

Las Pinas-Zapote River System Rehabilitation Program, Philippines

Background/Context

Rapid increases in population and commercial activity have brought about concomitant environmental problems, and water and air pollution have become a great challenge to the leaders of Las Pinas City in the Philippines.

Las Pinas has two major river systems: the Las Pinas River and the Zapote River. The Zapote River spans 18.3 kilometers, while the Las Pinas River runs 12.6 kilometers mostly through the interior of the city into Manila Bay. The two are linked by 25.1 kilometers of tributaries.

As late as the mid-1970s, the river was teeming with freshwater fish and edible snails. It was a popular place for picnics. Las Pinas would not have been known for the whiteness of its salt produce had the waters been less than pristine.



As Manila began to spread itself as a metropolis, industrial areas were first pushed outside its confines to the outer rim.

The first casualty of this industrial push was the salt beds. As Metro Manila took its place as one of the world's most populated mega-cities, the industrial areas were again pushed towards the south, leaving the Las Pinas area as valuable suburbia.

Domestic wastes were freely dumped without any sewage treatment into the rivers, until the waters turned dark, fetid, and dangerous.

Pollution caused by the dumping of various waste products killed the marine life in the rivers of Las Pinas and turned it into a vast floating garbage bin – unsightly, filthy and smelly. What used to be a source of life turned into a source of disease. A larger problem came regularly – floods.

Many people in Las Pinas shrugged their shoulders at the fact that their rivers were moribund, feeling this was the price of progress. After all, they had seen how the two other major rivers of Metro Manila had died: the Pasig and Potrero Rivers had long lost any claim to life.

The heavily silted and rivers in Las Pinas City became ideal dumping sites for all types of waste by the public, exhibiting a lack of concern for the environment.

Disease-carrying organisms feeding on decomposing uncollected garbage within the eroded riverbanks, and floods became threats to the life and health of the people, especially women and children.

Congressional Representative Cynthia Villar was one of the few who believed that the environment should not be the sacrificial lamb at the altar of progress and development. She believed that the Las Pinas and Zapote Rivers could be revived. Unfortunately, there was no model for success in the rehabilitation of a river in Metro Manila.

As Representative of the Lone District of Las Pinas City to Congress for nine years, Cynthia A. Villar was one of the few who believed that the environment should not be the sacrificial lamb at the altar of progress and development. She believed that the Las Pinas and Zapote Rivers could be revived. She decided to develop and implement a comprehensive management scheme for the rehabilitation of the Las Pinas-Zapote river system.

The Las Pinas-Zapote River System Rehabilitation Project

Representative Cynthia Villar launched the *Sagip Ilog* project to bring life back into the rivers of Las Pinas. The program was launched on December 13, 2002 with Senator Manny Villar donating a backhoe on a barge, a speedboat and a dump truck to celebrate his birthday.



Within the 56-kilometer stretch of this river system, 30 kilometers are being regularly cleaned. This involves daily collection of floating garbage, as well as the installation of 5 units of steel garbage traps/wire mesh strainers in the Las Pinas and Zapote rivers to filter the waste/debris.

Training and Information, Education and Communication (IEC) on River Rehabilitation and Protection

From 2002 to 2005, 9,070 residents from various communities along the river system in Las Pinas City, Paranaque City and Bacoor, Cavite were trained on ecological solid waste and river management. Some of them were designated river watch volunteers, grouped into 98 teams with 3,576 members. This undertaking has been the commitment of the Couples for Christ-Oikos Ministry volunteers who, since June 2003, have devoted every Saturday conducting values formation and solid waste management education for the Las Piñas residents. They were trained on ecological solid waste management as an important component of the program. Some of them became river watch volunteers.



The local government officials and nearby communities actively participated in the information drive and capacity building activities. Of the 9,070 residents who attended the training seminars on river management, 62% were female while 32% were male. Of those who were designated river watch volunteers to monitor illegal acts within the project sites, 56% were male and 44% were

female.

To date, there are 3,120 trained and active volunteers. The volunteers were organized into different river watch teams in the areas that border on the rivers: 174 teams in Las Piñas, 31 in Paranaque, and 55 in Cavite.

Urban Forestry Development: The Bambusetums

In 2001, the Coastal Environment Program of the Department of Environment and Natural Resources-National Capital Region (DENR-NCR) replanted bamboo species, locally known as *kawayang tinik*, to rehabilitate the Marikina and Las Pinas Rivers. These rivers which are both situated in Metro Manila are major contributors to the rapid environmental degradation of Manila Bay.

During the project, one kilometer of the Las Pinas riverbank in *Barangay* (village) Aldana was replanted with 500 culms of the above-stated bamboo species. The 100 bamboo culms that survived grew alongside existing mangroves in the area because the planting site was near the river mouth towards the Bay.



This inspired Congresswoman Cynthia Villar to replicate the said effort within the Las Piñas riverbank in *Barangay* Pulang Lupa I, just opposite Brgy. Aldana.

Five kilometers of the said river system were targeted for re-greening using bamboos, mangroves and other related species for soil erosion control. To highlight this effort, two separate portions of the riverbanks were developed into “bambusetums”, planted with various species of endemic/exotic bamboos.

Re-greening of the river banks minimized soil erosion that caused siltation of the river system. The two established *bambusetums*, the first in Metro Manila, are ideal

for educational and scientific purposes. The propagation of culms from the 37 species of bamboos available in the area, have been sources of income through the harvesting of matured poles, sold to interested handicraft/furniture makers. This is aside from the jobs provided by the program to some 62 workers for the river dredging, clean-up, and re-greening activities.

The re-greening effort has been sustained by replicating the established bamboo plantation strips within the remaining denuded portions of the riverbanks. The *Sagip Ilog* (river rehabilitation) personnel, who were previously trained by the DENR on bamboo propagation and management, could already produce culms and cuttings from matured bamboo clumps and bougainvillea, respectively. As of August 2010, 10,000 bamboo culms are already planted on the riverbanks measuring 20 kilometers.

The Las Piñas City Government through its Environmental Sanitation Center has passed in 2005 the institutionalization of slope protection through the approval of City Ordinance No. 658-05.

Social Enterprises from River Rehabilitation and Waste Management

Several related social enterprises have sprung from the river rehabilitation initiative:

Composting or production of organic fertilizer from wet garbage: Each of the 20 barangays in Las Pinas City now has at least one composting facility. One rotary composter can process the wet garbage of around 500 families or households (HHs). There are now 37 composters in the city for 18,500 households. By year-end, the number is expected to increase to 50 serving 25,000 households; in three years, 100 composting facilities for all of Las Piñas City's 50,000 households. Each composting machine produces 10 sacks of 40 kilograms of compost or 400 kilograms a week, so that the 37 machines produce 14,800 kilograms weekly for a total monthly production of 59,200 kilograms or 59.2 tons. The selling price of compost is currently at PhP100 per 40-kilogram sack.



Since July 2007, vermi-composting is now being done in two barangays: Pamplona 2 and Talon 2, both on a commercial level for additional income of the residents. Producing 400 kilograms a week, each location sells their produce to farmers in a nearby province as alternative fishmeal aside from organic fertilizer. It helps reduce the amount of biodegradable waste and contributes to the promotion of organic

farming. This process involves the conversion of waste from households into organic fertilizer through the digestive action of earthworms.

On August 12, 2010 a “re-cycling day” was launched in five barangays, engaging residents to sell their recyclables to junkshop owners. There is now a monthly “re-cycling day” in all 20 barangays of the city.

The purchase of a plastic pulverizing machine is underway to crush non-biodegradable materials into powder form to be sold to manufacturers of pavers and hollow blocks. This will significantly reduce garbage and provide income to locals.

Making of Christmas lanterns and other decorative items from bamboo, *capiz* shells and other materials that are endemic to the city; the *parols* (lanterns) make



use of bamboo for frames. The supply of bamboo is assured by the thriving bamboo plantation along the river banks and some vacant lots in the city through the *Bambusetum* project and the *Pagtatanim para sa Kinabukasan* (“planting for the future”) program.

In July 2007, a Certificate of Stewardship was awarded to the *parol* makers, giving them joint responsibility for the management of the bambusetum, together with the Office of Congresswoman Villar. This was a joint

venture of the DENR and the *Sagip Ilog* project of Congresswoman Villar. Bamboo culms were also given to the group in the same year.

Weaving of baskets from water lilies that posed a problem to the river’s ecosystem and caused flooding in the city; water lily stalks are now used as the primary raw materials in the Las Pinas Basket Weaving Center. Started in October 2005, hundreds of families have benefited from the program from villages all over the country.

Production of coco nets and coco peat from coconut husks that were just thrown into the river; a decorticating machine shreds the coconut husks leaving two distinct forms: a fiber used for manufacture of coco coir for slope protection and a granular form, a potting medium to enrich soil.

