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PILOT MARINE CULTURE: A GRASSROOTS APPROACH TO ENVIRONMENTAL CONCERNS



Ma. Rosa "Princess" Solis, acting executive director of Global Environment and Nature Ecosystems Society Foundation

Over forty years ago, the fisherfolks of San Carlos City, including those on Sipaway Island (also known as Refugio Island), did not even need torches to catch fish. "Fisherfolks from the island vouch that from the shore, they could see the fish flash in and out of the waters," says Ma. Rosa "Princess" Solis, acting executive director of the environmental group Global Environment and Nature Ecosystems Society Foundation (GENESYS). Alas, the fisherfolks today are strangers to this experience.

The depletion of the seas is the consequence of years of rampant cyanide and dynamite fishing. Princess points out a fundamental difference in current attitudes and lifestyles that partly explains rampant illegal fishing: "We have gotten used to instant results. Fishers, as with the rest of the world, are gleaners, unlike farmers. Farmers prepare, they plant, they care, they wait, and then they harvest."

"In the uplands, the *hano*, the native lizard with a sail fin, could still be seen." Of course now all these are gone," Princess adds. (The sail-fin lizard, scientific name

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Hydrocaurus pustulatus, is classified as endangered in the Red List of the International Union for Conservation of Nature and Natural Resources.)

Negros Island's forest cover is all but gone too, after a large American timber company was given free rein of the mountains in the '70s. The mountains are bald. To be sure, the locals, with their *kaingin* (slash-and-burn) farming, also contributed to the denudation, but certainly not at the rate that the commercial timber concession did. On Sipaway Island, "the green cover you see is just a veil – that's just the trees' canopy," Princess notes. But underneath, the soils are heavily eroded.

Established in 1999, GENESYS is a response to the extent of the depletion of San Carlos City's natural resources and the degradation of its environment. "We cannot shortcut nature. The sun has to rise, the rain has to fall... There had to be someone to do the advocacy and educate the people, basically take care of the environment without sacrificing their welfare or livelihood," Princess said.

GENESYS is an offshoot of the recent drafting of the city's master development plan. "It's a good plan. The plan is for a development that's balanced with the environment and with the people's needs," Princess said. But the push for environmental concern almost always poses threats to the sectors that depend on natural resources for their livelihood. Rightly or wrongly, many equate environmental protection with a curtailment of their access to resources, their livelihood sacrificed at the altar of sustainable development.

The philosophy of the city's master plan is that sustainable development is a three-legged table with development as the first leg, the environment as the second, and quality of life as the third. GENESYS initiated alternative mariculture ventures with four communities of San Carlos to prove that these three goals – development, environment and quality of life – are not mutually exclusive. The lessons in promoting environmental protection, however, were not without a cost.



The women crab farmers of barangay Punao

Complete Opposites

"The support from Canada Fund kicked off our advocacy for the seas. It was the first rung on the ladder," Princess said. A resource ecological assessment study co-financed by Canada Fund's grant in 2001 and by the city government revealed that San Carlos has at least 115 coral species, or 25 percent of the coral species found in the entire Philippines, compared with the 40

Members of the energetic barangay council of San Juan that passed a resolution proposing the demarcation of two areas of Sipaway Island as “protected zones.”



species found in the marine protected area of Apo Island in neighbouring Negros Oriental province, or the 70 species found in the Caribbean. (The transformation of Apo Island as a marine reserve was an initiative of Silliman University, Dumaguete City in 1978 that the local government fully endorsed in the mid-'80s. Today, Apo Island is a renowned ecotourism destination.) Such an indicator of biodiversity of the waters off San Carlos reinforced GENESYS' determination to promote coastal management and resource protection.

For this effort, the two barangays of Sipaway Island two kilometres off the city proper, San Juan and Ermita, were mobilized. Six residents of barangay San Juan and two from barangay Ermita joined a study tour of Apo Island, which has a fish sanctuary. But the two villages are in direct contrast to each other. The participants from San Juan campaigned for a similar reservation program in their area, after seeing the income potential of Apo Island's ecotours and the impact of the preservation effort on marine life. GENESYS further conducted a film showing on the Apo Island project and initiated more education activities among the residents. The result: a barangay council resolution urging the city government that two areas in their village be demarcated as protected zones. The village council of barangay Ermita, on the other hand, still has to follow suit.

While the reticence of Ermita may be disconcerting, the conscientization process cannot be short-circuited, as with the cycles of nature. GENESYS continues to engage the village officials. At the same time, in support of barangay San Juan's bid for the declaration of two protected areas in the vicinity, GENESYS is helping prepare the local infrastructure, including the people's capacity for future ecotourism ventures and for farming on coralline soil supplementary income.

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Protection without Disenfranchisement

The vision of helping the seas regenerate necessarily involved organizing and educating the coastal communities while helping them develop new sources of livelihood. The support from Canada Fund in 2001 also helped initiate pilot mariculture ventures in four high-value species not traditionally found in San Carlos – edible oyster, green mussels, mud crab and abalone. These ventures were undertaken with sitios Pasil and Maloy-on in barangay Punao.

Despite the inputs of experts from the academe to orient the participants on the science of mariculture, GENESYS encountered other technical challenges. The project had experimented with native and king crabs, and after a few weeks, Janice Palencia, a technical staff of GENESYS, noticed that the native crabs had stopped growing. The group learned from subsequent consultations with the Southeast Asian Fisheries Development Council (SEAFDEC) that the female native crabs reach their optimum size faster. Moreover, at a certain point, they need to be in the deep waters to be able to hatch out their spawn. The women raising native crabs had to harvest their crop earlier than those raising the imported king crab variety. GENESYS handled the marketing for them.

The women earned only PhP3,000 (Cdn\$86) to PhP6,000 (Cdn\$172) on their pilot venture – less than the actual material and production cost of about PhP10,000 (Cdn\$287) per crab pen. GENESYS shouldered the “tuition” of learning crab culture and turned over the entire proceeds to the participants.

“We never thought we needed to feed crabs, because we would just get them from the sea,” one woman said.

For another, her most unforgettable lesson with this first experience in raising crabs: “I now throw back the female crab from my husband’s able to catch any. So that the crab can hatch its eggs and there will be more crabs to catch later on,” she said.

The women eagerly await the availability of seedstocks to replenish their pens.

The oysters that the men raised, on the other hand, had to be repositioned three times before the ideal spot for culturing these was found. As oysters are traditionally brackish water species, the rafts were first positioned at the coast near the river mouth. The resulting strong waves during the typhoon season, however, disturbed the oysters and stunted their growth. The rafts were moved inward into brackish waters. While the growth rate improved, the oysters surprisingly reached optimum size when they were moved a third



Fernando “Nanding”
Nemenio, GENESYS
technical staff, holding up
a string of oysters

After three relocations, the oyster culture project found its optimal spot – nearer the freshwater than the sea.



time, further inwards, nearer the freshwater than seawater. Each time, the men needed to lift and carry the heavy rafts bearing hundreds of strings of oysters while waist-deep in the waters. The weight of the oyster rafts explains why oyster culture was encouraged among the men, and crab culture among the women.

Combining Livelihood with Consciousness

The project participants – both women and men – are confident of being able to sustain their ventures. The women, for that matter, are eager to go into oyster culture as well. “It seems easy enough,” one said. A key component of the training in environmental protection, coastal resource management and enterprise management was the establishment of an association of marine operators to facilitate the beneficiaries’ purchase of feeds at wholesale prices. This way, the growers are able to save on costs. The association is also envisioned to act as the growers’ marketing and negotiating arm in the future for better pricing of their produce.

Until recently, nobody – neither the politicians and fisherfolks – felt equipped to fight the degradation of the environment in Sipaway Island and the other coastal areas of San Carlos. But today, barangay San Juan has a pending resolution to have two portions of their village declared protected areas, while the women of barangay Punao now return the female crabs to the ocean so they can spawn. A sense of stewardship of the environment is taking root in San Carlos.

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