POVERTY REDUCTION

Freedom from Floods and Fear

The residents in a former flood-prone city in Metro Manila can now sleep soundly, thanks to a JICA flood control project.

It is the middle of the night in Dagat-dagatan, a poor neighborhood in the city of Navotas, in Metro Manila. Clemente Lim, 43, is having a recurring nightmare. In it, he is a little boy who falls asleep to the soothing sound of rainfall. However, he is rudely awakened by the splash of water. The rains had led to a flood, and the dirty water now sloshed around the child's bed.

Lim's bad dream is based on reality. "When I was young, I did experience waking up wet with floodwater," he recalls. "In our neighborhood, we knocked on each other's doors, even at the unholy hour of 4 a.m., to warn everyone of the rising floodwater. If you did not wake up, you'd find yourself floating in the dirty water."

For many decades, Dagat-dagatan ("lake" or "lagoon" in Filipino) was a flood-prone area. Years of flooding disrupted the lives of many in the poor community. Many children missed school because they could not walk in the waist-deep water. Residents traveled to and fro on makeshift rafts made of Styrofoam.

As they did, rotten garbage, broken furniture—even dead animals—floated all around them, endangering their health. Many were stricken with diseases borne by the dirty water, such as diarrhea and leptospirosis.

The floods also damaged property and led to a loss in income for many people. Resident Annie Kurk, whose husband is a tricycle driver, says, "When the floods came, we did not know where we would get money to buy food as my husband would not be able to work."

The dire situation in Dagat-dagatan began to change for the better when JICA and the Department of Public Works and Highways (DPWH) started operating the Kalookan, Malabon, Navotas, and Valenzuela (KAMANAVA) flood control and drainage improvement project in 2008.

The four cities in the northern part of Metro Manila are prone to flooding. They are located along Manila Bay, and their elevations range from around sea level to two to three meters above the mean sea level. Flooding occurs almost throughout the year; it is particularly frequent during the rainy season from May to September when periods of high tide coincide with heavy rains.

The project aimed to lessen the damage caused by flooding to life and property. DPWH built seawalls and navigation gates to prevent tidal water from coming inland. The department also constructed drainage and pumping stations to pump rainwater out into the sea.

Typhoon Ondoy (international name Ketsana) was the acid test of the flood control and drainage improvement project; the project passed with flying colors. Most of Metro Manila was flooded, with water rising until 20 feet in some areas. Dagat-dagatan, however, was flood-free, says Kurk and Lim.

They need no longer fear for the safety of their families and their property. Kurk and Lim, and their neighbors, can sleep well even on rainy nights. - *text by Eloisa Romero*

KAMANAVA AREA FLOOD CONTROL AND DRAINAGE SYSTEM IMPROVEMENT PROJECT

PROJECT SITE:
The cities of Kalookan, Malabon, and Navotas in Metro Manila; feasibility study for Valenzuela-Obando-Meycauayan was also undertaken under this loan

OBJECTIVE:
To mitigate flood damages by flood control and drainage improvement works, and thereby improve the living conditions and promote economic activities in the KAMANAVA area

DURATION: 2000 to 2009

IMPLEMENTING AGENCY:
Department of Public Works and Highways

COST: 8,929 million yen

For Dagat-dagatan resident Annie Kurk, the days of worrying about the floods and the diseases borne by the dirty water are over. Today, she has peace of mind.

POVERTY REDUCTION

Help for the Flood Forecasters

Typhoons often strike the Philippines. They leave many casualties and billions of pesos in damaged crops and infrastructure in their wake. This project rehabilitates the flood forecasting and warning system in strategic areas and may help save lives and property.

Hilario Esperanza is the officer in charge of the Agno River Flood Forecasting and Warning Center (ARFFWC) in Rosales, Pangasinan. He is a hydrologist, that is, an expert in the branch of science concerned with the properties of the earth's water, especially its movement in relation to land.

Esperanza and six other weather specialists take turns in keeping an eye on the flood forecasting instruments at their office in the Agno Flood Control Compound. They do this work round the clock, especially during the typhoon season.

Heavy rains collect in the Agno River, a 270-kilometer river system from its source in the Cordillera Mountains to its mouth in Lingayen Gulf. As a result, the Pangasinan Plain, one of the rice granaries in Central Luzon, suffers from recurrent and destructive floods.

One such flood occurred on October 8, 2009 when typhoon Pepeng (international name Parma) hit Northern Luzon. The typhoon brought heavy rains and strong winds of 195 kilometers per hour near the center. The result: widespread flooding in eastern and central Pangasinan and Nueva Ecija.

"Typhoon Pepeng (international name Parma) resulted in a record 1.6-meter high flood in Rosales, Pangasinan," says hydrologist Hilario Esperanza. The equipment provided by JICA—such as rain gauges and telemetry equipment—will help him predict flooding and issue timely flood bulletins to the community and to the press.

Typhoon Pepeng took a heavy toll on the Philippines and its economy. It resulted in the death of 465 people, and it damaged 5.1 billion pesos worth of crops and 14.5 billion pesos worth of roads, bridges, and buildings.

A comprehensive flood forecasting and warning system helps prevent much of the damage caused by the typhoons and floods that plague the Philippines. This is why the Philippine Atmospheric, Geophysical and Astronomical Services Administration (PAGASA) and JICA are rehabilitating the flood forecasting and warning system for the Pampanga and Agno River basins.

The project ranges from site survey to construction of facilities and installation of equipment. At the ARFFWC office, Esperanza positioned the new equipment provided by JICA—such as rain gauges and telemetry equipment—in the newly built second floor of the building. PAGASA funded the construction to ensure that the equipment would be safe from future floods.

Esperanza breathed a sigh of relief with the arrival of the flood forecasting equipment in September 2010. "Real-time data on the water levels from the river channels will automatically be relayed to the ARFFWC," he says. "This will help us predict flooding and issue up-to-date flood bulletins to the community and to the press."

PROJECT FOR THE REHABILITATION OF FLOOD FORECASTING AND WARNING SYSTEM IN THE PAMPANGA AND AGNO RIVER BASINS

PROJECT SITE, DURATION AND COST:
Phase 1 - Pampanga River Basin Flood Forecasting and Warning System
2008 to 2009, 779 million yen
Phase 2 - Agno River Basin Flood Forecasting and Warning System
2009 to 2010, 376 million yen

OBJECTIVES:
To improve and expand the existing monitoring facilities for rainfall and water level so that timely and reliable warnings can be issued for the flood-threatened communities of the Pampanga and Agno River Basins. This non-structural flood-mitigating measure will complement the existing structural measures to ensure a more efficient and effective flood disaster risk management in these areas.

SCOPE:
The installation of telecommunications equipment, such as rainfall gauging stations and radio equipment, in the provinces of Pangasinan, Tarlac, Nueva Ecija, and the Mountain Province
The construction of civil works, such as an antenna tower and gauging houses, in the provinces of Pangasinan, Tarlac, and Nueva Ecija

IMPLEMENTING AGENCY:
Philippine Atmospheric, Geophysical and Astronomical Services Administration