

# Community Based Adaption & Resilience Against Disasters (CBARAD Project)

Iloilo City, Philippines

## SUMMARY REPORT





## Executive Summary

The threat of natural disasters, climatic and seismic, is increasing globally and is particularly pronounced in middle and low income cities across the Asia Pacific Region. The City of Iloilo, in partnership with the CITYNET Yokohama Project Office and under the JICA technical cooperation for grassroots project, implemented the Community Based Adaptation and Resiliency Against Disasters (CBARAD) Project from 2012-17 over two phases. CBARAD devised effective community-level adaptation and resiliency schemes in the City of Iloilo and increased the awareness levels of citizens in order to create self-sustaining communities.

In 2008 Typhoon Frank caused widespread damage and loss of lives in the City of Iloilo. The worst hit district of the city was Jaro where flood waters reached over two meters causing most of the houses to be submerged. The flood water also affected much of the farmland in and around the city.

To strengthen resiliency against disasters, particularly floods, the City of Iloilo sent a request to Yokohama City for support to develop programs that would enable the residents and the City Government to be better prepared. As a result, the five-year project has helped

develop eight ordinances and resolutions and a number of localized initiatives such as hazard maps, evacuation maps and protocols, disaster education programs for schools, profiling of vulnerable groups, development of the CDRRMC and BDRRMC, establishment of an early warning system among others. One of the key features of the CBARAD Project includes the establishment of a disaster education learning center named KABALAKA Gallery where people can learn about ways to prevent and mitigate disasters. The project has also fostered coordination between various stakeholders including academic institutions and the private sector.

Through CBARAD, Iloilo has worked to create effective community-level adaptation and resiliency schemes, while increasing citizen awareness. The main goal of the CBARAD Project was to increase the capacities of citizens and for the City Government of Iloilo to develop self-sustaining communities that can prevent, prepare, and respond to disasters, along with the creation of a systematic operation for the CDRRMC.

This report includes information and data up until January 2017.



## Introduction

### Overview of Iloilo

Iloilo is the regional center of the Western Visayas and located on the southern shores of Panay Island in the Philippines.

The city is vulnerable to both natural and human-induced hazards that can impact the city's population and urban ecosystems. Due to its geographical location, the city has suffered immense flood damage throughout its history. Numerous typhoons or tropical cyclones make landfall in Iloilo every year; for example, 20% of Philippine tropical cyclones affect the Iloilo City region.

**Land Area:** 7,834 hectares

**Population:** 447,992 (2015)

**Barangay:** 180

**Districts:** 7

**Topography:** Flood plain, 2 rivers & 1 estuary

### Natural Hazards in Iloilo

- Typhoons
- Storm surges
- Floods
- Earthquakes
- Tsunamis
- Liquefaction
- Rising sea levels

### Human-induced Hazards in Iloilo

- Saltwater intrusion
- Groundwater contamination
- Fire

### Examples of Vulnerabilities in Iloilo

- 155 fire-prone barangays
- 25 coastal barangays prone to storm surges

Typhoon Frank was the most devastating typhoon to ever hit the city. From June 18-23, 2008, Typhoon Frank bombarded Iloilo with severe winds and heavy rainfall. Iloilo was devastated by flash flooding, which submerged 80% of the city. The typhoon claimed numerous lives and caused millions of dollars worth of property damage as floods washed away homes, possessions, and drowned residents in low-lying areas.

### Impacts of Typhoon Frank

- 196-234 million cubic meters of run-off water drained into Iloilo
- 254,275 persons affected
- 28 casualties
- 170 injured
- USD 16.41 million in economic damages

### Environmental Damages

- 2.2 million cubic meters of soil eroded from watershed areas
- 70,760 trees damaged



## Framework & Process



The two phases of the Community Based Adaptation and Resiliency Against Disasters (CBARAD) Project in Iloilo were implemented between 2012-2017.

By enhancing DRR collaborations between the local government, educational institutes and community groups, the project was able to target local government employees and vulnerable groups, including children, people with disabilities (PWDs), and the elderly, in order to prepare all sectors for disasters. Each phase had three components that were intrinsically linked. The long term goal of the CBARAD Project was to replicate the training and activities across the entire City of Iloilo and share best practices with other cities in the Philippines and around the world.



### CBARAD I in Numbers

Trainings & Workshops: 28  
 Study Visits to Japan: 1  
 Meetings, Dialogues & Consultations: 67  
 Technical Advisory Visits: 5  
 Dagoy Caravan: 4  
 Total Activities: 128  
 Participants: 4,020

### CBARAD II in Numbers \*

Trainings & Workshops: 77  
 Study Visits to Japan: 2  
 Meetings, Dialogues & Consultations: 115  
 Technical Advisory Visits: 3  
 KABALAKA Camps: 8  
 Total Activities: 201  
 Participants: 9,238

\*As of January 2017

# CBARAD I

CBARAD I developed community-level adaptation and resiliency measures in five flood-prone barangays from 2012-2015. These barangays included Balabago, Buntatala, Calubihan, Dungon A, and San Isidro.

## Project Purpose

- Community disaster prevention capacity is strengthened, thereby resulting in reduced loss of lives and damages to properties.



## Components

### Component I:

The community and local government units understand the issues related to disaster risk reduction.

### Component II:

Preemptive evacuation system and risk reduction practices are developed.

### Component III:

Cooperation between residents, stakeholders and the local government is strengthened.

## Project Goals

- Iloilo is a model city in DRR and harmoniously co-exists with natural water bodies.
- Other CITYNET member cities share the best practices of Iloilo City.

Start of CBARAD I 	Inputs 	Outputs
<ul style="list-style-type: none"> <li>• Community has little knowledge on river ecosystem.</li> <li>• Community has little understanding on actions to take during a disaster.</li> <li>• Limited number of disaster education opportunities for community members.</li> <li>• Limited availability of community-specific DRR resources.</li> <li>• Irregular emergency drills in communities.</li> <li>• Little collaboration between City Government and community.</li> </ul>	<ul style="list-style-type: none"> <li>• Community consultations.</li> <li>• Develop hazard maps through PRA.</li> <li>• Create a mechanism to facilitate cooperation between the City Government and community.</li> <li>• Develop an evacuation system.</li> <li>• Create and distribute IEC materials and evacuation manuals to residents.</li> <li>• 600+ pieces of DRR equipment and inclusive emergency toilet facilities at evacuation centers.</li> </ul>	<ul style="list-style-type: none"> <li>• Majority of residents in pilot barangays familiar with river plants and animals.</li> <li>• Majority of residents take preventative measures and know actions to take during various disasters.</li> <li>• Well-established community-specific disaster education programs.</li> <li>• IEC and various maps with information tailored to target communities.</li> <li>• Bi-annual community disaster drills.</li> <li>• Regular meetings and consultations between the City Government and communities.</li> </ul>

## Lessons Learned from Japan

Throughout the first phase of the project the City of Yokohama provided technical assistance in the form of trainings, workshops, study visits, and technical advisory visits.

The objective of these activities was to share Japan’s knowledge and experience in DRR with Iloilo and provide local representatives with guidance in order to localize strategies and techniques, as well as create programs, plans and operations.



	Study Visit to Japan	Technical Advisory Visits to Iloilo
Participants	<ul style="list-style-type: none"> <li>• Barangay captains</li> <li>• CDRRMO officials</li> </ul>	<ul style="list-style-type: none"> <li>• Barangay captains and staff</li> <li>• CDRRMO</li> <li>• Project stakeholders</li> </ul>
Experts from	<ul style="list-style-type: none"> <li>• City of Yokohama</li> <li>• Fire Bureau</li> <li>• TRnet</li> <li>• Kohoku Ward Office</li> <li>• Japan River Restoration Network</li> <li>• Plus Arts</li> <li>• Rainwater harvesting museum</li> </ul>	<ul style="list-style-type: none"> <li>• Crisis Management Office</li> <li>• Health and Welfare Department</li> <li>• TRnet</li> <li>• Plus Arts</li> <li>• International Affairs Bureau</li> </ul>
Topics	<ul style="list-style-type: none"> <li>• Disaster management for floods, fires, and earthquakes</li> <li>• Emergency information dissemination</li> <li>• Community-based DRR and environmental sustainability programing</li> <li>• Accessible disaster preparedness training</li> </ul>	<ul style="list-style-type: none"> <li>• Evacuation drill</li> <li>• Evacuation shelter management</li> <li>• Evacuation manual development</li> <li>• Health and sanitation practices</li> <li>• Creek profiling</li> <li>• River basin mapping</li> <li>• Disaster education and drills for children</li> </ul>

## Results & Highlights

- Formulated working strategies and identified stakeholder roles in the event of a disaster.
- Disaster manuals include best practices.
- Better knowledge sharing and a more cohesive resiliency program with government cooperation.
- Residents in pilot barangays understand their local flood and disaster conditions.
- Disaster schemes established in target barangays.
- Strengthened health and sanitation practices.
- BDRRMC members trained in DRR.
- First responders trained to properly respond to emergencies.

# CBARAD II

CBARAD II fostered Iloilo’s ability to develop sustainable and inclusive DRR practices, enhanced disaster preparedness at the local government level, and provided opportunities for knowledge exchanges among CITYNET members.

## Project Purpose

- Disaster risk management of the City of Iloilo is improved through collaboration with administrative bodies, vulnerable groups, and educational institutions, etc.

## Components

### Component I:

Capacities of CDRRMO/CDRRMC and BDRRMCs to perform DRR activities are strengthened.

### Component II:

Capacity of vulnerable groups in managing disaster risks is enhanced.

### Component III:

Enhanced collaboration system among local government, educational institutions and communities for DRRM.

## Project Goals

- Continuously developed sustainable disaster risk reduction practices in the City of Iloilo to enhance disaster preparedness at the local government level.
- Contributed information on sound disaster preparedness practices among the CITYNET members.

Start of CBARAD II 	Inputs 	Outputs
<ul style="list-style-type: none"> <li>• No systematic guidance to Iloilo’s CDRRMO.</li> <li>• Limited inclusion of vulnerable groups in DRR activities.</li> <li>• DRR activities conducted by various organizations with little collaboration efforts.</li> <li>• CDRRMC has a reactive approach to DRR with limited involvement in preventative policies and programs.</li> <li>• CDRRMO and CDRRMC’s disaster management approach is more programmatic and top-to-bottom.</li> <li>• Communities are treated as beneficiaries rather than active co-implementers.</li> <li>• Institutional arrangement is weak with the CDRRMO working nearly in isolation and detached from other City offices.</li> </ul>	<ul style="list-style-type: none"> <li>• Trainings based on structured competency and capacity development plans.</li> <li>• Training in Japan on crisis management, stakeholder coordination, PWD-related organizations, and flood management.</li> <li>• Dispatch of experts into the field.</li> <li>• Develop a database management system for DRR-related data.</li> <li>• Inclusive DRRM trainings and workshops for various sectors.</li> <li>• Conduct collaborative DRR workshops across sectors.</li> <li>• Policies and procedures that facilitate linkages between the DRR-work of various groups to the City Government.</li> <li>• Provision of water cistern, ambulance and other disaster response equipment/tools.</li> <li>• Printed IEC materials on disaster preparedness.</li> <li>• KABALAKA Gallery establishment.</li> </ul>	<ul style="list-style-type: none"> <li>• Systematic guidance to the CDRRMO.</li> <li>• Increased number of collaborative workshops and trainings for DRR.</li> <li>• Local policies, plans and programs on inclusive and rights-based DRRM advocated/approved by the CDRRMC.</li> <li>• Enhanced knowledge and skills on community-based disaster preparedness and resilience among CDRRMC and CDRRMO members/staff and serviced barangays.</li> <li>• Revised CDRRMO structure with more permanent staff, improved logistics, balanced competencies in disaster preparedness, mitigation/adapatation, response, and recovery/rehabilitation.</li> </ul>

## Lessons Learned from Japan

During the second phase of the CBARAD Project the City of Yokohama continued to provide technical assistance in the form of trainings, workshops, study visits, and technical advisory visits. Other support was provided by Yokohama City University, the NPO Plus Arts, and the NGO TRNet. Unimation Systems Inc. from the private sector provided further support.



	Study Visit I	Study Visit II	Technical Advisory Visits
Participants	<ul style="list-style-type: none"> <li>Project coordinator</li> <li>Core representatives of components II and III</li> </ul>	<ul style="list-style-type: none"> <li>Mayor of Iloilo</li> <li>Members of the CDRRMC</li> </ul>	<ul style="list-style-type: none"> <li>CDRRMO/CDRRMC, academe, project stakeholders, social health/welfare professionals, EMS professionals, local community members, barangay captains</li> </ul>
Experts from	<ul style="list-style-type: none"> <li>Crisis Management Office</li> <li>Health and Social Welfare Bureau</li> <li>Road and Highway Bureau</li> <li>Ministry of Land, Infrastructure, Transport and Tourism</li> <li>Safetynet Project Yokohama</li> <li>TRNet</li> <li>YCU</li> <li>Disabled Peoples' International-Japan</li> <li>Work Nakagawa</li> </ul>	<ul style="list-style-type: none"> <li>Crisis Management Office</li> <li>Housing and Architecture Bureau</li> <li>Environmental Planning Bureau</li> <li>Road and Highway Bureau</li> <li>Urban Development Bureau</li> <li>YCU</li> <li>Unimation Systems Inc.</li> <li>Plus Arts</li> </ul>	<ul style="list-style-type: none"> <li>Crisis Management Office</li> <li>Health and Social Welfare Bureau</li> <li>Fire Bureau</li> <li>Urban Development Bureau</li> <li>Yokohama City Council of Social Welfare</li> <li>Aoba Disaster Volunteer Network</li> <li>YCU</li> <li>Plus Arts</li> <li>Unimation System Inc.</li> </ul>
Topics	<ul style="list-style-type: none"> <li>Supporting PWDs during disasters</li> <li>Flood management in Yokohama</li> <li>EWS/communication in Yokohama</li> <li>Community involvement in development planning</li> <li>Engaging academic institutions on DRRM</li> </ul>	<ul style="list-style-type: none"> <li>DRR/DRRM in Yokohama</li> <li>DRR collaboration between academic institutions and communities</li> <li>Community participation in disaster prevention</li> <li>How to develop an interactive DRR learning center</li> </ul>	<ul style="list-style-type: none"> <li>Supporting PWDs in a crisis</li> <li>Community participation in DRR</li> <li>Welfare/education programs</li> <li>Evacuation protocol and coordination</li> <li>Evacuation shelter management</li> <li>Fire prevention</li> <li>EMS training</li> <li>DRR education</li> </ul>

## Summary of Component I Activities with Outputs

- Capacities of CDRRMO/CDRRMC and BDRRMCs to perform DRR activities are strengthened.



### How this was achieved:

Start of CBARAD II <span style="float: right;">➔</span>	Inputs <span style="float: right;">➔</span>	Outputs
<ul style="list-style-type: none"> <li>• Limited training and understanding on DRR for members of the CDRRMC.</li> <li>• DRRM decisions not made through a participatory process.</li> <li>• Limited availability of City Government resources that strengthen DRR capacities of both the government and community residents.</li> <li>• Communities have limited working knowledge on disaster preparedness planning.</li> </ul>	<ul style="list-style-type: none"> <li>• Conducted trainings based on a structured competency and development plan for the CDRRMC.</li> <li>• Trainings conducted in Japan to learn about crisis management, coordination among stakeholders and DRR.</li> <li>• Dispatchment of experts in the field, trainings and workshops for CDRRMO, trainings on organizational coordination and management during disasters.</li> <li>• Acquirement of products and expertise from Japanese SMEs and NGOs to produce products related to DRR and vulnerable groups.</li> <li>• Development of a database management system for DRR-related data.</li> <li>• Support provided to CDRRMC/O to facilitate institutional changes that will ensure sustainability of programs and projects.</li> <li>• Mentoring sessions/trainings with barangays on hazard mapping and risk assessment.</li> </ul>	<ul style="list-style-type: none"> <li>• Regular training for CDRRMC members and a high understanding of DRR.</li> <li>• DRRM planning and decisions made with the participation of relevant stakeholders.</li> <li>• Enhanced EWS through the installation of one new EWS device.</li> <li>• Passing of numerous ordinances and RAs to ensure project sustainability.</li> <li>• Development of innovative IEC resources to enhance the City Government’s ability to educate communities on DRR.</li> <li>• Improved barangay capacities in disaster-preparedness planning and policy/decision-making.</li> <li>• Improved CDRRMC/O knowledge and skills in community-based disaster preparedness that can be shared and replicated in other municipalities.</li> </ul>

### Sustainability

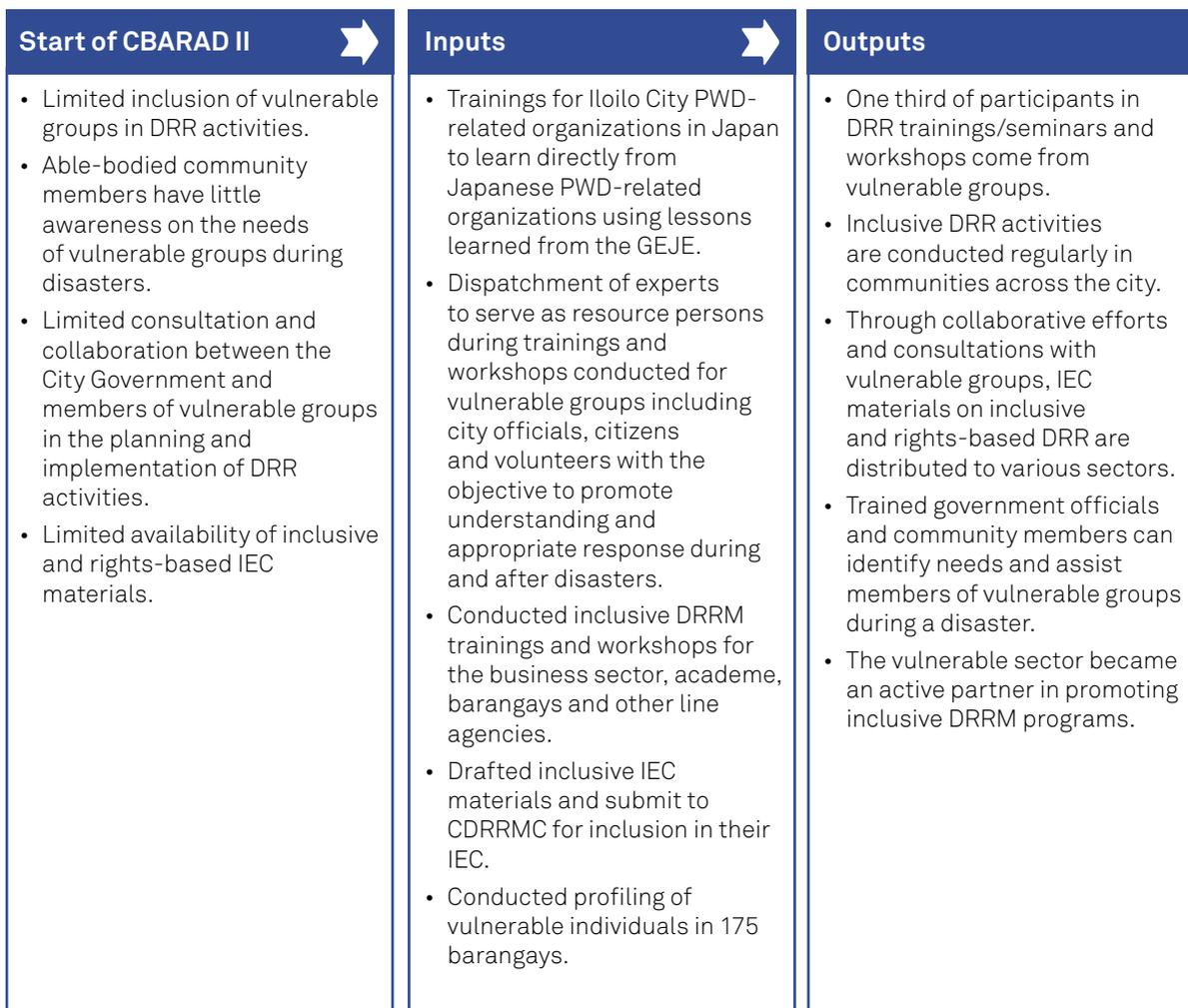
- Trained over 40 CBARAD facilitators to assist with community-based programming
- Oriented 28 barangays on CBDRRM and risk information to help with informed DRR decisions e.g. annual investment plan for the BDRRMF and the BDRRM Plan.
- Passed eight ordinances and resolutions to guide future DRR activities.

## Summary of Component II Activities with Outputs

- Capacity of vulnerable groups in managing disaster risks is enhanced.



### How this was achieved:



### Sustainability

- Engaging with community members to create innovative and inclusive IEC materials through the establishment of annual DRR-themed creative art contests.

## Summary of Component III Activities with Outputs

- Enhanced collaboration system among local government, education institutions and communities for DRRM.



### How this was achieved:

Start of CBARAD II 	Inputs 	Outputs
<ul style="list-style-type: none"> <li>• Limited coordination with the City Government in DRR activities.</li> <li>• Faculty members of educational institutions have limited DRR training and resources.</li> <li>• Majority of children have not participated in DRR training and have limited knowledge on disaster prevention.</li> </ul>	<ul style="list-style-type: none"> <li>• Conduct training and information-sharing in Japan to enhance understanding of sound practices conducted by organizations and residents along rivers.</li> <li>• Dispatch of experts to serve as resource persons during trainings conducted for local educational institutions and the community in collaboration with the CDRRMO and OCD.</li> <li>• Conduct joint DRR workshops and learning visits by educational institutions, communities and health-related departments in the Philippines and Japan.</li> <li>• Produce IEC materials on KABALAKA Camp and conduct KABALAKA Camp with primary and secondary school teachers, elementary and high school students.</li> <li>• Develop policies and procedures to facilitate the linkage of the DRR work of various groups to the City Government’s DRR programs.</li> </ul>	<ul style="list-style-type: none"> <li>• Majority of educational institutions and LGU focal persons trained on DRRM and conduct activities on DRR education to communities, students, and volunteers.</li> <li>• An established mechanism for school-based, community-based, civic, interfaith and non-governmental organizations to access city DRR activities.</li> <li>• IEC materials on DRR created through collaborative efforts educational institutions and City Government.</li> </ul>

### Sustainability

- Streamlined future DRR initiatives through diverse partnership agreements between various agencies.
- Public and private educational institutes participate in community DRR activities.
- The first child-centered DRR education center in the Philippines was established in Iloilo.

CITYNET is an expanding network connecting local governments and urban stakeholders across the Asia-Pacific region. CITYNET promotes capacity building and city-to-city (c2c) cooperation for people-friendly cities.



# CITYNET

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Y O K O H A M A

International Organizations Center,  
5F, Pacifico-Yokohama 1-1-1 Minato Mirai,  
Nishi-ku, Yokohama 220-0012, JAPAN  
TEL: (81) 45-223-2161 FAX: (81) 45-223-2162  
E-mail: [info@citynet-yh.org](mailto:info@citynet-yh.org)

[www.citynet-yh.org](http://www.citynet-yh.org)