB guideline Target Plan : RRP • DRRM • CLUP	RRP:UNHABITAT • UNDP CLUP : UNHABITAT DRRM:UNDP
Palo	Wide plain along the coast	Central Government Complex Concentration of Urban area, ITC Park and agriculture and fishery Population 63,000	Large damage of building, people in residential area and fisher boat along the coast Inundation damage in Government Complex area Large damage of building and electrical line by strong wind Large damage of coconuts and rice field	Recovery and Reconstruction Plan (RRP) prepared by support of GIZ, and Post Disaster Redevelopment Plan prepare by UP architect group Target Plan : CLUP • DRRM	RRP:GIZ CLUP : GIZ DRRM:UNDP
Tanauan	Wide plain along the coast	Concentration of Urban area, agriculture and fishery and factories Population 50,000	Large damage of building and factories along the coast and fisher boat damage Inundation damage in urban area Large damage of building and electrical line by strong wind	RRP prepared by support of GIZ and CLUP is going to be revised Target Plan : CLUP • DRRM	RRP:GIZ CLUP : DRRM:UNDP
Basey	Narrow plain along the coast because of hilly area behind	Concentration of Urban area, agriculture and fishery and factories Population 50,000	Large damage of residential houses, governmental building and people Large Damage on fisher boat Large damage of building and electrical line by strong wind Large damage of coconut tress	RRP prepared and CLUP is going to prepare newly Target Plan : CLUP • DRRM	RRP:GIZ CLUP : GIZ DRRM:UNDP
Guiuan	Narrow plain on the peninsula including big islands	Concentration of agriculture and fishery product and processing, Concentrated urban area of 47,000 people	Large damage of building and electrical line by strong wind Large damage of coconut tress	RRP prepared by support of UNHABITAT and CLUP is going to be revised bu 1st quarter of 2015 Target Plan : CLUP • DRRM	RRP: UNHABITAT CLUP : UNHABITAT DRRM:

Source: JICA Study Team

1.5 Workshop Schedule

The workshops with 5 LGUs, Tacloban, Palo, Tanauan, Basey and Guiuan were held as shown in Table 1.5-1.

Table 1.5-1 Workshop Schedule

LGU	Tacloban	Palo	Tanauan	Basey	Guiuan
Province	Leyte	Leyte	Leyte	Samar	E. Samar
Orientation	July 10	July 2	July 9	July 18	July 8
1 st Workshop	July 25	July 23	July 30	July 24	July 28
2 nd Workshop	Sep.18-19	Sep.29	Sep.25	Sep.17	Sep.15

Source: JICA Study Team

The dates shown in the above are only the main activities among the LGUs and the JICA Study Team. Among the workshop, a number of sector meetings, coordination meetings with LGUs as well as international donors were held.

The recovery and reconstruction plan for 5 LGUs are documented in next Chapter.

Chapter 2 Recovery and Reconstruction Plan for Model Area

2.1 General

Based on the methodology described in previous Chapter, recovery and reconstruction plans for the model areas were documented. The document is composed of the following items.

- City Profile
- Damage caused by Yolanda
- Progress in Recovery and Reconstruction
- Issues and Problems in Recovery and Reconstruction
- Vision for Recovery and Reconstruction
- Recovery and Reconstruction Policies /Projects
- Hazard Maps
- Recovery and Reconstruction Map (Structural and Non-structural Measures, and Land Use)


The contents of the above items have been prepared focusing on the latest information and discussion in the workshop with each LGU. While the title of this section is recovery and reconstruction plan, each item shall be the candidate for reflecting the CLUP and CDP as well as the current RRP. Especially the concrete proposal for Policies and projects which can be referred, in the preparation of CDP.

2.2 Recovery and Reconstruction Plan for Model Areas

As the outcomes of the series of workshops in the model areas (5 LGUs), the following Recovery and Reconstruction Plans for the LGUs were made:

2.2.1 Tacloban

(1) City Profile

Province	Leyte	
Level of LGU	Highly Urbanized City (HUC), Provincial Capital of Leyte Province	
Area ¹⁾	202 km ²	
Barangay ¹⁾	138 Barangays	
Annual Budget (revenue) ³⁾	PHP 886.5 Million (estimate for 2013)	
Population ¹⁾	221,174 (NOS 2010)	
Safer Cities	<p>Major Land Use ²⁾⁴⁾⁵⁾</p> <p>Commercial areas: About 3km² (1.5%)</p> <ul style="list-style-type: none"> The northwestern outskirts of the city is still dominated by hilly timberland and agricultural fields. The heavily developed urban areas concentrated in the southeastern edge of the City <p>Agricultural land: Around 10.48km² (5.2% of the total land area))</p> <p>Rice: 7.22km²(3.6% of the entire agricultural area) (2011)</p> <p>Residential areas: 17.08km² (8.5% of the total land area))</p> <ul style="list-style-type: none"> The share of steep slopes is approximately 52% of total city lands, where is not suitable for settlement development in general. <p>Number of evacuation centers (ECs) and the capacities</p> <ul style="list-style-type: none"> Number of ECs and the capacities were not identified at the time of Yolanda. <p>Water Supply:</p> <p>Water supply system, are followed according to the level of urbanization: Level I - is with point source in rural and under populated area. Level II- is with communal faucet system or stand post in rural area Level III- is with waterworks system daily supply of more than 100 liters per person in urban area.</p> <p>Leyte Metropolitan Water District (LMWD), is the servicing water company for Tacloban, Palo, Tanauan, Tolosa and Santa Fe. The main source is located 32km from Tacloban. The capacity of water is sufficient for future demand. Still there is no service in northern part of Tacloban, but there is expansion plan to this area.</p> <p>Electricity:</p> <p>LEYECO II is the electric cooperative that supplies power for the northeastern part of Leyte Island around Tacloban City, and has 134 employees (as of Dec. 31, 2012). The peak demand in the coverage area is approximately 40 MW (as of Dec. 31, 2012). LEYECO II gets power from National Grid Corporation of Philippines (NGCP) and Tongonan geothermal plant that will be enough power for several years. Leyeco II has three power source substations for power supply with a total of 50 MVA.</p>	

Social Welfare ^{*)}	Medical Health Facilities:														
	<table border="1"> <thead> <tr> <th colspan="2">Hospitals</th> <th rowspan="2">Rural Health Unit</th> <th rowspan="2">Barangay Health Stations</th> <th rowspan="2">Maternity Hospital</th> </tr> <tr> <th>Government</th> <th>Private</th> </tr> </thead> <tbody> <tr> <td>2</td> <td>5</td> <td>2</td> <td>19</td> <td>1</td> </tr> </tbody> </table>		Hospitals		Rural Health Unit	Barangay Health Stations	Maternity Hospital	Government	Private	2	5	2	19	1	
Hospitals		Rural Health Unit	Barangay Health Stations	Maternity Hospital											
Government	Private														
2	5	2	19	1											
	Health Personnel at the City Health Offices (June 2014):														
	<table border="1"> <thead> <tr> <th>Doctors</th> <th>Nurses</th> <th>Midwives</th> <th>Sanitary Inspectors (2013)</th> </tr> </thead> <tbody> <tr> <td>3</td> <td>8</td> <td>16</td> <td>9</td> </tr> </tbody> </table>				Doctors	Nurses	Midwives	Sanitary Inspectors (2013)	3	8	16	9			
Doctors	Nurses	Midwives	Sanitary Inspectors (2013)												
3	8	16	9												
	<p>Leading causes of morbidity at health stations (2013)</p> <ol style="list-style-type: none"> 1. Pneumonia 2. Acute respiratory infections 3. Systemic viral infection 														
	<p>Solid waste management:</p> <ul style="list-style-type: none"> • Working staff: 9 persons (2 permanent and 7 Job order basis) • Estimated Generation of Waste in LGU: 150 ton/day • SWM Service Coverage Ratio is 70% of generated waste. • There are no collection vehicles because of contract-out 2 private entities. 														
Economy and Industry ^{2)*)}	<p>GRP: NA</p> <p>Commercial and service: 125 million PHP of revenue (From registered economic activities, 2010)</p> <ul style="list-style-type: none"> • Commercial and service industry is the leading economic sector, and the City functions as an economic hub, distributing various commodities to other areas of the region. • Wholesale and retail trade: 37 million pesos of revenue (2009 establishments and 14,986 employees) • Banking and Financing: 31 million pesos of revenue <p>Real estate / Construction: 22 million pesos of revenue</p> <p>Agriculture: 63 million PHP (2011)</p> <ul style="list-style-type: none"> • Rice: 25 million PHP (2011) <p>Livestock: 527 million PHP (2011)</p> <p>Fishery: 706 million PHP (2011)</p> <ul style="list-style-type: none"> • Tacloban City is the hub of Eastern Visayas of all fish products from various places, such as Guiuan, Borongan, Davao, General Santos, Catbalogan, Calbayog City, etc. • Tacloban City is rich in dried fish. • Average catch per operation is 2-3 kg and consumed locally. • 2,513 fisherfolk, including vendors, fish workers, gleaners, have been registered. • Monitoring and enforcement of fishery laws are weak due to lack of fund. • Some of the commercially important demersal resources have been depleted due to the proliferation of illegal activities, wanton collection of marine resources and pollution. • There is one (1) Fishery Law Enforcement Team (FLET) called Bantay Dagat. 														

	<ul style="list-style-type: none"> Fisherfolk in coastal barangays have organized themselves into fishermen association (presently, two associations are registered with DOLE). Tilapia is raised in inland fishponds while milkfish/tilapia is cultured in shallow brackish water fish pens and fishponds.
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Source

- 1) THE TACLOBAN RECOVERY AND REHABILITATION PLAN, May 22 2014 version
- 2) Interpreted from the Tacloban City Comprehensive Land Use Plan
- 3) Municipal Budget Office, Tacloban
- 4) Tacloban City Comprehensive Land Use Plan 2013-2022 Volume III

(2) Damage caused by Yolanda

Building Safer Cities	Physical/ Human Damage	
	Inundated Area by Yolanda ¹⁾	26 km ² (12.9%)
	Number of Affected People	NA
	Deceased ²⁾	2,689
	Injured ³⁾	3,180
	Missing ²⁾	701
	Number of Houses totally damaged ⁴⁾	30,513
	Number of Houses partially damaged ⁴⁾	23,718
	Damage on Infrastructure ⁴⁾	2.5 Billion PHP
	Losses to municipal properties ⁴⁾	323 Million PHP
<p>Source</p> <ol style="list-style-type: none"> 1) JICA Study Team, Storm Surge Hazard Map 2) Effects of Typhoon “Yolanda” (Haiyan) Report of Casualties as of June 22, 2014 12:00 PM, OCD 3) RDRRMC Report as of March 3, 2014 4) THE TACLOBAN RECOVERY AND REHABILITATION PLAN, May 22 2014 version <ul style="list-style-type: none"> Significant damages to buildings were seen wherever there is population, particularly along the coastlines and along the highway heading towards Santa Fe. Devastating damages were observed in the coastline from Barangay 89 to barangay 99. Though most of the buildings were damaged to a certain extent, totally damaged buildings were observed less in the highly populated urban areas from the City Center towards Palo. The Municipal hall was also damaged by the devastating Typhoon. <p>Source: Interpretation result on damaged buildings from satellite images, JICA Study Team</p>		
<p><u>Water Supply:</u></p> <p>Regarding water supply system, the damage amount on LMWD (Tacloban, Palo, Tanauan, Tolosa and Santa Fe) was 17.16 million pesos (source: LWUA). The typical damage situation is damage to the water supply pipes and water meter, disconnection of commercial power lines and damage of the pump house and equipment. Within these damages, design and construction aspects are included such as quality of the pipes, and excavated trench.</p>		
<p><u>Electricity:</u></p> <p>The electricity company that is covering Tacloban, LEYECO II, had 660 million PHP of damage. The power interruption occurred in the coverage area, and the whole area of Tacloban and Palo experienced total blackout. The transformer from one of the three substations, were damaged by strong winds and flying objects while</p>		

	others, have been kept in good condition.				
Social Welfare	Health:				
		Totally damaged	Partially damaged	Total	
	Government Hospital	2	-	2	
	Private hospital	2	5	7	
	Main Health Center	2		2	
	Barangay Health Station	0	19	19	
	Maternity Hospital	1		1	
	Social Welfare:				
		Totally/ Partially damaged		Total	
	Daycare Center	65		65	
<ul style="list-style-type: none"> Damaged facilities: Daycare Centers, CSWD Office, Office for Senior Citizens Affairs (OSCA), Day Center for Senior Citizens, Social Development Center for Children (SDCC), ICT Training Center for Out-of-School Youth (OSY), Persons With Disabilities (PWD) and other vulnerable population office. 					
Source: Tacloban CSWD					
Education (Damaged Classrooms):					
	Totally damaged	Partially damaged	Total		
Elementary schools	51	534	585		
Secondary schools	29	104	133		
<ul style="list-style-type: none"> 90% of all educational facilities (pre-schools, elementary, high school and colleges/universities) were badly damaged 					
Solid Waste Management:					
<ul style="list-style-type: none"> Generation of a large amount of debris: estimated at 250,000 m³ Material Recovery Facility (MRF) of 17 barangays was totally damaged. LGU incurred ad-hoc expenditures incurred for debris collection and disposal. 					
Economy and Industry	Agriculture:				
	<ul style="list-style-type: none"> 205,633 (77%) of coconut trees, were affected by Typhoon Yolanda. 				
	Crop	No. Of Farmers Affected	Total Area Affected (ha)	Production Loss (M.T.)	Cost of Production (PHP)
	Vegetables	6,000	250	500	12,500,000
	Rice	171	150	175.1	1,125,000
	Corn	28	14.3	19.6	357,500
	Source: Department of Agriculture, Eastern Visayas Typhoon Yolanda Damage Report (As of Feb, 2014)				
	Livestock:				
	Animal	Population	Mortality	Estimate Value (PHP)	
	Cattle	42	6	168,000	
Buffalo/Carabao	168	8	200,000		
Goat	173	67	201,000		
Swine	1,210	283	1,415,000		
Chicken	76,781	53,111	9,028,870		
Ducks	120	7	11,014,620		
Source: City Veterinary Typhoon Yolanda Damage Report					

Fishery:		
Sector		Estimated amount of Damage (PHP. '000)
Fish cages		47,400
Fishpond		-
Fishing Boats	Motorized	14,800
	Non-motorized	4,540
Gill nets/ crab net		2,219
Fishing port whole sellers		12,000
Total		87,411

- Total affected fisher folks were 1,050.

(3) Progress in Recovery and Reconstruction

1) Progress in Building Safer Cities

The Tacloban Recovery and Rehabilitation Plan (TRRP) have been drafted until May of 2014 with UNDP support as well as technical assistance from UN-Habitat. The contents of the plan can be adapted to formulate CLUP, CDP, AIP and ELA, which will be revised or formulated by the city of Tacloban.

“Supplemental Guidelines on Mainstreaming Climate and Disaster Risks in the Comprehensive Land Use Plan, 2014” has been formulated until August of 2014 by the Housing and Land Use and Regulatory Board (HLURB) which is the supervising body of CLUP and obligates each LGU to follow the guidelines for the appropriate revision of CLUP.

DRRM:

The planning process for non-structural countermeasures of Tacloban city has been progressed such as designation of evacuation shelters, etc. As for the progress of structural countermeasures, is to protect the city from tidal surge disaster, etc. this still remains as a conceptual description of the plan of the coastal zone development.

As for the LGU’s activities of Tacloban city for Climate and Disaster Risk Assessment (CDRA), the activities have been supported by international aid agencies (*e.g.* UNDP, *etc.*) as a part of the Resilience and Preparedness for Inclusive Development Program (RAPID). It is indispensable for the city to carry out the CDRA activity since it is a part of the requirements for the approval of the Comprehensive Land Use Plan (CLUP) by the Housing and Land Use and Regulatory Board (HLURB). Moreover, the Climate Change Commission (CCC) requests the implementations of CDRA in terms of climate change impacts.

UN-Habitat has been supporting the city for revision of the CLUP from the comprehensive point of view. A series of workshops for the concerned officers have been held for assisting the CLUP revision. Continuously, the plan will be completed by the LGU officers with the possible assistances from international aid agencies.

It is expected that the outputs of CLUP, which include index evaluations assessing possibility of

community or town development based on presently available census data, will be validated with the proposed future plan supported by the JICA team, which are to be prepared based on the hazard maps with the applications of systematic simulation analyses.

2) Progress in Recovery of People's Daily Lives

Health:

Repairing health facilities in Tacloban City is ongoing by DOH and INGOs, though it needs to accelerate, especially repairing the birthing facilities at Health Centers. There were 6 birthing facilities at Health Centers among 7 Health Centers before the disaster; however, only 1 birthing facility was repaired by now (as of the end of Sep. 2014). Eastern Visayas Regional Medical Center (EVRMC) is fully functioning but planned to relocate and reconstruct as the current place is a high-risk area, and the reconstruction of the outpatient department will be supported by Japan.

Education:

Out of 855 classrooms in Tacloban, 50 classrooms have already been rehabilitated. As for remaining some 800 classrooms, they have been partially repaired and need roofing and ceiling repairs. Furthermore, psychosocial care was provided to traumatized school children through training of school teachers on psychosocial skills by INTERSOS, UNICEF and Child Fund.

Social Welfare:

Out of 65 Daycare Centers in Tacloban, 39 centers have been partially restored or completely restored so far. The CSWDO has also been repaired through LGU's own funding. To address the issue of child protection post-Yolanda, 11 Child-friendly Spaces have been provided by UNICEF. While the implementation of relocation plans has been slow, 45 permanent houses have been completed. Key donor agencies for shelter include Operation Compassion, Operation Blessing, IOM, Tzu Chi Foundation and Habitat for Humanity.

Solid Waste Management:

- Debris was temporarily stored in 3 vacant lots adjacent to the new bus terminal, Balyuan tower and airport.
- The debris was totally collected and disposed of with assistance of international organizations.

3) Progress in Recovery of Regional Economy and Promotion of Industries

Agriculture:

Post Yolanda projects in Tacloban City are as follows:

Response for farmers and backyard gardeners

	Name of project	Timeline	Target beneficiary	Amount (PHP '000)	Donor
1	Rice Seed Assistance	Dec'13-Nov '14 (2 cropping)	409	576	FAO DA RO8
2	Fertilizer Assistance	Feb'14- 1 st Cropping	259	819	FAO
		Nov '14-2 nd cropping	150	240	DA RO8
		May '14	10		PCA RO8
		May-Aug '14	1,228	489	PCA RO8
3	Vegetable Seed Assistance	Jan-Feb '14	126	5	PCA RO8
		Jan-Feb '14	560	5	Lubag- Mercado
		Feb '14	40	4	DA RO8
	Veg. Seed for Coco Farmers	May- Aug '14	1,228	153	PCA RO8
	Veg. Seed w/ soil medium	Mar '14	750	20	One Voice
	Mongo bean	Mar '14	930	465	PCA RO8
	Organic Seed	Dec '13	24		private
4	Other Planting Materials Distribution (coco seedling, corn seed, cassava stalk)	Aug- (coconut)	20,000	660	PCA RO8
		Dec-May (corn)	110	4	PCA RO8
		Aug- (cassava)	10	0.3	PCA RO8
5	Farm Tool Distribution	May-Jun '14	5	26	PCA RO8 FAO
6	Other farm input Assistance UV Plastic Wood vinegar	May '14	2	14	PCA RO8
		Sep '14	4	2	DA RO8
7	Training with Input Assistance	Sep-Dec '14	80		USAID
		Oct '14-Jan '15	700	700	Saivation Army
	Urban Agriculture (training, farm input & farm tool)	Mar-Apr '14	320	80	DA RO8
	Other Trainings on Crop Production	Mar-May	194	30	DA RO8
8	Plant Nursery Establishment	July '14	2,500	95	DA RO8
9	Provision of Hand Tractor + Trailer	Sep '14	1	130	DA RO8
	Free Use of 90 HP Tractor for Crop Production	Jun- Aug '14	11		PCA RO8
10	Free Use of Chainsaw for use in;				PCA RO8
	a. House Repair b. Cleaning Coconut Debris	Jan-Jun '14 Sep- Dec '14	2		

Source: Monitoring report on post Yolanda Projects in the City of Tacloban (as of September 30, 2014)

Response for livestock after the typhoon Yolanda

Activity	Timeline	Resource requirement		
		Equipment/ Fixture	Amount (PHP)	Source of fund
I. IMMEDIATE	within 24hrs	cell phone	500	
1. Advisory to recipient/ farmer thorough text bridge & direct information delivery		vehicle & fuel	1,950	
2. Provision of Collapsible cages		cages	250,00	
3. Provision of food & leash for companion animals		dog food & animal feed	750,000	
II. SHORT TERM	End of 1 st week	vehicle & fuel	5,200	LGU
1. Inventory of animals (assessment activity)		computer	200,000	LGU
2. Prevention of possible disease outbreak after the calamity through mass vaccination		vaccine		
3. Veterinary medical Mission (Rescue & treatment of animals)		biologics	350,000	LGU
III. MID TERM	End of 1 st month	vehicle & fuel	6,500	LGU
1. Post disaster assessment report		computer		
2. Submission of status report				
IV. LONG TERM	End of 3 rd month	vehicle & fuel	6,500	LGU
1. Rehabilitation / Recovery Plan		biologics	50,000	LGU/DA
a. Extension of technical support to farmers		training		
b. Pasture development		legume & forage cuttings	150,000	LGU/DA
c. Stock infusion		animal stock	1,000,000	LGU/DA
2. Livestock recovery Plan				LGU/DA
a. Livestock Dispersal Project			2,000,000	
(b. Establishment of feed mill)		5,000,000		
Total			9,520,650	

Source: City Veterinary Office

Livestock dispersal project on carabao and goat is on-going. And Multiplier farm of goats will be installed by the assistance of DA RO8.

Fishery:

According to the Office of the City Agriculturist, some recent progress in recovery and reconstruction are as follows:

- Close to 1,000 fishing boats (motorized and non-motorized) have been distributed by BFAR through AHON and INGOs.
- Seaweed farming has been rehabilitated under BFAR for over 40 women beneficiaries.
- 150 fish cages (BFAR project) are on bidding process, which will be distributed to the fisherfolk beneficiaries.
- USAID has started livelihood project (fish cages and seaweed farming).
- Identification of livelihood rehabilitation programs such as Full Cycle Aquaculture Industry and its potential sponsors.

(4) Issues and Problems in Recovery and Reconstruction

1) Building Safer Cities

DRRM:

- Revision of existing land use based on the latest hazard maps
- Improvement of development along coastal area in terms of disaster risk reduction
- Relocation from the hazardous areas, construction of temporary and permanent shelters in the relocation sites and provision of public services, basic infrastructure, and livelihood
- Insufficiency of plan for structural countermeasures
- Serious insufficiency of basic infrastructure
- Inadequate plan for evacuation shelters
- Improvement for evacuation drill
- Insufficient organizational framework and know-how for the planning of disaster risk reduction
- Necessity of consideration on development of emergency transportation roads
- Necessity of structure strengthening for public facilities and evacuation shelters

Water Supply

The main issues on water supply are

- Leakage from water pipes, stealing water or non-payment;
- Inadequate Water Treatment Facility;
- The Stand-by Power Source is not secured;
- Lack of durability of pipe and inadequate distribution system;
- Lack of covering depth of pipe;
- Exposure of water meter above the ground;
- Lack of water volume and water pressure.

Electricity

- Lack of vehicle such as boom trucks with bucket and digger, and one truck for pole carriage.
- Depletion of spare parts and potential trouble are concerning.
- Replacement of heavy equipment is highly expected.

2) Recovery of People's Daily Lives

Health:

- Need to accelerate for repairing birthing facilities
- Gaps in prioritizing in identification and activities (human resource, equipment, and technologies)
- Mental health and WASH should be given enough budget
- Weak drug management system
- Safer location for public cemetery is required

Education:

a) Increased unsafe and inadequate classrooms and school buildings

- Damaged classrooms and buildings
- Insufficient classrooms due to the increase of enrolment in the relocation sites
- Schools used as evacuation centers are still damaged or not relocated yet

b) Lack of knowledge on DRRM and CCA among teachers and students at all levels

c) Increasing number of school leavers due to the distance from bunkhouses to schools and trauma among teachers and school children

d) Loss of school materials and equipment including:

- Textbooks, instructional materials, educational and learning materials / supplies
- ICT equipment
- School furniture

Social Welfare:

a) Unrepaired social welfare facilities (e.g. Daycare Centers, OSCA, etc.)

b) Lack of social welfare facilities for the vulnerable population (e.g. children in conflict with the law (CICL), PWD Affairs Office, separate counseling space for CSWD clients)

c) Insufficient service delivery to clients including children, women, senior citizens and PWD due to:

- Shortage of CSWDO personnel including social workers
- Poor referral mechanisms and case management (e.g. lack of multi-disciplinary functions at EVRMC WCPU, absence of CICL Center)
- Increasing risk of VAWC, child trafficking and CICL after Yolanda

d) Increased number of displaced families

Solid Waste Management:

The following issues were raised and discussed in the workshop held on September 19, 2014.

- The sectoral plan of “10-years’ SWM Plan 2007-2017” has to be updated and reviewed because the base scenarios for the plan have been changed after the Yolanda.
- Permanent resettlement houses will be constructed in the area adjacent to the existing dumpsite (distance of 250m).
- Need to strengthen recycling system
- Big gap between SWM revenues and expenditures.

3) Recovery of Regional Economy and Promotion of Industries

Most of recovery efforts relating to the economy have been focused on rehabilitation/ reconstruction/ recovery of the damaged facilities and activities. That affected seriously to recover ordinal business activities in the town proper. A lot of in-kind and financial assistances have been extended to the suffered people for relieving purpose, although some of them were not market oriented.

Although the municipality’s coconut related damages were limited, the expected economic shrinkage due to production value reduction by damaged coconut trees, which may last for a several years at least in the region, in the study area has to be encountered.

Once shattered wholesale business entities have come back due to the current preferable economic climate mostly due to inflow of recovery and reconstruction assistance related monetary inflow.

Agriculture

- Lack of coco seedlings of advanced varieties for replanting
- Limited livelihood for survived farmers
- Limited work opportunity for women / no chance to fulfill women’s potential
- LGU is waiting for the contribution of budget for several assistances that the Central government announced.

Fishery

At the workshop, the following issues and problems were dealt with:

- The enormous increase of fishing boats provided after Typhoon Yolanda added pressure to the sea waters.
- Decreasing fish catch due to typhoon-damaged marine environment.
- Low local supply of fish. Most of available fish come from other regions.
- Hatcheries in Guiuan were badly damaged by Typhoon Yolanda. This leads to a shortage and high price of fingerlings in Tacloban.

Tacloban City needs to focus on the production side of fisheries to complement the economic needs of the sector and decrease pressure on the marine environment.

(5) Vision/ Goals/ Objectives

“A Safe and Resilient City of Progress, Beauty and Love, in a Secured, Well Balanced Environment, Leading Region 8 as the Comprehensive Socio-Economic Center for Regional Advancement with a God-loving, healthy and empowered citizenry through a transparent, gender responsive and inspiring governance”.

(6) Recovery and Reconstruction Policies

1) Building Safer Cities

Basic Strategies for DRRM:

- Protection of city center by raising up level of the whole national road to be embankment road against tidal surge disaster from Tacloban to Tanauan
- Relocation from the no-dwelling zones and coastal hazardous areas estimated based on the simulation analyses
- Appropriate allocation of evacuation shelters and formulation of the evacuation plan considering the distribution of the population at Barangay level

Structural countermeasures:

Priority Projects/ Programs	Organization/ Agency
Main road elevation and embankment	DWPH

Target Area	Tacloban-Palo-Tanauan
Target Hazard	Storm Surge
Target Return Period	50 years return period (More frequent than Yolanda)
Structure Measure	Combination of Existing Road Heightening and Tide Embankment
Total Length	26.9 km (Opt 1) 27.3 km(Opt 2)
	Section 1: 4.2 km (Tacloban) Section 2: 2.9 km (Tacloban) Section 3: 5.2 km (Tacloban) Section 4 Option 1: 7.4 km Option 2: 7.8 km (Tacloban-Palo) Section 5: 4.1 km (Palo-Tanauan) Section 6: 3.1 km (Tanauan)

Land Use:

Priority Projects/ Programs	Organization/ Agency
Change the land use of the hazardous areas that are not protected by the structural measures to open space/ park/ protection/ production areas	To be discussed
Change the land use of the EVRGC relocation site	
Develop institution zones in a safe area to set up the backup offices of the city, the province, and other key government agencies	

Relocation:

Priority Projects/ Programs	Organization/ Agency
Construction of temporary and permanent shelters in the relocation sites to relocate from the no-dwelling zones and hazardous areas that are not protected by structural countermeasures	To be discussed
Development of the EVRGC for relocation sites as well as a new urban center	To be discussed
Development of livelihood, public services, and basic facilities and infrastructure, and improvement of transport access	To be discussed

Non-structural countermeasures:

a) **Evacuation Plan**

Priority Projects/ Programs	Organization/ Agency
Confirmation of details of the plan at Barangay level such as evacuation procedure, emergency routes, possible number of evacuee, etc.	To be discussed

b) **Technical advice prior to evacuation drill**

Priority Projects/ Programs	Organization/ Agency
Fundamentals of early warning	TOMEKO and CDRMO
Persons in need of aids on occasions of disaster	
Measures for evacuations by cars and traffic jams	

Water Supply

a) **Considerations for Restoration of Existing Facility**

b) **Considerations for Reconstruction of Water Supply Sector**

Priority Projects/ Programs	Organization/ Agency
Recovery of existing water supply system	LMWD
Improvement of purification, reservoir, transmission pipes and distribution pipes	LMWD
Improvement of collection of rates	LMWD
Expansion of service area, in particular north Growth Center and development areas	LMWD
Expansion of water source	LMWD

Electricity

Priority Projects/ Programs	Organization/ Agency
Recovery of existing electricity system	Leyeco II
Improvement and strengthening of poles and buildings	Leyeco II
Expansion of service area, in particular north Growth Center and development areas	Leyeco II
Promotion of photovoltaic (solar) power system	Individual

Other necessary activity:

Priority Projects/ Programs	Organization/ Agency
Strengthening or reinforcement of structures of public facilities and evacuation shelters	To be discussed

2) **Recovery People's Daily Lives**

Health:

Tacloban city is the regional center in medical and health care, and the number of medical facilities has been increased because of the increasing population. With those situations,

Taclobanons especially those belong to the disadvantaged families and individuals has to be prioritized together with the affected population who suffered from the Typhoon Yolanda.

a) Strength and secure access to quality health services

Priority Projects/ Programs	Organization/ Agency
Mobilize the government budget	DOH, CHO, City Hospitals and NGOs & INGOs, LGU Chairperson on Committee on Health (Member of the Legislative Body)
Linkage to NGOs and INGOs and other stakeholders	
Purchase of needed modern equipment	
Modernize the hospitals and birthing health facilities	
Implementation of Magna Carta Law on health personnel	
Implementation of the Staffing Pattern based on the DOH Licensing Department	
Hiring personnel and filling up of vacant positions and creation of new positions	
Establish more effective procurement system	
Efficient procurement of medicines and other medical supplies and equipment	
Set up of a Centralized Drug Management System	

b) Strict enforcement of the sanitation code

Priority Projects/ Programs	Organization/ Agency
Construction, connections to local pipe lines	LGU, CHO, City Engineer, City General Services
Installation of Jetmatic pumps and deep wells	
Establish local rationing of water	
Conduct health education (IEC) activity to safe water access	

c) Adopt the National Reproductive Health Law

Priority Projects/ Programs	Organization/ Agency
Integration of Reproductive Health on the DepEd curriculum	CHO, City Population Office, City Nutrition Office, LGU
IEC activity on Adolescent Fertility Awareness/ Life at the Crossroads	
Establishment of Youth Center	
Establishment of mobile ARH (Adolescent Reproductive Health) caravan	
Integration of ARH services in all health facilities	
Implementation of comprehensive MNCHN program of concern agencies	
Proper mobilization of Community Health Teams	

d) Standardization of Guidelines and Policies from the national and INGOs on the support and delivery of health services

Priority Projects/ Programs	Organization/ Agency
Develop and document the standard	CHO, LGU
Orientation on the concerned agencies on the standardized policy guidelines	

e) Safer location for public cemetery

Priority Projects/ Programs	Organization/ Agency
Closure and transfer of cemetery	CHO, LGU
Identify and develop other site free from hazards	
Increase awareness on cremation	

Education:

Tacloban City, in collaboration with DEPED, has developed the following policy, programs and projects for the revised CLUP in order to tackle the unsafe and inadequate educational environment, lack of knowledge on DRRM and CCA among teachers and students, and increasing risk of school drop-outs:

a) Build a child-friendly, gender-sensitive, safe and motivating educational environment for school children and teachers

Priority Projects/ Programs	Organization/ Agency
Repair/rehabilitate damaged classrooms and school buildings	DEPED, DPWH, LGU, INGOs, NGOs
Construct classrooms, school buildings and Water Sanitation and Hygiene(WASH) facilities	
Employ structural mitigation for school buildings	
Improve accessibility for PWD and senior citizens (as evacuation centers)	
Elementary and secondary education: Strengthen DRRM in education through the subject integration research (integration of DRRM in various subjects), boy scouts and girl scouts, Pupils and Students Organizations, and journalism programs	DEPED, LGU, INGOs, NGOs
Tertiary education: Revise school curriculum to integrate DRRM and CCA	SUC, CHED, LGU
Provide financial assistance to non-4Ps recipient families and additional financial assistance to 4Ps recipients	DEPED, LGU, DSWD, CSWD, INGOs, NGOs
Enhance Alternative Learning System (ALS) for out-of-school youth	
Implement the school feeding program	
Provide psychosocial support to teachers and students	
Enhance Special Education (SPED) (for children with disabilities) training for teachers	
Provide textbooks, learning materials, ICT equipment and school furniture	

Social Welfare:

In order to restore its advanced social welfare services as a regional hub, Tacloban City shall incorporate the following policies, programs and projects in the sector of social welfare for the revised CLUP:

a) Build safer and more appropriate spaces for social services for the vulnerable population /Enforce national laws and ordinances regarding the accessibility of facilities and buildings for PWD senior citizens

Priority Projects/ Programs	Organization/ Agency
Construct the CICL holding center, PWD Affairs Office, permanent Child-friendly Spaces (CFS) and Women-friendly Spaces, mobile CFS and an additional Day Center for Senior Citizens in a more accessible location	LGU
Rehabilitate OSCA, CSWDO (including a counseling space for VAWC/families/couples), Daycare Centers and the existing Day Center for Senior Citizens	
Provide a water system for SDCC and Women and Children's Shelter	LGU, CGSO, CEO
Rehabilitate ICT Training Center facilities and equipment	
Strengthen capacity of vulnerable population on DRRM through Barangay Councils, volunteers and Senior Citizens Associations	CSWDO, CDRRMO, Community Volunteers, Barangay Fire Protection, Barangay Councils, Senior Citizens Associations

b) Strengthen the social welfare system for the vulnerable population

Priority Projects/ Programs	Organization/ Agency
Strengthen multi-sectoral referral mechanisms for GBV, CICL and trafficking including: <ul style="list-style-type: none"> ✓ Reactivate Barangay Council for the Protection of Children(BCPC) and Violence Against Women and Children (VAWC) Desks at Barangay level ✓ Strengthen networking and linkages at city level among LCPC, CIACAT, GAD, City Peace and Order, etc. ✓ Procure vehicles for transportation of clients 	CSWDO, DILG, Barangay Councils, DSWD, Philippine National Police, DEPED, EVRMC, Regional Trial Court, City Health Office, POPCOM, DSWD, LGU

Institutionalize city-level psychosocial support for families, communities and target individuals	CSWDO, City Health Office, City Hospital, EVRMC
Increase the number of social workers and support staff at CSWDO	LGU, SP (Legislative Branch)
Intensify skills training for vulnerable women including GBV survivors	Comprehensive Livelihood and Entrepreneurial Program (CLEP), LGU, TESDA for women/children/youth
Intensify the UNLAD Kabataan Program for OSY and in-school needy youth (e.g. leadership training, skills training, etc.)	CSWDO, DSWD

c) Restore the lives of the displaced people

Priority Projects/ Programs	Organization/ Agency
Provide temporary and permanent shelters	LGU, City Housing, CSWD
Provide alternative livelihood programs including training and capital assistance to displaced people	CLEP, CSWD, TESDA, DSWD NGOs, INGOs

Solid Waste Management:

The 10-years' SWM Plan constitutes fundamentally sectoral policies and strategies of SWM, and assume an important role also in formulating RRP, DRRMP, CLUP and annual budget. Accordingly, the workshop concluded that to update the plan is a priority subject among all.

Priority Projects/ Programs	Organization/ Agency
To update and review the 10 years' SWM Plan (2015-2016)	CENRO
To develop a new landfill site (Conceptualization on going, Construction in 2015)	DENR, CENRO
To promote recycling system (Promotion starts in 2015)	CENRO, Barangay
To enhance revenue collection (As soon as possible)	CMO, SP, CRO, CMO, CENRO

3) Recovery of Regional Economy and Promotion of Industries

Basic Strategies for the Overall Economy Sector:

Resilience of the economic sector is heightened by reinforcing strength of economy itself in principle and by fostering internal and external human/ economic linkages.

The enhancement of the economy or achievement of the vision is pursued by the following 7 basic strategies, which are derived mainly from results and discussions of the 2nd workshop session for development opportunities/ measures enumeration:

- Enhancement of regional distribution center functions such as wholesale trade center for incoming commodities from outside the Region including fishes,
- Establishment of regional market center functions both for collection and distribution of local commodity products,
- Materialization of tourism gateway and human resource development center functions,
- Promotion of processing center functions for local primary products such as establishment of AAA slaughter house and associating meat manufacturing businesses utilizing opportunities

of the Eastern Visayas Regional Growth Center (EVRGC) Economic Zone,

- Enhancement primary sector’s productivity and related industries for livelihood improvement, and
- Promotion of ICT industries for new economic development opportunities in association with enhancement of human resource development center functions by entrepreneur incentives and promotion supports, and
- Promotion of linkages and synergies of inter and intro sub-sectoral
- Economic activities such as development, marketing and sales of local products (Six ternary Industry Activities).

The vision for the economy sector enhancement is primarily pursued by taking advantage of vested historic socio-economic regional center status supported by accommodation of main regional gateways of the airport and the seaport.

The above mentioned regional economic center functions are going to be augmented by promotion of linkages among primary (agriculture and fishery), secondary (Industries including processing, manufacturing, chemical, heavy, light), and tertiary (services) activities (Six ternary Industry Activities).

Agriculture:

Basic Strategies for Agriculture:

- Reactivate livestock raising
- Integrated farming of fruit trees, vegetables and small ruminants with coconut
- Improvement of vegetable production through organic farming
- More income for rice farmers
- Establishment of a new trading post for the federation of Tacloban farmers
- Agro-forestry

Priority Projects/ Programs	Organization/ Agency
Mushroom Cultivation Project: Oyster mushroom (<i>Pleurotus florida</i>) ✓ Objectives: To generate additional income from rice straw and utilize the waste of mushroom bed as compost ✓ Target beneficiaries: Women’s’ group, people staying in temporary shelter ✓ Expected LGU response: Maintain laboratory and spore, and guidance on cultivation technique and marketing for group members ✓ Target output: Cultivation and sales of mushroom, and utilization of rice straw to fertilize farmlands ✓ Justification: Wise use of rice straw to produce more income and to fertile soil stop burning straw. Mushroom is high value commodity. Even shelter people who do not own land can cultivate ✓ Task of beneficiaries: Work out in laboratory, and cultivation of mushroom	To be discussed

Fishery:

Basic strategies to achieve the goals for fishery are as follows:

- Decrease fishing pressure in the city waters through shift from capture fisheries to aquaculture.
- Provide assistance on fish farm technology to affected fisherfolk.
- Provide alternative / additional sources of income through capacity/skills building for raising, handling, processing and marketing of fish products including high value species.

The workshop participants agreed that an appropriate fisheries policy should be “Shift from Capture Fishery to Aquaculture”. Aquaculture in Tacloban City can be characterized as “Urban Aquaculture (Fish Farming in the City)”. Urban aquaculture holds an advantage of being located close to urban markets. Fisherfolks are able to deliver fresh products in a timely fashion to consumers. The disadvantage is that contamination of surface water resources with domestic and industrial pollution may deteriorate the quality of fish being cultured.

Priority Projects/ Programs	Organization/ Agency
Full Cycle Aquaculture Industry	To be discussed

Tacloban City provided the following road map.

Typhoon Yolanda affected people have begun to relocate from coastal areas to northern barangays.

↓

Urgent need of assistance to recover their livelihoods.

↓

Milkfish production is an attractive solution to the issue of decreasing fish catch.

↓

Empower the affected fisherfolks by providing livelihood through fisheries related projects such as Full Cycle Aquaculture Industry that is from fish production (hatchery), fish processing, value-adding to marketing.

Tourism:

The goal for promotion of tourism is to formulate a tourist gateway and human resource supply center for the Region 8 tourism. The goal is pursued by the following 6 basic strategies:

- Networking with the major tourist destination LGUs in the Region for tourism data collections,
- Compilation of regional tourism information and data aiming tourists’ convenience for their travels for dissemination through distribution at the airport and tourism points like information centers and major accommodation facilities, and we-site for tourist promotion,
- Tour route packaging for maximizing regional tourist experiences with competitive tourist destinations such as Basey for concise tours from Tacloban,
- Investor marketing for accommodation facilities and amenities,

- Promotion of tourism sector training activities for human resource development, and
- Approach for upgrading of the airport.

The basic concept of the strategies is “pay effort first for enhancing regional appeals to tourists, and then attract investors and operators to Tacloban with the enhanced appealing points followed by the airport upgrading”.

(7) Hazard Maps

1) Storm Surge

The storm surge hazard map as shown below is based on simulation analysis results of the typhoon Yolanda.

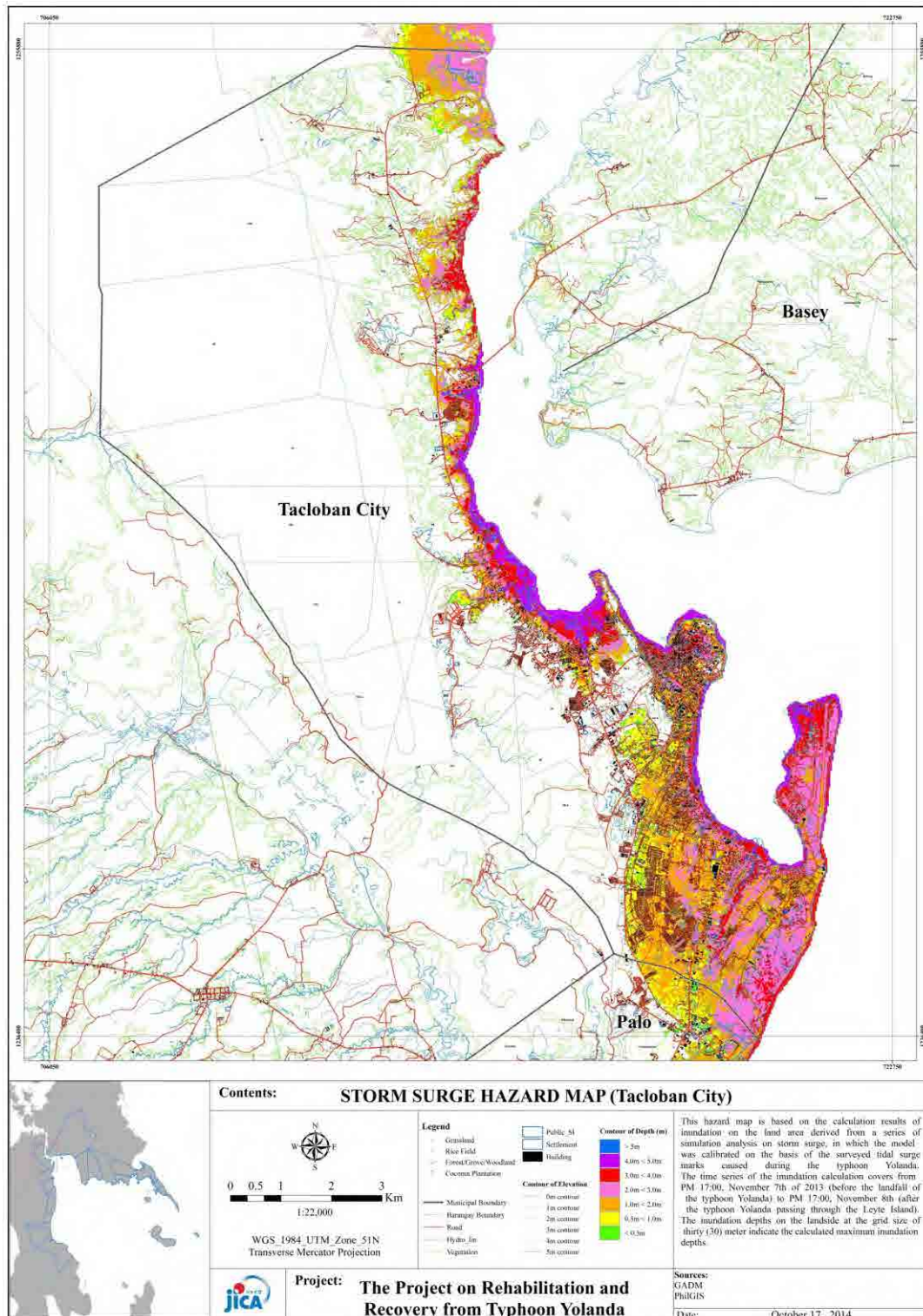


Figure 2.2-1 STORM SURGE HAZARD MAP

2) Flood

The map below shows flood hazard map on the basis of the past flood event in March 2011, which is the most severe damage in recent years. It was confirmed that the inundation area and the inundation depth had been smaller and lower respectively compared with the damage of storm surge caused by Typhoon Yolanda.

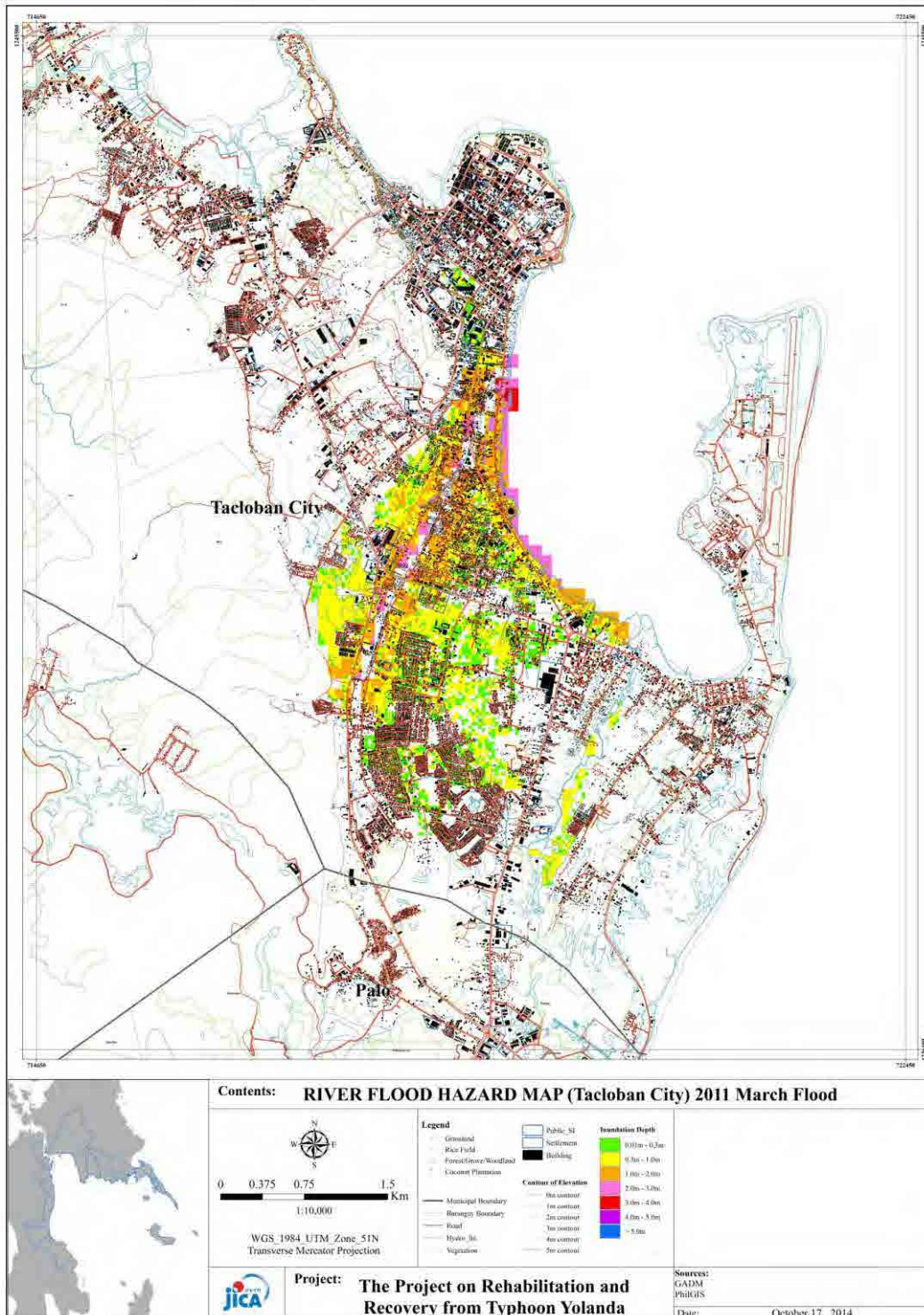


Figure 2.2-2 RIVER FLOOD HAZARD MAP (2011 March Flood)

3) Tsunami

It was confirmed that the inundation area and the inundation depth had been smaller and lower, respectively compared with the damage of storm surge caused by Typhoon Yolanda.

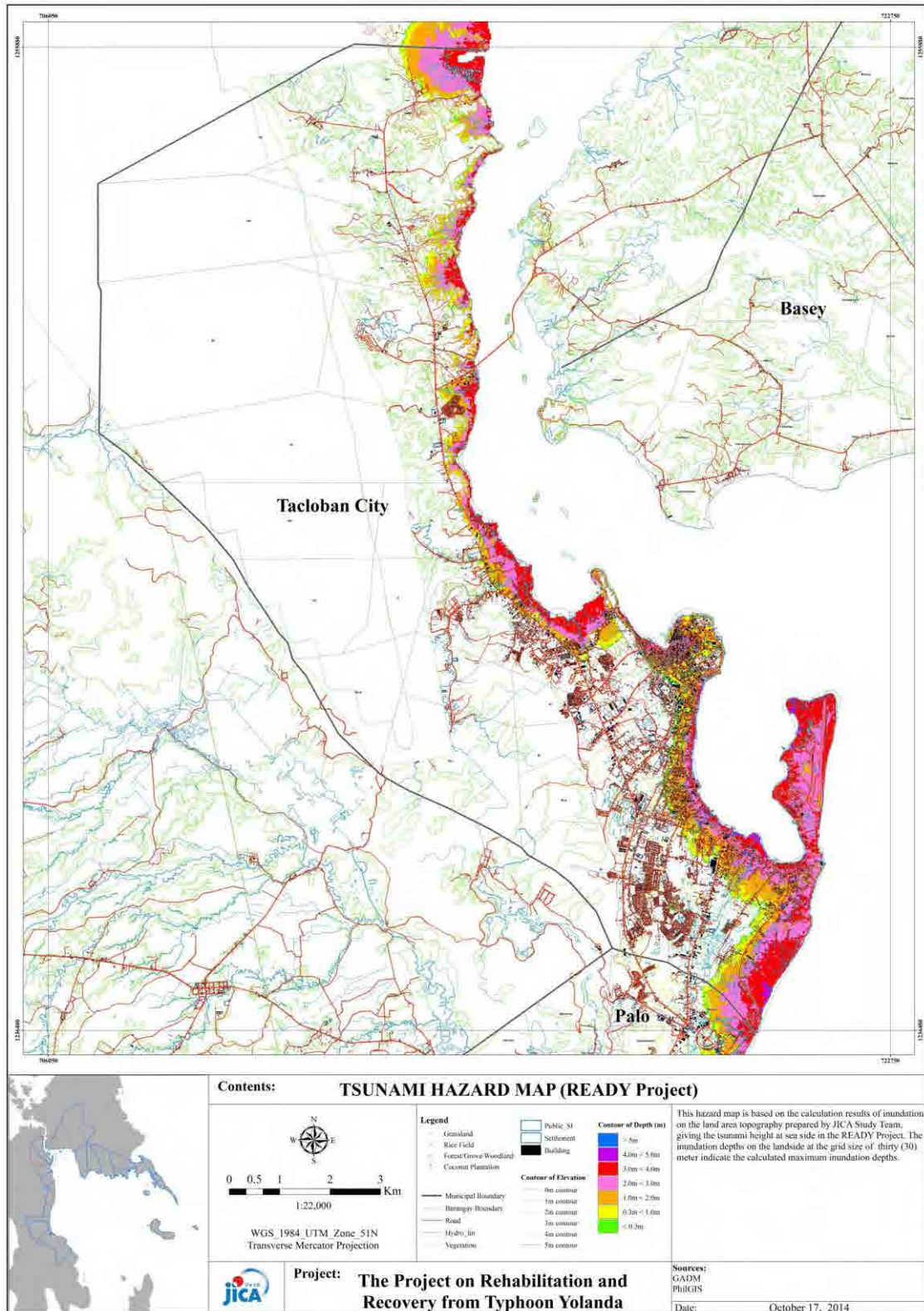


Figure 2.2-3 TSUNAMI HAZARD MAP

(8) Recovery and Reconstruction Map (Structural Measures/ Land Use)

- 1) Plan view of the proposed embankment road alignment along east coast of Leyte Island.
 Standard cross-section of the proposed embankment road

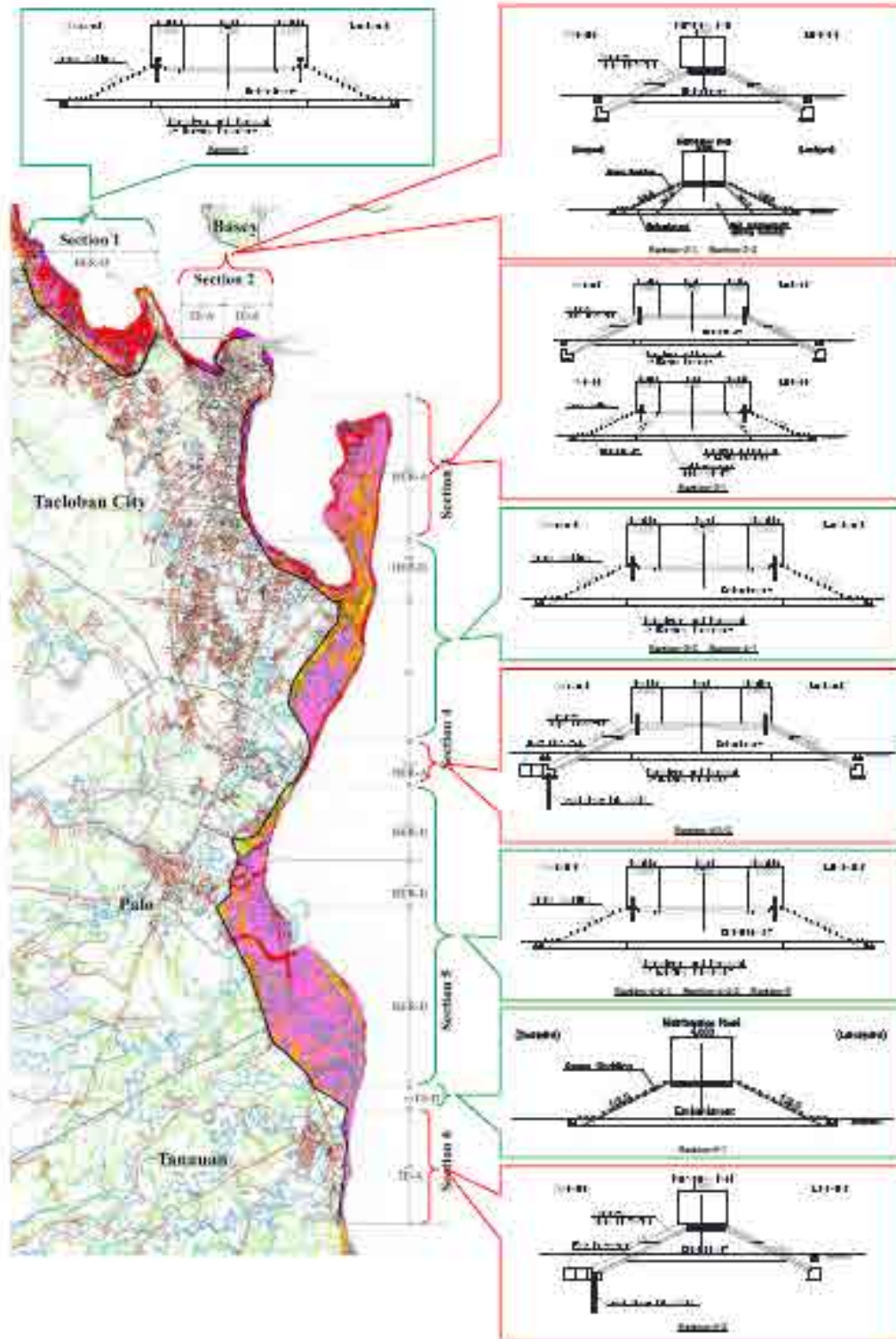


Figure 2.2-4 Plan view of the proposed embankment road alignment along east coast of Leyte Island. Standard cross-section of the proposed embankment road

2) Top Elevation of Heightened Road and Tidal Embankment

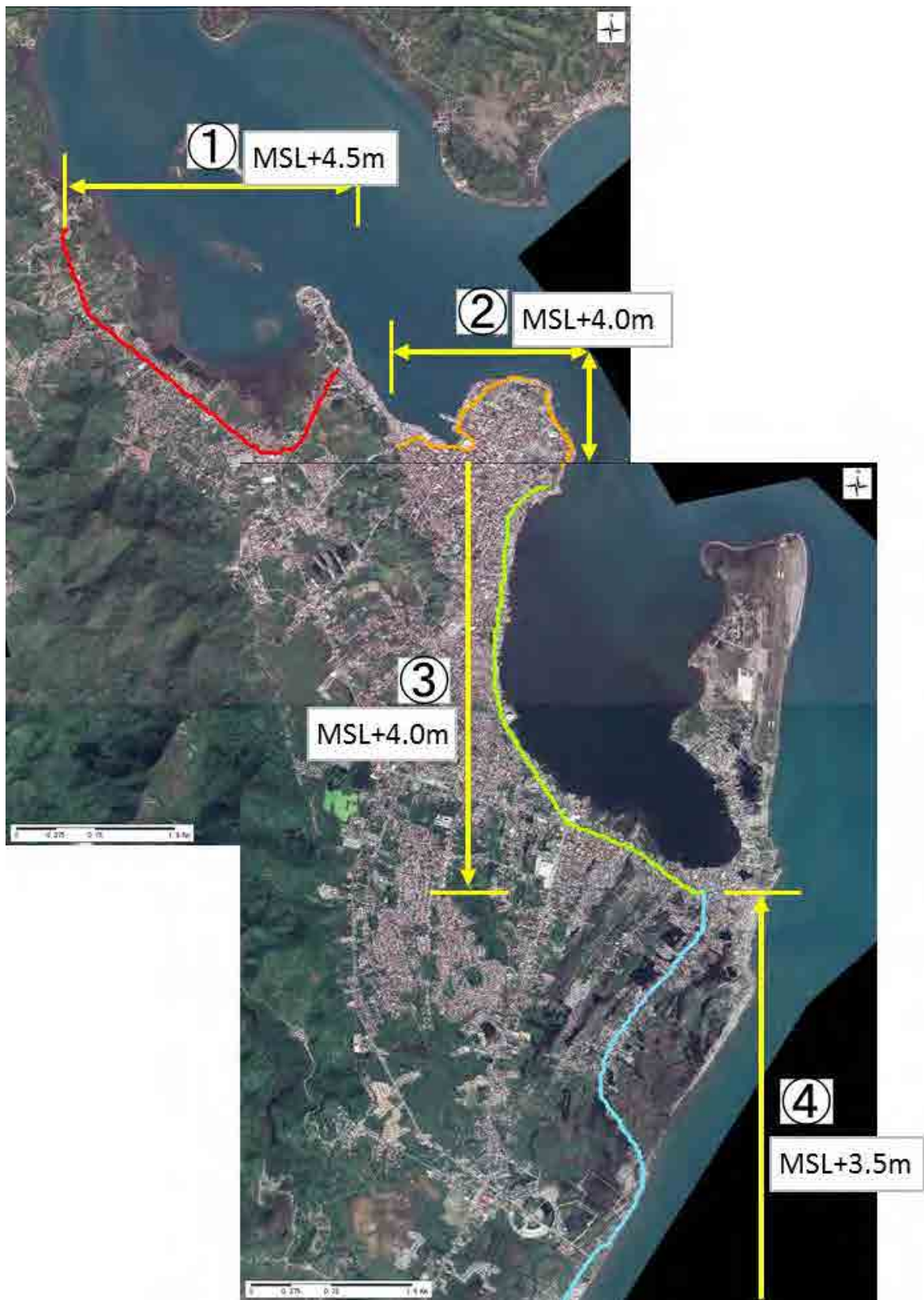


Figure 2.2-5 Top Elevation of Heightened Road and Tidal Embankment

3) Alternatives of the proposed embankment road overlaid on the land use map of CLUP

Possibility of construction of embankment road was examined during the past workshops as a reviewing process of CLUP. Then, two alternatives were proposed as shown in bold red lines in the map.

Based on hazard map, severe damage is expected in the area, which is located south of the airport (Lower-right on the map). Then, two alternatives, consisting of “Option 1” for raising up the level of the existing national road to be embankment road and “Option 2” for construction of new embankment road in order to protect the more wider area, were proposed.

Finally, final selection of the alternatives may have been agreed through the discussions during and after the workshops. “Option 2”, protecting mainly residential area, is selected for the area in the middle of the map, while “Option 1”, aiming at effective land use, is selected for the area in lower-right on the map.

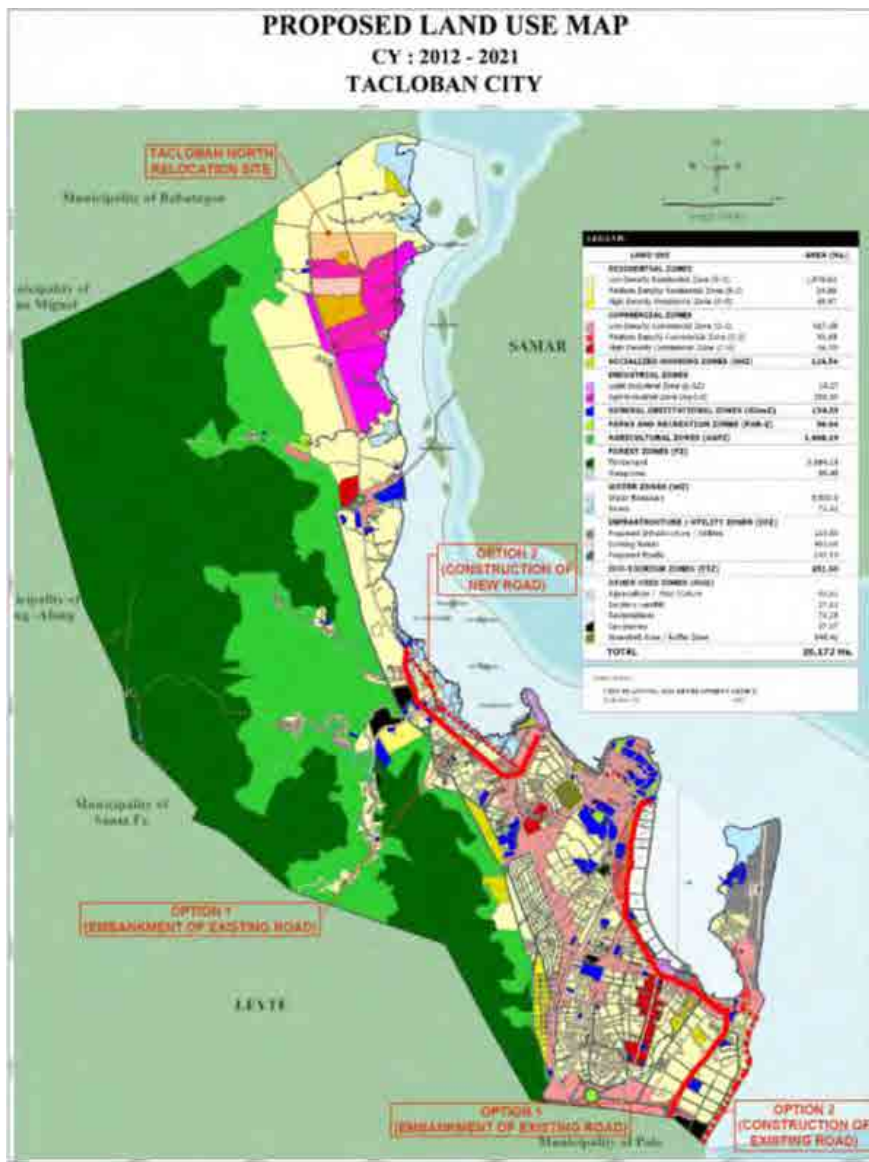


Figure 2.2-6 Alternatives of the proposed embankment road overlaid on the land use map of CLUP

4) Draft revision of the land use map of CLUP

A revision of the land use map of CLUP is considered, considering the proposed embankment roads mentioned above, as described below.

Eastern side of the proposed embankment road needs to be “PARKS AND RECREATION ZONES (Light Green)” or “FOREST ZONES Mangroves”, depending on regional situation.

Relocation is planned from the southern area of the airport, where the expected damage is very serious in the hazard map, to the north relocation site as shown in the map. It is recommended that the area should be “No Dwelling Zone” after relocation since the area is the highest hazard area of storm surge disaster even though effective land use after the relocation is promoted.

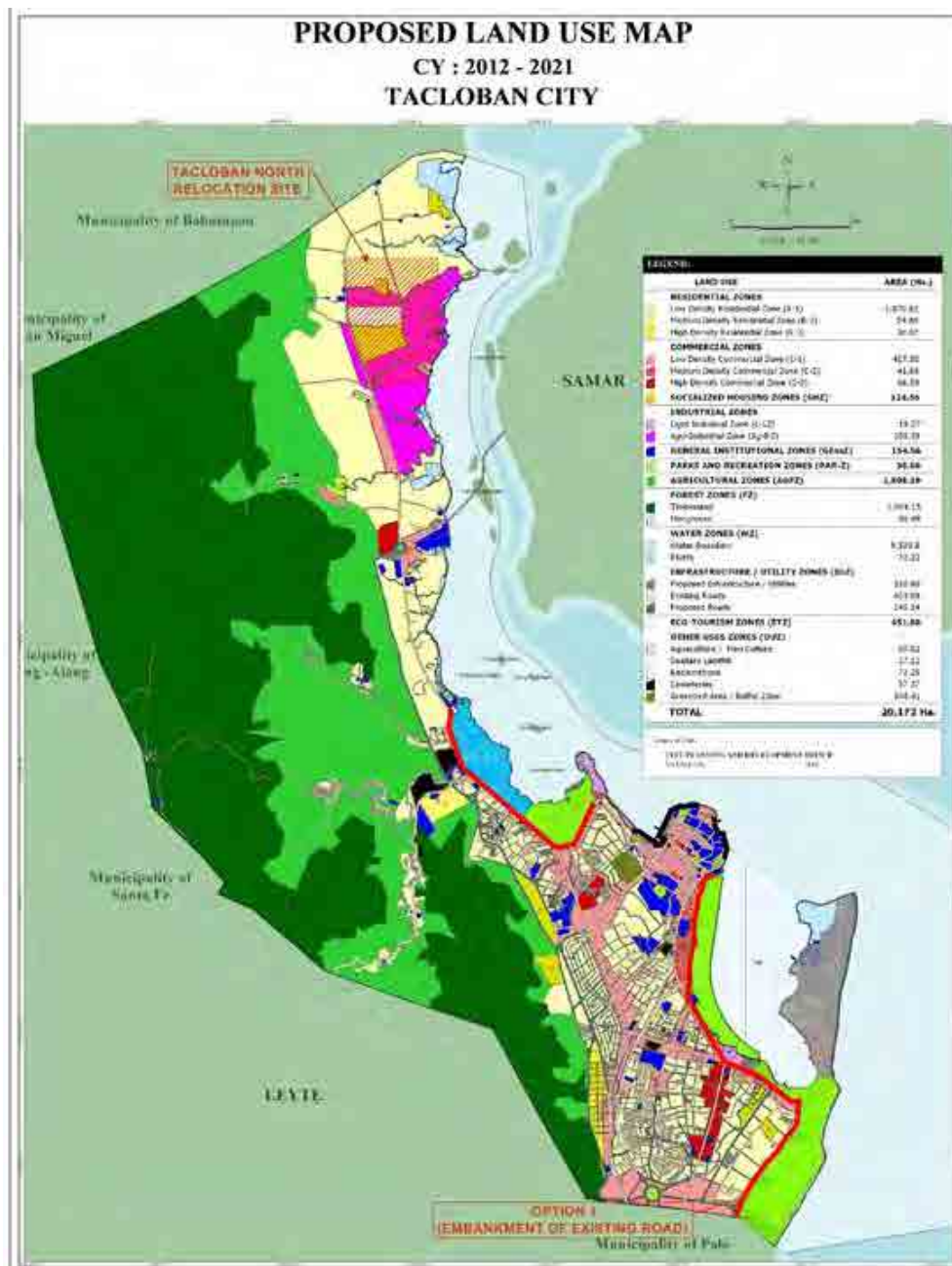


Figure 2.2-7 Draft revision of the land use map of CLUP

5) Usability of existing evacuation shelters in Tacloban city

The map shows investigation results of usability of existing evacuation shelters in Tacloban city. Currently, evacuation plan is in preparation, examining capacities of existing evacuation shelters and expected number of evacuee from surrounding Barangays.

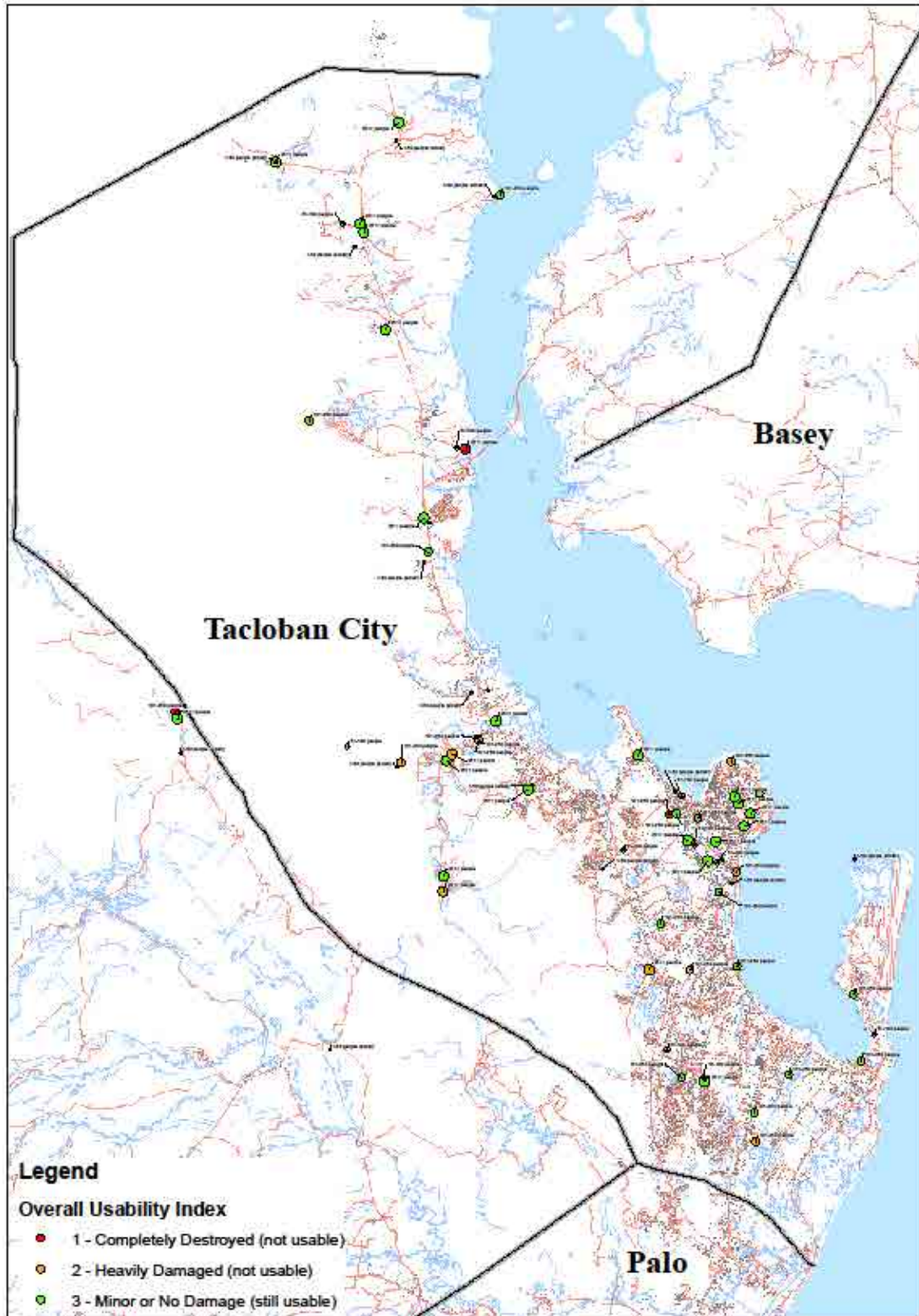



Figure 2.2-8 Usability of existing evacuation shelters in Tacloban city

2.2.2 Palo

(1) City Profile

Province	Leyte															
Level of LGU ¹⁾	3rd Class Municipality (Substantially functioning as an administrative center of Region 8)															
Area ¹⁾	80.2 km ²															
Barangay ¹⁾	33 Barangays (8 Urban, 25 Rural)															
Annual Budget (revenue) ⁴⁾	PHP 126.9 Million (estimate for 2013)															
Population ¹⁾	67,966 (2014 Municipal Information)															
Safer Cities	<p>Major Land Use ^{2), 3)}</p> <p>Agricultural land: Around 69.8km² (87.02% of the total land area)</p> <ul style="list-style-type: none"> • Coconut: Around 21.7km² • Rice: 38.3km² <p>Forest areas: Around 11.7km²</p> <p>Built up areas: Around 2.7 km²</p> <p>Number of evacuation centers (ECs) and the capacities</p> <ul style="list-style-type: none"> • Number of ECs and the capacities were not identified at the time of Yolanda. <p>Water Supply:</p> <p>Water supply system, are followed according to the level of urbanization: Level I- is with point source in rural and under populated area. Level II- is with communal faucet system or stand post in rural area Level III- is with waterworks system daily supply of more than 100 liters per person in urban area.</p> <p>Leyte Metropolitan Water District (LMWD), is servicing water for Tacloban, Palo, Tanauan, Tolosa and Santa Fe. The main source is located 32km from Tacloban. The capacity of water is sufficient for future demand.</p> <p>Electricity:</p> <p>Leyte Electric Cooperative (LEYECO) II, is the electric cooperative that supplies power for the northeastern part of Leyte Island around Tacloban City, and has 134 employees (as of Dec. 31, 2012). The peak demand in the coverage area is approximately 40 MW (as of Dec. 31, 2012). LEYECO II gets power from National Grid Corporation of Philippines (NGCP) and Tongonan geothermal plant and the power will be enough for several years. LEYECO II has three power source substations for power supply (Total 50 MVA).</p>															
Social Welfare ^{3), 5)}	<p>Medical Health Facilities:</p> <table border="1"> <thead> <tr> <th colspan="2">Hospitals</th> <th rowspan="2">Health Centers</th> <th rowspan="2">Barangay Health Stations</th> <th rowspan="2">Maternity House</th> </tr> <tr> <th>Government</th> <th>Private</th> </tr> </thead> <tbody> <tr> <td>1</td> <td>0</td> <td>1</td> <td>7</td> <td>1</td> </tr> </tbody> </table>				Hospitals		Health Centers	Barangay Health Stations	Maternity House	Government	Private	1	0	1	7	1
Hospitals		Health Centers	Barangay Health Stations	Maternity House												
Government	Private															
1	0	1	7	1												

	<p>Health Personnel at the Municipal Health Offices (January 2015):</p> <table border="1"> <thead> <tr> <th>Doctors</th> <th>Nurses</th> <th>Midwives</th> <th>Sanitary Inspectors</th> </tr> </thead> <tbody> <tr> <td>0</td> <td>1</td> <td>9</td> <td>2</td> </tr> </tbody> </table> <ul style="list-style-type: none"> The number of BHW and BNS are respectively 236 and 44. 	Doctors	Nurses	Midwives	Sanitary Inspectors	0	1	9	2	
	Doctors	Nurses	Midwives	Sanitary Inspectors						
	0	1	9	2						
	<p>Educational Facilities (2012-2013):</p> <table border="1"> <thead> <tr> <th>Type of School</th> <th>Number of Schools</th> </tr> </thead> <tbody> <tr> <td>Primary/kindergarten</td> <td>8</td> </tr> <tr> <td>Elementary schools</td> <td>35</td> </tr> <tr> <td>Secondary schools</td> <td>8</td> </tr> <tr> <td>Tertiary schools</td> <td>5</td> </tr> </tbody> </table> <ul style="list-style-type: none"> A total of 543 teachers and 20,793 enrollees 	Type of School	Number of Schools	Primary/kindergarten	8	Elementary schools	35	Secondary schools	8	Tertiary schools
Type of School	Number of Schools									
Primary/kindergarten	8									
Elementary schools	35									
Secondary schools	8									
Tertiary schools	5									
<p>Solid waste management:</p> <ul style="list-style-type: none"> Working staff: 31 persons (Job order basis) Estimated Generation of Waste in LGU: 19 ton/day SWM Service Coverage Ratio is 70% of population. There are 3 collection vehicles. 										
<p>Economy and Industry^{2), 3), 6)}</p>	<p>GRP: PHP 126,922,781.71 million</p> <p>Agriculture: The scale is NA. Coconut: PHP 15.2 million (Population: 912) Rice: PHP16.7 million (Population: 1,841) Livestock: The scale is NA. (Population: 2,257)</p> <ul style="list-style-type: none"> Other crops are root crops, corn and vegetables. There are several agricultural post-harvest facilities such as 15 rice mills, 6 buying stations and 6 warehouses with buying stations. There are irrigation facilities such as shallow tube well, small farm reservoir and diversion dam Municipal Agriculture Office has been undertaking various Agricultural Programs and Projects in different sectors, viz: rice & corn, high valued crops and livestock. <p>Fishery: The scale is NA. (188 registered fisher folk)</p> <ul style="list-style-type: none"> Inland fish ponds is in 26,950m² by 54 fish pond operators There is (1) Fishery Law Enforcement Team (FLET) called Bantay Dagat. Fisherfolk in coastal barangays have organized themselves into fishermen association (presently, two associations are registered with DOLE). Tilapia is raised in inland fishponds while milkfish/tilapia is cultured in shallow brackish water fish pens and fishponds. <p>Commercial service: The scale is NA.</p> <p>Tourism:</p> <ul style="list-style-type: none"> Various tourism attractions: the McArthur Landing Park, Christ Crucifixion Reenactment and Metropolitan Cathedral <p>Others:</p> <ul style="list-style-type: none"> IT Park established has been functioning as an incubator for industrial activities. 									

Source

- 1) Palo Municipality, NO DWELLING ZONES/NO BUILD ZONES: Plans And Relocations, Power Point file provided by MPDO
- 2) Comprehensive Land Use Plan of Palo (2001-2010)
- 3) Palo Municipality RRP
- 4) Municipal Budget Office, Palo
- 5) Municipal Health Office, Palo
- 6) Municipal Agriculture Office, Palo based on 2013 data

(2) Damage caused by Typhoon Yolanda

Building Safer Cities	Physical/ Human Damage	
	Inundated Area by Typhoon Yolanda ¹⁾	13 km ²
	Number of Affected People ²⁾	67,966 people (100 % of total population)
	Deceased ³⁾	1,041
	Injured ³⁾	6,800
	Missing ³⁾	212
	Number of Houses totally damaged	11,607
	Number of Houses partially damaged	3,741
	Infrastructure, Agriculture and Business and Investments ³⁾	763,642,700 Million PHP
	Losses to municipal properties ²⁾	323 Million PHP
Source:		
1) JICA Study Team, Storm Surge Hazard Map		
2) Palo Municipality, NO DWELLING ZONES/NO BUILD ZONES: Plans And Relocations, Power Point file provided by MPDO		
3) Palo Presentation at JICA Seminar November 17, 2014s		
<ul style="list-style-type: none"> • Buildings damaged by the typhoon were seen in all parts of the Municipality. • Severely damaged buildings were also seen in considerable numbers in the inland areas. • The rate of totally damaged buildings against those partially damaged tended to increase in the area from about 4km from the coast line. • Out of which, buildings within about 1km from the shoreline was almost totally wiped out. • The Municipal Hall was also partially damaged with damage in its second floor roofing, roof frames, doors, windows and electrical systems. 		
<u>Water Supply:</u>		
Regarding water supply system, the Damage amount on LMWD (Tacloban, Palo, Tanauan, Tolosa and Santa Fe) was 17.16 million pesos (source: LWUA). The Typical Damage Situation is damage of water supply pipes and water meter, disconnection of commercial power lines and damage of the pump house and equipment. Within these damages, design and construction aspects are included such as quality of pipes and excavated trench.		
<u>Electricity:</u>		
The electricity company which covering Tacloban City, LEYECO II, had 660 million PHP of damage. The power interruption occurred in the coverage area, and the whole area of Tacloban and Palo experienced total blackout. The transformer in one of the three substations was damaged by strong wind and flying objects, and others have been kept in good condition.		

Social Welfare	Health:			
		Totally damaged	Partially damaged	Total
	Provincial Hospital	-	1	1
	Main Health Center	1	-	1
	Barangay Health Station	1	6	7
	Maternity House	-	1	1
	Social Welfare:			
		Totally damaged	Partially damaged	Total
	Daycare Center	5	33	38
	Source: Palo MSWD			
<ul style="list-style-type: none"> Damaged regional and provincial facilities including: Regional Reception and Study Center for Children, Regional Home for Girls, Regional Heaven for Women, and Provincial Day Center for Senior Citizens. 				
Education (Damaged Classrooms):				
	Totally damaged	Partially damaged	Total	
Primary schools	158	171	329	
Secondary schools	14	53	67	
Tertiary schools (Building)	-	1	1	
Source: ¹⁾ DEPED Palo District 1 and ; ²⁾ UNOCHA consolidated School level data damages (January 7, 2014)				
Solid Waste Management:				
<ul style="list-style-type: none"> A large amount of debris generated by the Yolanda: 30,000-33,000 m³ MRFs of 18 barangays were collapsed. LGU incurred ad-hoc expenditures Incurred for debris collection and disposal. 				
Economy and Industry	Agriculture:			
	<ul style="list-style-type: none"> 217,088 (96%) of coconut trees were affected by Typhoon Yolanda. 			
	Crop	Farmers Affected (No)	Total Area Affected (ha)	Production Loss (M.T.)
	Rice	1522	1522	1,776.2
	Cost of Production (PHP)			
	11,415,000			
	Source: Department of Agriculture, Eastern Visayas Typhoon Yolanda Damage Report (As of Feb, 2014)			
	<ul style="list-style-type: none"> The total amount for recovery and reconstruction of the agricultural sector is estimated at PHP 66,919,395. 			
	Livestock:			
	Sector	Estimated amount of Damage (PHP '000)		
Carabao / Cattle	3,630			
Swine	6,139			
Poultry (commercial)	6,000			
Poultry (backyard chicken, duck, turkey, pigeon)	1,302			
Goat / Sheep	164			
Total	17,235			
Source: Recovery and Reconstruction Plan, Palo				

Fishery:		
Sector	Estimated amount of Damage (PHP '000)	
Fishpen (structure & stocks)	5,735	
Fishpond (backyard)	100	
Fishing Boats	motorized	5,590
	non-motorized	2,975
Gill nets	3,443	
Total	17,843	

Source: Recovery and Reconstruction Plan of Palo

- There is a total of 220 fisher folk that were affected.
- The total amount for recovery and reconstruction of the over-all damage in agriculture is estimated at PHP 437,164,600.

(3) Progress in Recovery and Reconstruction

1) Progress in Building Safer Cities

A post-disaster redevelopment plan for the city has been proposed until July 2014 from a private architect group and still remains no progress since then. On the other hand, another large-scaled development plan, proposed by the province, has been progressing towards the realization in Palo city. Then, it may result two big urban developments (The one is the existing Poblacion of the city, the other will be developed by the province.) in the city.

DRRM:

The planning process for non-structural countermeasures has been progressed such as evacuation plan, *etc.* On the other hand, effective structural countermeasures protecting from the tidal surge disaster have yet to be considered. Only the damaged facilities (e.g. seawall, etc.) were repaired to the former state.

2) Progress in Recovery of People's Daily Lives

Health:

All health facilities are currently functioning, including the Maternity House and the Barangay Health Station with birthing facility, but some of them are not fully functioning as they still need repairing. Especially, the Main Health Center is most required to be rehabilitated for functioning fully as soon as possible. It is currently operating at the temporal space (in Gymnasium). (As of the end of September 2014).

Education:

In both Palo Districts 1 and 2, 75% of damaged elementary schools have already been restored or are going through restoration. All 5 high schools have also received funding and are being restored.

Social Welfare:

So far, all totally damaged Daycare Centers (5) have been restored and 22 partially damaged Day

Care Centers have secured funding and/or have been restored, they were supported by Save the Children, WDRPRO, Child Fund, etc. Additionally, the municipal OSCA Office was repaired with the support of the Korean Government.

Solid Waste Management:

The debris was totally collected and disposed of with the assistance of international organizations.

The disposal operation is handled with the assistance of UNDP heavy equipment.

3) Progress in Recovery of Regional Economy and Promotion of Industries

Agriculture:

- DISTRIBUTION OF FREE CERTIFIED RICE SEED AND FERTILIZER BY FAO THROUGH DA RO8
Beneficiaries: 18 Barangays and 1 Farmer's Association
Total number distributed:
Certified Seeds: 1,970 Cavans
Fertilizer (Urea): 2,030 Bags
No. Of farmer recipient: 1,677
Total area: 2,738 ha
- DISTRIBUTION OF PINAKBET SEEDS, MUNG BEANS AND COMPLETE FERTILIZER BY PCA
Beneficiaries: 17 Barangays
Total number distributed:
Pinakbet Seeds: 912 Bags
Mung Beans: 445 Bags
Fertilizer (Complete): 912 Bags
No. Of farmer recipient: 912

Fishery:

According to the Municipal Agriculture Officer and the Agricultural Technologist for Fisheries, some recent progress in fisheries rehabilitation are as follows:

- Fishing activities have been severely affected by Yolanda. Emergency assistance to victims includes provision of *banca* by BFAR (152), Ministries Without Borders (27), WeDpro (2), Magsaysay Lines (19), Negros Volunteer for Change (11), OXFAM (7), Yellow Boat (20) and Operation Blessing (5) (as of May 2014).
- NGOs provided fishing nets, hook and lines.
- Barangay Baras Fishermen Association attended training on hook & line fishing conducted by RFTC, and each member was provided materials for hook & line.

- OXFAM gave five mother boats (30-40 feet) to five fishermen's associations.

(4) Issues and Problems in Recovery and Reconstruction

1) Building Safer Cities

DRRM:

- Revision of existing land use based on the latest hazard maps
- Serious insufficiency of basic infrastructure
- Insufficiency of plan for structural countermeasures
- Frequent flood disasters
- The CLUP needs to be consistent with the plan by the province and integrate the proposed redevelopment plan into it.
- Relocation from the no-dwelling zones and hazardous areas, construction of temporary and permanent shelters in safer areas and provision of public services, basic infrastructure, and livelihood in the relocation sites
- Inadequate plan for evacuation shelters
- Insufficient plan for evacuation drill
- Insufficiency of knowledge and human resources for formulation of "Disaster prevention plan"
- Lack of viewpoints for development of emergency transportation roads
- Necessity of structure strengthening for public facilities and evacuation shelters

Water Supply

The main issues on water supply are

- Leakage from water pipes, stealing water or non-payment;
- Inadequate Water Treatment Facility;
- The Stand-by Power Source is not secured;
- Lack of durability of pipe and inadequate distribution system;
- Lack of covering depth of pipe;
- Exposure of water meter above the ground;
- Lack of water volume and water pressure.

Electricity

- Lack of vehicle such as boom trucks with bucket and digger, and one truck for pole carriage.

- Depletion of spare parts and potential trouble are concerning.
- Replacement of heavy equipment is highly expected.

2) Recovery of People's Daily Lives

Health:

- Main Health Center is required to be fully functional at new venue as soon as possible
- 2 Barangay Health Stations have no budget for repairing though the damage is very partial
- Poor management of data storage
- No mental health program for post disaster

Education:

a) Damaged and unsafe school buildings and classrooms:

- Reconstruction of damaged schools without application of uniformed structural standards and utilities (e.g. comfort rooms, hand washing facilities, electricity, etc.)
- Lack of school buildings as evacuation centers, particularly along the coastal line (school evacuation center only available in central Palo for the coastal communities)
- Schools in NBZ (e.g. Brgy. San Fernando)
- Lack of classrooms and teachers to accommodate additional students in communities around relocation sites (e.g. national high school)
- Lack of school furniture and learning materials

b) Risk of higher drop-out rates due to:

- Financial burden for displaced families with children (e.g. elementary school in Brgy. Pawing 1km away from bunkhouse site in Brgy. Candahug)
- Traumatized school teachers and children

c) Lack of DRRM capacity at schools and surrounding communities

- Limited school drills (for earthquakes and fire only)
- Lack of linkages between school preparedness and community preparedness
- Lack of development and implementation of evacuation plans at schools
- Lack of basic equipment for disaster preparedness
- Lack of updated DRRM training for teachers and students

Social Welfare:

a) Lack/absence of safe and functional social welfare facilities:

- Damaged Daycare Centers
- Absence of shelters for Violence Against Women and Children (VAWC) survivors

- Temporary Office for MSWD
 - Absence of an office for PWD to provide necessary recovery and reconstruction support
 - Lack of facilities and equipment for senior citizens
 - Partially damaged provincial and regional facilities
- b) **Insufficient social welfare services to respond to the increased needs of the vulnerable population after Yolanda:**
- Increased psychosocial needs
 - Recovery and reconstruction needs of PWD and senior citizens
 - Increasing risk of VAWC
 - Risk of increased school drop-out-rates among displaced children and youth

Solid Waste Management:

The following issues were raised and discussed in the workshop held on September 29, 2014.

- The sectoral plan of “10-years’ SWM Plan (draft)” terminated in 2010.
- Needs to convert the existing dumpsite to sanitary landfill
- Recycling and MRFs are not functioning.
- SWM cost is unclear.

3) **Recovery of Regional Economy and Promotion of Industries**

Most of recovery efforts relating to the economy have been focused on rehabilitation/ reconstruction/ recovery of the damaged facilities and activities. That affected seriously to recover ordinal business activities in the town proper. A lot of in-kind and financial assistances have been extended to the suffered people for relieving purpose, although some of them were not market oriented

In general, there have been limited considerations for expansion/ enhancement of the economy to encounter the expected economic shrinkage due to production value reduction by damaged coconut trees, which may last for a several years at least, in the study area.

The Municipality is going to accommodate the Leyte Provincial Government Office with associating estate development in its territory and resumption of NGAs regional offices construction is expected.

Agriculture:

- Mechanization for rice cultivation
- Labor force is insufficient at the busy farming period, especially for transplanting and harvesting.

- Insufficient budget to repair damaged irrigation facilities
- Lack of coco seedlings of advanced varieties for replanting
- Continual on-going damage by Rhino Beetle on survived coconut
- Limited livelihood for survived farmers
- Limited work opportunity for women / no chance to fulfill women's potential

Fishery:

At the workshop, the following issues and problems were dealt with:

- NGOs gave boats (*banca*) to fisherfolk without coordination with LGU, resulting to the same fisherfolk having 2 or 3 boats while other fisherfolk did not receive any.
- The number of fishermen and number of *banca* have increased.
- Fish habitat designated as the Palo Fish Sanctuary is in poor condition as it was heavily damaged by Typhoon Yolanda and soil erosion.
- No donors and NGOs provided support to fish pen operators.
- Mangrove rehabilitation has been slow.

(5) Vision/ Goals/ Objectives

Safe, Resilient and Prepared Regional Sub-Center with Strategic Land Transport Location based on Modernized Productive Primary Sector for Commerce and MICE Tourism with Advanced Economic Activities including Modernized MSMEs and Primary Sector, and Culture embracing Provincial Government Office and NGA Regional Office Complex and empowered citizenry in ecologically-balanced environment guided by responsible governance”.

(6) Recovery and Reconstruction Policies

1) Building Safer Cities

Basic Strategies for DRRM:

The following strategies will be adopted for DRRM in the Municipality of Palo

- Protection of city center by raising up level of the whole national road to be embankment road against tidal surge disaster from Tacloban to Tanauan as well as by construction of back water level
- Relocation is to be carried out from the seriously damaged areas by inundation along coastal areas on the basis of the latest tidal surge hazard map and the site will be artificial greenery of mangrove forest.
- Formulation of Binahan river improvement plan from a comprehensive point of view with the river rehabilitation plan of Tanauan City

- Formulation of the evacuation plan consistent with large-scale evacuation shelter to be constructed by the Province
- Appropriate allocation of evacuation shelters and formulation of the evacuation plan considering the distribution of the population at Barangay level

Structural countermeasures for Building Safer Cities:

Priority Projects/ Programs	Organization/ Agency
The levels of main roads will be raised up as embankment road *The detail is below.	DWPH
Constructions of back water levee at confluences with main rivers	DWPH

Target Area	Tacloban-Palo-Tanauan
Target Hazard	Storm Surge
Target Return Period	50 years return period (more frequent than Yolanda)
Structure Measure	Combination of Existing Road Heightening and Tide Embankment
Total Length	26.9 Km(Opt 1) 27.3 Km(Opt 2)
	Section 1: 4.2 km (Tacloban) Section 2 : 2.9 km (Tacloban) Section 3: 5.2 km (Tacloban) Section 4 Option 1: 7.4 km Option 2: 7.8 km (Tacloban-Palo) Section 5: 4.1 km (Palo-Tanauan) Section 6: 3.1 km (Tanauan)

Relocation:

Priority Projects/ Programs	Organization/ Agency
Planned relocation from the seriously damaged areas, which are located out of the area protected by structural countermeasures	To be discussed
After completion of relocations, the site will be environmentally protected with artificial greenery of mangrove forest	To be discussed

Non-structural countermeasures:

a) **Evacuation plan**

Priority Projects/ Programs	Organization/ Agency
Necessity of evacuation plan for multi-hazards (e.g. flood, tidal surge, etc.)	To be discussed
Technical advice prior to evacuation drill	To be discussed
Evacuation process for multi-hazards (e.g. flood, tidal surge, etc.)	To be discussed

Water Supply

- Considerations for Restoration of Existing Facility**
- Considerations for Reconstruction of Water Supply Sector**

Priority Projects/ Programs	Organization/ Agency
Recovery of existing water supply system	LMWD
Improvement of purification, reservoir, transmission pipes and distribution pipes	LMWD
Improvement of collection of rates	LMWD
Expansion of service area, in particular development project areas in provincial plan	LMWD
Expansion of water source	LMWD

Electricity

Priority Projects/ Programs	Organization/ Agency
Recovery of existing electricity system	Leyeco II
Improvement and strengthening of poles and buildings	Leyeco II
Expansion of service area, in particular development project areas in provincial plan	Leyeco II
Promotion of photovoltaic (solar) power system	Individual

Other necessary activities:

Priority Projects/ Programs	Organization/ Agency
Consistency with the provincial plans	LGU
Coordination with Tanauan city for Binahan river improvement plan	LGU

2) Recovery of People's Daily Lives

Health:

In addition to rehabilitate the Main Health Center in the new building, it is required following plans as disaster management in health sector and shall incorporate them in the revised CLUP. It is necessary to incorporate the Build Back Better strategy in planning to be a disaster-resistant LGU.

a) Rehabilitate and secure access to quality health services

Priority Projects/ Programs	Organization/ Agency
Rehabilitate the Main Health Center	LGU, DOH, INGOs, NGOs
Construct more Barangay Health Stations with health staff to increase the accessibility of quality health services	
Intensify the referral health system	
Strengthening of Community Health (Barangay Health Board)	

b) Provide adequate knowledge and prevent the infectious diseases

Priority Projects/ Programs	Organization/ Agency
Community mobilization by Barangay Health Workers	MHO, PHN, DepED Nurses, Barangay Leaders
Health Education on infection control disease at schools	
Promote Long Lasting Insecticidal Nets (LLIN) distribution	
Networking with other sectors like DepED	
Advocacy campaign with IEC materials and conduct Behavior Change Communication	

c) Establish mental health program

Priority Projects/ Programs	Organization/ Agency
Develop training program and carry on the training to health personal	DOH, DpED, DSWD, LGU, INGO, Barangay leaders
Educate community with regards to mental health	
Networking with other sectors like Education, Social Welfare	
Procurement of medicines for mental health	
Intensify the referral system	

d) Re-establish Laboratory service

Priority Projects/ Programs	Organization/ Agency
Equipping of RHU Lab	LGU, DOH, INGO
Provide regular Medical Technologist and Laboratory Technician at RHU (Municipal Health Office)	
Advocacy for routine/regular health check	

e) Establish LGU's health data storage system and management system

Priority Projects/ Programs	Organization/ Agency
IT Training to Municipal Health Workers	LGU, MHO
Provide data management officer who are familiar with IT	
Plan the data management especially data storage	
Plan the data utilization	
Establish the IT Section at Municipal office	

Education:

Palo Municipality, in collaboration with DEPED District 1 and 2, will implement the following policies, programs and projects in order to address the current challenges in recovery and reconstruction and disaster risk reduction of the education sector:

a) Improve disaster-resilience of schools / Ensure accessibility to schools from transitional and relocation sites

Priority Projects/ Programs	Organization/ Agency
Rehabilitate school buildings/classrooms by enforcing uniformed structural standards (e.g. accessibility for PWD)	MDRRM, DEPED, DPWH
Update the list of schools that still have the capacity to function as evacuation centers	LGU and DEPED
Relocation of schools to safer areas	LGU
Upgrade elementary and high schools in relocation sites including increasing the number of teachers, building additional classrooms and ancillary facilities, and providing learning materials	Division DEPED (Personnel Audit)

b) Zero-out the drop-out rates at all levels

Priority Projects/ Programs	Organization/ Agency
Provide psychosocial support for teachers and students	PCAO, LGU, NGO, PETA, DSWD, and DEPED
Ensure the implementation of Alternative Learning System (ALS) in all barangays	DEPED
Introduce a new school monitoring system of 4Ps (national government's anti-poverty program) in order to review and recommend 4Ps beneficiaries to the respective Barangay Councils	DEPED, MSWD, Barangay Councils
Intensify assistance for students identified as potential drop-outs (e.g. Sagip Kamag-aral, Adopt a Pupil Program, School-base Feeding Program, and Gulayan sa Paaralan para sa feeding ng mga bata Program)	DEPED
Implement extra-curricular activities (sports and recreation) for students	
Intensify the implementation of home visits by teachers	

Policy Option: Strengthen disaster preparedness of communities through safer schools

Priority Projects/ Programs	Organization/ Agency
Strengthen linkages between schools and communities through joint quarterly DRRM training	MDRRMO, DEPED, Bureau of Fire Protection, PNP, JICA
Pilot a project to strengthen community preparedness at JICA-supported Arado Elementary School through promotion of community participation in school disaster preparedness activities	NGOs
Support all schools to develop, review and conduct evacuation plans on a regular basis	
Improve the integration of DRRM in curriculum and conduct TOT for teachers (e.g. swimming classes during physical education and new modules on DRRM)	
Include the budget allocation for emergency equipment (e.g. first aid kits, warning system, etc.) at all schools through Maintenance and Other Operating Expenses	

Social Welfare:

Social welfare services in Palo are made available from regional, provincial and municipal levels. In order to restore the services affected by Yolanda, the following policies, programs and projects have been developed:

a) Increase availability of safer and more functional social welfare services

Priority Projects/ Programs	Organization/ Agency
Rehabilitate all Daycare Centers and enforce the building code particularly for those used as evacuation centers in safe areas	LGU, INGOS
Assess the location of Daycare Centers and relocate them from NBZ	DENR, MEO
Establish additional Daycare Centers in permanent relocation sites as needed	LGU
Establish a semi-permanent Women-friendly Space in Salvacion	LGU, DSWD, Plan, UNFPA
Establish an office for PWD	LGU
Build DRRM capacity of daycare children and workers through integrating DRRM in yearly session plans and conducting annual drills	MSWD, MDRRMO, INGOS, Daycare Workers
Procure a septic tank at Day Center for Senior Citizens	LGU, OSCA
Build DRRM capacity of senior citizens through activities by Day Center and Barangay Senior Citizens' Associations	Senior Citizens' Associations, OSCA, MSWD, MDRRMO
Restore all the regional and provincial social welfare institutions	DSWD

b) Establish a more inclusive and effective social welfare system for the vulnerable population

Priority Projects/ Programs	Organization/ Agency
Increase the number of Social Workers and Social Development Workers at MSWD	LGU
Establish a combined PWD-Senior Citizen Help Desk in each barangay as a referral	MSWD, Barangay Councils, OSCA, COSE
Advocate Barangay Councils on inclusion of PWD and senior citizens in recovery and reconstruction including livelihood assistance	MSWD, Barangay Councils, OSCA, DSWD
Ensure the usage of 1% IRA barangay budget for PWD and senior citizens	DILG, LGU
Review the eligibility of pension and increase the number of beneficiaries	LGU, OSCA
Enhance the GBV program through strengthening the referral pathway and establishing VAWC Desks at both barangay and municipal (at the new Women-friendly Space) levels	MSWD, DOH, PNP, DWSD, Barangay Councils
Reactivate BCPC and capacitate the members on VAWC issues	Barangay Councils, MSWD
Provide psychosocial support to Yolanda-affected children and youth (e.g. through play forums and theater arts)	Palo Cultural and Arts Organization (PCAO),

	MSWD, DEPED
Enhance the Intervention and Diversion Program for children in conflict with the law	BCPC, DILG, PNP, MSWD

Solid Waste Management:

The 10-years' SWM Plan constitutes fundamentally sectoral policies and strategies of SWM, and assume an important role also in formulating RRP, DRRMP, CLUP and annual budget. Accordingly, the workshop concluded that to prepare the new plan is a priority subject among all.

Priority Projects/ Programs	Organization/ Agency
To formulate the new 10 years' SWM Plan (Preparation in 2014 -2015)	MGSO, MPDO, MTO
To study the development of new sanitary landfill (Up to the joint discussion with adjacent LGUs in 2015)	DENR, EMB, LGU, Donor and private entities
To promote the recycling system in all barangays (Implementation starts in 2015 and continues afterwards)	MGSO, MMO, Barangay IEC team and core coordinators
To create the technical working group under the MSWMB for costing of SWM service (Annually from 2015)	MSWMB, TWG

3) Recovery of Regional Economy and Promotion of Industries

Basic Strategies for the Overall Economy Sector:

Resilience of the economic sector is heightened by reinforcing strength of economy itself in principle and by fostering internal and external human/ economic linkages.

The enhancement of the economy or achievement of the vision is pursued by the following 8 basic strategies which are derived mainly from results and discussions of the 1st and 2nd Workshop sessions:

- Agricultural and livestock productivity increase (primary sector industry),
- Sustainable marine resources with adequate productivity (primary sector industry),
- Development/ enhancement of SMEs for agro-fishery industry and handicraft industry (related industries) by i) organizing SMEs for financial capability and skills training, ii) providing physical support for their common production facilities, and iii) providing marketing and sales supports,
- Trade and commerce activity promotion/ enhancement (trade and commerce industry) by i) food terminal (Bagsakan) for trading local commodity products and product promotions, ii) implementation of Palo investment incentive code, and iii) construction of New Central Market,
- Residential development and orderly construction related business agglomeration formulation (housing and construction industry) by i) expediting process for establishment of residential subdivision and ii) zoning of construction & warehousing business,
- ICT industry promotion (ICT industry) by i) inviting investors in hotel and convention operations, and ii) preparing investment promotion materials,
- MICE tourism promotion (tourism) by i) inviting investors in hotel and convention operations,

and ii) preparing investment promotion materials, and

- Streamlining of business and other permit procedures for basis of all the sub-sector business promotion especially for SMEs.

The vision for the economy sector enhancement is pursued on the bases of increase in agricultural productivity and sustainable use of vested marine resources for production in association of promotion of livestock and related industries development/ reinforcement.

The above economic production as the base of the economy is going to be augmented by the tourism and commercial sector by the manner of promoting linkages among primary (agriculture and fishery), secondary (Industries including processing, manufacturing, chemical, heavy, light), and tertiary (services) activities (Six ternary Industry Activities).

The residential development and orderly construction business agglomeration formulation are necessary to absorb urban sprawl in orderly manner and to take advantage of foreseeable real estate development opportunities by the Provincial Governmental Estate development and the expected resumption of NGA regional office building constructions.

Trade and commerce activity promotion/ enhancement is mainly to take locational advantage with expectation of business opportunities relating to the real estate developments.

ICT industry promotion is to exploit the advantage ICT PEZA Industrial Parks existence. MICE tourism promotion is to take the multiple locational advantages.

Agriculture:

Basic Strategies for Agriculture:

Coconut

- Crop diversification under coconut
- Coconut replanting program
- Food processing to add product value and create work opportunity

Vegetable

- Training on technology modernization
- Provision of high quality seed
- Organic farming
- New trading post
- Farmers' direct sales shop
- High Value Commercial Crops

Rice

- Damaged by Yolanda, but quickly rehabilitated by FAO, Oxfam
- Modernize the technique and Mechanization of rice cultivation
- Utilization of rice straw

Livestock

- Dairy carabao raising by farmers' group
- Carabao milk processing by women group
- Native chicken

Priority Projects/ Programs	Organization/ Agency
Mushroom Cultivation Project: Oyster mushroom (<i>Pleurotus florida</i>) ✓ Objectives: To generate additional income from rice straw and utilize the waste of mushroom bed as compost ✓ Target beneficiaries: Women's' group, people staying in temporary shelter ✓ Expected LGU response: Maintain laboratory and spore, and guidance on cultivation technique and marketing for group members ✓ Target output: Cultivation and sales of mushroom, and utilization of rice straw to fertilize farmlands ✓ Justification: Wise use of rice straw to produce more income and to fertile soil stop burning straw. Mushroom is high value commodity. Even shelter people who do not own land can cultivate ✓ Task of beneficiaries: Work out in laboratory, and cultivation of mushroom	To be discussed

Fishery:

Basic strategies to achieve the goals for fishery are as follows:

- More training for FLET.
- Rehabilitation of the livelihood of people dependent on milkfish and tilapia farming.
- Provision of fingerlings to fish pen and backyard fish pond operators (Tilapia fingerling production takes place in Babatngon and Kananga. Distribution of free fingerlings to operators was one of the highlights during the fiesta last August).
- Conduct of bio-physical assessment and Rehabilitation of fish sanctuary.
- Provision of boundary markers for the fish sanctuary.
- Hook & line fishing is recommended.
- Organization and training for fish sanctuary management committee.
- Provision of fishing gear to fisherfolk (supports of BFAR and NGOs are not sufficient).
- Provision of fish drying materials for small fish (RFTC in Catbalogan can conduct training on fish processing).

The Agricultural Technologist for Fisheries emphasized that the policies to be considered are:

- Fisherfolks and fishing boats should be registered.
- Rehabilitation of fish sanctuary.
- Strengthening of FLET (bantay dagat).
- Rehabilitation of mangrove areas.
- Support to fish pen and fish pond operators.

Priority Projects/ Programs	Organization/ Agency
Livelihood Support Project for Milkfish/Tilapia Pen Operators and Village Women in Barangay San Joaquin.	To be discussed

This project is similar to the JICA Quick Impact Project being conducted in Barangay Santa Cruz in Tanauan. Main activities will be: 1) Installation of milkfish pen, 2) Provision of fingerlings and feeds, 3) Provision of materials for milkfish processing such as pressure cooker, 4) conduct of necessary training, and 5) Sales promotion of milkfish products. JICA's Technical Cooperation is preferred.

(7) Hazard Maps

1) Storm Surge

A series of storm surge simulations/calculations were carried out for the cases that the typhoon course of Yolanda is assumed to be shifted to the north side in order to confirm the effectiveness of typhoon course on sea level departure. This hazard map shows a result of storm surge simulation analysis for the worst scenario of S-0.1°. It is confirmed that the Poblacion is inundated in the map.

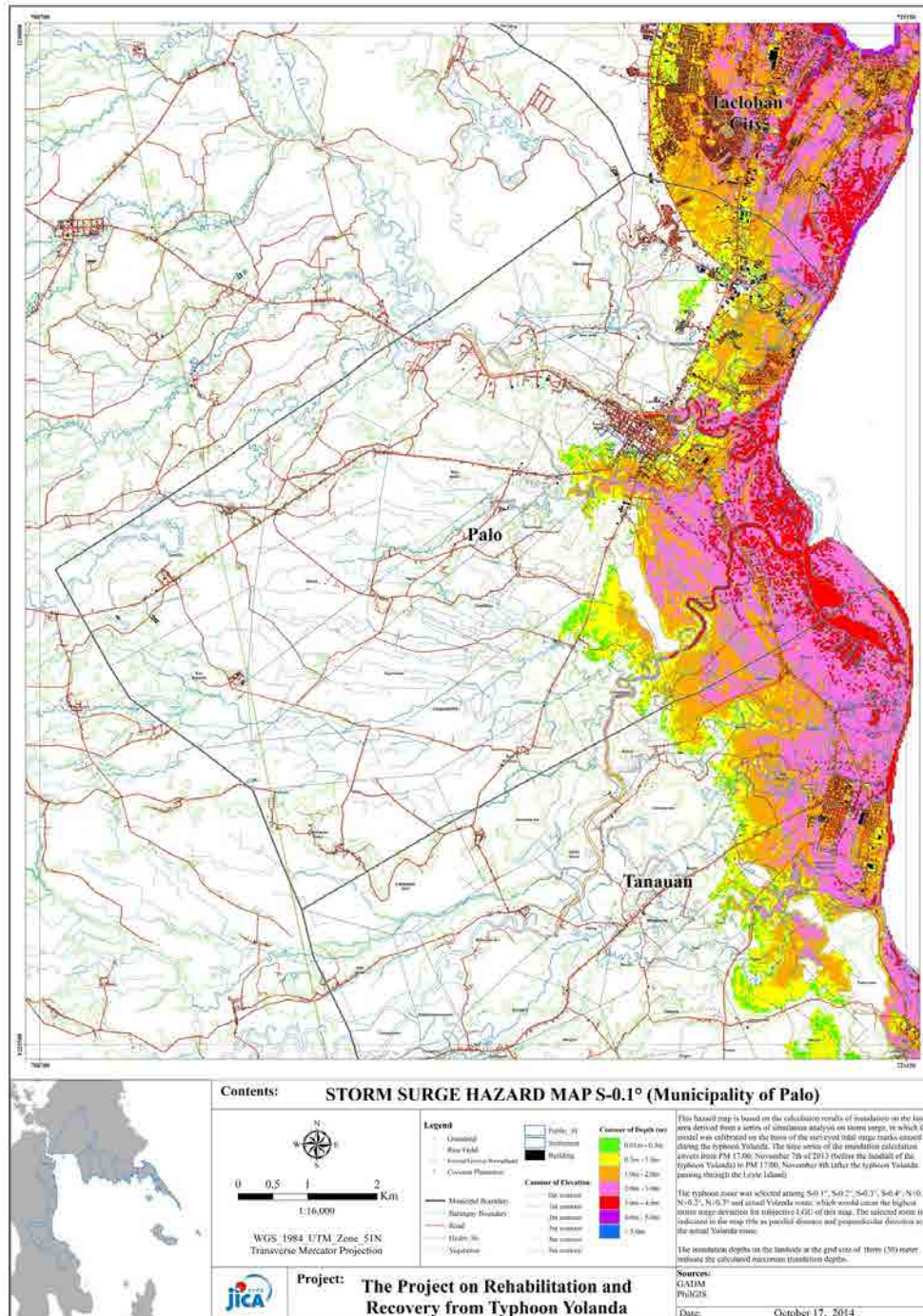


Figure 2.2-9 STORM SURGE HAZARD MAP S-0.1°

2) Flood (The flood area for Tanauan urban area will be modified in DFR)

Compared to the storm surge hazard map of S-0.1°, inundation depth of 2011 March Flood was lower while the inundation area was larger. It is confirmed that the Poblacion was also inundated.

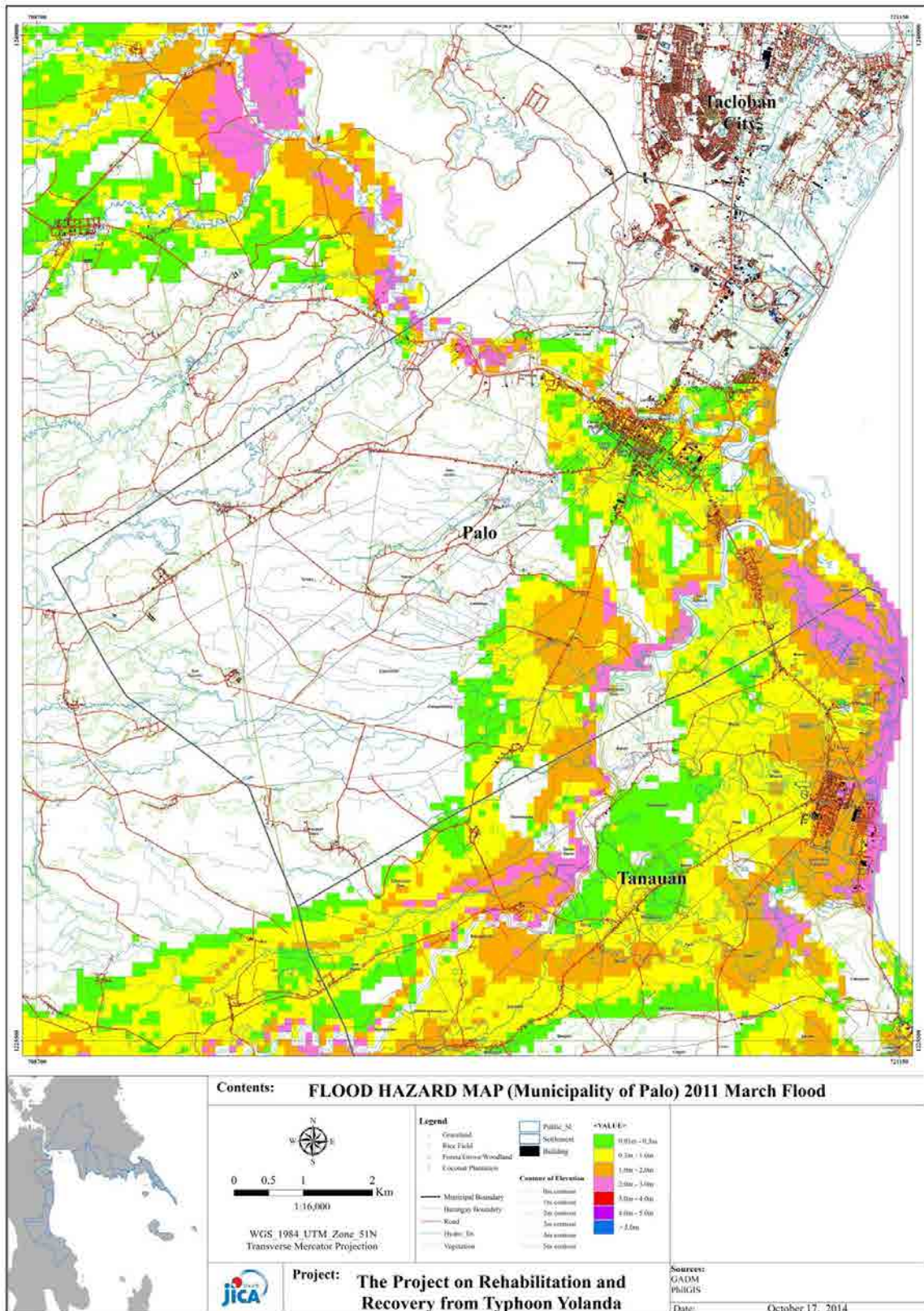


Figure 2.2-10 FLOOD HAZARD MAP 2011 March Flood

3) Tsunami

Compared to the storm surge hazard map of S-0.1° and 2011 March Flood, it was confirmed that inundation depth of Tsunami hazard map was deeper while the inundation area was smaller.

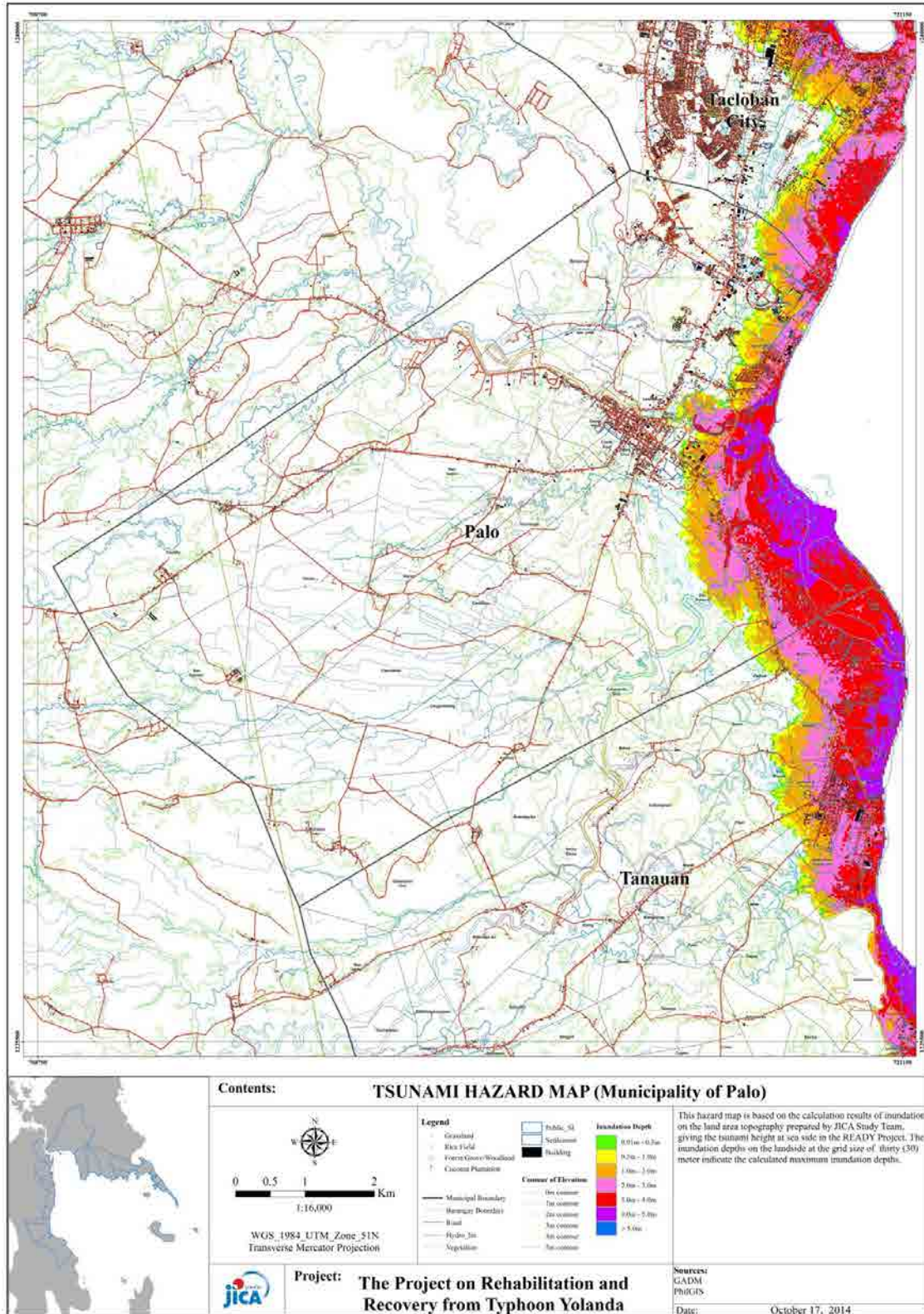


Figure 2.2-11 TSUNAMI HAZARD MAP

(8) Recovery and Reconstruction Map (Structural Measures/ Land Use)

- 1) Plan view of the proposed embankment road alignment along east coast of Leyte Island / Standard cross-section of the proposed embankment road

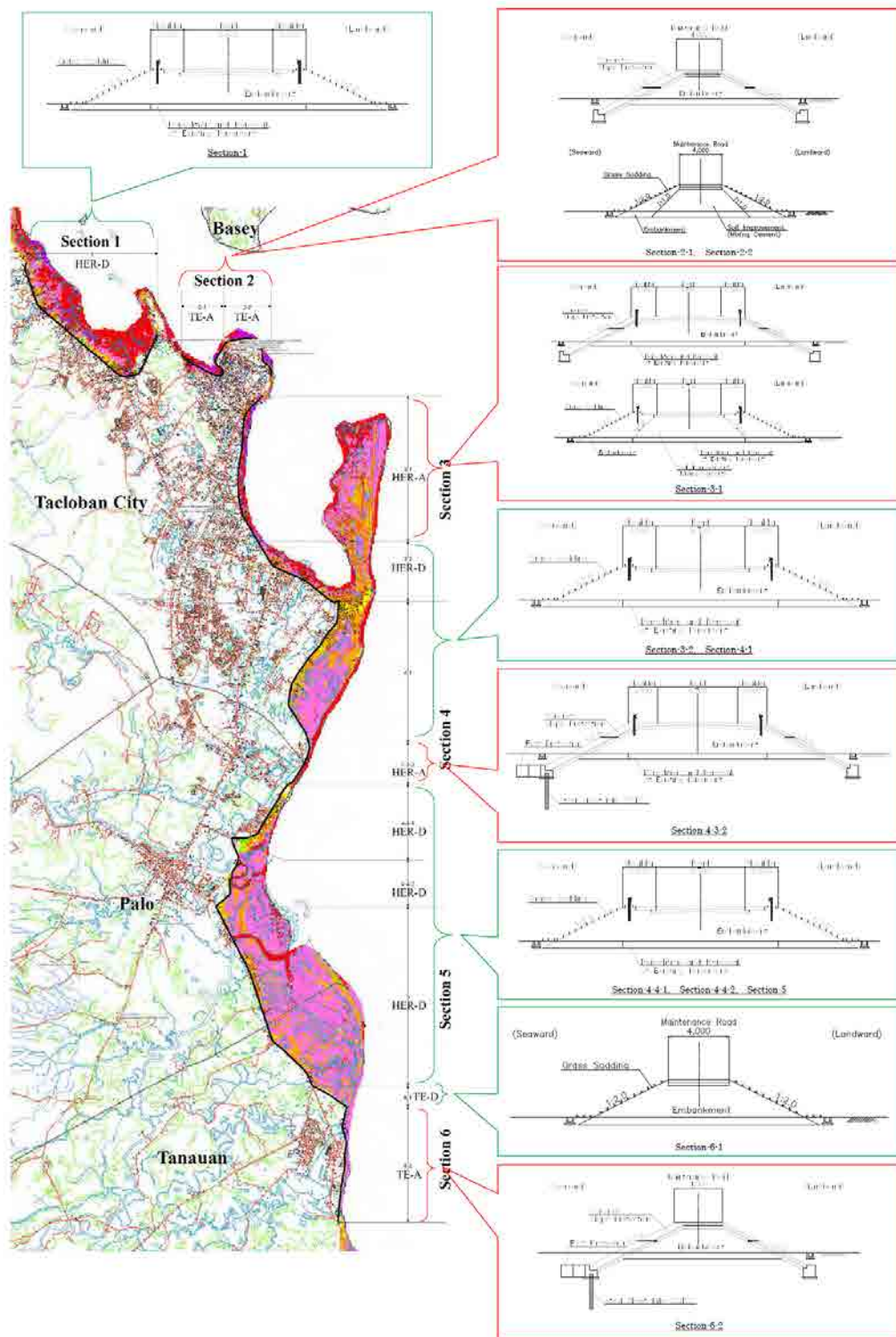


Figure 2.2-12 Plan view of the proposed embankment road alignment along east coast of Leyte Island / Standard cross-section of the proposed embankment road

2) Expected raising height of the existing national road



Figure 2.2-13 Top Elevation of Heightened Road and Tidal Embankment

3) Draft revision of the land use map of CLUP

A large-scaled development plan, proposed by the Leyte province, has been progressing. Then, it may result two big urban developments (The one is the existing Poblacion of the city, the other will be developed by the province.) in the city.

The private architect group understands that the Poblacion is major while the development area by the province is regarded the minor. However, it is expected that the development area of the province, influenced from development in Tacloban city, may well become the most developed urban area more than the Poblacion.

The planned structural countermeasures, comprised of embankment roads and back water level, will protect the expected two big urban developments. The protection only by mangrove, proposed by the private architect group, is insufficient to protect the areas. Eastern side of the embankment road will be protected as “NO BUILD ZONE” or “PROTECT ZONE”. It was agreed that relocation will be carried out from the coastal area, where the expected inundation damage is very serious in the hazard map. After the relocation, the area will be mangrove protection area.

Against the expected tidal surge and tsunami disasters, raising up of national road is promising countermeasures. On the other hand, fundamental countermeasures need to be facilitated against frequent flood disasters. Moreover, formulation of Binahan river improvement plan from a comprehensive point of view with the river rehabilitation plan of Tanauan City. Palo city agrees the Tanauan city plan.

The Leyte province has been preparing a plan for large-scale evacuation shelters to be constructed by the Province. It is necessary for the formulation of evacuation plan fully consistent with the province action. The private group plan proposes four major evacuation shelters in the southern area of Poblacion since the development area is proposed in the area. Discussions were made for more appropriate or practical manner, which means that the two evacuation centers, close to the possible inundation area of flood or tidal surge, should be prioritized.

Strengthening of road network or transportation functionality is needed for national roads, trunk roads to Tanauan, etc. for southern direction or to Ormoc direction. On the other hand, facilitation of basic infrastructure connecting two major urban developments is proposed. (Bold line in brown)

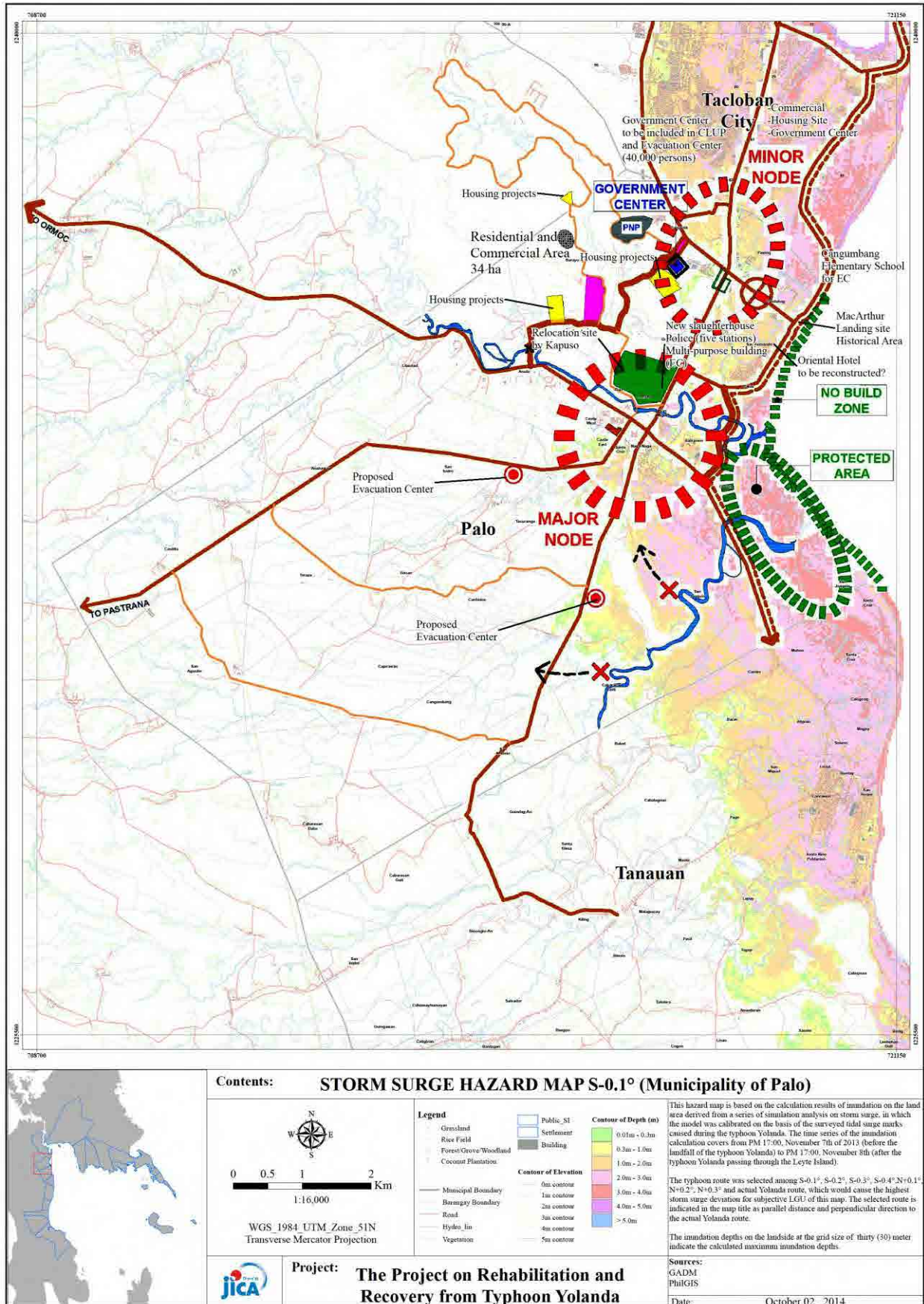



Figure 2.2-14 Draft revision of the land use map of CLUP

2.2.3 Tanauan

(1) Municipality Profile

Province	Leyte																							
Level of LGU	2nd Class Municipality																							
Area ²⁾	67.9 km ²																							
Barangay ¹⁾²⁾	54 Barangays (6 Urban, 48 Rural)																							
Annual Budget (revenue) ⁴⁾	PHP 91.7 Million (estimate for 2013)																							
Population ¹⁾	53,310 (2014 Municipal Information)																							
Safer Cities	<p>Major Land Use ³⁾</p> <p>Agricultural land: Around 60.5km² (89.1% of the total land area)</p> <ul style="list-style-type: none"> • Rice: 22.9 km² (39.8% of the entire agricultural area) (2011) • Coconut: 19.5 km² (33.8% of the total agricultural area) (2011) • Plantation crop (Banana, cacao): 12.5 km² <p>Built up areas: 3.2km² (4.7% of the total land area)</p> <ul style="list-style-type: none"> • The Municipality is located in a generally flat coastal terrain with 27% of its area being hilly. • Other areas consist of grasslands, agro-industrial areas, forests, and others. <p>Number of evacuation centers (ECs) and the capacities</p> <ul style="list-style-type: none"> • Number of ECs and the capacities were not identified at the time of Yolanda. <p>Water Supply:</p> <p>Water supply system, are followed according to the level of urbanization: Level I - is with point source in rural and underpopulated area. Level II- is with communal faucet system or stand post in rural area and Level III- is with waterworks system daily supply of more than 100 liters per person in urban area. Leyte Metropolitan Water District (LMWD, is servicing water for Tacloban, Palo, Tanauan, Tolosa and Santa Fe. The main source is located 32km from Tacloban. The capacity of water is sufficient for future demand.</p> <p>Electricity:</p> <p>Don Orestes Romualdez Leyte Electric Cooperative (DORELCO), is the electric cooperative that supplies the power mainly for the area from Tanauan to Mahaplag in the central eastern part of Leyte Island. Dorelco is based in San Roque and has 119 employees (as of Dec. 31, 2012). Dorelco has two power source substations for power supply with a total of 15 MVA.</p>																							
Social Welfare ⁵⁾	<p>Medical Health Facilities (2013):</p> <table border="1"> <thead> <tr> <th colspan="2">Hospitals</th> <th rowspan="2">Main Health Center</th> <th rowspan="2">Barangay Health Stations</th> <th rowspan="2">Maternity House</th> </tr> <tr> <th>Government</th> <th>Private</th> </tr> </thead> <tbody> <tr> <td>0</td> <td>0</td> <td>1</td> <td>5</td> <td>1</td> </tr> </tbody> </table> <ul style="list-style-type: none"> • Health center is with birthing function. <p>Health Personnel at the Municipal Health Offices (2013):</p> <table border="1"> <thead> <tr> <th>Doctors</th> <th>Nurses</th> <th>Midwives</th> <th>Sanitary Inspectors</th> </tr> </thead> <tbody> <tr> <td>1</td> <td>2</td> <td>6</td> <td>2</td> </tr> </tbody> </table>				Hospitals		Main Health Center	Barangay Health Stations	Maternity House	Government	Private	0	0	1	5	1	Doctors	Nurses	Midwives	Sanitary Inspectors	1	2	6	2
Hospitals		Main Health Center	Barangay Health Stations	Maternity House																				
Government	Private																							
0	0	1	5	1																				
Doctors	Nurses	Midwives	Sanitary Inspectors																					
1	2	6	2																					

	<ul style="list-style-type: none"> • The number of BHW and BNS are respectively 79 and 60. • Leading causes of morbidity at health stations (2013) <ol style="list-style-type: none"> 1. Upper respiratory tract infections 2. Pneumonia 3. Skin disease <p>Solid waste management:</p> <ul style="list-style-type: none"> • Working staff: 15 persons (Job order basis) • Estimated Generation of Waste in LGU: 15 ton/day • SWM Service Coverage Ratio is 50% of population. • There are n2 rent collection vehicles. (2 owned vehicles are totally collapsed by Yolanda.)
Economy and Industry ¹⁾²⁾³⁾⁶⁾	<p>GRP: NA</p> <p>Agriculture: The scale is NA.</p> <ul style="list-style-type: none"> • Rice: 107 million PHP (2009) • Coconut: 123 million PHP (2009) • Plantation crops (bananas, cacao): 64 million PHP (2009) • 80% of the inhabitants are engaged in agri-related livelihood undertakings. • Barangay Sta. Elena and Barangay Picas have a functional communal irrigation system, which covers mostly of the irrigated areas, totally 8km² only. • The coconut farmers commonly practice mono cropping system. <p>Livestock: 75 million PHP</p> <ul style="list-style-type: none"> • Main livestock: Carabao, cattle, swine and poultry <p>Fishery: 17.5 million PHP (2009)</p> <ul style="list-style-type: none"> • Capture fisheries: 15 million PHP • Cultivation in brackish fish pond/pens: 2.5 million PHP • Two marine protected areas (fish sanctuaries) have been identified and are being developed/rehabilitated/maintained. • Tilapia and milkfish are raised in brackish water fishponds and fish pens. • Overcrowding of milkfish farming lead to the deterioration of water quality and resulted in mass mortality of milkfish in 2012. • Illegal fishing (trawl, cyanide, dynamite, etc.) has led to the degradation of resources. • The fisher folk and most of the coastal inhabitants are living below the poverty line. • Most of the fishers are not members of any fishery organizations. • Coastal resource users are not participating in the planning of fisheries management. • In addition to primary production, there are several industrial establishments in the Municipality, including one oil mill and one beverage factory. <p>Commercial: The scale is NA.</p>

Source:

- 1) Tanauan Municipality, Building of a New Tanauan (Yolanda Rehabilitation and Development Plan), March 25, 2014
- 2) RRP Rehabilitation and Recovery Program
- 3) Comprehensive Land Use Plan of Tanauan
- 4) Municipal Budget Office, Tanauan
- 5) Municipal Health Office

6) 2010-2015 Comprehensive Development Plan of the Municipality of Tanauan

(2) Damage caused by Yolanda

Building Safer Cities	Physical/ Human Damage				
	Inundated Area by Yolanda ²⁾		14 km ²		
	Number of Affected People ¹⁾		12,386 households affected		
	Deceased ¹⁾		1,375		
	Injured		NA		
	Missing ¹⁾		57		
	Number of Houses totally damaged ³⁾		9, 717		
	Number of Houses partially damaged ³⁾		3,230		
	Damage on Infrastructure ¹⁾		Over 500 million PHP		
	Losses to municipal property		NA		
<p>Source</p> <p>1) Tanauan Municipality, Building of a New Tanauan (Yolanda Rehabilitation and Development Plan), March 25, 2014</p> <p>2) JICA Study Team, Storm Surge Hazard Map</p> <p>3) UN OCHA, Consolidated Data Repository</p> <ul style="list-style-type: none"> • Devastating damage to buildings were observed in all areas of the Municipality. • Totally damaged buildings were seen in huge numbers not only along the coastline, but also in the western boundaries of the Municipality, which are inland areas. • Damage seems to have been seen more densely seen along highways, as such areas were more populated compared to others. • The Municipal hall was also damaged by the Typhoon like all other buildings. <p>Source: Interpretation result on damaged buildings from satellite images, JICA Study Team</p>					
<p>Water Supply:</p> <p>Regarding water supply system, the Damage amount on LMWD (Tacloban City, Palo, Tanauan, Tolosa and Santa Fe) was 17.16 million pesos (source: LWUA). The Typical damage situation is damage of water supply pipes and water meter, Disconnection of Commercial Power Lines and damage of pump house and equipment. Within these damages, design and construction aspects are included such as quality of the pipes and excavated trench.</p>					
<p>Electricity:</p> <p>When Super Typhoon Yolanda hit, the power interruption occurred in the whole coverage area, and there was heavy damage. As the transformer installed close to Dorelco's main office had a fault due to flying objects and storm surge. The number of pole transformers necessary for rehabilitation is estimated to be 868 units and they are being procured from the U.S, China, and Korea.</p>					
Social Welfare	Health:				
			Totally damaged	Partially damaged	Total
	Main Health Center		2		2
	Rural Health Unit	Main Health Center	-	1	1
Maternity House		-	1	1	

	Barangay Health Station	2	3	5
	Social Welfare:			
		Totally/ Partially damaged		Total
	Daycare Center	54		54
	Source: Tanauan MSWD			
	Education (Damage Classrooms) :			
		Totally damaged	Partially damaged	Total
	Elementary schools	168	117	285
	Secondary schools	3	38	41
	High school buildings	5		5
	Source: Tanauan RRP			
	Solid Waste Management:			
	<ul style="list-style-type: none"> • A large amount of debris generated by the Yolanda: no estimated figures • 2 collection trucks and 1 bulldozer were totally collapsed. • Vermi-culture composting facilities of LGU at dumpsite were totally damaged. • LGU incurred ad-hoc expenditures Incurred for debris collection and disposal. 			
Economy and Industry	Agriculture:			
	<ul style="list-style-type: none"> • 223,532 (96%) of coconut trees were affected by Typhoon Yolanda. • Estimated amount of the damage is 9.6 million PHP regarding Reconstruction and Rehabilitation Plan (2014-2019) in Tanauan. 			
	Crop	Farmers Affected (No)	Total Area Affected (ha)	Production Loss (M.T.)
	Rice	176	392	457.5
	Cost of Production (PHP)			
	2,940,000			
	Source: Department of Agriculture, Eastern Visayas Typhoon Yolanda Damage Report (As of Feb, 2014)			
	<ul style="list-style-type: none"> • Regarding Reconstruction and Rehabilitation Plan (2014-2019) in Tanauan, estimated amount of damage is 79.9 million PHP (66%). Estimated amount of damage of vegetables is 0.85 million PHP (100%). • The total damage to the agriculture and fisheries sector is reported to value up to PHP 135 million. 			
	Livestock:			
	Sector	Estimated amount of Damage (PHP '000)		
Carabao / Cows	25 (22%)			
Swine	1.1 (9%)			
Poultry	0.2 (5%)			
Total	26.3 (20%)			
Source: Reconstruction and Rehabilitation Plan (2014-2019), Tanauan				
Fishery:				
Sector	Estimated amount of Damage (PHP '000)			
Bangus fishpen	13,520			
Fishpond (backyard)	304,000			
Fishing Boats	motorized	500		
	non-motorized	70		
Gill nets/ crab net	200			
Bangus	4,500			
Fish catch	14,400			
Total	337,190			

	Source: The 2014-2019 Reconstruction and Rehabilitation Plan of Tanauan “Typhoon Yolanda Damage Report”, BFAR • Total of 1250 fisher folk were affected.
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(3) Progress in Recovery and Reconstruction

1) Progress in Building Safer Cities

DRRM:

The planning process for non-structural countermeasures has been progressed such as designation of evacuation shelters, *etc.* On the other hand, the plan on structural countermeasures are expected to be more proceeded in the near future. It should be noted that the city had planned the implementation of excavation works as flood countermeasures, but the implementation was cancelled due to the Yolanda disaster.

2) Progress in Recovery of People’s Daily Lives

Health:

As of end of September 2014, 4 Barangay Health Stations repaired with equipment and 1 Barangay Health Station is under the process of bidding for repairing. Birthing facility had already repaired and functioning for delivering.

Education:

To date, 90% of schools in District 1 have been repaired through support of DEPED, Korean Government, and Volunteer for Visayan, PAGCOR and INTEL. In District 2, 50% have been repaired by UNICEF and other donors. Training of teachers on psychosocial skills has been conducted by INTERSOS, UNICEF, *etc.* Students have also received psychosocial care by AGAPE, UNICEF and INTERSOS.

Social Welfare:

Out of all Daycare Centers damaged, 80% have already been rehabilitated, and two Daycare Centers are being relocated from unsafe areas. The OSCA building and MSWDO have already been restored. Furthermore, the construction has started to establish a permanent Woman-friendly Space in Canramos with the support of UNFPA and Plan International.

Solid Waste Management:

The debris was totally collected and dispose of with the assistance of international organizations. The collection trucks are rented from private entities and operating the services as usual. The disposal operation is handled with the assistance of UNDP heavy equipment.

3) Progress in Recovery of Regional Economy and Promotion of Industries

Agriculture

On livelihood, there were 2,700 sacks of free certified rice seed were provided by FAO and Oxfam,

100 hand tractors were donated by Ciara Marie Abalos Foundation. Cash for Work were provided to selected members of the 54 barangays of Oxfam, UNDP and DSWD. On the other hand, Cash Grants from Tzu Chi Foundation were provided to the families from the 13 hard hit barangays of the town. PHP 5,000 Cash Grants per household were provided by the American Red Cross for 11 inland barangays.

Fishery

According to the Municipal Agriculture Officer, some recent progress in recovery and reconstruction are as follows:

- 303 fishing boats have been rehabilitated and distributed to 6 coastal barangays by BFAR AHON program (as of April 4, 2014).
- Environmentally-friendly integrated culture of oyster and milkfish for sustainable livelihood of fisher folk families has been implemented by the Municipality of Tanauan, BFAR and Provincial Government of Leyte with the support of JICA. This project has 42 fish pens and 25 oyster racks. Processing hut is under construction at Barangay Santa Cruz.
- JICA promotes technical exchange of processing of soft-boned milkfish between women in Tanauan and Basey.
- Acay (NGO) has also conducted training on fish processing of milkfish.
- CFSI (humanitarian organization) also conducted fish deboning training to the single parent and PWD (Person with Disability, 12 participants).
- In Barangay Santa Cruz, women have been organized into an association (DOLE).

(4) Issues and Problems in Recovery and Reconstruction

1) Building Safer Cities

DRRM:

- Revision of existing land use based on the latest hazard maps
- Serious insufficiency of basic infrastructure
- Insufficiency of plan for structural countermeasures
- Frequent flood disasters
- Inadequate plan for evacuation shelters
- Insufficient plan for evacuation drill
- Insufficient organizational framework and know-how for the planning of disaster risk reduction
- Necessity of consideration on development of emergency transportation roads

- Necessity of structure strengthening for public facilities and evacuation shelters

Water Supply

The main issues on water supply are

- Leakage from water pipes, stealing water or non-payment;
- Inadequate Water Treatment Facility;
- The Stand-by Power Source is not secured;
- Lack of durability of pipe and inadequate distribution system;
- Lack of covering depth of pipe;
- Exposure of water meter above the ground;
- Lack of water volume and water pressure.

Electricity

- Lack of vehicle such as boom trucks with bucket and digger, and one truck for pole carriage.
- Depletion of spare parts and potential trouble are concerning.
- Replacement of heavy equipment is highly expected.

2) Recovery of People's Daily Lives

Health:

- Main Health Center has not yet to start repairing though the budget has already been secured by the Philippine Home Development Mutual Fund
- No mental health program for post disaster
- No laboratory system

Education:

a) Lack of safe and functional school

- Damaged school buildings, classrooms and workshop laboratories
- Lack of funding for school rehabilitation
- Rehabilitation/repair without standard mitigation measures especially for schools located in the coastal areas
- Difficulty in acquisition of land for additional/expansion of schools
- Lack of school facilities and learning materials including for the Alternative Learning System for Out-of-school Youth (OSY)

b) Risk of Higher drop- out rates at all levels due to:

- Financial constraints: increased poverty after Yolanda, distance from

transitional/relocation sites, lunch cost, etc.

- Poor psychosocial status of teachers and students
- Shortage of high school teachers
- Lack of integration of DRRM in education

Social Welfare:

a) Lack of availability of functional social welfare facilities:

- Damaged Daycare Centers
- Damaged OSCA/SCAT Office repaired but in NBZ
- Absence of Day Center for Senior Citizens (at least 60 years old according to RA.9994) and a PWD Office
- Damaged MSWD Office
- Damaged Regional Rehabilitation Center for Children and Youth (for young offenders)
- Lack of safe spaces for vulnerable women, children and youth (only referral to regional facilities in Palo)
- Damaged Municipal Civic Center (basketball courts, stadium, etc.) and other sports facilities

b) Increase of displaced population (1200 families targeted):

- Lack of housing
- Lack of access to social welfare services
- Lack of livelihood

c) Lack of availability of appropriate social welfare services in response to the recovery and reconstruction needs:

- Weak referral mechanism and municipal multi-disciplinary system for Violence Against Women and Children(VAWC)
- Increase of young people who lost their jobs and are out of school
- Poor psychosocial status of vulnerable population including senior citizens and youth
- Increasing health and livelihood needs of senior citizens and PWD

Solid Waste Management:

The following issues were raised and discussed in the workshop held on September 25, 2014.

- The sectoral plan of “10-years’ SWM Plan (draft)” was washed away by the Yolanda.
- Needs to convert the existing dumpsite to sanitary landfill
- The composting facilities were collapsed by the Yolanda.

- Recycling and MRFs are not functioning.
- SWM cost is unclear.
- Needs to minimize the gap between SWM expenditures and revenues

3) Recovery of Regional Economy and Promotion of Industries

Most of recovery efforts relating to the economy have been focused on rehabilitation/ reconstruction/ recovery of the damaged facilities and activities. That affected seriously to recover ordinal business activities in the town proper. A lot of in-kind and financial assistances have been extended to the suffered people for relieving purpose, although some of them were not market oriented.

In general there have been limited considerations for expansion/ enhancement of the economy to encounter the expected economic shrinkage due to production value reduction by damaged coconut trees, which may last for a several years at least, in the study area

Agriculture:

- Farmers still engage in traditional farming practices. Most of the farmers still use draft animal. Such as Carabao in their land preparation. Majority (around sixty percent) does not use Certified or Hybrid rice seeds; they still use the seeds, which they get from their neighbors. Most of them don't adopt the recommended fertilizer rate. As a result the average production is low, only 3.5 ton per ha.
- The irrigation cannot supply the required water of the farmers. The Three communal irrigation systems cover only around 500 ha of rice land. The National Irrigation System although cover more barangay but due to the fact that they are located in the tail end of the system, water supply is the big problem during planting season as it was being trapped by users in the upstream. Thus water usually arrives when they no longer much needed.
- Since most of the farmers are tenants, and cultivated a small rice land (the average area cultivated is 0.75 ha) they don't qualify to avail loans and other financial institutions thus they resort to informal credit of financing scheme wherein they charged with high interest.
- There are only around 12 farmers' associations throughout the municipality, which indicate that most of the farmers are not united, so they lack cooperation with each other. Their problems are sometimes cannot be addressed right away as they lack representation in the local governing and planning bodies of the locality.
- Though most of the farmers have attended trainings on the current agricultural production technology, they are hesitant to adopt it due to the value system of "wait and see" attitude, wherein they have to observe first of the technology works.
- The connotation of the farmers on the farming operation is only a traditional activities that were handed to them from generation, they won't considered them as business activities, thus

they don't try to assess whether they gain from their farming operation or not. As long as they can harvest something, is already enough from them, as a result they don't strive to increase their productivity.

- Farmers lack the production and post-production facilities and equipment. Thus, most time is still devoted to their farming operations such as their harvesting and post harvesting activities still inquired much losses, thus reducing the productivity of the farmers.
- Most of the farmers still adopt the mono cropping system. They have not adopted diversification, although some of them were already trained on this but yet they are still hesitant in adopting it.
- Low quality native breeds of livestock are being raised by the farmers.

Fishery:

At the workshop, the following issues and problems were dealt with:

- Lack of Capacity to finance the aquaculture rehabilitation by the fisherfolk.
- Rehabilitation efforts are concentrating on capture fisheries. JICA is the only agency supporting aquaculture project.
- Some fishermen still engage in illegal fishing, such as dynamite fishing, use of active gear in fishing operation.
- The FLET (Fishery Law Enforcement Team) of Tanauan is not capacitated to reinforce fishery laws and regulations due to absence or lack of equipment and facilities.
- Fishermen still lack information on coastal resources management and utilization.
- Municipality of Tanauan needs to effectively monitor and regulate fishing activities. Also, aquaculture and value adding aquaculture products should be intensively introduced to typhoon-affected people to meet their livelihood needs.

(5) Vision/ Goals/ Objectives

“A safe, resilient, and prepared suburban residential and production center accommodating delightful living community that has a dynamic and empowered men, women and children in ecologically-balanced environment with sustainable economic growth through an exemplary governance.”

(6) Recovery and Reconstruction Policies

1) Building Safer Cities

Basic Strategies for DRRM:

- Protection of city center by raising up level of the whole national road to be embankment road against tidal surge disaster from Tacloban to Tanauan

- Implementation of Binahan river improvement in coordination with canal development plan of Palo city
- Installation of retarding basin as flood countermeasure
- Development and utilization of higher places or hilly areas as evacuation places including environmental conservation of the areas
- Appropriate allocation of evacuation shelters and formulation of evacuation plan considering the distribution of the population at Barangay level

Structural countermeasures:

Priority Projects/ Programs	Organization/ Agency
The levels of main roads will be raised up as embankment road	DPWH

Target Area	Tacloban-Palo-Tanauan
Target Hazard	Storm Surge
Target Return Period	50 years return period (more frequent than Yolanda)
Structure Measure	Combination of Existing Road Heightening and Tide Embankment
Total Length	26.9 Km(Opt 1) 27.3 Km(Opt 2)
	Section 1: 4.2 km (Tacloban) Section 2 : 2.9 km (Tacloban) Section 3: 5.2 km (Tacloban) Section 4 Option 1: 7.4 km Option 2: 7.8 km (Tacloban-Palo) Section 5: 4.1 km (Palo-Tanauan) Section 6: 3.1 km (Tanauan)

Implementation of Binahan river improvement works as countermeasures against flood disaster and tributaries improvement as well as installation of retarding basins

Land Use:

- Change the land use of the hazardous areas to open space/ park/ protection/ production areas
- Development and utilization of higher places or hilly areas as evacuation places including environmental conservation of the areas
- Construction of evacuation routes to hilly areas
- Utilization of hilly area as environmental conservation area

Relocation:

- Construction of permanent shelters to relocate the families in the no-dwelling zones and the other hazardous areas
- Provision of livelihood support, public services, basic facilities and infrastructure, and

transport access in the relocation sites

Non-structural countermeasures:

Evacuation plan

Priority Projects/ Programs	Organization/ Agency
Necessity of evacuation plan for multi-hazards (e.g. flood, tidal surge, etc.)	To be discussed

Technical advice prior to evacuation drill

Priority Projects/ Programs	Organization/ Agency
Evacuation process for multi-hazards (e.g. flood, tidal surge, etc.)	To be discussed

Water Supply

- a) Considerations for Restoration of Existing Facility
- b) Considerations for Reconstruction of Water Supply Sector

Projects/ Programs	Organization/ Agency
Recovery of existing water supply system	LMWD
Improvement of purification, reservoir, transmission pipes and distribution pipes	LMWD
Improvement of collection of rates	LMWD
Expansion of service area	LMWD
Expansion of water source	LMWD

Electricity

Projects/ Programs	Organization/ Agency
Recovery of existing electricity system	Dorelco II
Improvement and strengthening of poles and buildings	Dorelco II
Expansion of service area	Dorelco II
Promotion of photovoltaic (solar) power system	Individual

Other necessary activity:

Projects/ Programs	Organization/ Agency
Investigation how to protect southern part of the city center efficiently without structural countermeasures	To be discussed
Utilization of evacuation areas in hilly area and environmental conservation of the areas	To be discussed

2) Recovery People's Daily Lives

Health:

In order to address the lack of health policy, program/project for disaster management and to be a disaster-resistant LGU, Tanauan is required to include following plans in health sector in the revised CLUP. They also need to do networking with other sectors and stakeholders in strengthening the health services.

a) Enhance access to better quality health services for all people

Priority Projects/ Programs	Organization/ Agency
Integrate health education activities in all program	DOH, LGU (Municipal Health Office), NGO, INGO
Construct more Barangay Health Stations to increase the accessibility of quality health services	
Integrate birthing services	

b) Increase availability of safer and more functional social welfare services

Priority Projects/ Programs	Organization/ Agency
Rehabilitate all Daycare Centers and enforce the building code particularly for those used as evacuation centers in safe areas	LGU (Municipality Health Office), LGU (for rebuilding), Barangay officials, Association of Barangay Captains (ABC)
Assess the location of Daycare vices at Barangay Health Stations	
Hire health workers to take charge the Barangay Health Stations	
Strengthening referral system	
Rebuilding of Main Health Center with emergency care	

c) Strengthening of health system

Priority Projects/ Programs	Organization/ Agency
Rebuilding of Main Health Center	LGU (Municipality Health Office), LGU (for rebuilding), Barangay officials, Association of Barangay Captains (ABC)
Prevention and control of infectious diseases	
Conduct Behavior Change Communication	
Networking with other stakeholders	
Strengthening of support system in community	

d) Restore Laboratory services

Priority Projects/ Programs	Organization/ Agency
Procurement of laboratory equipment and supplies	LGU
Construction of laboratory in the main health center	
Advocacy for routine health check	

e) Establish mental health program

Priority Projects/ Programs	Organization/ Agency
Develop training program and carry on the training to health personal	DOH, DEPED, DSWD, LGU, INGO
Educate community with regards to mental health	
Networking with other sectors like Education, Social Welfare	
Procurement of medicines for mental health	
Construct of mental health care center	

f) Safe and planned Pregnancy

Priority Projects/ Programs	Organization/ Agency
Conduct health education	DOH, DEPED, DSWD, LGU, INGO
Provide adequate birthing facility	
Networking with other sectors like Education, Social Welfare	
Establishment of youth-friendly center	

Education:

Tanauan Municipality and DEPED District 1 and 2 will work together to restore safer and higher quality schools for teachers, students and surrounding communities through the following policies, programs and projects:

a) Improve disaster-resilience of schools / Strengthen disaster preparedness of communities through safer schools

Priority Projects/ Programs	Organization/ Agency
Provide learning facilities (e.g. vocational training facilities) and materials for teachers and students	LGU, DEPED, DPWH, JICA
Develop disaster-resilient model communities with 2 JICA-funded elementary schools through community participation in building safer schools	
Enforce a safer building code for school rehabilitation	
Implement the relocation of schools from NBZ (e.g. Santa Cruz)	
Build a high school safe and accessible for students from remote areas	

b) Improve accessibility and availability of schools

Priority Projects/ Programs	Organization/ Agency
Support transportation for displaced students Provide school buses Change the attitude of 4Ps (national government's anti-poverty program) parents to ensure utilization of the benefits for their children's education	LGU, DOTC, DEPED
Implement the school feeding program for displaced school children through Gulayan sa Paaralan Project	DSWD, DEPED, DOH, NGOs
Establish Special Education (SPED) program for high school students with disabilities	DEPED, LGU
Ensure provision of psychosocial training to teachers and psychosocial care to school children at all schools	LGU, DEPED, DOH, NGOs, Religious Sector
Increase the numbers of teachers at secondary education including through promotion of teachers	DEPED
Intensify the conduct of school drills for all types of disasters	MDRRM, Bureau of Fire Protection, PNP, DEPED
Implement the new senior high school system	LGU, DEPED

Social Welfare:

In response to the increasing vulnerability of communities, particularly women, children, youth, senior citizens and PWD, Tanauan Municipality will accelerate its recovery and reconstruction efforts as well as reduce disaster risk through the following policies, programs and projects:

a) Build more disaster-resilient social welfare facilities

Priority Projects/ Programs	Organization/ Agency
Repair and reconstruct all damaged Daycare Centers	LGU, NGOs
Relocate OSCA to a safer area and provide equipment and furniture	LGU, OSCA
Relocate 2 Daycare Centers from NBZ	
Establish a Day Center for Senior Citizens	LGU, OSCA, NGOs
Repair the Regional Rehabilitation Center for Children and Youth	National and Regional DSWD, MSWD
Establish Women-friendly Spaces including in Barangay Canramos	LGU, UNFPA, Plan International
Establish an office for PWD	LGU
Rehabilitate the sports facilities	LGU, NGOs

b) Reduce poverty and disaster risks of the displaced population

Priority Projects/ Programs	Organization/ Agency
Implement the resettlement plans in 3 sites	LGU, NHA, NGOs

Establish additional Day Care Centers in resettlement areas	LGU
Conduct skills training for alternative livelihood for the displaced population	LGU, TESDA, NGOs

c) Improve the availability of social welfare services for all vulnerable groups

Priority Projects/ Programs		Organization/ Agency
For VAWC	Reactivate VAWC Desks at barangay level	MSWD, Barangay Councils
	Strengthen Woman and Child Protection Unit (WCPU)'s capacity through recruitment of a psychiatrist at the new main health center	MSWD, DOH
For Youth	Involve youth in DRRM activities	DRRMO, SK
	Promote skills training for out-of-school youth	TESDA, LGU (MSWD), DEPED
For Senior Citizens	Extend psychosocial training for senior citizens in remote barangays (currently 13 trained at municipal level)	OSCA, FSCAT, COSE
	Include senior citizens in livelihood assistance	LGU, NGOs, OSCA, Senior Citizens Associations
	Implement social activities at a new Day Center for Senior Citizens	OSCA
	Enhance the eligibility for pension beneficiaries (currently older than 77 years and indigent only)	National DSWD, LGU, OSCA
	Implement the new guidelines on PhilHealth for all senior citizens	National DSWD, LGU, OSCA
	Conduct DRRM training for OSCA staff and Senior Citizens' Association members	DRRMO, MSWD, OSCA
For PWD	Increase manpower of MSWD to respond to various clientele needs particularly PWD	LGU (Mayor's Office, MSWD)
	Enhance the medical outreach program for PWD	RHU, MSWD, NGOs
	Include PWD and their families in livelihood assistance	MSWD, NGOs

Solid Waste Management:

The 10-years' SWM Plan constitutes fundamentally sectoral policies and strategies of SWM, and assume an important role also in formulating RRP, DRRMP, CLUP and annual budget. Accordingly, the workshop concluded that to prepare the new plan is a priority subject among all.

Priority Projects/ Programs	Organization/ Agency
To formulate the new 10 years' SWM Plan (2014 -2015)	MAO, MGSO, MPDO
To study and develop new sanitary landfill (Study 2015, Implementation 2016-20)	DENR, EMB, LGU, Donor and private entities
To rehabilitate and expand the composting facilities (Rehabilitation 2014, Expansion 2015 -)	MAO, Barangays
To promote the recycling system in entire LGU (2015 - 2024)	MAO, MGSO, Barangays
To create the technical working group under the MSWMB for costing of SWM service (Annually from 2015)	MSWMB, MEO, TWG
To promote campaigns to make the stakeholders understand the needs of SWM fee increase (2015 and periodically afterwards)	Mayor, MTO, MSWMB

3) Recovery of Regional Economy and Promotion of Industries

Basic Strategies for the Overall Economy Sector:

The resilience of the economic sector is heightened by reinforcing strength of the economy itself in principle and by fostering internal and external human/ economic linkages.

The enhancement of the economy or achievement of the vision is pursued by the following 6 basic strategies, which are derived mainly from results and discussions of the 1st and 2nd Workshop sessions:

- Agricultural and livestock productivity increase (primary sector industry),
- Sustainable marine resources with adequate productivity (primary sector industry),
- Development/ enhancement of MSMEs for agro-fishery industry and handicraft industry (related industries) by i) organizing MSMEs for financial capability and skills training, ii) providing physical support such as AA slaughterhouse, and iii) providing marketing and sales supports,
- Residential development (residential),
- Improvement of commercial facilities and residential amenity facilities (residential convenience and amenity improvement) by reconstruction of the central market, inducing a shopping center, and constructing sports facilities, and
- Promotion of linkages among primary, secondary, and tertiary industries' activities (Six ternary Industry Activities) for further enhancement of local economy and expansion/ reinforcement of internal and external human/ economic linkages.

The vision for the economy sector enhancement is primarily pursued by an increase in agricultural productivity and sustainable use of vested marine resources for production in association of promotion of livestock and related industries development/ reinforcement.

The above economic production as the base of the economy is going to be augmented by the tourism and commercial sector by the manner of promoting linkages among primary (agriculture and fishery), secondary (Industries including processing, manufacturing, chemical, heavy, light), and tertiary (services) activities (Six ternary Industry Activities).

The residential development is expected to stimulate commercial and service industries in the area.

Agriculture:

Basic Strategies for Agriculture:

a) Reactivate livestock raising

- Dairy Carabao raising by farmers' group
- Carabao milk processing by women group
- Carabao for draft
- Improvement of breeding of native Carabao

(Artificial Insemination and natural breeding, technique supported by PCC, Baybay)

b) Integrated farming of fruit trees, vegetables with coconut

- Crop diversification under coconut
- Coconut replanting program
- Food processing to add product value and create work opportunity

c) Improvement of vegetable production through organic farming & High Value Commercial Crops

- Training on technology modernization
- Provision of high quality seed
- Organic farming
- New trading post
- Farmers' direct sales shop
- High Value Commercial Crops

d) More income for rice farmers

- Mushroom and Vermi-culture

e) Establishment of a new trading post for farmers

f) Mechanization

Priority Projects/ Programs	Organization/ Agency
Mushroom Cultivation Project: Oyster mushroom (<i>Pleurotus florida</i>) ✓ Objectives: To generate additional income from rice straw and utilize the waste of mushroom bed as compost ✓ Target beneficiaries: Women's' group, people staying in temporary shelter ✓ Expected LGU response: Maintain laboratory and spore, and guidance on cultivation technique and marketing for group members ✓ Target output: Cultivation and sales of mushroom, and utilization of rice straw to fertilize farmlands ✓ Justification: Wise use of rice straw to produce more income and to fertile soil stop burning straw. Mushroom is high value commodity. Even shelter people who do not own land can cultivate ✓ Task of beneficiaries: Work out in laboratory, and cultivation of mushroom	To be discussed

Fishery:

Basic strategies to achieve the goals for fishery are as follows:

- Strengthening enforcement against illegal fishing.
- Promotion of environmentally sound aquaculture practices
- Development of alternative livelihood, like oyster culture, as introduced by JICA Quick Impact Project.
- The use of adaptive and participatory approaches in fisheries management.
- Training on value adding products to women and other family members of fisher folk.

- Study the plan to introduce fish aggregating devices (small payao) in hook & line fishing, not using net and compressor.

The workshop participants agreed that an appropriate fisheries policy should be “Sustainable capture fishery and aquaculture”.

Two projects which will follow-up JICA’s on-going project in Barangay Santa Cruz were proposed during the workshop.

Priority Projects/ Programs	Organization/ Agency
Oyster culture in collaboration with Leyte-Leyte	To be discussed
Group selling of shellfish collected from the wild in Leyte-Leyte	To be discussed

Oyster seeds will be produced in seven barangays in Leyte-Leyte and will be transported to Barangay Santa Cruz in Tanauan. Barangay Santa Cruz will have to grow the oysters using the rack method. The project will focus on marketing fresh oyster. Once the demand of processed oyster will be established, then training will be conducted on value-adding. Experiment on producing single oyster, not grown in clumps. Expected sponsors are BFAR, LGU, Provincial Government of Leyte, JICA. Technical cooperation (dispatch of JICA volunteer) is preferred.

Shellfish collected in Leyte-Leyte in a sustainable manner and will be transported to Barangay Santa Cruz in Tanauan for marketing. Shellfish will be stored in stock pond together with oysters produced in Barangay Santa Cruz. Training on proper handling, packaging and marketing of shellfish and oyster will be conducted. Relaying or depuration mechanisms/facilities will be installed. Sales promotion and marketing of shellfish and oyster will be conducted. Expected sponsors are BFAR, LGU, Provincial Government of Leyte, (OPA), and JICA. Technical cooperation (dispatch of JICA volunteer) is preferred.

(7) Hazard Maps

1) Storm Surge

This hazard map shows a result of storm surge simulation analysis for the worst scenario of S-0.1°. It is confirmed that the Poblacion is inundated in the map.

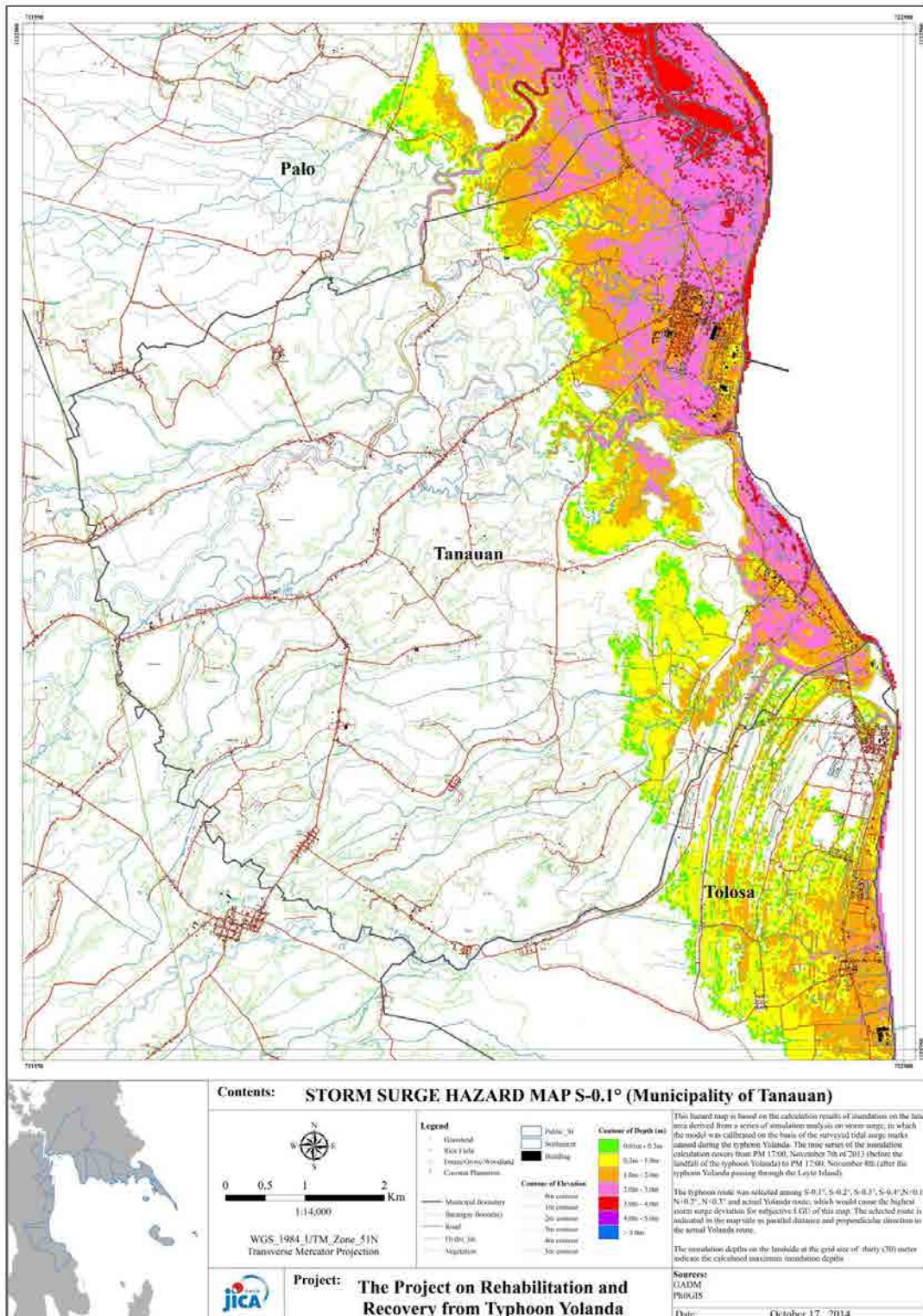


Figure 2.2-15 STORM SURGE HAZARD MAP S-0.1°

2) Flood

Compared to the storm surge hazard map of S-0.1°, inundation depth of 2011 March Flood was lower while the inundation area was larger. It is confirmed that the Poblacion was also inundated.

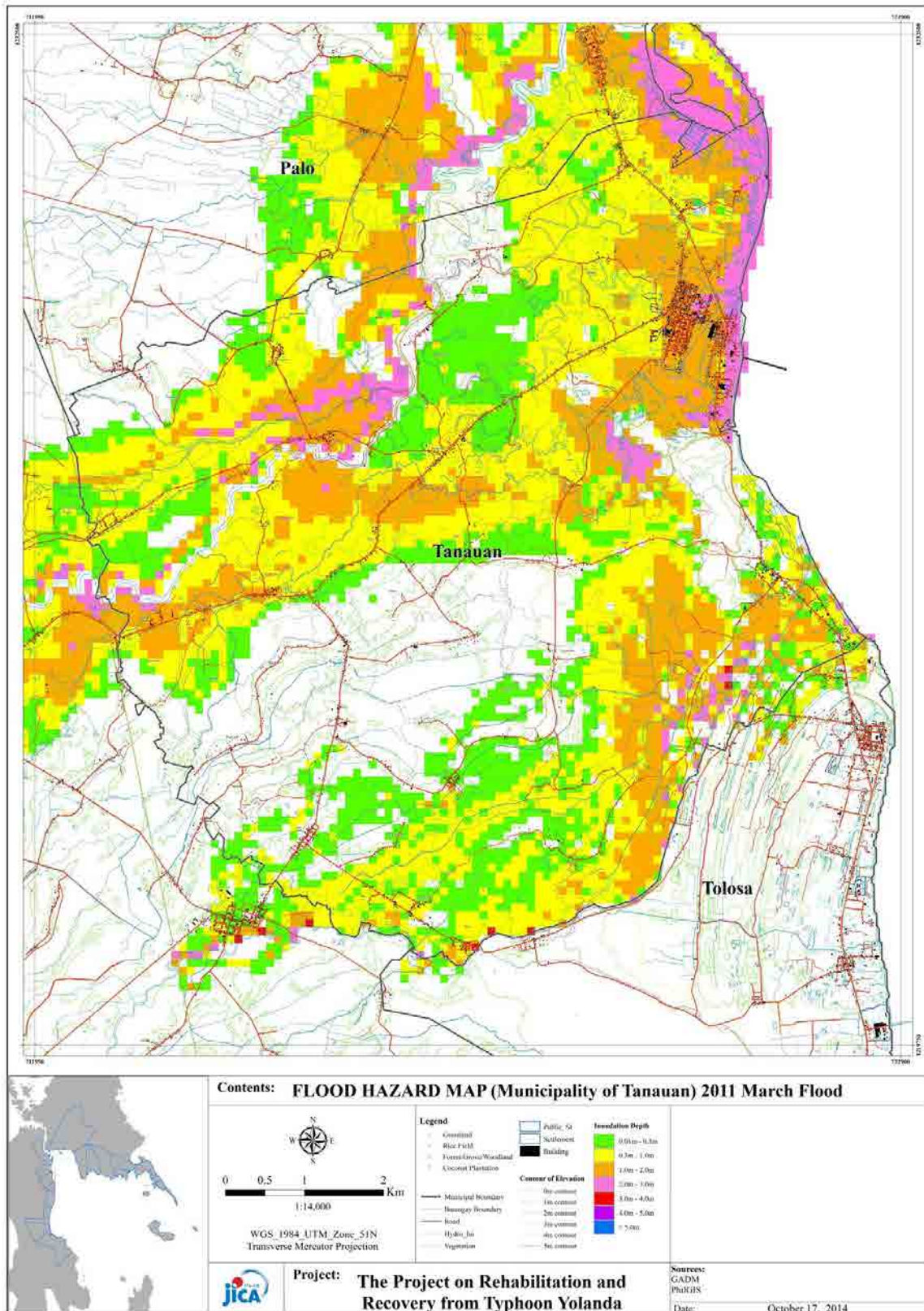


Figure 2.2-16 FLOOD HAZARD MAP 2011 March Flood

3) Tsunami

Compared to the storm surge hazard map of S-0.1° and 2011 March Flood, it was confirmed that inundation depth of Tsunami hazard map was deeper while the inundation area was smaller.

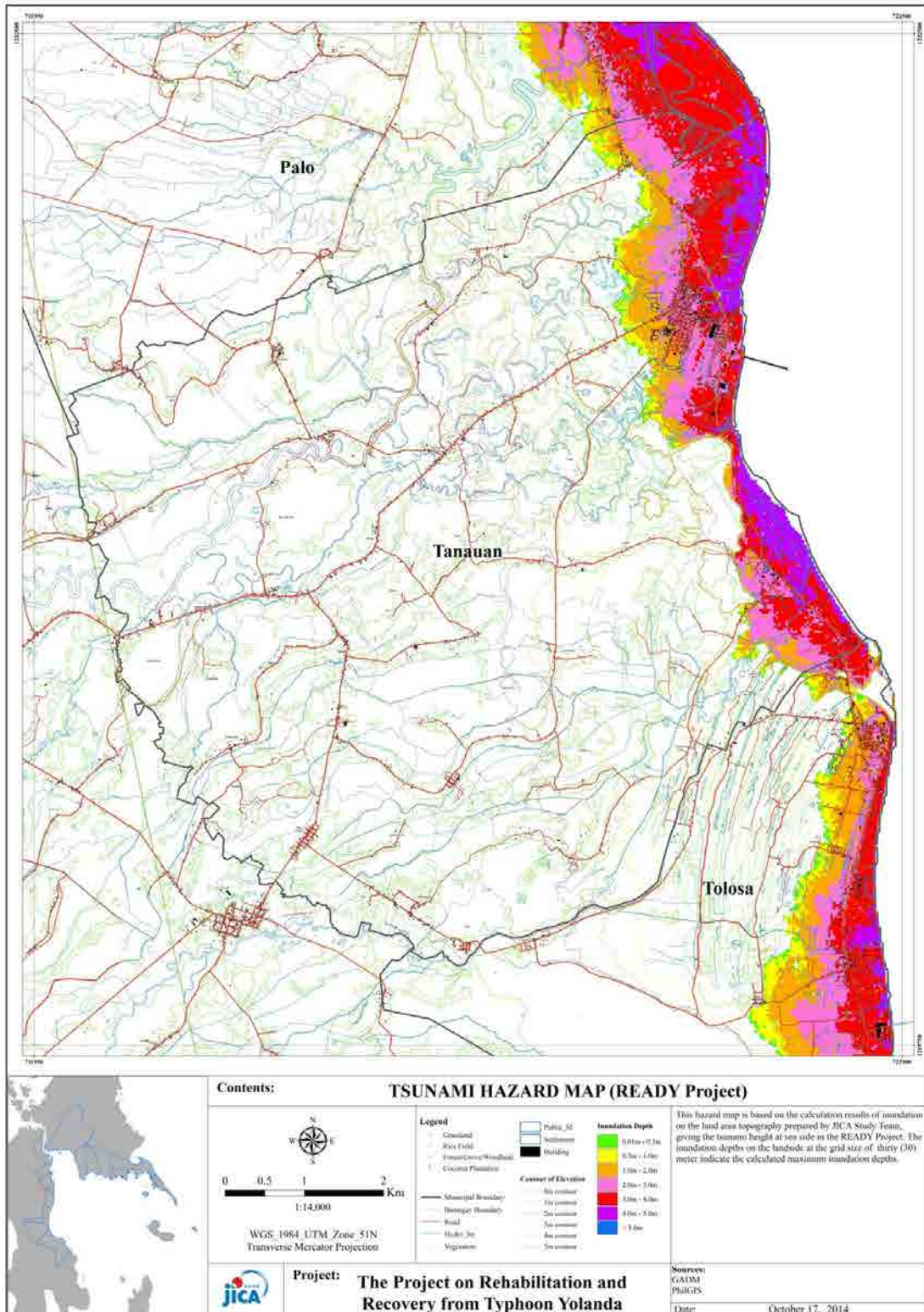


Figure 2.2-17 TSUNAMI HAZARD MAP

(8) Recovery and Reconstruction Map (Structural Measures/ Land Use)

- 1) Plan review of the proposed embankment road alignment along east coast of Leyte Island. Standard cross-section of the proposed embankment road

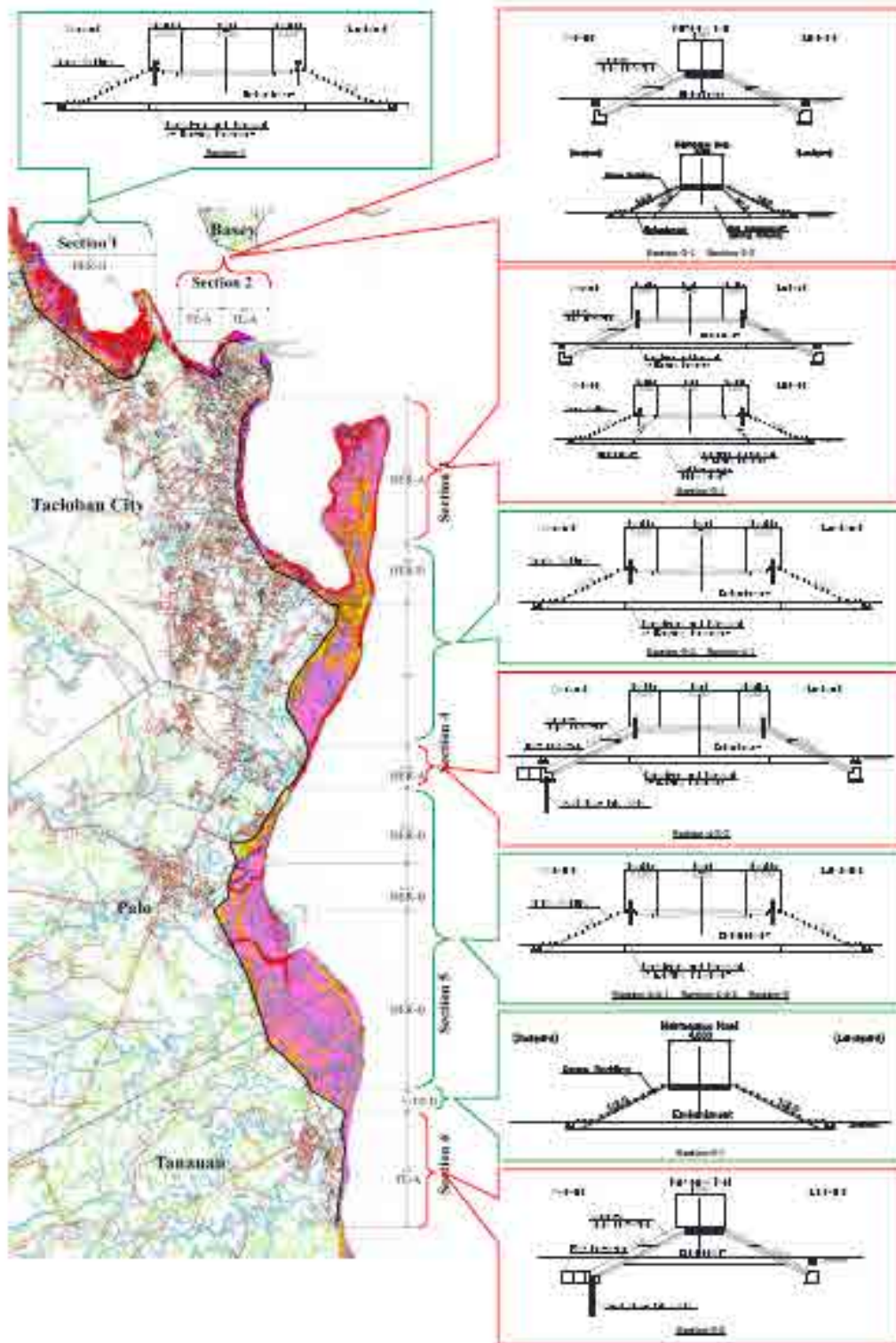


Figure 2.2-18 Plan view of the proposed embankment road alignment along east coast of Leyte Island. Standard cross-section of the proposed embankment road

2) Top Elevation of Heightened Road and Tidal Embankment



Figure 2.2-19 Top Elevation of Heightened Road and Tidal Embankment

3) Issues of the existing land use during the event of 2011 flood disaster

In Tanauan, the flood disaster in March 2011 was more severe and larger compared to the tidal surge disaster due to typhoon Yolanda. Flooding in Tanauan city is mainly caused by Binahaan river, flowing through Palo city and a branch river flowing along the border of Tolosa. Excavation plan for Binahaan river was planned to increase the river cross-section and discharge capacity before Yolanda, but the implementation was cancelled due to typhoon Yolanda disaster.

The alternatives against flood disaster, which consist of 1) Installation of the storage pond in upstream and 2) Bypassing the river flow directing into the sea, have been being examined. The overflowed flood water from Binahaan river generally is intercepted by the national road, which is elevated to some extent. The flooded water from the southern side of the national road is also intercepted on the national road. The seriously damaged areas are indicated with red circles in the upper (northern) side on the map. It is expected that the flood disaster will be reduced by the flood countermeasures above mentioned. The red x-marks on the map along Binahaan river, indicate the locations where embankment collapse frequently, causing flood disaster.

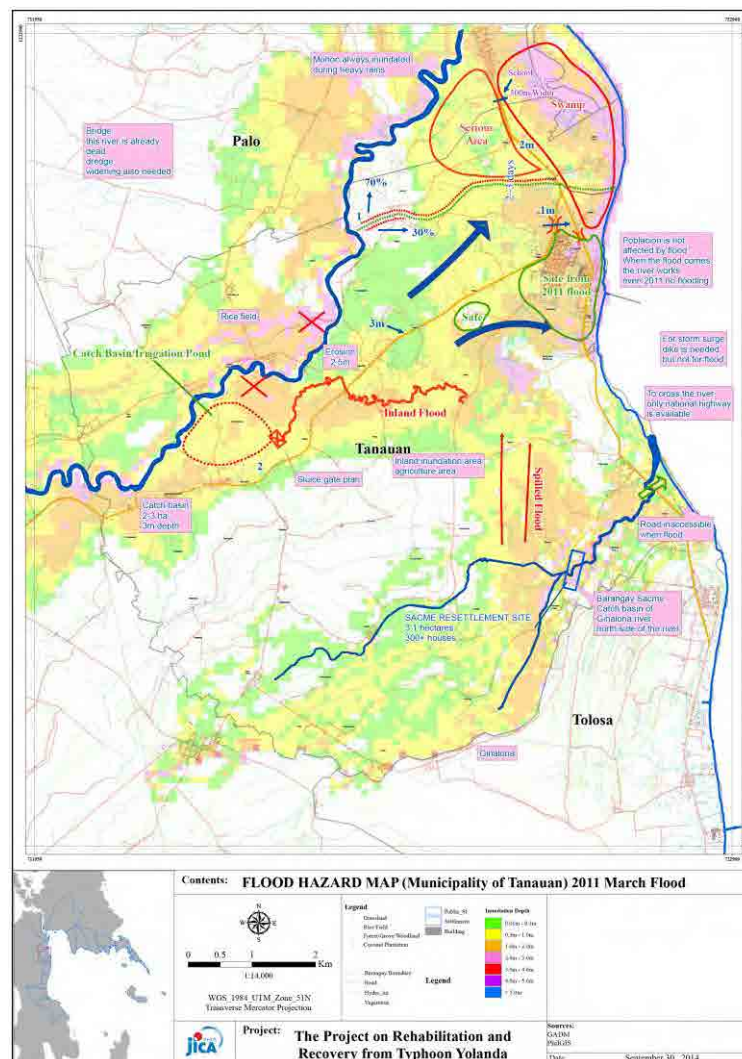


Figure 2.2-20 Issues of the existing land use during the event of 2011 flood disaster

4) Locations of evacuation shelters for the people in Poblacion

Locations of evacuation shelters and capacity in Poblacion were confirmed.

It is also confirmed that the Poblacion is inundated based on the storm surge hazard map (50 YRP), then the locations of possible shelters are being examined somewhere outside of the Poblacion or the surrounding area. Such evacuation shelters may well be regarded as an emergency or temporary evacuation place since some shelters in the surrounding area may be inundated and there are limitations such as the capacity of shelter, etc. Then, another examination or investigation is necessary for early emergency or temporary evacuation places at a very early stage of natural disaster.

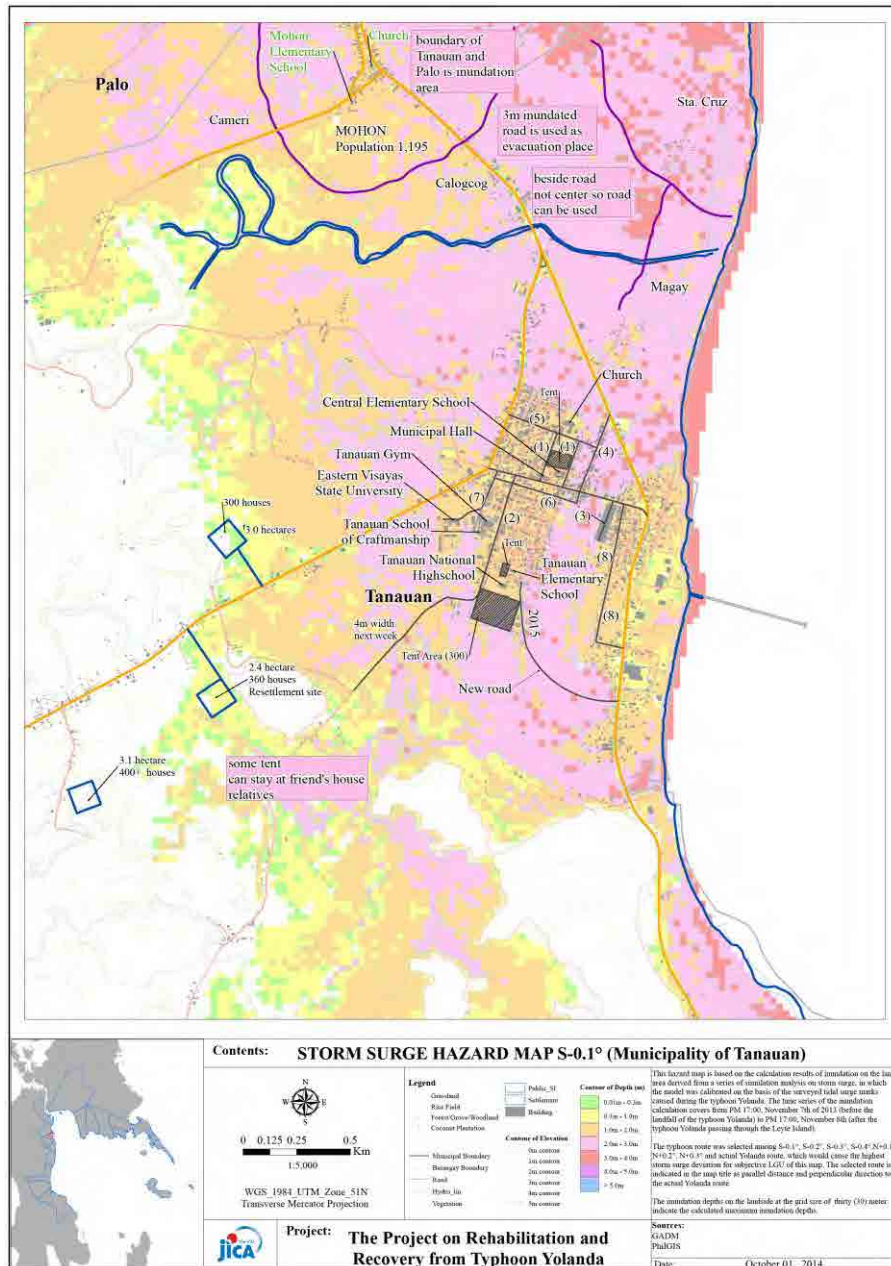


Figure 2.2-21 Locations of evacuation shelters for the people in Poblacion

5) Draft revision of the land use map of CLUP

The map below shows Draft revision of the land use map of CLUP. The red line indicates protection line of structural countermeasures for protection of the Poblacion, consisting of level up of the existing national road and tidal embankment. The area in brown color inside the bold black line indicates hilly/mountainous area. It is proposed that such area is recommended to be MEMORIAL PARK(EVACUATION PARK) since people evacuated to this place at the event of Yolanda. However, fundamental evacuation routes have not been developed after Yolanda. The routes, which usually are utilized in ordinal time for recreation purposes, etc., are necessary to be constructed.

The figure at lower right shows a flood hazard map, showing very wide inundation area. Residential areas including Poblacion, etc. are only part of the coastal zone and most of the zones are utilized as agricultural purposes. Then, installations of countermeasures against storm surge and flood disaster (especially from Binahan river), protecting an urban area such as the Poblacion, etc., are effective measures. An opinion was given for protection of urban area in the southern coastal zone since the current plan does not cover the area.

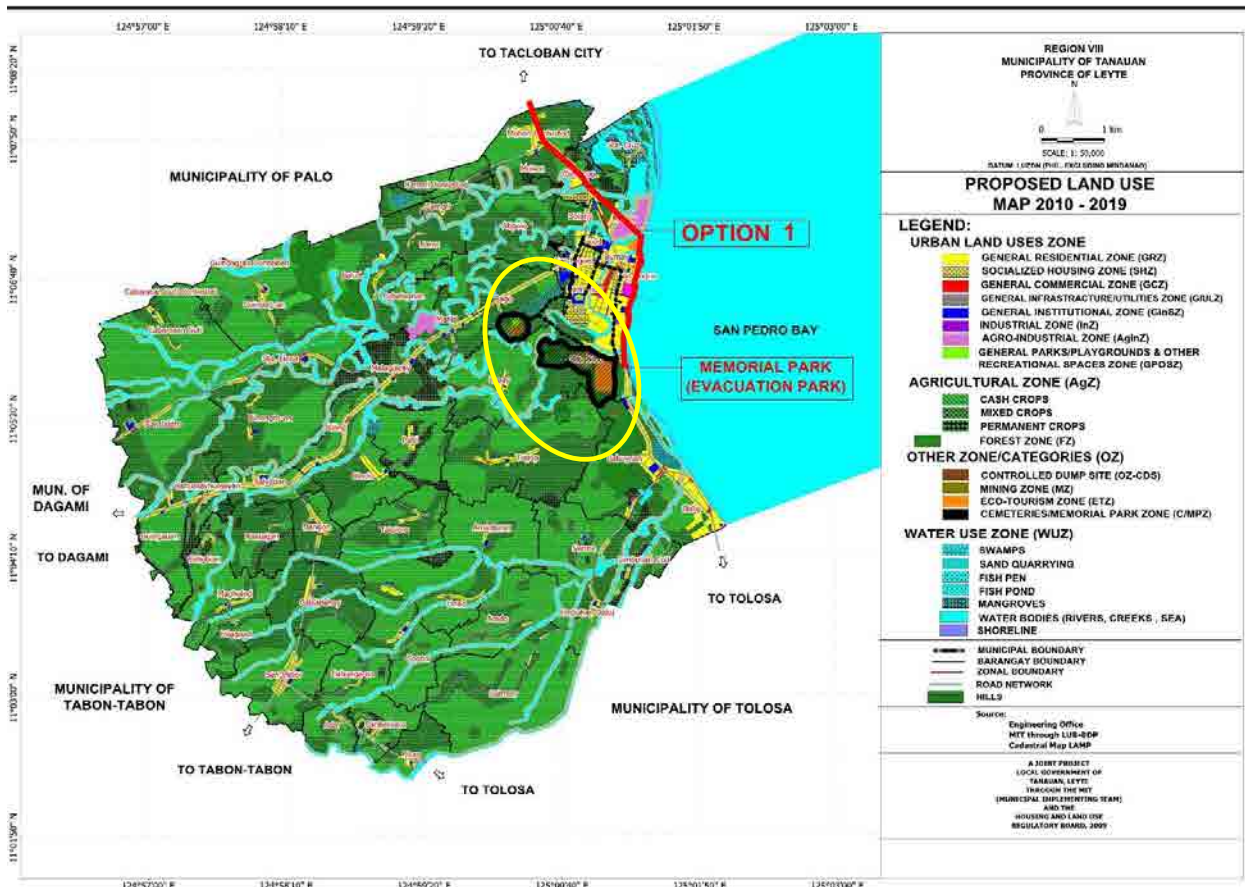
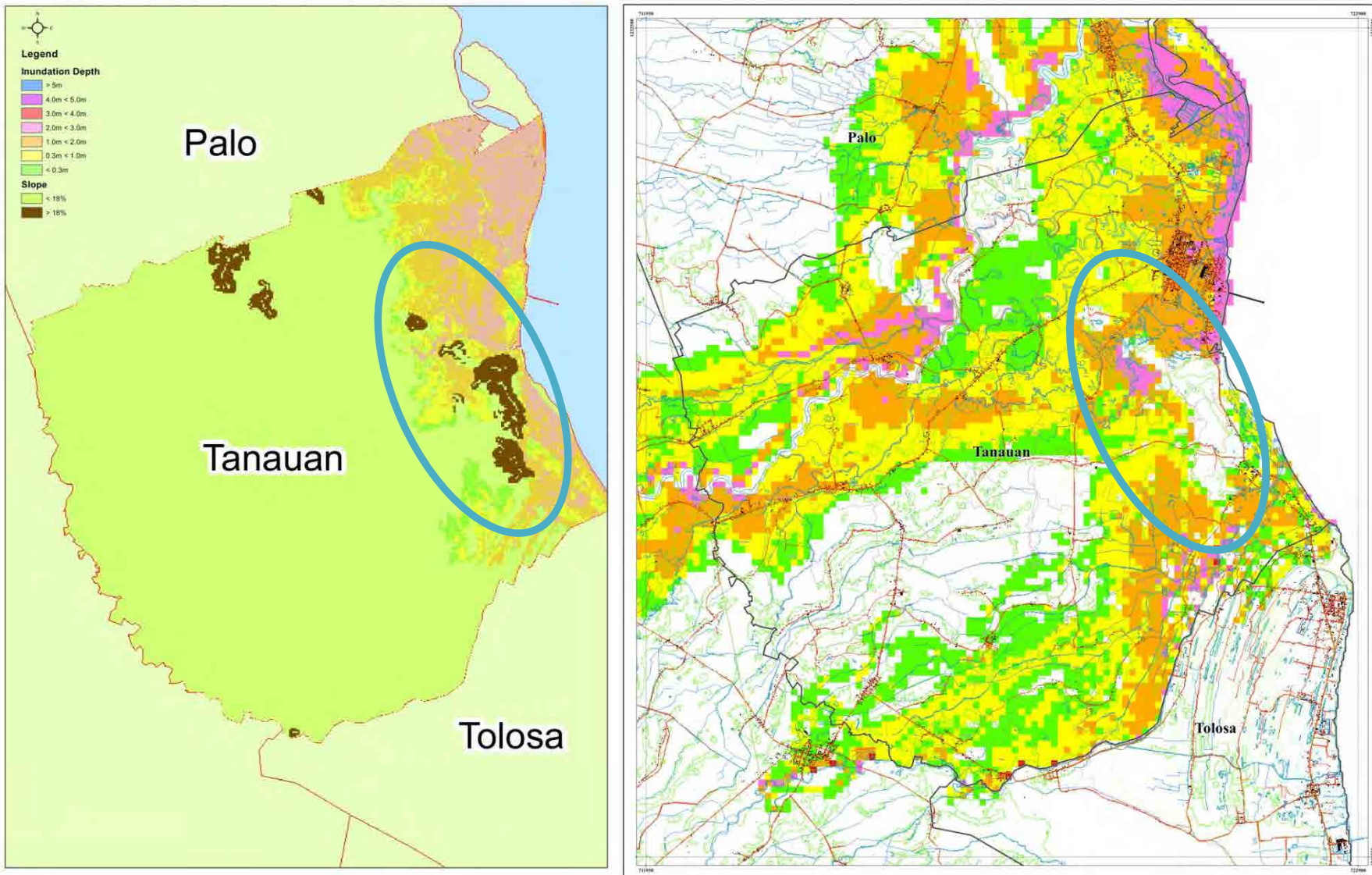


Figure 2.2-22 Draft revision of the land use map of CLUP (1/2)



2-80

Figure 2.2-23 Draft revision of the land use map of CLUP (2/2)

6) Evacuation shelter and emergency transportation roads

Main road such as national road connecting Poblacion and urban areas in the wide area is regarded as an emergency transportation road. Roads, which are potentially fundamental in Poblacion or urban area, can be functioned as complementary road assisting emergency transportation roads. (In blue line) Also Important Access Road (Black line) is also proposed as important access roads inside urban area to be significantly developed. The above road networks are considered, including sufficient accessibility to emergency storage places in the urban areas. (Red circle: Storage Point (contain Distribution Center))

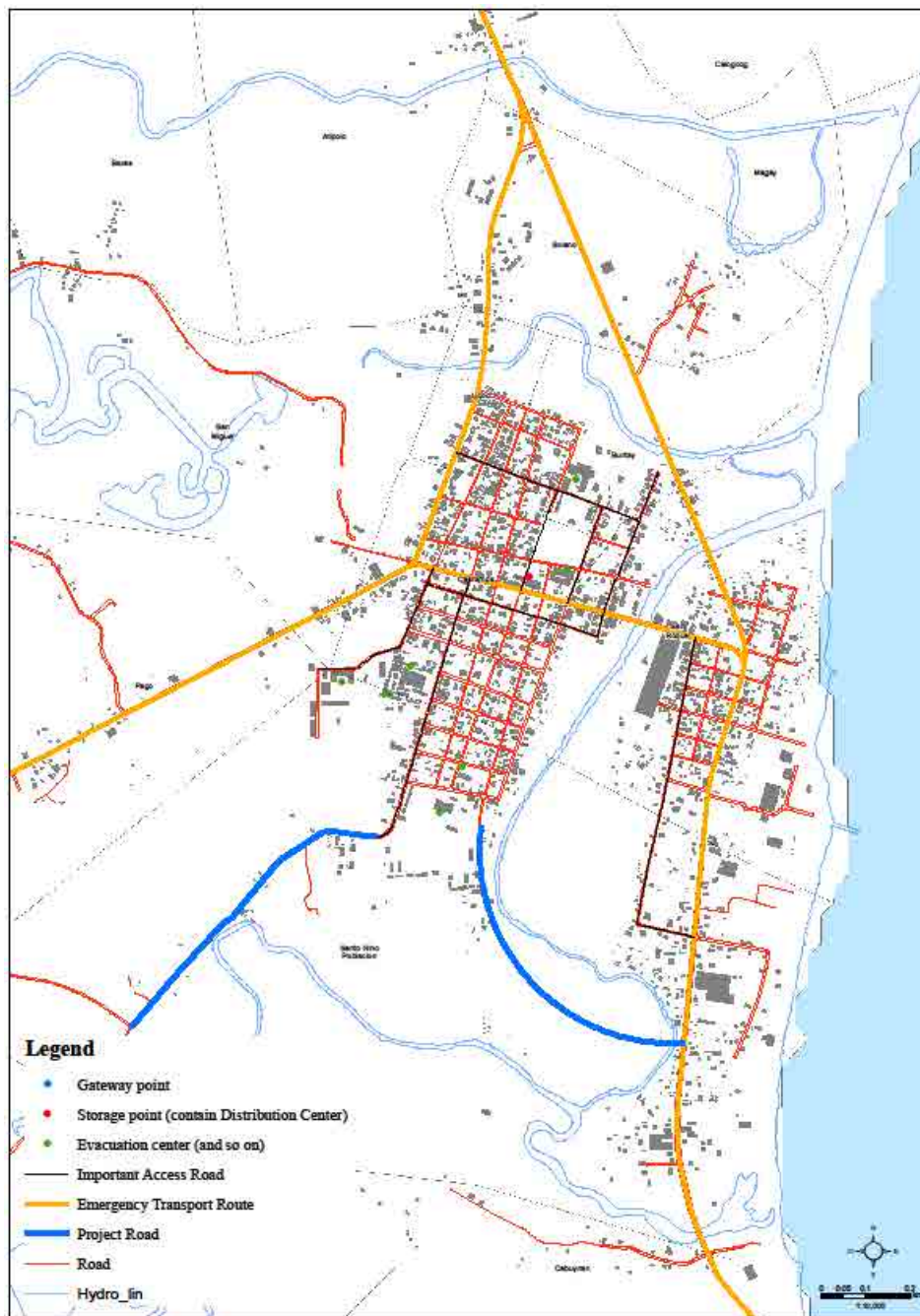



Figure 2.2-24 Evacuation shelters and emergency transportation roads

2.2.4 Basey

(1) City Profile

Province	Samar																							
Level of LGU	1st Class Municipality																							
Area ¹⁾	532 km ²																							
Barangay ¹⁾	51 Barangays (7 Urban, 44 Rural)																							
Annual Budget (revenue) ²⁾	PHP 112 Million (estimate for 2013)																							
Population ¹⁾	53,873 (2013)																							
Safer Cities	<p>Major Land Use¹⁾</p> <p>Agricultural land: Around 155km²</p> <ul style="list-style-type: none"> Rice: 5,880 ha Coconut: 7,945 ha <p>Forests and grassland: Around 368 km²</p> <ul style="list-style-type: none"> Forests: 284 km² Grassland / pasture: 84 km² Built up areas: 250 ha <p>Built up areas are mainly developed along the southwestern coast line and along National Highways and Municipal Roads.</p> <p>Number of evacuation centers (ECs) and the capacities</p> <ul style="list-style-type: none"> Number of ECs and the capacities were not identified. <p>Water Supply:</p> <p>Basey Water District supply water to permanent inhabiting area in Basey. Water source is spring water 14 km from the center. Water is transmitted and distributed in gravity system. There is no purification facility but 2 units of 200 litter drums for chlorination. Cast iron pipes and Polyethylene pipes and uPVC pipes are used. Water production is 2,611 cum/day, 77,835 cum/month.</p> <p>Basey Water District will supply water to the new development and relocation area in the west. The water source will be same. There is neither development plan nor funds at the moment. The temporary housing areas in the west have their own water sources from wells.</p> <p>Electricity:</p> <p>SAMELCO II is the electric cooperative that supplies power for the mid-Western part and Southern part of Samar based on Paranas, and has 136 employees (As of Dec. 31, 2012). The maximum peak load is approximately 12 MW (as of Dec. 31, 2012). SAMELCO II has three power source substations with total of 20 MVA.</p>																							
Social Welfare	<p>Medical Health Facilities (2013)³⁾:</p> <table border="1"> <thead> <tr> <th colspan="2">Hospitals</th> <th rowspan="2">Main Health Center</th> <th rowspan="2">Barangay Health Stations</th> <th rowspan="2">Maternity House</th> </tr> <tr> <th>Government</th> <th>Private</th> </tr> </thead> <tbody> <tr> <td>1</td> <td>0</td> <td>1</td> <td>8</td> <td>N/A</td> </tr> </tbody> </table> <ul style="list-style-type: none"> Health center is with birthing function. <p>Health Personnel at the City Health Offices (2013)³⁾:</p> <table border="1"> <thead> <tr> <th>Doctors</th> <th>Nurses</th> <th>Midwives</th> <th>Sanitary Inspectors</th> </tr> </thead> <tbody> <tr> <td>1</td> <td>2</td> <td>8</td> <td>3</td> </tr> </tbody> </table>				Hospitals		Main Health Center	Barangay Health Stations	Maternity House	Government	Private	1	0	1	8	N/A	Doctors	Nurses	Midwives	Sanitary Inspectors	1	2	8	3
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	<ul style="list-style-type: none"> • In addition to 2 of regular nurses, 16 of nurses are under DOH nurse program. • In addition to 8 of regular midwife, 4 of midwife are under DOH Midwife program. • The number of BHW and BNS are respectively 290 and 60. • Leading causes of morbidity at health stations (2013) <ol style="list-style-type: none"> 1. Pneumonia 2. Acute respiratory infections 3. Systemic viral infection <p>Solid waste management:</p> <ul style="list-style-type: none"> • Working staff: 34 persons (2 permanent and 32 job order basis) • Estimated Generation of Waste in LGU: 15 ton/day • SWM Service Coverage Ratio is 20% of population • There are no vehicles owned by the Municipality, but 2 big trucks of UNDP are operating
<p>Economy and Industry ¹⁾</p>	<p>GRP: NA</p> <p>Agriculture: The scale is NA. (Population: 8,236)</p> <ul style="list-style-type: none"> • Rice: The scale is NA. • Coconut: The scale is NA. • Major agricultural products of Basey are rice, coconut, corn, banana, root crops and vegetables. • Basey has 3,000 ha of potential rice field with irrigation. Irrigation development for 1,500 ha was under construction before Typhoon Yolanda disrupted the works. Another 2,000 ha has a potential for non-irrigation rice fields. <p>Livestock: The scale is NA.</p> <p>Fishery: The scale is NA. (Registered fisherfolk: 1,547)</p> <ul style="list-style-type: none"> • Capture fisheries: The scale is NA. • Cultivation: The scale is NA. • Marine products include cultured bangus, fat lapu-lapu, oversized crabs, lobster, prawn and shrimps. • Main fishing grounds are San Pedro Bay, San Juanico Strait and Golden River. • Strong tidal current, river mouths and mangrove forests provide suitable environment for aquaculture. • Located close to urban market, Tacloban City, where consumption of large volume of fish takes place. <p>Commercial: The scale is NA.</p>

Source

1) Basey Municipality, Reconstruction Assistance on Yolanda (RAY)

2) Municipal Budget Office, Basey

3) Municipal Health Office

(2) Damage Caused by Typhoon Yolanda

Building Safer Cities	Physical/Human Damage:			
	Inundated Area by Yolanda ²⁾		75 km ²	
	Number of Affected People ¹⁾		53,873	
	Deceased ³⁾		193	
	Injured ¹⁾		714	
	Missing ³⁾		25	
	Number of Houses totally damaged ¹⁾		7,175	
	Number of Houses partially damaged ¹⁾		5,048	
	Damage on Infrastructure (Public and Private)		175.5 Million PHP	
	Losses to municipal properties ¹⁾		4 Million PHP	
	<p>Source</p> <p>1) Basey Municipality, Reconstruction Assistance on Yolanda (RAY)</p> <p>2) JICA Study Team, Storm Surge Hazard Map</p> <p>3) Date from LGU</p> <ul style="list-style-type: none"> • Buildings damaged by the typhoon were seen in all parts of the Municipality. • However, the rate of partially damaged buildings against totally damaged buildings were higher in the northeastern inland areas of the territory. • The rate of totally damaged buildings were high in the southwestern edge, along the coastlines of Barangays of Tinaogan, Cambayan and Amandayehan. <p>Source: Interpretation result on damaged buildings from satellite images, JICA Study Team</p>			
	<p>Water Supply:</p> <p>Damages by typhoon Yolanda were estimated as 9.81 million pesos (source: LWUA).</p>			
	<p>Electricity:</p> <p>Damage and loss in the electricity sector by Yolanda was estimated at 27.5 million pesos and recovery/reconstruction needs was 140 million pesos (Basey Recovery and Reconstruction Plan). When Super Typhoon Yolanda hit, the whole coverage area experienced power interruption. The transformer of the power source substation was not damaged. Regarding the number of pole transformers necessary for rehabilitation, 605 units are required, and they are being procured from the U.S, China, and Korea.</p>			
Social Welfare	Health:			
		Totally damaged	Partially damaged	Total
	Government Hospital	-	1	1
	Private hospital	-	-	-
	Main Health Center	-	1	1
	Barangay Health Station	-	9	9
	Maternity House	-	-	-
	<ul style="list-style-type: none"> • Main Health Center were partially damaged, but it started to function after 2 weeks of the disaster • Government Hospital were partially damaged, but it was managed to function even after the disaster • All Barangay Health Stations were heavily damaged. The structures were not functional, but consultation and other health activities were operated 			

	<p>Social Welfare:</p> <table border="1"> <thead> <tr> <th></th> <th>Totally damaged</th> <th>Partially damaged</th> <th>Total</th> </tr> </thead> <tbody> <tr> <td>Daycare Center</td> <td>29</td> <td>33</td> <td>62</td> </tr> </tbody> </table> <ul style="list-style-type: none"> 17 Senior Citizens Centers totally damaged and 23 partially damaged <p>Source: Basey MSWD</p> <p>Education:</p> <table border="1"> <thead> <tr> <th></th> <th>Totally damaged</th> <th>Partially damaged</th> <th>Total</th> </tr> </thead> <tbody> <tr> <td>Elementary schools</td> <td>68</td> <td>65</td> <td>133</td> </tr> <tr> <td>Secondary schools</td> <td>10</td> <td>46</td> <td>56</td> </tr> </tbody> </table> <ul style="list-style-type: none"> Combined partially and totally damaged school buildings: PHP 143 million. <p>Source: RRP, Basey</p> <p>Solid Waste Management:</p> <ul style="list-style-type: none"> Generation of a large amount of debris: estimated at 27,000 m³ Total damage of 2 collection trucks 6m³ MRF and composting of LGU at new dumpsite was totally damaged. LGU incurred ad-hoc expenditures for debris collection and disposal. 		Totally damaged	Partially damaged	Total	Daycare Center	29	33	62		Totally damaged	Partially damaged	Total	Elementary schools	68	65	133	Secondary schools	10	46	56																							
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Economy and Industry	<p>Whole Economic Sector: Total Damage: PHP 1,700 Million Total Loss: PHP 900 Million Source: Basey Municipality, Reconstruction Assistance on Yolanda (RAY)</p> <p>Agriculture:</p> <ul style="list-style-type: none"> There are 1,514,601 (99.5%) of coconut trees that were affected by Typhoon Yolanda. Estimated amount of the damage is 13.1 million PHP according to Reconstruction Assistance on Yolanda (RAY) in Basey. <table border="1"> <thead> <tr> <th>Crop</th> <th>Farmers Affected (No)</th> <th>Total Area Affected (ha)</th> <th>Production Loss (M.T.)</th> <th>Cost of Production (PHP)</th> </tr> </thead> <tbody> <tr> <td>Rice</td> <td>2,500</td> <td>2,000</td> <td>1,638</td> <td>15,000,000</td> </tr> <tr> <td>Banana</td> <td>50</td> <td>100</td> <td>200</td> <td>2,000,000</td> </tr> <tr> <td>Corn</td> <td>55</td> <td>34</td> <td>42.5</td> <td>850,000</td> </tr> <tr> <td>Vegetables</td> <td>168</td> <td>7</td> <td>28</td> <td>210,000</td> </tr> </tbody> </table> <p>Source: Department of Agriculture, Eastern Visayas Typhoon Yolanda Damage Report (As of Feb, 2014)</p> <ul style="list-style-type: none"> According to Reconstruction Assistance on Yolanda (RAY) in Basey, an estimated amount of damage of banana, cassava and root crops/ vegetables are 226, 4.6 and 0.67 million PHP, respectively. <p>Livestock:</p> <table border="1"> <thead> <tr> <th>Type of Livestock</th> <th>No. of heads</th> <th>Estimate Damage</th> </tr> </thead> <tbody> <tr> <td>Cattle</td> <td>15</td> <td>180,000</td> </tr> <tr> <td>Carabao</td> <td>20</td> <td>270,000</td> </tr> <tr> <td>Swine</td> <td>100</td> <td>480,000</td> </tr> <tr> <td>Poultry</td> <td>10,000</td> <td>59,700</td> </tr> <tr> <td>Small Ruminants</td> <td>3</td> <td>7,500</td> </tr> </tbody> </table> <p>Source: Department of Agriculture, Eastern Visayas Typhoon Yolanda Damage (November 12, 2013)</p>	Crop	Farmers Affected (No)	Total Area Affected (ha)	Production Loss (M.T.)	Cost of Production (PHP)	Rice	2,500	2,000	1,638	15,000,000	Banana	50	100	200	2,000,000	Corn	55	34	42.5	850,000	Vegetables	168	7	28	210,000	Type of Livestock	No. of heads	Estimate Damage	Cattle	15	180,000	Carabao	20	270,000	Swine	100	480,000	Poultry	10,000	59,700	Small Ruminants	3	7,500
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Fishery:		
Sector		Estimated amount of Damage (PHP '000)
Fish cages		195,750
Fish corrals		670
Fishing Boats	motorized	6,338
	non-motorized	3,717
Engines for fishing boats		554
Gill nets/ crab net / other fishing gears		1,947
Others		211
Total		209,187

• Loss of production in the fishery sector: PHP 210,781,030.
Source: Reconstruction Assistance on Yolanda (RAY), Basey

(3) Progress in Recovery and Reconstruction

1) Progress in Building Safer Cities

DRRM:

The planning process for non-structural countermeasures progressed to designation of evacuation shelters, etc. On the other hand, effective structural countermeasures protecting from tidal surge disasters, etc. have yet to be considered. Only the damaged facilities (e.g. seawall, etc.) were repaired to the former state. Relocation plans from the existing city center to higher places have progressed as well as city development or expansion plans at the relocated area since before the typhoon Yolanda disaster.

2) Progress in Recovery of People's Daily Lives

Health:

All health facilities are on the process of repairing by either DOH or INGO, and will be fully functional within next year. However, the health services have some challenges even before Typhoon Yolanda came and some of the challenges are more serious than before due to the disaster.

Education:

Both the Districts 1 and 2 in Basey, 80% of the school repairs have been completed so far. Furthermore, 40% of the plan to construct new school buildings has been implemented. With support of DEPED, LGU, Plan Philippines, and school teachers were trained on psychosocial skills, and students received psychosocial support from them.

Social Welfare:

To date, only one Daycare Center in Barangay Basiao has been supported for reconstruction. Through LGU's own funding, the MSWD Office was repaired. To provide a safe space for children, Food for the Hungry and Plan International have established Child-friendly Spaces in 6 barangays within Basey. The issue of shelter has been supported by NHA, DSWD, TDH, ICRC,

PRC and Food for the Hungry.

Solid Waste Management:

Just after Typhoon Yolanda the debris was temporarily stored at the 3 roadside vacant lots. In September 2014, UNDP removed all the debris and transported it to Tacloban dumpsite. 2 collection trucks of Mitsubishi 4m³ were purchased newly.

The planned program as short term and middle term intervention are as follows:

- Rehabilitation of farmers livelihood and coconut plantation
- Provision of rice seeds, fertilizers and other farm inputs
- Repair and completion of irrigation facilities
- Repair of post-harvest facilities
- Intercropping of banana, corn, root crops (gabi: taro), other high valued vegetables to coconut farm
- Distribution of coco seed nuts
- Introduction of other fruits bearing trees (cacao) as a major source of income
- Food processing facility for gabi and cacao
- Other source of income affected for livestock
- Breeders/ dispersal program
- Reconstruction of slaughter house
- The rehabilitation programs under the planning are as follows:
 - Provision of rice seeds, fertilizers and other farm inputs by FAO and GIZ.
 - Provision of duck by DA RO8

3) Progress in Recovery of Regional Economy and Promotion of Industries

Agriculture:

The immediate need for recovery is to provide assistance to farmers to provide plantation crops and establish field. Seeds and fertilizers were provided for the dry-season crop (palay and corn) by DA and INGOs. For damaged coconut, assistance was provided through giving seeds and farming implements by PCA. FAO contributed to promote intercropping of fruits, corn, vegetables as well as slopping technology in the short- to medium-term. Clearing of fields was taken through cash for asset, but only few farmers were able to avail.

Fishery:

According to the Municipal Agriculture Officer, some recent progress in recovery and reconstruction are as follows:

- 543 fishing boats have been distributed to 21 coastal barangays by BFAR AHON program (as of April 4, 2014).
- Various NGOs and Christian organizations also gave huge numbers of boats to fisher folks.
- Typhoon resistant submersible fish cages have been introduced by JICA Quick Impact Project.
- JICA promotes technical exchange of processing of soft-boned milkfish between women in Basey and Tanauan.
- FAO has also conducted training on fish processing of milkfish.
- Some 100 fish cages damaged by Typhoon Yolanda will be replaced by BFAR.

(4) Issues and Problems in Recovery and Reconstruction

1) Building Safer Cities

DRRM:

- Revision of existing land use based on the latest hazard maps
- Management of future land use of the existing city center as non-residential zone after the relocation
- Serious insufficiency of basic infrastructure
- Insufficiency plan for structural countermeasures
- Inadequate plan for evacuation shelters
- Insufficient organizational framework and know-how for the planning of disaster risk reduction
- Necessity of consideration on development of emergency transportation roads
- Necessity of structure strengthening for public facilities and evacuation shelters

Public Utilities:

- Water Supply
- Huge water losses
- Unpaid water (small paid quantity)
- Electricity
- The area from Basey to Marabut is served with 5MW substation, so another substation will be required between Basey and Marabut.
- New substation will be necessary for new development in the west of existing poblacion, but there is no plan so far.

- For resilience against disasters, strengthening of poles and facilities will be required. Also emergency stand-by generators such as solar system will be good, but the cost will not be affordable.

2) Recovery of People's Daily Lives

Health:

- More equipment and medical supplies shall be provided for Barangay Health Stations to fully function
- Shortage of human resource is still remaining
- More resilient Barangay Health Stations are required for accommodate bigger population which will be transferred or relocated from one barangay to another

Education:

a) Increase of dysfunctional and unsafe schools

- Schools repaired by different donors without stronger structural measures (DEPED does not have a disaster-resilient building code)
- Schools located in NBZ (e.g. San Antonio)
- Possible need for upgrading/building schools in relocation sites
- Lack of schools able to function as evacuation centers particularly in Basey District 2

b) Psychosocial impact on teachers and students

c) Lack of integration of DRRM in education

- School drills cover earthquakes only
- Outdated and limited references on DRRM in instructional materials and lack of trained teachers

Social Welfare:

a) Shortage of safe and functioning social welfare facilities

- Majority of damaged Daycare Centers unfunded for reconstruction and none can serve as an evacuation center
- OSCA/Day Center for Senior Citizens in Mercado repaired without structural improvement despite its geo-hazardous location
- Temporary office space for MSWD
- No crisis centers for women and children and rehabilitation centers for youth (only referral to Palo and Tanauan)

b) Limited social welfare services for increasingly vulnerable women, children, senior citizens, PWD and youth

- Lack of GBV response despite the case increase after Yolanda
- Limited recovery and reconstruction assistance for senior citizens and PWD
- Less livelihood alternatives for Yolanda-affected senior citizens, female-headed households and indigenous people (Manwa tribe)
- Increasing numbers of unemployed youth and out-of-school children

c) Lack of integration of social welfare issues in the Basey Recovery and Reconstruction Plan

Solid Waste and Management:

The following issues were raised and discussed in the workshop held on September 17, 2014. Current draft of “10-years’ SWM Plan” has not formulated scientifically in compliance with Republic Act 9003.

- Need to convert the existing open dumpsite to categorized disposal facilities and sanitary landfill
- Needs to strengthen the recycling and MRF system
- SWM cost is unclear.
- Needs to collect SWM fee from residential houses

3) Recovery of Regional Economy and Promotion of Industries

Most of recovery efforts relating to the economy have been focused on rehabilitation/reconstruction/ recovery of the damaged facilities and activities. Delay of the central market and bus terminal reconstruction is critical at planning stage, which affected seriously to recover ordinal business activities in the town proper. A lot of in-kind and financial assistances have been extended to the suffered people for relieving purpose, although some of them were not market oriented

Although the municipality’s coconut related damages were short-time, the expected economic shrinkage due to production value reduction by damaged coconut trees, which may last for a several years at least for the region, in the study area has to be encountered.

Improved security condition of the Municipality in recent years is opportunity to enhance its economic activity especially in utilization of vast arable land potentials.

Agriculture:

Though rice seed and fertilizer were provided to some farmers, the fertilizer was not applied in some places where supply of irrigation water ceased by the damage on facility.

Basey has large potential rice fields. However, labor force is insufficient at the busy farming

period, especially for transplanting and harvesting.

Limited work opportunity for women / no chance to fulfill women's potential

Fishery:

At the workshop, the following issues and problems were dealt with:

- Number of fisher folk has tripled as NGOs gave banca and fishing gear (gill net) to those who were not fisher folk before Typhoon Yolanda.
- Fishing is concentrated in municipal waters because the boat is too small to go to Leyte Gulf.
- Limited law enforcement after Typhoon Yolanda destroyed the BFAR-funded surveillance boat
- Rehabilitation of oyster and seaweed farming has been slow.
- More value-added products must be developed and marketed.

It is clear that Municipality of Basey needs to effectively control fishing boat pressure on fish stocks. Also, aquaculture and efforts at adding value to aquaculture products should be given more consideration to meet typhoon-affected people's livelihood needs.

(5) Vision/ Goals/ Objectives

“Basey as a global major tourist destination with resilience and preparedness, a diversified and competitive agro-industry, ecologically balanced environment, God-loving and empowered citizenry guided by transparent and responsible governance.”

(6) Recovery and Reconstruction Policies

1) Building Safer Cities

Basic Strategies for DRRM:

- Verification of development and relocation plan of Basey city with the latest hazard maps
- Implementation of relocations from Poblacion (city center) as well as villages in coastal area
- Management for non-residential areas, after the relocations
- Appropriate allocation of evacuation shelters and formulation of evacuation plan considering the distribution of the population at Barangay level
- Measures for evacuation procedure in remote islands and evacuees guiding system from the islands
- Strengthening or reinforcement of structures of public facilities and evacuation shelters

Relocation:

Priority Projects/ Programs	Organization/ Agency
Relocation plan from Poblacion (city center) to higher places on the west of the city and its development plan	To be discussed
Relocations form villages in coastal area	To be discussed

Management for non-residential areas, after the relocations:

Priority Projects/ Programs	Organization/ Agency
Development plan in relocation area (e.g. locations of commercial facilities and transportation hubs) considering proper land use based on the latest hazard maps	To be discussed
Development of greenery within 40-meter no-build zone including investigation on efficiency of artificial natural embankment against tidal surge disaster	To be discussed
Formulation or revision of laws or regulations, encouraging residents for relocation	To be discussed

Non-structural countermeasures:

a) **Evacuation Plans**

Priority Projects/ Programs	Organization/ Agency
Appropriate evacuation plan for the existing city center until the completion of the relocation	To be discussed
Confirmation of details of the plan at Barangay level such as evacuation procedure, emergency routes, possible number of evacuee, etc.	To be discussed

b) **Technical advice prior to evacuation drill**

Priority Projects/ Programs	Organization/ Agency
Further consideration on tourism and disaster management (e.g. tourists in need of aids on occasions of disaster as well as quick and precise dissemination of early warning)	To be discussed

Water Supply

a) **Rehabilitation of dilapidated transmission and distribution lines**

b) **Expansion of transmission and distribution lines**

c) **Construction of filtration facility and reservoir**

Priority Projects/ Programs	Organization/ Agency
Recovery of existing water supply system	Basey Water District (BWD)
Improvement of purification, reservoir, transmission pipes and distribution pipes	BWD
Improvement of collection of rates	BWD
Expansion of service area, in particular north Growth Center and development areas	BWD
Expansion of water source	BWD

Electricity

Priority Projects/ Programs	Organization/ Agency
Recovery of existing electricity system	Samelco II
Improvement and strengthening of poles and buildings	Samelco II
Expansion of service area, in particular high relocation and development area	Samelco II

Promotion of photovoltaic (solar) power system	Individual
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Other necessary activity:

Priority Projects/ Programs	Organization/ Agency
Strengthening or reinforcement of structures of public facilities and evacuation shelters (e.g. inspection of structure, administrative guidance on reinforcement/construction, etc.)	To be discussed

2) Recovery of Regional Economy and Promotion of Industries

Health:

It is required to consider the rehabilitation or renovation of health facilities based on their relocated constituents in addition to plan for providing adequate health services to all the people. In terms of the health services, it needs to increase the availability of disaster-resilient health services and shall be a disaster-resistant LGU.

a) Recover the access to quality health services

Priority Projects/ Programs	Organization/Agency
Inclusion in Health Facility Enhancement Program of DOH	DOH, LGU, NGOs
Explore INGOs assistance to repair facilities	
Explore INGOs assistance to support medical equipment and medicines	
Establish outreach health program	

b) Provide adequate health services equally to all people

Priority Projects/ Programs	Organization/Agency
Rehabilitate or renovate to a more conducive health center to cater the relocated constituents	DOH, LGU, NGOs
Establish birthing centers with maternity waiting home at 3 Barangay Health Stations (out of 8 Barangay Health Stations)	
Establish a maternity waiting home at Main Health Center	
Establish an additional main health center	
Provide more health human resource	
Provide incentives to volunteer health workers for their motivation	
Create re-solution to protect the continuity of Barangays Health Workers' work regardless of who sits as Barangay Officials	

c) Provide psychosocial support for healthy life

Priority Projects/ Programs	Organization/Agency
Implement the Mental health and psycho-social Program (MHPSS)	MHO, DOH, NGOs
Periodical training of the emotional care to health workers	
Procurement of medicines	

d) Enhance access to sanitary toilets

Priority Projects/ Programs	Organization/Agency
Intensive advocacy campaign	MHO, Municipal Engineering Office, Barangay
Conduct PhATS (Philippine Approach Total Sanitation) training	
Mobilize Community Health Team	
Networking (Co-work with related sectors - Education, Engineering, etc.)	
Health Education at school	
Provide sanitary toilets	
Discussion on technology options (toilet designs) for coastal barangays	

Policy recommendation with evidence for the regulation	
e) Enhance nutrition program for Healthy children	
Priority Projects/ Programs	Organization/Agency
Resource mobilization for additional funds for nutrition program	DOH, LGU, NGOs
Prompt implementation of routinely nutrition activities	
Request and dispatch more nutrition human resources	

Education

In order to mitigate the risks of increased drop-out-rates and disaster vulnerability of school teachers and students, Basey Municipality, in collaboration with DEPED, shall incorporate the following DRRM aspects in the policies, programs and projects of the revised CLUP:

a) Implement the Guidelines on DRRM at all schools including the disaster-resilient building code and DRRM education

Priority Projects/ Programs	Organization/Agency
Integrate DRRM in school improvement plans and school development plans of all schools to improve the school location, structural measures, etc.	DEPED, INGOs, NGOs, LGU (MDRRM), private stakeholders
Provide learning materials to students and teachers	DEPED
Construct resilient school buildings particularly for those serve as evacuation centers	LGU, DEPED, DPWH, DENR
Assess the school locations in geo-hazardous areas and relocate them as needed (e.g. Palaypay Elementary School)	LGU, DEPED, DPWH, DENR
Build capacity of teachers to provide psychosocial care to students	DEPED, DOH, NGOs, INGOs
Continue psychosocial support to teachers by NGOs and psychologists from other parts of the Philippines	
Develop a set of standard for psychosocial support at schools	
Incorporate typhoon, storm surge and flood drills at schools	DEPED, LGU, PHILOCS/DOST, PAGASA, NGOs, INGOs
Update/improve instructional materials' references on DRRM based on Yolanda experience and conduct TOT	

Social Welfare:

In the post-Yolanda situation, there's a lack of safe and functioning social welfare facilities and limited services for the vulnerable population, Basey Municipality has developed the following policies, programs and projects for the revised CLUP:

a) Increase the availability of disaster-resilient social welfare services

Priority Projects/ Programs	Organization/Agency
Relocate Daycare Centers in NBZ	LGU (MSWD), INGOS, Barangay Councils, Daycare Parents Committees
Repair and reconstruct damaged Daycare Centers	
Establish an MSWD Office including a safe space for WCPU	LGU, WCPU (Police, RHU, Public Attorney's Office)
Advocate LGU and barangays to prioritize reconstruction of social welfare facilities in order to address the funding gaps	DSWD, MSWD, Local Poverty Reduction Action Teams

b) Improve LGU and barangay's system to provide appropriate social welfare services to the vulnerable population

Priority Projects/ Programs	Organization/Agency
Evaluate the impact and update 4Ps (national government's anti-poverty program) beneficiaries	Barangay Councils, 4Ps Parents Leaders, DSWD, MSWD
Strengthen barangay referral for GBV by awareness raising of Barangay Councils, reactivation of VAW Desks and capacity building of Daycare Workers	GAD Focal Person, WCPU, MSWD, Barangay Councils
Re-establish the Manpower Training Center and support livelihood training for out-of-school youth and female-headed households	LGU, TESDA
Reproduce the lists of PWD and solo parents for their recovery assistance	MSWD, Barangay Councils
Reactivate BCPC through advocating Barangay Councils and build DRRM capacity of women and children through BCPC	MDRRMO, LGU (MSWD), Barangay Councils
Mobilize Senior Citizens Associations to capacitate senior citizens on DRRM (e.g. through quarterly cluster meetings)	MDRRMO, OSCA President, MSWD

Solid Waste Management

The 10-years' SWM Plan constitutes fundamentally sectoral policies and strategies of SWM, and assume an important role also in formulating RRP, DRRMP, CLUP and annual budget. Accordingly, the workshop concluded that to formulate the plan is a priority subject among all.

Priority Projects/ Programs	Organization/Agency
To close the existing dumpsite and develop new landfill is also an urgent policy.	SWMB, MSWMO, MPDO
To formulate 10-years' SWM Plan scientifically (Preparation starts in 2014)	
To develop sanitary landfill (Preparation starts in 2014 according to the UNDP)	DENR, EMB, LGU, Donor and private entities
Training of staff for O&M of sanitary landfill (0.5 year prior to completion of landfill)	
To promote the recycling (Preparation starts from 2015)	MSWMO, MIO, Barangay IEC team and core coordinators
To activate the technical working group under the MSWMB for costing of SWM service (Annually)	MSWMO, TWG
To promote campaign to make the citizen understand the needs of SWM fee collection (ASAP)	Mayor, MTO, MSWMO

3) Recovery of Regional Economy and Promotion of Industries

Basic Strategies for the Overall Economy Sector:

Resilience of the economic sector is heightened by reinforcing strength of economy itself in principle and by fostering internal and external human/ economic linkages.

- The enhancement of the economy or achievement of the vision is pursued by the following 6 basic strategies:

- Agricultural and livestock productivity increase (primary sector industry),
- Sustainable marine resources with adequate productivity (primary sector industry),
- Development/ enhancement of agro-fishery industry and handicraft industry (related industries),
- Enhancement of commercial activities (basic economy factor enhancement),
- Tourism promotion by upgrading Basey/ Sohoton as a major global tourism destination (global destination tourism), and
- Promotion of linkages among primary (agriculture and fishery), secondary (Industries including processing, manufacturing, chemical, heavy, light), and tertiary (services) industries' activities (Six ternary Industry Activities) for further enhancement of local economy and expansion/ reinforcement of internal and external human/ economic linkages.

The vision for the economy sector enhancement is primarily pursued by maximum use of agricultural development potential and sustainable use of vested marine resources for production in association of promotion of livestock and related industries development/ reinforcement.

The above economic production as the base of the economy is going to be augmented by the tourism and commercial sector by the manner of promoting linkages among primary, secondary, and tertiary industries' activities (Six ternary Industry Activities).

Tourism:

Basic strategies to achieve the goals for tourism are as follows:

- Formulate typical routes and activities packages for Sohoton and vicinity tours envisaging Tacloban as the place of origin further to the Basey Town Proper,
- Enhance information dissemination activities for tourism and investor promotion,
- Enhance linkages among tourism related stakeholders including receiving community association, transport and tour operators, accommodation and amenity business personnel, security and order entities, and MSMEs (Micro, Small and Medium Scale Enterprises) conducting handicraft manufacturing and agro-fishery-industry,
- Motivate, and train local people and business society for improvement of tourists' experiences including local product, delicacies, and cuisines development (core for Six ternary Industry Activities). , and
- Attract tourist companies, and accommodation and amenity operators/ investors for improved tour package implementation and for accumulation of accommodation and amenity facilities in Basey.

The basic concept of the strategies is “pay effort first for enhancing appeals to tourists first, and then attract investors and operators with the enhanced appealing points”.

Agriculture:

Basic Strategies for Agriculture:

Rice:

- Increase of production -> Rice milling center (applied to DA8)
- Insufficient labors in rain season -> Machinery (transplant, harvest)
- More income -> Duck, Mushroom, Vermi-culture

Coconut:

- Correction of planting space (correct over plant to 10 meter interval)-> Integration with other crops -> Fruit Trees (Jack fruits, Mango, Lansonnos, Banana), Pineapple, Corn, Peanut, Root crops (Gabi, Cassava, Sweet potato), Livestock (Cattle, Goat)
- Diversification of Coconut Varieties ->For processing (Cake, Cookie, Raw meat, Virgin coco oil)

Upland Crops:

- For Food: Corn, Gabi, Sweet potato, Cassava, Soybean, Vegetables (Okra, Ampalaya)
- For Feed (for Swine, Aquaculture): Corn, Cassava...
- For Food Processing (Cake, Cookie...): Corn, Gabi, Sweet potato, Cassava, Soybean, Milk...

Livestock:

- Carabao (Dairy, Paddy work)
- Goat, Cattle (under coconut on sloping area, Meat, Dairy)
- Apiculture (Honey for cake)

Agro- processing:

- Food processing
- Dairy processing
- Feeds processing

Market:

- Wholesale market establishment at production area
- Basey will develop aqua-culture system and livestock production. Corn can be a material of feeds for fish and animals. These processing industries can involve rural women as well as coconut, root crop and dairy processing. These integrated industries with practical involvement of women can promote the local economic development.

Priority Projects/ Programs	Organization/ Agency
<p>Mushroom Cultivation Project: Oyster mushroom (<i>Pleurotus florida</i>)</p> <ul style="list-style-type: none"> ✓ Objectives: To generate additional income from rice straw and utilize the waste of mushroom bed as compost ✓ Target beneficiaries: Women's' group, people staying in temporary shelter ✓ Expected LGU response: Maintain laboratory and spore, and guidance on cultivation technique and marketing for group members ✓ Target output: Cultivation and sales of mushroom, and utilization of rice straw to fertilize farmlands ✓ Justification: Wise use of rice straw to produce more income and to fertile soil stop burning straw. Mushroom is high value commodity. Even shelter people who do not own land can cultivate ✓ Task of beneficiaries: Work out in laboratory, and cultivation of mushroom 	To be discussed

Fishery:

Basic strategies to achieve the goals for fishery are as follows:

- Market-driven aquaculture
- Diversification of aquaculture practices and species.
- Planning and implementation of value-added activities including promotion and marketing of San Juanico brand milkfish.
- Control of fishing effort from BFAR- and NGO-supported boats and gill nets
- Introduction of fish aggregating devices (small payao) in hook & line fisheries.
- Provision of surveillance boat, to stop illegal fishing, and communication equipment.

The workshop participants agreed that an appropriate fisheries policy should “Shift from Capture Fishery to Aquaculture”.

Priority Projects/ Programs	Organization/ Agency
<p>Establishment of a nursery for milkfish fingerlings</p> <ul style="list-style-type: none"> ✓ Conduct mangrove reforestation. ✓ Operate nursery pond. ✓ Construct perimeter dikes and gate. ✓ Stock and rear milkfish fry to fingerlings. ✓ Expected sponsors are BFAR, LGU, and JICA. 	To be discussed
<p>Technical cooperation (dispatch of JICA volunteer) is preferred. Interventions for Value-adding including promotion and marketing of San Juanico brand milkfish</p> <ul style="list-style-type: none"> ✓ Produce high quality milkfish in industrial pollution free San Juanico Strait with JICA's typhoon resistant fish cages. ✓ High demand of locally-produced fresh milkfish after Typhoon Yolanda. ✓ Matching between producers and consumers through sales promotion and marketing. ✓ Expected sponsors are BFAR, LGU, and JICA. ✓ Technical cooperation (dispatch of JICA volunteer) is preferred. 	To be discussed
<p>Mangrove-based livelihood projects such as aqua silviculture for mud crabs, milkfish, etc.</p> <ul style="list-style-type: none"> ✓ Construct 50m x 50m aquasilvi demo farm at Barangay Tinaogan. 	To be discussed

<ul style="list-style-type: none">✓ Stocking density of crablet at 1 pc per sq. meter and raised to marketable size of 2-3 pcs a kilo.✓ Expected sponsors are BFAR, LGU, and JICA.✓ Technical cooperation (dispatch of JICA Volunteer) is preferred.	
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(7) Hazard Maps

1) Storm Surge

The storm hazard map for Basey assumes the northern track of typhoon Yolanda as the worst case. In this case the inundation could happen larger area than Poblacion. However, the present hazard map does not model the top elevation of the national highway. If the highway is considered in the model, the inundation area could be reduced a little more. However, most of the inundation area in the hazard map is rice field, so that there is no problem in terms of the land use.

While the people living along the national highway should evacuate, there is enough lead time for arrival of storm surge. They can evacuate in advance except the coastal area. The coastal area in the western side of Poblacion is higher ground, where is the appropriate place for the extension area of the Poblacion and Relocation sites. They will not be suffering from the worst storm surge. However, at the more western side, it is storm surge prone area according to the hazard map where there was a lot of damage at the typhoon Yolanda. Even before typhoon Yolanda, there was a relocation plan in which each barangay in the inlet to be relocated to neighboring higher ground (And that of the landowners of the relocation candidate sites hill is not even there negotiations easy thing which is subdivided). On the other hand, urban east (right) , there is a need to evacuate up to large rivers and low-lying area is followed by and evacuation to Marabut no region, evacuation to Marabut have been performed in actual Yolanda .

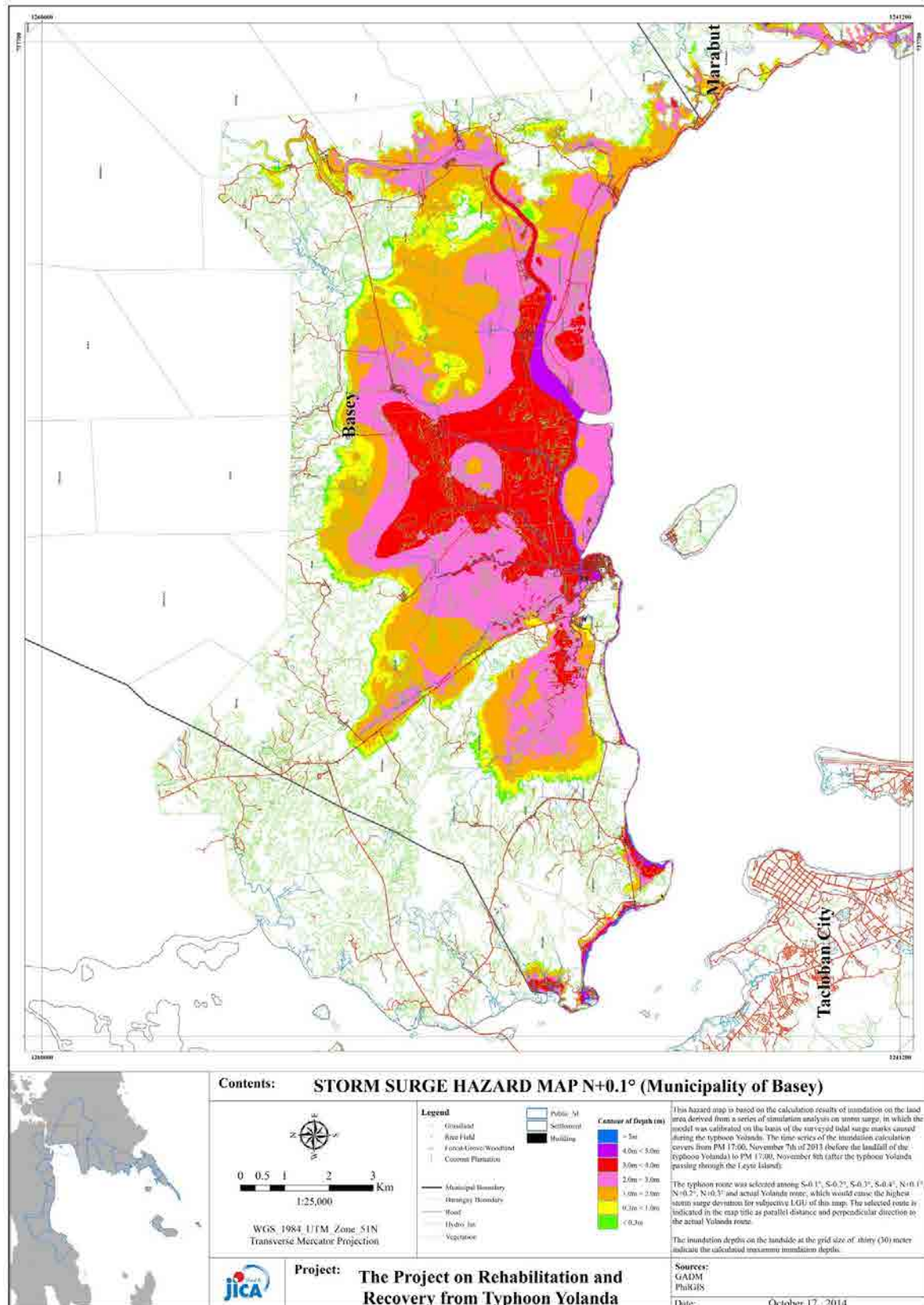


Figure 2.2-25 STORM SURGE HAZARD MAP N+0.1°

2) Flood

These have not been much discussion for flood damage because it is not serious.

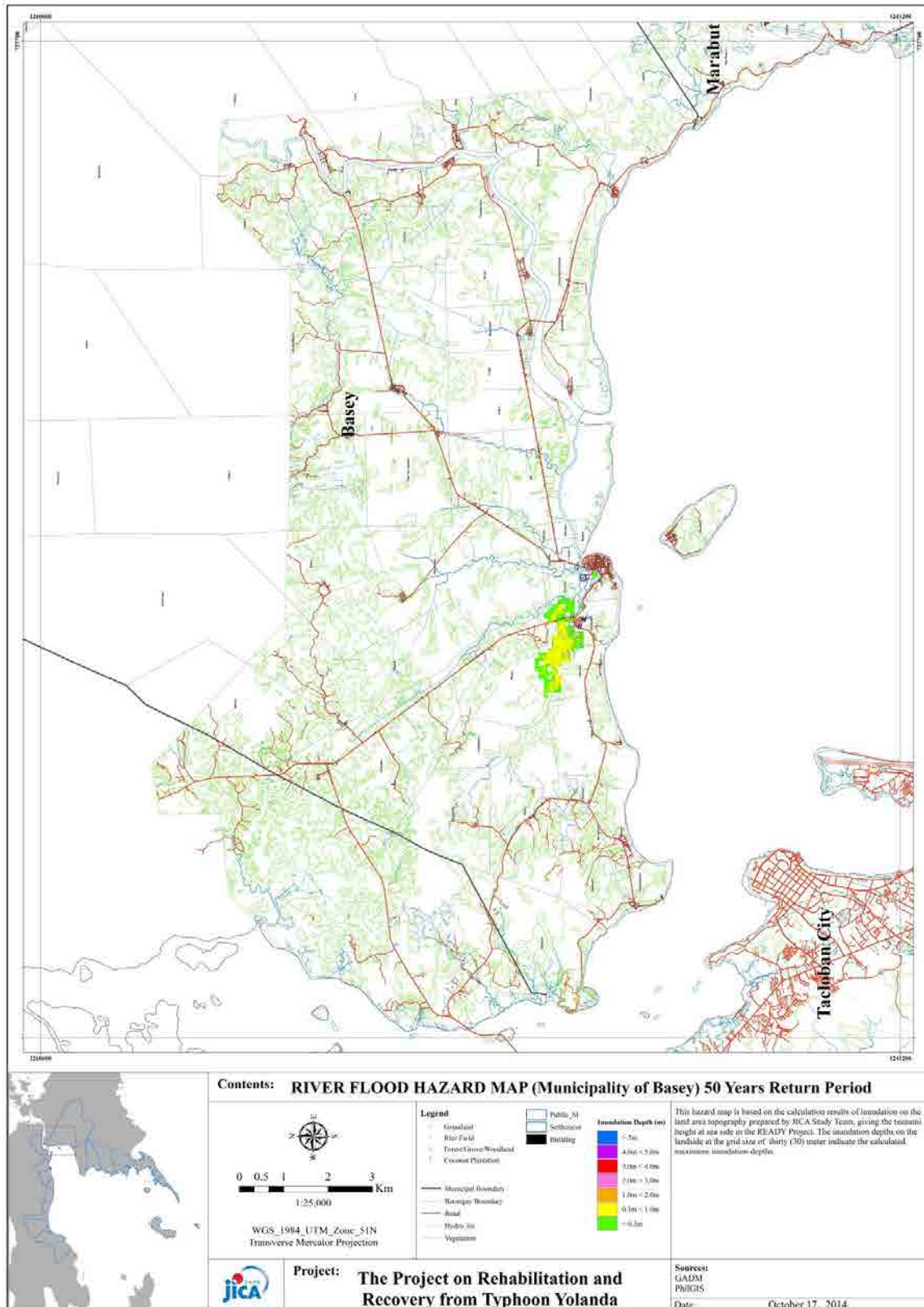


Figure 2.2-26 RIVER FLOOD HAZARD MAP

3) Tsunami

Again, it must be confirmed whether the flooding is suppressed certain extent by the national highway across the east and west. In WS, for hazard map of storm surge damage is the most enormous, this tsunami hazard did not become the subject of much discussion. For Poblacion damage of either is enormous, as the local became the result of the strong intention of relocation.

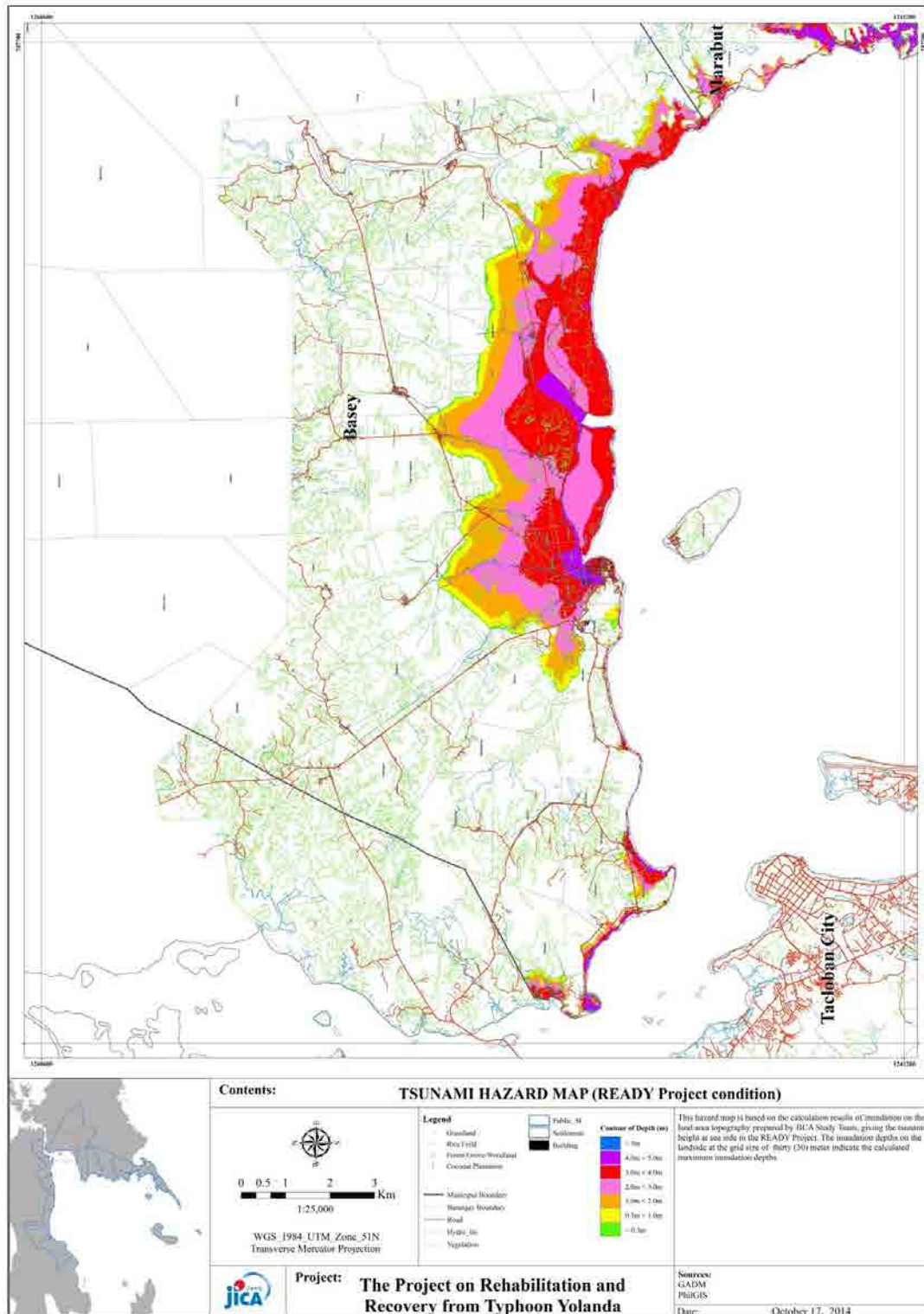


Figure 2.2-27 TSUNAMI HAZARD MAP

(8) Recovery and Reconstruction Map (Structural Measures/ Land Use)

1) Revised proposal for development and relocation plan of Poblacion (1/2)

A proposed amendment of the expansion and relocation was planned for the LGU. In particular, for the land use of the Poblacion, which is based on the hazard map, implementation will be after the expansion and relocation of the people was facilitated. The plan is to develop the commercial premises and bus terminal, transportation hub, etc. which is currently located in the East right district of the Poblacion and to propose it a little south (downward) district. In addition, the coastline is reserved as a park, green space or No Build Zone, for it is identified as a high risk area. At the same time, the principle of No Build / Dwelling Zone has to be understood by the people. Also, it is carried out in the proposals, to build a tsunami Tower, which will be considered as an emergency evacuation structure of visitors in the commercial facilities.

In the process of reviewing the current evacuation plans and the elementary schools that are identified as an evacuation center. During the strong winds of typhoon Yolanda, there are situations where in evacuees do not fit within the confines/ inside the facility. The outside/ open space of the facilities needs to be taken into account as well. In fact, during typhoon Yolanda there are a number of evacuees outside the facility. Also, evacuation plan of the people for each barangay in Poblacion needs to be determined, as well as the evacuation plans in inner barangays or in the suburbs is necessary and to be promoted, because similar planning like in the Poblacion is not yet considered.

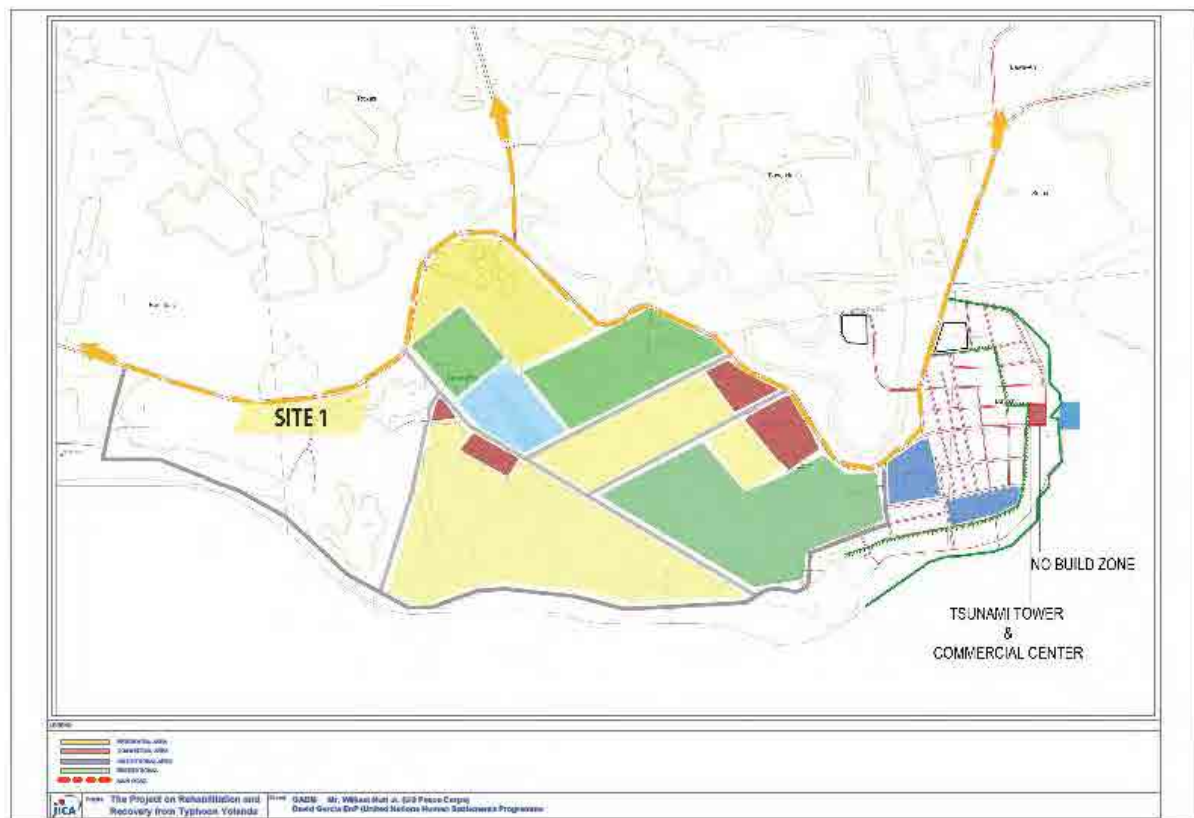


Figure 2.2-28 Revised proposal for development and relocation plan of Poblacion (1/2)

2) Revised proposal for development and relocation plan of Poblacion (2/2)

Regarding the seawall proposal, it was presented utilizing the natural slope of the bank and considering the 40m No Build Zone as an option.

In the case of Lolland, Denmark embankment, they've prepared two large and small embankment as a natural slope revetment, by establishing a pond for culturing of algae and conducting experiments to increase revenue by making use of biomass in the meantime (Profitable study of embankment), not to raise revenue, but rather for the embankment of concrete, there's also a need to understand the direction of the natural slope revetment.

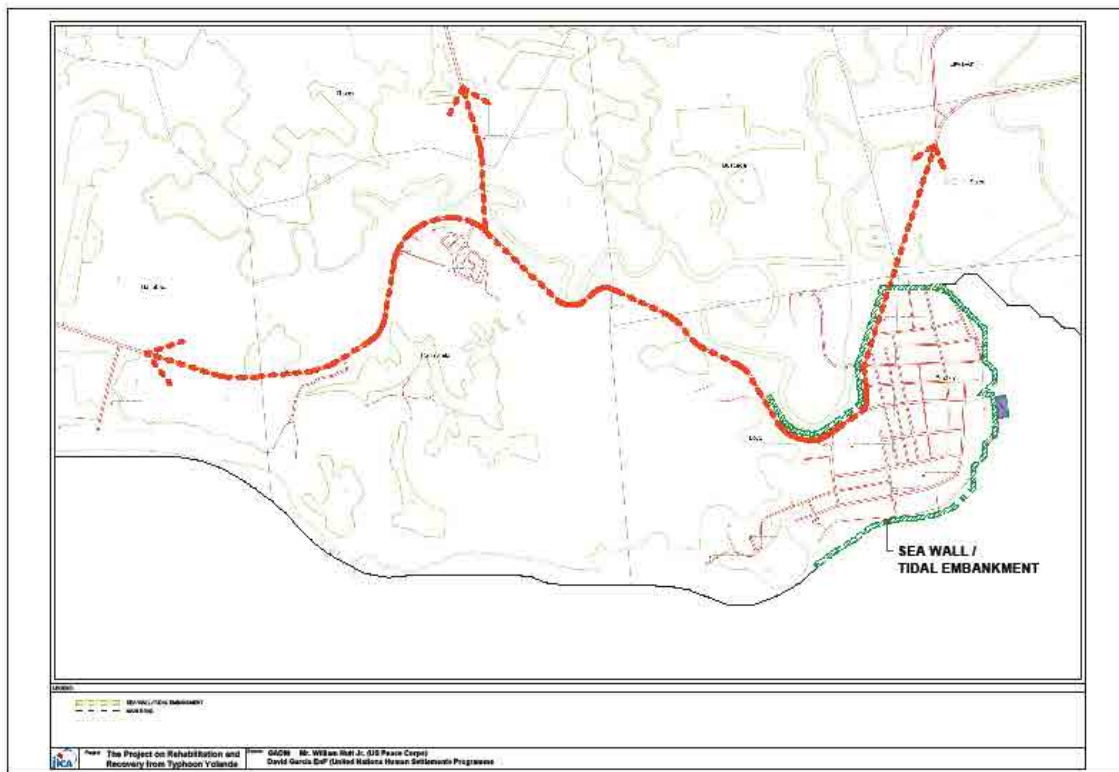



Figure 2.2-29 Revised proposal for development and relocation plan of Poblacion (alignment of sea wall or tidal embankment) (2/2)



Figure 2.2-30 Example of Tidal Embankment with Greenery Revetment (The Lolland Island in Denmark)

2.2.5 Guiuan

(1) City Profile

Province	Eastern Samar																							
Level of LGU	2nd Class Municipality																							
Area ²⁾	175 km ²																							
Barangay ³⁾	60 Barangays (14 Urban, 46 Rural)																							
Annual Budget (revenue) ⁴⁾	PHP 94.7 Million (estimate for 2013)																							
Population ¹⁾	48,822 (2014 Municipal Information)																							
Safer Cities	<p>Major Land Use²</p> <p>Forest Areas: 47.99 km² Special land uses: 54.24 km²</p> <ul style="list-style-type: none"> Tourism Areas: 2.16 km²/ Mangrove and Swamps: 4.56 km²/ Open Grasslands: 41.66 km²/ Mineral Areas: 4.7 km²/ Airport: 1.158km² <p>Built up areas: Around 6 km²</p> <p>Number of evacuation centers (ECs) and the capacities</p> <ul style="list-style-type: none"> Number of ECs and the capacities were not identified. <p>Water Supply:</p> <p>Guiuan Water District (GWD) supply water in Municipality of Guiuan. The water is taken from 5 wells and the capacity is 140 cum/hour (Feb 2014), supplied to 2,700 connections or 400,000 inhabitants.</p> <p>GWD has improvement and expansion plan to supply Tempura area and to make ring system (1600 - 1750m new pipeline and 600,000 new connections). In the future, it is proposed to connect the water system of Guiuan, Mercedes and Salcedo to cope with increasing future demand and stable supply.</p> <p>Electricity:</p> <p>Eastern Samar Electric Cooperative (ESAMELCO), supplies power to Guiuan Municipality. Esamelco is the electric cooperative that supplies power for the mid-eastern part and southern part of Samar Island based on Borongan. The maximum peak load is approximately 14 MW (as of Dec. 31, 2012). Esamelco has three power source substations with a total of 25 MVA.</p>																							
Social Welfare ⁵⁾	<p>Medical Health Facilities:</p> <table border="1"> <thead> <tr> <th colspan="2">Hospitals</th> <th rowspan="2">Main Health Center</th> <th rowspan="2">Barangay Health Stations</th> <th rowspan="2">Maternity House</th> </tr> <tr> <th>Government</th> <th>Private</th> </tr> </thead> <tbody> <tr> <td>2</td> <td>2</td> <td>2</td> <td>10</td> <td>12</td> </tr> </tbody> </table> <p>Health Personnel at the Municipal Health Offices (2013):</p> <table border="1"> <thead> <tr> <th>Doctors</th> <th>Nurses</th> <th>Midwives</th> <th>Sanitary Inspectors</th> </tr> </thead> <tbody> <tr> <td>1</td> <td>2</td> <td>12</td> <td>1</td> </tr> </tbody> </table> <ul style="list-style-type: none"> The number of BHW is 381. Leading causes of morbidity at health stations (2013) <ol style="list-style-type: none"> Influenza Wounds Upper respiratory tract infection 				Hospitals		Main Health Center	Barangay Health Stations	Maternity House	Government	Private	2	2	2	10	12	Doctors	Nurses	Midwives	Sanitary Inspectors	1	2	12	1
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	<p>Solid waste management:</p> <ul style="list-style-type: none"> Working staff: 29 persons (7 permanent and 22 Job order basis) Estimated Generation of Waste in LGU: 14 ton/day SWM Service Coverage Ratio is 40% of population Collection vehicles are borrowed from the Provincial Government
Economy and Industry ^{3), 6)}	<p>GRP: NA</p> <p>Agriculture: The scale is NA.</p> <ul style="list-style-type: none"> Coconut: The scale is NA. Banana: The scale is NA. <p>Livestock: The scale is NA.</p> <p>Fishery: The scale is NA. (47,000 fisherfolk / 5,700 registered)</p> <ul style="list-style-type: none"> 75% of most fishermen use hook and line and troll line gears and Skipjack tuna is the major species caught. Major markets for tuna are Calbayog (Samar Province), Tacloban, Ormoc, Catbalogan (Samar Province) and General Santos (South Cotabato Province). Cultured / caught Lapu-lapu (Coral trout) is exported alive to other countries in high prices Seaweed culture is currently being promoted as an alternative livelihood.

Source:

1) UNHABITAT, Guiuan Recovery and Rehabilitation Plan, as of 4 June 2014

2) UNHABITAT, Guiuan Recovery and Rehabilitation Plan, Report

3) Comprehensive Land Use Plan of Guiuan (2002-2012) and Guiuan Recovery and Rehabilitation Plan

4) Municipal Budget Office, Guiuan

5) Municipal Health Office

6) Municipal Agriculture Office

7) CLUP 2002-2012

(2) Damage Caused by Typhoon Yolanda

Building Safer Cities	Physical/Human Damage:	
	Inundated Area by Yolanda ²⁾	10 km ²
	Number of Affected People ¹⁾	NA
	Deceased ³⁾	106
	Injured ¹⁾	3,626
	Missing ³⁾	16
	Number of Houses totally damaged ¹⁾	6,957
	Number of Houses partially damaged ¹⁾	5,038
	Damage on Infrastructure (Public and Private)	NA
	Losses to municipal properties ¹⁾	NA
Source:		
1) JICA Study Team, Storm Surge Hazard Map		
2) Data from LGU		
<ul style="list-style-type: none"> Significant numbers of buildings were totally damaged in almost all areas of the area, except for pobulacion and the western coals of Pagnamitan and Baras, where the rate of partially damaged buildings were higher compared to the other areas of the Municipality. As for government buildings, 35 buildings have been damaged. 		
Source: Interpretation result on damaged buildings from satellite images, JICA Study Team		

	<p>Water Supply: Damage and loss by Typhoon Yolanda was estimated as 16.82 million PHP ((Local Water Utilities Administration: LWUA, 2014) to water supply facilities such as transmission and distribution pipes, water meters etc. Electricity breakdown caused disruption of water supply as outage of pumps.</p> <p>Electricity: When Super Typhoon Yolanda hit, the whole coverage area experienced power interruption. The transformer of the power source substation was not damaged. However, the circuit breaker at the secondary side of Buenavista substation located in the southern part of Samar Island was damaged due to the flying object. Regarding the number of pole transformers necessary for rehabilitation, 815 units are required, and they are being procured from the U.S, China, Korea, and Vietnam.</p>																																								
Social Welfare_	<p>Health:</p> <table border="1"> <thead> <tr> <th></th> <th>Totally damaged</th> <th>Partially damaged</th> <th>Total</th> </tr> </thead> <tbody> <tr> <td>Government Hospital</td> <td>2</td> <td>-</td> <td>2</td> </tr> <tr> <td>Private hospital</td> <td>1</td> <td>1</td> <td>2</td> </tr> <tr> <td>Main Health Center</td> <td>2</td> <td>-</td> <td>2</td> </tr> <tr> <td>Barangay Health Station</td> <td>8</td> <td>2</td> <td>10</td> </tr> <tr> <td>Maternity House</td> <td>-</td> <td>-</td> <td>-</td> </tr> </tbody> </table> <p>Source: Guiuan Recovery and Rehabilitation Plan</p> <p>Social Welfare:</p> <table border="1"> <thead> <tr> <th></th> <th>Totally damaged</th> <th>Partially damaged</th> <th>Total</th> </tr> </thead> <tbody> <tr> <td>Daycare Center</td> <td>8</td> <td>42</td> <td>50</td> </tr> </tbody> </table> <p>Education (Damaged Classrooms):</p> <table border="1"> <thead> <tr> <th></th> <th>Totally/ Partially amaged</th> </tr> </thead> <tbody> <tr> <td>Elementary schools</td> <td>348 classrooms</td> </tr> <tr> <td>Secondary schools</td> <td>50 classrooms</td> </tr> <tr> <td>Tertiary Schools</td> <td>30 classrooms</td> </tr> </tbody> </table> <p>Source: Guiuan Recovery and Rehabilitation Plan</p> <p>Solid Waste Management:</p> <ul style="list-style-type: none"> • Large amount of debris was generated:16,000 – 18,000m³ (Source: LGU) • Total damage of 1 collection vehicle 6m³ • MRF of LGU was totally damaged. • 30 Garbage bins installed at market were blown off. • LGU incurred ad-hoc expenditures for debris collection and disposal. 		Totally damaged	Partially damaged	Total	Government Hospital	2	-	2	Private hospital	1	1	2	Main Health Center	2	-	2	Barangay Health Station	8	2	10	Maternity House	-	-	-		Totally damaged	Partially damaged	Total	Daycare Center	8	42	50		Totally/ Partially amaged	Elementary schools	348 classrooms	Secondary schools	50 classrooms	Tertiary Schools	30 classrooms
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Economy and Industry_	<p>Agriculture:</p> <ul style="list-style-type: none"> • 849,240 (61%) of coconut trees were affected by Typhoon Yolanda. <table border="1"> <thead> <tr> <th>Crop</th> <th>Farmers Affected (No)</th> <th>Total Area Affected (ha)</th> <th>Production Loss (M.T.)</th> <th>Cost of Production (PHP)</th> </tr> </thead> <tbody> <tr> <td>Vegetable</td> <td>960</td> <td>40</td> <td>80</td> <td>3,000,000</td> </tr> <tr> <td>Banana</td> <td>90</td> <td>90</td> <td>180</td> <td>1,800,000</td> </tr> <tr> <td>Root crops</td> <td>20</td> <td>20</td> <td>80</td> <td>200,000</td> </tr> <tr> <td>Corn</td> <td>14</td> <td>7.5</td> <td>17.78</td> <td>165,000</td> </tr> <tr> <td>Rice</td> <td>15</td> <td>11.25</td> <td>11.51</td> <td>84,375</td> </tr> </tbody> </table> <p>Source: Department of Agriculture, Eastern Visayas Typhoon Yolanda Damage Report (As of Feb, 2014)</p>	Crop	Farmers Affected (No)	Total Area Affected (ha)	Production Loss (M.T.)	Cost of Production (PHP)	Vegetable	960	40	80	3,000,000	Banana	90	90	180	1,800,000	Root crops	20	20	80	200,000	Corn	14	7.5	17.78	165,000	Rice	15	11.25	11.51	84,375										
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Rice	15	11.25	11.51	84,375																																					

Livestock:		
Type of Livestock	No. of heads	Estimate Damage (PHP)
Cattle	251	12,000,000
Carabao	32	1,250,000
Swine	994	52,665,000
Chicken	633	1,980,000

Source: Department of Agriculture, Eastern Visayas Typhoon Yolanda Damage (November 12, 2013)

Fishery:		
Sector		Estimated amount of Damage PHP '000)
Fish cages		75,000
Fish corral		40,000
Fishing Boats	motorized	162,000
	non-motorized	4,400
Gill nets/ crab net		90,000
Other equipment (fish pot, trap, shelter)		3,100
Seaweeds farming		1,200
Total		375,700

Source: Office of Municipal Agriculture Services

- Severe damage to marine resources had a definitive impact on the fishing community, namely the 6,300 fisherfolks whose livelihood relied on marine resources both in Leyte Gulf and Pacific Ocean.
- There are 22 ha fishponds and 23 ha of mariculture areas that were damaged.

(3) Progress in Recovery and Reconstruction

1) Progress in Building Safer Cities

The Guiuan Recovery and Rehabilitation Plan (GRRP) has been drafted until July of 2014 by UNDP support as well as technical assistance from UN-Habitat. Contents of the plan can be adapted to CLUP, CDP, AIP and ELA which will be revised or formulated by the city of Guiuan.

“Supplemental Guidelines on Mainstreaming Climate and Disaster Risks in the Comprehensive Land Use Plan, 2014” has been formulated until August of 2014 by the Housing and Land Use and Regulatory Board (HLURB) which is the supervising body of CLUP and obligates each LGU to follow the guidelines for the appropriate revision of CLUP.

DRRM:

The planning process for non-structural countermeasures has been progressed such as evacuation plan, etc. On the other hand, effective structural countermeasures have yet to be considered. Only the damaged facilities (e.g. seawall, etc.) were repaired to the former state.

2) Progress in Recovery of People’s Daily Lives

Health:

Financial support for repairing all damaged health facilities was already committed by DOH,

INGOs, and private companies. The planned repairs are expected to be completed by early 2015, except the district hospital. The reconstruction of the district hospital will start at 2015 and expected to be completed in 2016. Regarding health services, some of the challenges before Typhoon Yolanda period continued and some were aggravated after the disaster.

Education:

Out of 276 damaged elementary school classrooms, 142 classrooms have already received support from donors such as Pinoy Relief, Intersos, NAC, etc. Furthermore, out of 64 damaged secondary school classrooms, 46 classrooms have received support from Brent International School, GMA Kapuso Foundation and NAC.

Social Welfare:

As of September 2014, 15% of damaged Day Care Centers have been rehabilitated. Donors for the rehabilitation include JICA, Plan International, UNICEF, Akbayan, etc. Other facilities such as OSCA, Day Center for Senior Citizens and MSWD Office are currently under repair. Protection issues were addressed through the establishment of Child-friendly Spaces, Women-friendly Spaces and provision of psychosocial support to vulnerable groups.

Solid Waste Management:

Debris was totally collected and dispose with assistance of international organizations and private mining companies.

One big dump truck with 18m³ is lent by Makati City.

3) Progress in Recovery of Regional Economy and Promotion of Industries

Agriculture:

Immediately after Typhoon Yolanda, some International NGOs assisted on Cash for Work and Unconditional Cash Transfers to some of the communities around town. Other International NGOs as well as Local/ National NGOs assisted on providing more permanent and sustainable livelihood.

And as a short term assistance, the government agencies provided vegetable seeds, planting materials and technical transfer

- 1,642 farming families received assistance for farming
- Central government agencies provided vegetable seeds, planting materials, and technology transfer
- Local and INGOs provided also similar support including provision of cash grants through Cash for Work and Cash for Asset, and procurement farm inputs.
- 1,211 families received assistance on native chicken raising, 753 families for cow raising, 58 families for Carabao, and 544 for goat.

- DA transferred 4,535,000 PHP to LGU for initial purchase for livestock.
- 1,338 farmer beneficiaries identified by FAO to avail on coco-based inter cropping
- 959 farmers and fishermen identified by National Agriculture and Fishery Council (NAFC) as beneficiaries to AKBAY –II Program worth 15,000 PHP for farming and fishing input
- DA Region 8 identified beneficiaries for 4 ha of Multiplier Farm for cassava and 5 ha of Multiplier Pasture Development.
- TESDA and DOLE: Provision of Skills Training for the Women’s Organization in barangay Taytay and Cogon

Fishery:

According to the power point presentation entitled “Guiuan: Strategic Directions” prepared by GRSDG composed of LGU Guiuan officials and UN HABITAT, some recent progress in fisheries rehabilitation are as follows:

- Assistance for motorboats: 60% provided, by BFAR- AHON Program, Local & International Donors
- Assistance for fish cages: JICA provided typhoon resistant submerged fish cages for grouper: 70 fishermen of Brgy. Victory, 60 fishermen of Brgy. Camparang
- Assistance for Payaos for tuna fishing: BFAR provided for fisherfolk association: 2 units - Sulangan Hook & Line Fishermen’s Assn., 2 units - Baras Fisherfolk’s Assn., 2 units - Sunshine Fisherfolk’s Assn., 2 units - Taytay Fishermen’s & Fish Driers’ Assn., 2 units – Sulu-an Fisherfolk’s Assn. Triangle INGO provided:2 units payao for Sulangan Hook & Line Fisherfolk Assn.
- Assistance for fish corrals: No intervention yet
- Assistance for fish traps: Pinoy Relief provided materials in one barangay
- Situation of seaweed farming: 43 Families restored their seaweed farms in Sitio Converse and in Brgy. Ngolos proper selling seed stocks for other areas. 17 seaweed farmers started farm establishment in Brgy. 6
- Farm inputs for fisherfolk: provided by BFAR, GDFI, AsiaDRA (SeaSPOC)
- Assistance for gill nets: BFAR, GDFI & PDFI provided in some barangays
- Assistance for Hook & Line Fishing: BFAR provided those engaged in Tuna Fishing

The following measures are being implemented for Resource Enhancement and Marine Habitat Recovery

- Coral Reef Assessment by BFAR through GDFI and DENR
- Marine Sanctuary Maintenance

- Enforcement of Fishery Laws
- FLET conducting 4 times a week seaborne patrolling (unscheduled)
- Mangrove Assessment by GDFI
- Capability Building for Coastal Communities for strong partnership on sustainable development of marine resources
- 21 Fisherfolk Organizations and federation of fisherfolk organized
- Municipal Fisheries and Aquatic Resource Management (MFARMC) reorganized

Accessing Alternative Livelihood Opportunities: Fisherfolk organizations submitted project proposal to DOLE for funding from the National Government thru DA-BFAR under the Poverty Reduction Alleviation Program 2014 (PRAP)

The following measures are being implemented for the Infra support to Agri-Fishery production

- Agri-Fishery Training Program
- 959 farmers/fishermen identified by NAFC as beneficiaries for the AKBAY-II Program worth 15,000.00 PHP for farming and fishing inputs

Grant Aid Project for Rehabilitation of BFAR Guiuan Marine Fisheries Development Center (MFDC) has been approved by the Japanese government.

(4) Issues and Problems in Recovery and Reconstruction

1) Building Safer Cities

DRRM:

- Revision of existing land use based on the latest hazard maps
- Serious insufficiency of basic infrastructure
- Insufficiency of plan for structural countermeasures
- Inadequate plan for evacuation shelters
- Insufficient organizational framework and know-how for the planning of disaster risk reduction
- Necessity of consideration on development of emergency transportation roads
- Necessity of structure strengthening for public facilities and evacuation shelters

Water Supply

- The distribution pipes are of surface uPVC and are vulnerable to external forces including storm surge.
- The water losses by leakage, steal and nonpayment are huge.

Electricity

- Lack of vehicle such as boom trucks with bucket and digger, and one truck for pole carriage.
- Depletion of spare parts and potential trouble are concerning.
- Replacement of heavy equipment is highly expected.

2) Recovery of People's Daily Lives

Health:

- Strengthening of health service delivery is required in isolated areas, especially in the 19 barangays in the islands
- Shortage of human resource is still remaining
- Management of data is challenging

Education:

a) Increase of dysfunctional schools

- Rehabilitation/repair of schools without enforcement of disaster-resilient building code as evacuation centers
- Funding gaps to rehabilitate all schools (134 out of 276 damaged elementary school classrooms and 18 out of 64 damaged high school classrooms unfunded)
- Possible lack of classrooms/schools in relocation sites (e.g. only combination classes for elementary level in Tagpuro)

b) Risk of higher school drop-out rates at all levels because:

- Children have to help their parents earn income (increased poverty after Typhoon Yolanda)
- There are no safe schools for children (e.g. 17 schools are still being repaired in Guiuan South)
- Children have to commute from transitional/relocation sites (e.g. 1 secondary school available for 8 barangays in Homonhon island with poorer accessibility after Typhoon Yolanda)
- Students and teachers are traumatized
- Children with disabilities have possibly increased

Social Welfare:

a) Shortage of social welfare facilities while the community vulnerability has increased after Typhoon Yolanda. The issues include:

- Lack of access and availability of safe spaces for GBV survivors except in Borongan, Samar municipality.

- Dysfunctional Daycare Centers without sufficient funding for reconstruction. Some of the centers were repaired without mitigation measures and cannot serve as evacuation centers
- No facilities for PWD in order to respond to their recovery needs
- Senior citizens' Day Center repaired but can no longer function as an evacuation center for prisoners

b) Increased vulnerability of women, children, senior citizens and PWD. The issues include:

- Triangle INGO Limited service for GBV survivors, senior citizens and PWD in recovery and reconstruction
- Less livelihood alternatives for the Typhoon Yolanda-affected senior citizens
- Increasing number of children in conflict with the law
- Increasing number of out-of-school youth

Solid Waste Management:

The following issues were raised and discussed in the workshop held on September 15, 2014.

- The sectoral plan of “10-years’ SWM Plan” has to be formulated properly and in compliance with Republic Act (RA) 9003.
- The RA also requires to close open dumpsite and to develop sanitary landfill.
- The SWM cost is unclear
- SWM fees are not collected from residential houses.

3) Recovery of Regional Economy and Promotion of Industries

Most of recovery efforts relating to the economy have been focused on rehabilitation/ reconstruction/ recovery of the damaged facilities and activities. A lot of in-kind and financial assistances have been extended to the suffered people for relieving purpose, although some of them were not market oriented.

In general, there have been limited consideration for expansion/ enhancement of the economy to encounter the expected economic shrinkage due to production value reduction by damaged coconut trees, which may last for a several years at least, in the study area

Agriculture:

- Lack of coco seedlings of advanced varieties for replanting
- Slow progress of debris cleaning in coconut field
- Continual on-going damage by Rhino Beetle on survived coconut
- Limited livelihood for survived farmers

- Limited work opportunity for women / no chance to fulfill women’s potential

Fishery:

At the workshop, the following issues and problems were dealt with:

- Some donors and NGOs do not coordinate with LGU. Some fisherfolk received fishing materials twice/three times.
- Only selected households received cash from NGOs (NGOs go directly to area without coordination).

Less support for the resource enhancement such as construction of guard house for LGU marine sanctuary, no take zone at night, protection of fishing activities is needed.

(5) Vision/ Goals/ Objectives

“Guiuan as a progressive, prepared and resilient municipality with sustainably managed resources for tourism promotion in conjunction with production & marketing of quality agro-fishery products, and for safe and quality life in peaceful and clean environment with balanced eco-system, composed of empowered God-fearing people in the promotion of investment & job opportunities.”

(6) Recovery and Reconstruction Policies

1) Building Safer Cities

Basic Strategies for DRRM:

- Estimations of damage amounts for multi-hazards based on the latest hazard maps
- Concentration of urban development in northern area of Poblacion (city center) in the main island referring to the damage estimations based on the hazard maps
- Investigation on appropriate emergency transportation by air as well as land use around the airport in the city
- Planned relocations from informal settlements around the port areas
- Appropriate allocation of evacuation shelters and formulation of evacuation plan considering the distribution of the population at barangay level including investigations for the remote islands such as appropriate evacuation shelters, routes, smooth evacuation procedure to the main island, etc.
- Strengthening or reinforcement of structures of public facilities and evacuation shelters

Development and Relocation:

Priority Projects/ Programs	Organization/ Agency
Continuous urban development of Poblacion (city center)	To be discussed
Plan and construction of appropriate evacuation shelters and major tourist spots	To be discussed
Relocations from informal settlements	To be discussed

Development of the main traffic network:

Priority Projects/ Programs	Organization/ Agency
Development of main roads in Poblacion (city center) crossing east-west and north-south directions	To be discussed
Development of main traffic networks connecting the main island and major tourist spots	To be discussed
Development as emergency transportation roads	To be discussed

Non-structural countermeasures:

a) **Evacuation Plan**

Priority Projects/ Programs	Organization/ Agency
Plan and development for appropriate evacuation shelters	To be discussed
Evacuation plan within or among remote islands	To be discussed
Revision of evacuation plan at barangay level	To be discussed

b) **Technical advice prior to evacuation drill**

Priority Projects/ Programs	Organization/ Agency
Further consideration on tourism and disaster management (e.g. tourists in need of aids on occasions of disaster as well as quick and precise dissemination of early warning)	To be discussed
Development of multi-purposed evacuation shelters (e.g. tourist facility, etc.)	To be discussed

Water Supply

Priority Projects/ Programs	Organization/ Agency
Recovery of existing water supply system	Guiuan Water District (GWD)
Improvement of intake, purification, reservoir, transmission pipes and distribution pipes	GWD
Improvement of collection of rates	GWD
Expansion of service area, in particular the central area	GWD
Expansion of water source and interconnection of water system with Mercedes and Salcedo together with system improvement	GWD

Electricity

Priority Projects/ Programs	Organization/ Agency
Recovery of existing electricity system	Esamelco II
Improvement and strengthening of poles and buildings	Esamelco II
Expansion of service area, in particular high relocation development area	Esamelco II
Promotion of Ocean Thermal Energy Conversion (OTEC)	Private
Promotion of photovoltaic (solar) power system	Individual

Other necessary activities:

Priority Projects/ Programs	Organization/ Agency
Strengthening or reinforcement of structures of public facilities and evacuation shelters (e.g. inspection of structure, administrative guidance on reinforcement/construction, etc.)	To be discussed
Functional extension of PAGASA (e.g. Research center for climate change, education center, astronomical observatory, etc.)	To be discussed

2) Recovery of Regional Economy and Promotion of Industries

Health:

Guiuan is composed of sixty (60) barangays and there are some isolated areas. Thus, the health services are required to be delivered effectively to all people, including the people in such isolated areas in addition to marginalized sectors. Guiuan shall incorporate the following priority policies, programs and projects in the sector of health for the revised CLUP.

a) Recover and secure access to quality health services

Priority Projects/ Programs	Organization/ Agency
Inclusion in Health Facility Enhancement Program (HFEP) of DOH	MHO, Local Health Board, PHO
Explore INGOs assistance to repair facilities which not included in HFEP	
Explore assistance from DOH & INGOs for construction of Barangay Health Stations	
Establish outreach health program	
Strengthening of Community Health system (Barangay Health Board)	

b) Enhance access to sanitary toilets

Priority Projects/ Programs	Organization/ Agency
Intensive advocacy campaign	MHO, Municipal Engineering Office, Barangay
Conduct PhATS (Philippine Approach Total Sanitation) training	
Mobilize Community Health Team	
Networking (Co-work with related sectors - Education, Engineering, etc.)	
Health Education at school	
Provide sanitary toilets	
Discussion on technology options (toilet designs) for coastal barangays	
Policy recommendation with evidence for the regulation	

c) Establish mental health program

Priority Projects/ Programs	Organization/ Agency
Implement the Mental Health and Psycho-social Program (MHPSS)	MHO, DOH NGOs
Periodical training of the emotional care to health workers	
Procure necessary medicines	

d) Establish LGU's health data storage and management system

Priority Projects/ Programs	Organization/ Agency
IT Training to Municipal Health Workers	MHO
Plan the data utilization	
Networking (Co-work with related sectors - IT Section, etc.)	

Education:

Guiuan Municipality, in collaboration with DEPED, will address the structural and non-structural issues of education post-Yolanda through the following policies, programs and projects:

a) Reconstruction of safer schools

Priority Projects/ Programs	Organization/ Agency
Rehabilitate school buildings/classrooms by enforcing uniformed building standards	LGU, DEPED, DPWH, NGOs, Barangay

Assess and upgrade schools in relocation sites especially for island barangays	
Provide school materials to both teachers and students	

b) Improve the psychosocial status of school teachers and students / Provide inclusive and equitable education service at all levels

Priority Projects/ Programs	Organization/ Agency
Build capacity of teachers to provide psychosocial support to students	LGU, DEPED, NGOs, DSWD, DOH
Provide psychosocial support program for Yolanda-affected teachers	
Promote the Alternative Learning System (ALS) for out-of-school youth (OSY) especially on islands (currently only available in mainland)	
Promote secondary education at community level (awareness raising among parents) through Barangay officials as change agents	
Enhance the SPED program for children with disabilities	

Social Welfare

In response to the lack of safe spaces and increased vulnerability of Yolanda-affected communities, Guiuan Municipality has developed the following social welfare policies, programs and projects for recovery and reconstruction and disaster risk reduction:

a) Improve availability of disaster-resilient social welfare services

Priority Projects/ Programs	Organization/ Agency
Restore more structurally-resilient Daycare Centers and a Day Center for senior citizens, especially those serve as evacuation centers	DSWD, MSWD, DPWH
Develop a disaster-resilient model community where JICA is supporting the rehabilitation of a Daycare Center	Barangay Council, LGU, JICA
Establish a semi-permanent Women-friendly Space in the Cogon relocation site to serve as a WCPU	LGU (MSWD, DOH), Police, UNFPA, Plan, DSWD
Establish a half-way home for abused and abandoned children	LGU (MSWD), DSWD
Advocate for foster families or alternative family care due to the lack of safe spaces for abused and neglected children	DSWD, MSWD
Build capacity of senior citizens on DRRM through Senior Citizens' Associations (e.g. General Assembly in every October)	MDRRMO, MSWD, OSCA, Barangay Councils, Senior Citizens' Associations
Promote senior citizens' participation in DRRM planning	MDRRMO, MSWD, OSCA, Barangay Councils, Senior Citizens' Associations

b) Increase capacity of MSWD including on PWD issues/ Promote economic empowerment of the vulnerable population / Strengthen protection services for women and children

Priority Projects/ Programs	Organization/ Agency
Increase manpower of MSWD, particularly permanent social workers	Executive/legislative (LGU)
Update and monitor pension beneficiaries considering the increased demand after Yolanda and resume microfinance support for senior citizens	LGU, DSWD, MSWD, OSCA

Pilot VAW Desk in Cantahay, evaluate the impact and replicate in other barangays	MSWD, Barangay Council
Recruit a focal person for PWD	LGU (Budget Officer, MSWD)
Enhance the existing productivity skills training for youth and women for their economic empowerment	TESDA, DEPED, MSWD

Solid Waste Management:

The 10-years’ SWM Plan constitutes fundamentally sectoral policies and strategies of SWM, and assume an important role also in formulating RRP, DRRMP, CLUP and annual budget. Accordingly, the workshop concluded that to formulate the plan is a priority subject among all.

Priority Projects/ Programs	Organization/ Agency
To formulate the 10-years’ SWM plan scientifically (preparation in 2015)	SWMB, MGSO, MPDO
To develop sanitary landfill (project proposal in 2015)	DENR, EMB, LGU, (Donor)
Training of staff for O&M of sanitary landfill (0.5 year prior to completion of landfill)	MGSO, MAO and MEO
To form a technical working group for costing of SWM service (Update annually)	
To promote campaigns to make the citizens understand the needs of SWM fee collection (Immediately)	Mayor, MTO, MGSO

3) Recovery of Regional Economy and Promotion of Industries

Basic Strategies for the Overall Economy Sector:

3 economic driving thrusts of a) Tourism Revival, b) Guiuan Aquatic (Trade) Center, and c) Modernized Aquatic Production & Catching, and supporting economic component of d) Sustainable Livelihood Opportunities by Agriculture and Fisheries are identified as Guiuan’s 4 thematic components representing economic sub-sectors of tourism, commerce/ business, agriculture, and fishery.

Linkages among the thematic components have to be developed intentionally to materialize six ternary industry, which is primary (agriculture and fishery), secondary (Industries including processing, manufacturing, chemical, heavy, light), and tertiary (services) industries, to increase total factor productivity (TFP) of people engaging the primary sector productions and to enhance local economic activities by increasing locally added values.

Linkages among driving components are focal to be forged. The linking activities involve ones such as creation of local unique a) delicacies using quality aquatic products, b) agro-fishery products, c) shell crafts, and so on aiming for supporting tourism promotion and marketing to the outside economies including national and international markets. Livelihood oriented activities like mat and basket weaving could be a linkage activity among the 4 thematic components.

People’s participation is the key for the enhanced linkage.

Tourism:

The following strategies will be pursued in order to revive tourism in the Municipality.

- Restore the damaged tourism attractions the country's oldest 16th-century church, PAGASA radar station, and the surf spot in Calicoan island with improved signage,
- Support accommodation and amenity operators for restoring their business activities,
- Collect, compile, and disseminate tourism related information for tourist promotion, investors marketing,
- Conduct tourist promotion, and accommodation and amenity operator investment marketing,
- Identify/ create new tourism attractions such as Climate Change and Disaster Science Museum at PAGASA Radar Station,
- Establish, motivate, and train local people and business associations for improvement of tourists' experiences including local product, delicacies, and cuisines development (core for Six ternary Industry Activities), and
- Improve accessibility in step-by-step manner from ensuring rehabilitation and improvement of road accesses and appealing bus operators for upgrading of vehicle quality and frequency, to appealing tour/ air operators for flight service provisions starting from chartered flights.

The basic concept of the strategies is “pay effort first for enhancing appealing points for tourist, and then attract investors and operators with the enhanced appealing points”.

Trade/ Commerce:

The following strategies will be pursued in order to formulate a trading center for the aquatic products of Guiuan and surroundings connecting to regional and national markets

- Provide value-adding opportunities by establishing the Guiuan Aquatic (Trade) Center with modernized fish port for accommodating all the transaction business activities regarding the fishery and agriculture based products in integrated manner,
- Enhance local trading capabilities by organizing stakeholders and by providing skills training and information support in conducting business by utilizing the Center,
- Stimulate local entrepreneurship by visualizing business opportunities to organized local people and entities by the Center's activities and by provision of business information and skills trainings, and
- Establish orderly trading transactions in Guiuan.

Agriculture:

Basic Strategies for Agriculture:

- Integrated farming (coco-base mix farming)

- Diversification of coconut varieties
- Storm resistant coco farm
- New livelihood
- Agro-industry (Calamancy juice, Dairy processing, Charcoal briquetting), involving women's groups to revitalize the local economy

Priority Projects/ Programs	Organization/ Agency
<p>Coco-wood Charcoal Making and Briquetting Project</p> <ul style="list-style-type: none"> ✓ Objectives: To accelerate to clean and utilize the fallen coco trees, to generate work opportunity of coconut farming survivors, to prevent illegal deforestation, and to reduce damage by Rhino Beetle ✓ Target beneficiaries: Farmers' group ✓ Expected LGU response: Guidance on technique and marketing for group members ✓ Target output: Stable quality and sales of charcoal, acceleration of coco debris, cleaning and reduction of expansion of damage by Rhino Beetle ✓ Justification: Coco seedling replanting can be done only after debris cleaning, heavily hit coconut trees and newly planted seedlings take time to start bearing nuts for 5-10 years, and illegal deforestation caused by no availability of coco-shell charcoal in market ✓ Task of beneficiaries: group work out 	To be discussed
<p>Storm Resilient Coconut Farm Project</p> <ul style="list-style-type: none"> ✓ Objectives: To make storm resistant coconut farm to sustain coconut industries, to develop coco- base processing (food processing, virgin coconut oil), and to improve farm and labor intensity ✓ Target beneficiaries: Coconut farmers ✓ Expected PCA response: Provision of seedlings of dwarf coconut varieties ✓ Target output: Mix cropping of dwarf coconut and fruit trees, acceleration of coco debris cleaning, and reduction of expansion of damage by Rhino Beetle ✓ Justification: Solution of heavy dependence on coconut mono cultivation and strong wind cease bearing nuts for 5 years ✓ Task of beneficiaries: Maintenance of the mixing crop farm and growing annual or biennial crops before getting fruits or nuts bearing in the farm 	To be discussed

Fishery:

Basic strategies to achieve the goals for fishery are as follows:

a) Environmentally-sound aquaculture

- Upgrade/enhance the technology on submerged lapu-lapu cage, resilient to typhoon and addresses the issue on use of compressor.
- Switch from wild fingerlings to artificial fingerlings.
- Switch from natural feed to artificial feed.

b) Sustainable tuna fisheries

- Strengthen enforcement of fishery laws
- Provision of commercial fishing boats for offshore fishing and payaos to reduce fishing effort in coastal areas

- Integrate fish Landing storage and processing facilities

c) Market Development (for Grouper)

- Value Chain Analysis
- Market Analysis
- Establish Product and Process Standards

Municipal Agriculture Officer emphasized that the policies to be considered are:

- Fishers must not engage in illegal fishing (dynamite, cyanide, active gear such baby trawl, libaliba).
- Fisherfolk should be registered (5850 already registered out of 6300 fisherfolk). Guiuan will be the first 100 municipalities that could complete the municipal fisherfolks registration system.
- Fishers should protect marine environment (not just harvesting resources).

Priority Projects/ Programs	Organization/ Agency
Development of artificial reproduction and fingerling production technology of leopard coral grouper (<i>Plectropomus leopardus</i> , “suno” in local name)	To be discussed
Sea cucumber, abalone and seaweed culture as livelihood in Guiuan	To be discussed

In the context of the South-South Technical Cooperation, Research Institute for Mariculture, Gondol, Bali, Indonesia, shares its technology of artificial reproduction and fingerling production of the leopard coral grouper needed by Guiuan Marine Fisheries Development Center (GMFDC). Leopard coral grouper is highly valued in Tacloban, Manila, Cebu, Hong Kong and mainland China and is the most important income source for the fishing families operating fish cages in Guiuan.

As soon as BFAR Center (GMFDC) is rehabilitated, this project will provide start up equipment and seeds necessary for sea cucumber (time required to harvest 8-12 months, pen), abalone (8 months, pen) and seaweed (45-60 days, protected area) culture to diversify and supplement the livelihood of fisherfolk families and coconut farmers who lost their main source of income after Typhoon Yolanda. Among them, seaweed farming will become a simple, low cost livelihood option for affected families.

(7) Hazard Maps

1) Storm Surge

This hazard map shows a result of storm surge simulation analysis for the worst scenario of N+0.1°. It is confirmed that the Poblacion and the southern area are largely inundated in the map.

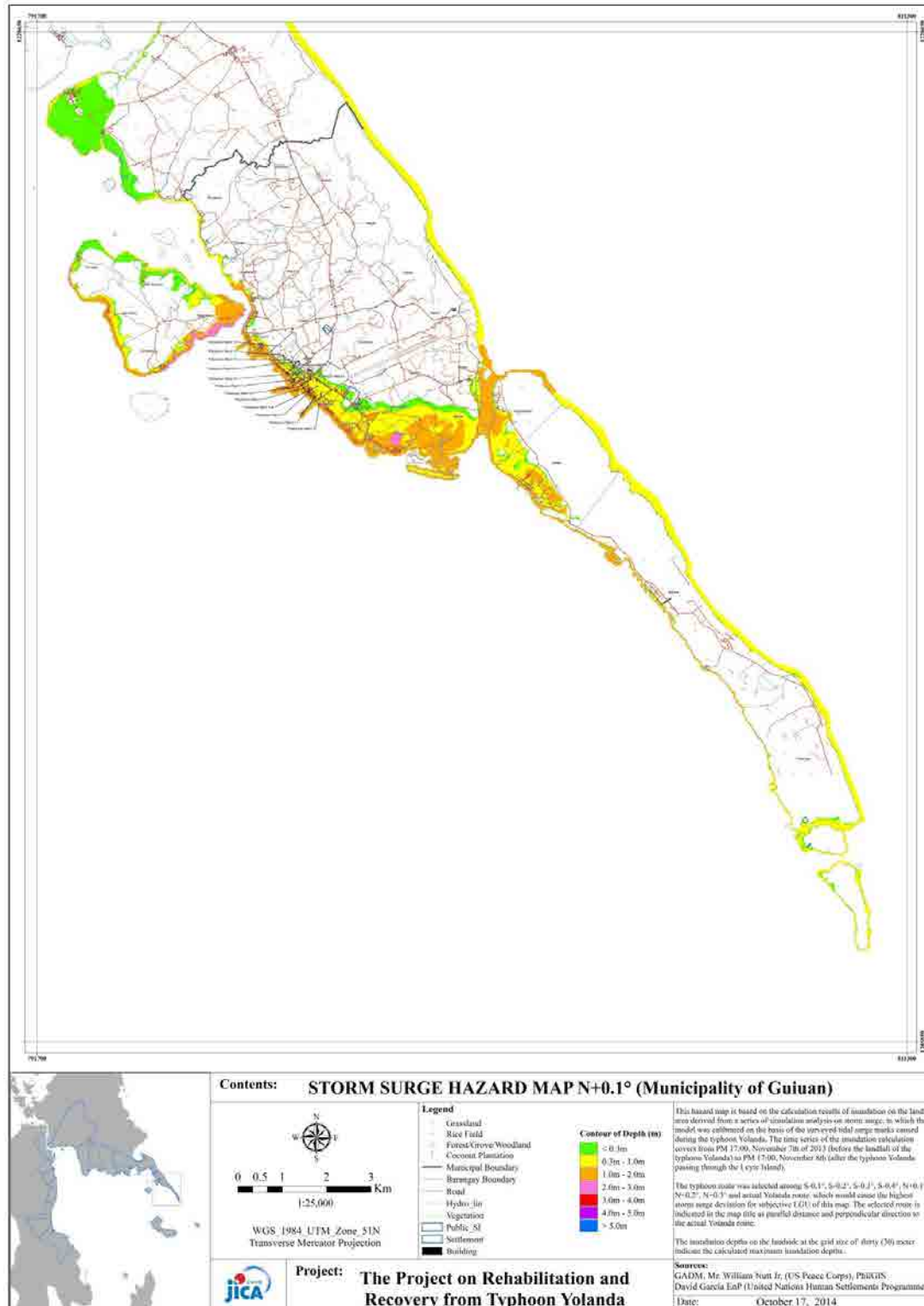


Figure 2.2-31 STORM SURGE HAZARD MAP N+0.1°

2) Flood

Any flood disaster has not been examined since there does not exist major river.

3) Tsunami

Potential damage amount based on the Tsunami hazard map is more serious than that of Storm surge hazard map. Then, evacuation plan has been examined on the basis of the Tsunami map during the workshops.

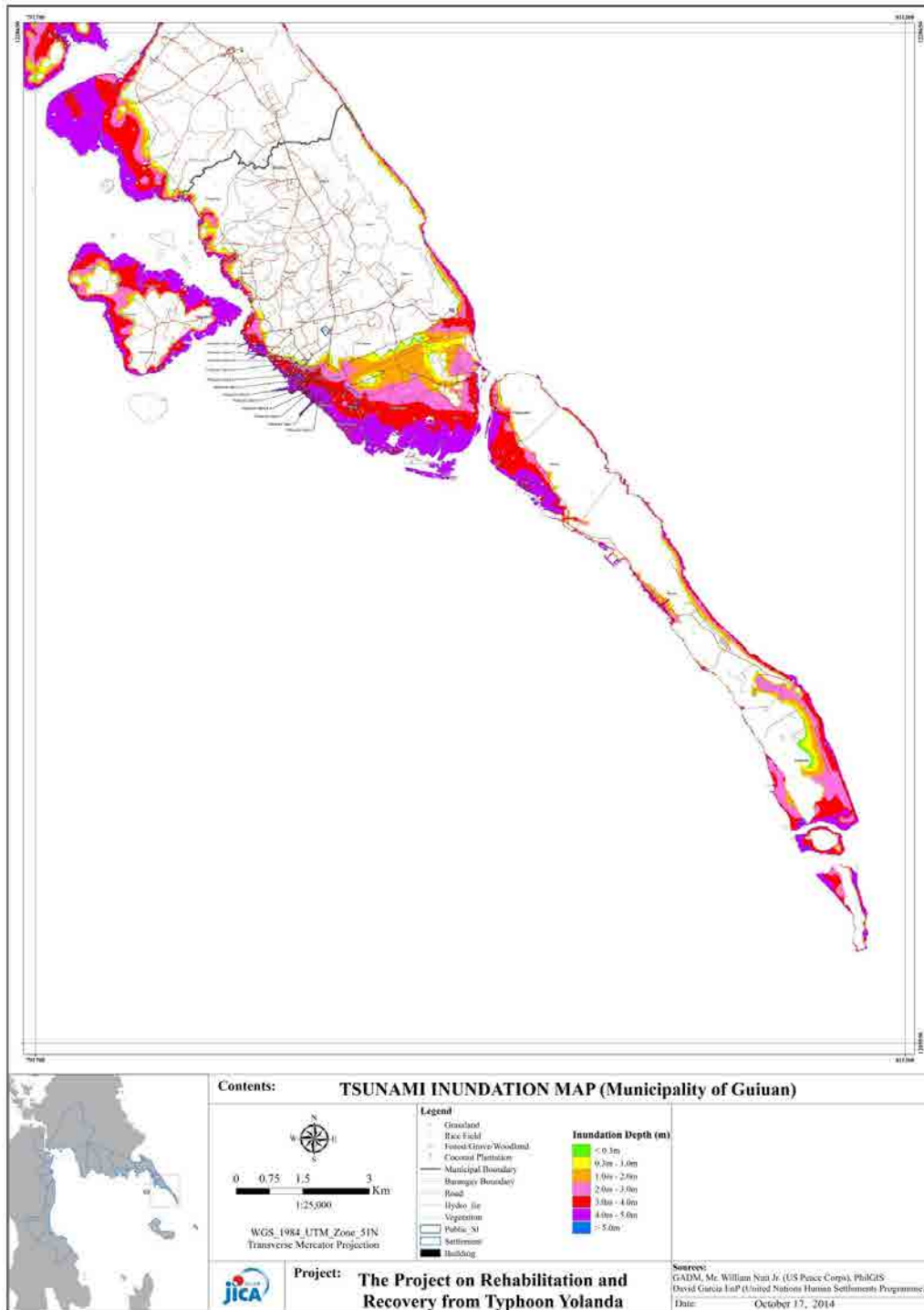


Figure 2.2-32 TSUNAMI HAZARD MAP

(8) Recovery and Reconstruction Map (Structural Measures/ Land Use)

1) Land use map for Poblacion of Guiuan city by CLUP

Revision of existing CLUP was proposed for the Poblacion. Compared to the existing CLUP, land use change was proposed so that development will concentrate in northern area considering the inundation area of the Tsunami or Storm surge. The proposal includes land use for industrial area for airport activity nearby the runway (in purple). The two Jetties of the Poblacion port area are occupied by informal site and relocation will be carried out in this area. The designated relocation site is nearby the airport, where the location is marked by a circle in the map. (This area is Tsunami hazard area and some countermeasures need to be focused. Relocation activity has not progressed due to the insufficient budget problem) There are no legal background for the width of 40m of No Build Zone. Then, LGU will consider this issue carefully.

It was agreed during the past workshops that five evacuation shelters will be designated in the northern region considering the Tsunami hazard area. Evacuation shelter is also designated at each island. (Evacuation shelter is shown in double circle in the map.)

It was also agreed that trunk road connecting the Poblacion in main island will be strengthened. (The bold black line in the figure) Especially, East-West road of the Poblacion is regarded very important and thus expected to be strengthened. It is expected to be connecting the other islands.

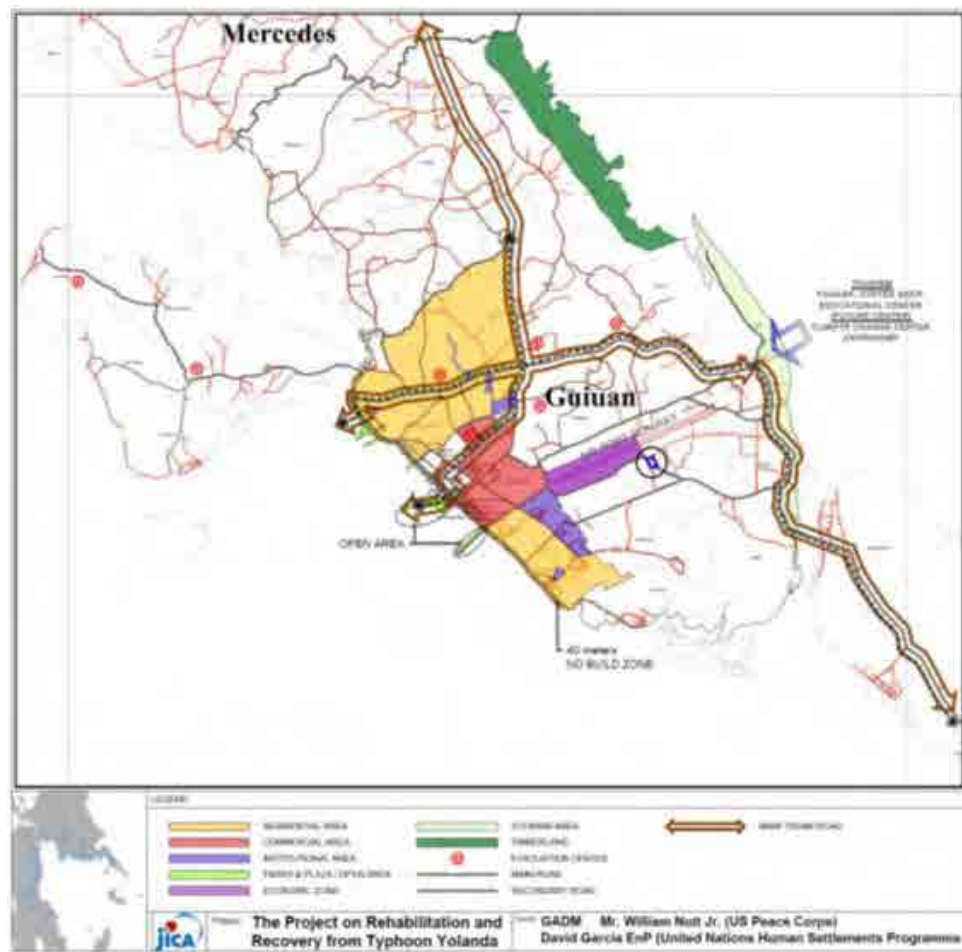


Figure 2.2-33 Land use map for Poblacion of Guiuan city by CLUP

3) Evacuation shelters and emergency transportation roads in main island area

Main road such as national road connecting Poblacion and urban areas in the wide area is regarded as an emergency transportation road. Roads, which are potentially fundamental in Poblacion or urban area, can be functioned as complementary road assisting emergency transportation roads. (In blue line) Also Important Access Road (Black line) is also proposed as important access roads inside urban area to be significantly developed.

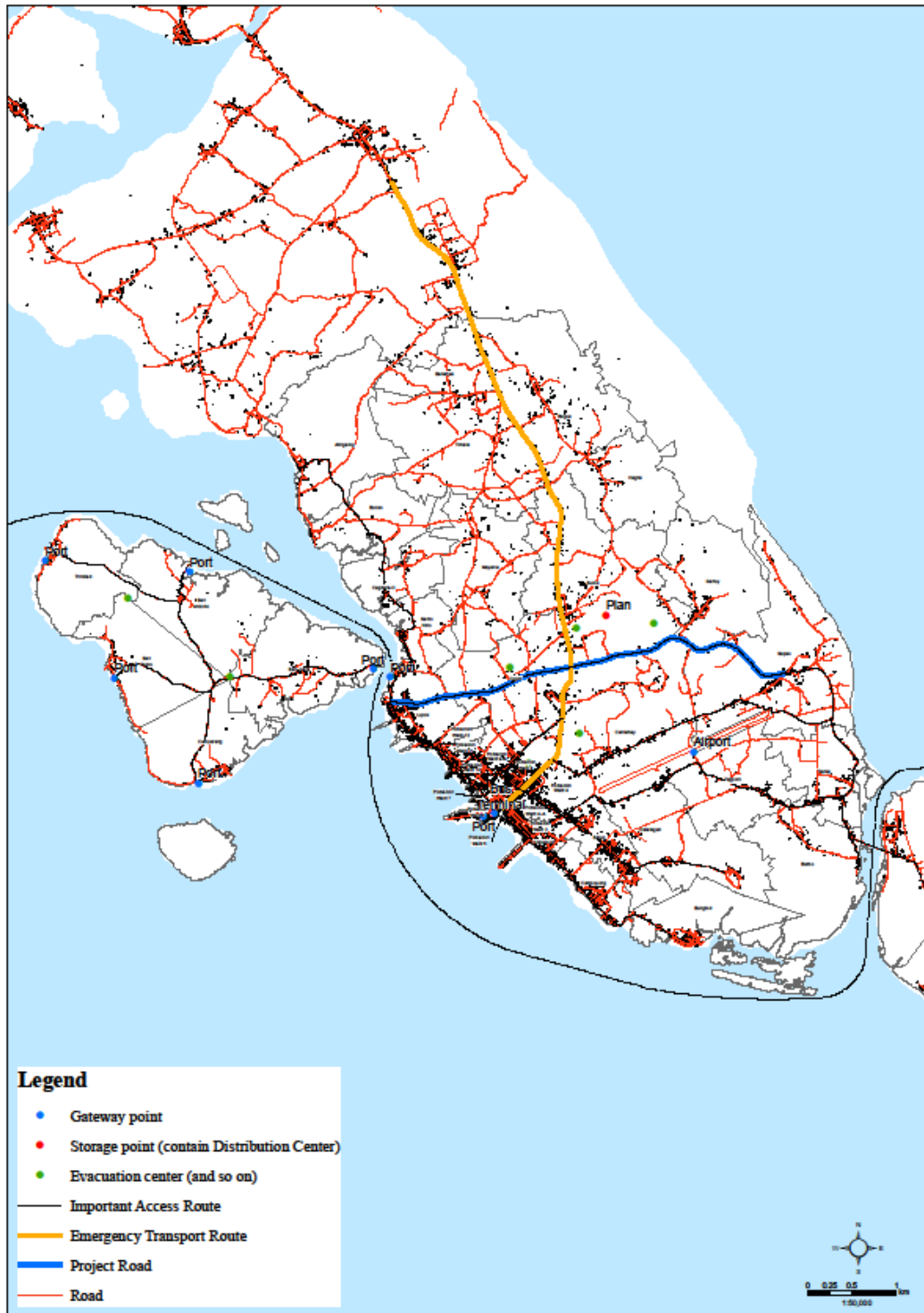


Figure 2.2-35 Evacuation shelters and emergency transportation roads in main island area

4) Evacuation shelters and emergency transportation roads in the whole Guiuan city

Evacuation shelters and emergency transportation roads are examined not only in main island but also in the whole Guiuan. Some fundamental data or information has already been obtained, such as evacuation shelter at each island and corresponding population at Barangay level, etc. The emergency transportation network considered by the LGU, connecting islands, is shown in black lines in the map.

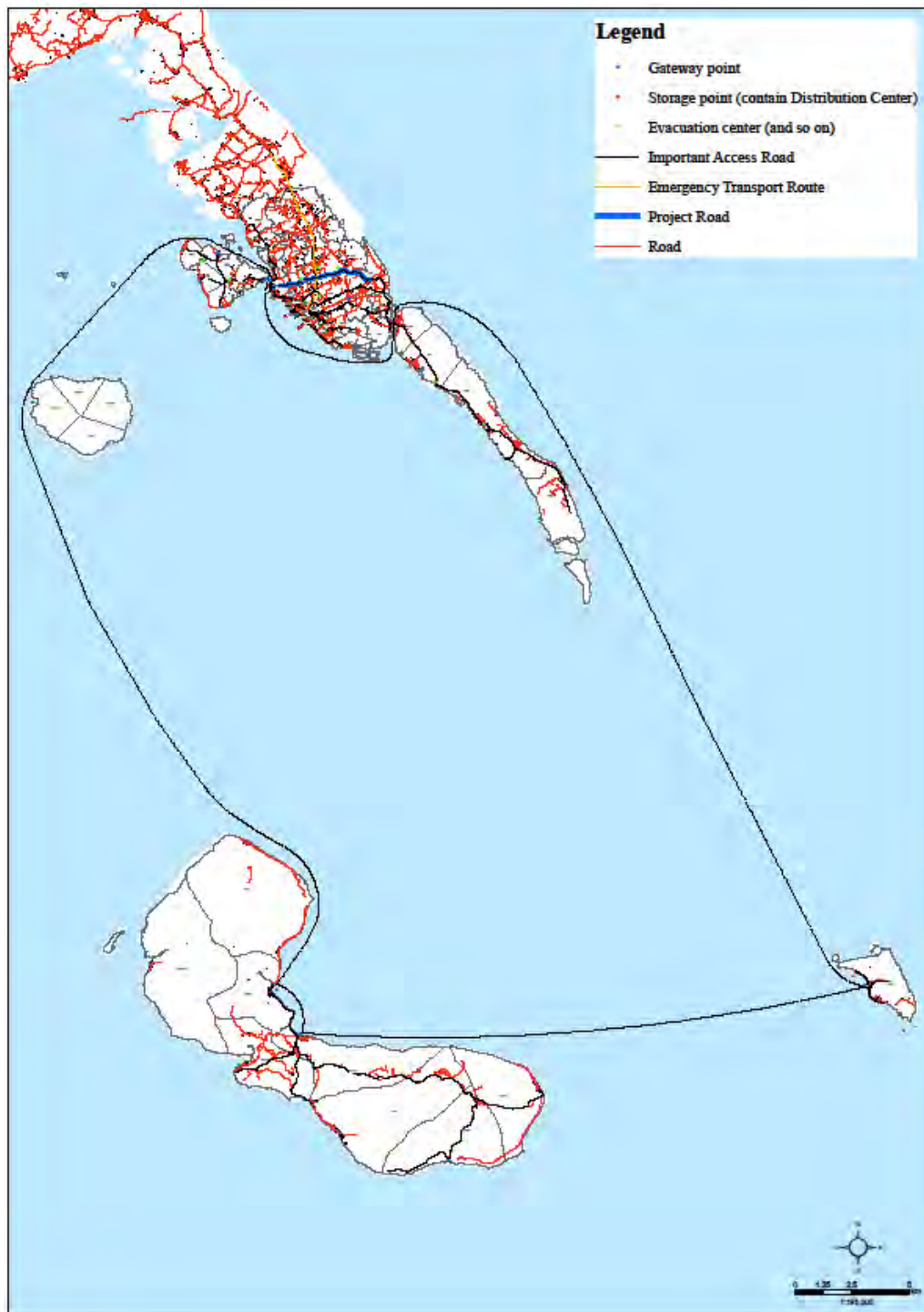


Figure 2.2-36 Evacuation shelters and emergency transportation roads in the whole Guiuan city