

## Between meal and market

**Some initial experiences with community-based resource management in Danao Bay in the Philippines revolve around the humble sea cucumber**

*Balas Diyut (Small Beach), 30 October 2000:*

**T**oday, at 6 o'clock in the morning, it is low tide. There are a lot of people gleaning the small inter-tidal zone in front of the community. More than 40 backs are bent over the transparent, one-foot deep water. Oscar, my neighbour, has gathered around two kilo's of shells. In half of them, the original inhabitant, a snail, has been replaced by a hermit crab. Using a stone, Oscar breaks the shells and takes out the little hermit. "For my son," he says. "He will use them as bait to catch fish with his handline when the tide comes in." The other shells he takes home for breakfast, which will be complete with the eggs of a few sea urchins.

A little farther, Ibi carefully moves the sargassum weed aside, searching for the *bugalbog*, a very shy and perfectly camouflaged parrotfish. With her slow movements and small spear in one hand, she reminds me of a gracious heron. Her skills have made Ibi known as one of the best *bugalbog* fishers in the village.

Just as I decide not to disturb her, the little spear goes *tsjak!* and a *bugalbog* of around 300 gm flounders at the tip of the metal spoke that serves as a spear. The fish joins three others in Ibi's plastic bucket where, to my surprise, a large needlefish sticks out too. "I found it in between the weed. It has a wound at its belly probably from another fish. It is still fresh so I will take it home for breakfast," Ibi tells me.

Not everybody is as lucky. After two hours gleaning the reef, Lourdes, an experienced reef gleaner, returns home with only 15 small shells, one tiny butterflyfish, two anemones and three sea cucumbers. "Those people from other places come gathering sea urchins here,"

she complains, "picking them even when they're not bigger than a ping-pong ball. We gather only those that are at least as big as my fist."

In this case, there was only mere complaining. A few months ago, however, people were throwing stones. The sea cucumber had become the symbol of mismanagement and conflict between meal and market.

Before 1984, sea cucumbers were very abundant on the reef. "You had to watch out not to slide over them," locals warned. Several species were gathered as food and a few sold in the municipal market. People had the habit of bringing cooked rice, bananas or root crops to the beach, to eat together with these fruits of the sea.

In 1984, fishers all the way from Malaysia and the Sulu Archipelago arrived in the area and harvested the sea cucumbers by the boatload, for the export market in Hong Kong. The local fishers complained, and the municipal mayor prohibited the gathering of sea cucumbers by outsiders. The traders, however, remained, and the local fishers took over the job of gathering the sea cucumbers and supplying the traders with *beche-de-mer* (dried sea cucumbers).

### **Business stopped**

After one-and-a-half years, most of the traders left, for lack of business. By that time, they were being offered 10 times the initial price but still, fishers could not deliver. Two local buyers continued buying *beche-de-mer* as a secondary source of income. In 1995, the mayor issued an order banning the gathering of sea cucumbers. As a result, one of the buyers stopped his business, but the other, a close family friend of the local executive, continued. Also, the local gatherers acted

## Baywatch

**D**anao Bay is located in the province of Misamis Occidental on the island of Mindanao, and encompasses an area of 2000 hectares. A large part of the bay belongs to the municipal waters of Baliangao town, but the eastern side belongs to Plaridel.

Danao Bay is shallow, with a large inter-tidal zone. About 54 per cent of the bay is composed of mangroves, mudflats, reefs and sea-grass beds, and is considered among the most productive ecosystems in the world.

Seven hundred households make up the six coastal villages and are estimated to have a population of 3,500. Of them, almost 1,000 are engaged in fisheries (pre-fishing, capture, processing or selling activities). The main resources exploited are fish (by around 550 persons), shells (450), sea urchins (100) and several crab species (90). Though shell gathering is mainly done by women, 30 per cent of the reef gleaners are male. Fish capture is mainly done by men, but 85 women are directly engaged in fish capture. Four out of 10 resource users report that they are fully dependent on fisheries for their livelihood. The other resource users combine fisheries with farming, carpentry, small businesses and farm labour.

The population comprises mostly settlers and their descendants. These settlers arrived here

in the early years of the 20th century, and the majority came from the (neighbouring) islands of Bohol, Cebu and Siquijor. The population of the Danao Bay, therefore, can be considered as a society of second- and third-generation immigrants. There are also descendants of Spanish and Chinese settlers, who are today the main political and economic actors in the area.

Neither Baliangao nor Plaridel has any large industry. Plaridel municipality, nevertheless, is more integrated into the national economy because of an existing port, which is visited thrice a week by ships from Cebu, Siquijor and Bohol. The highway connecting the cities of Dipolog, Pagadian and Cagayan de Oro also runs through this municipality, giving it a distinct advantage in trade.

Both municipalities—especially Baliangao—have a rural economy and are primarily dependent on (coconut) farming and fisheries. There is no sharp demarcation between those engaged in fisheries and agriculture. Both augment their incomes either from fisheries or agricultural labour. The agriculture of the area is still dominated by feudal relationships.

Most of the (coconut) land is owned by large landowners, who employ tenants on their lands under a sharing system, where the landowner

as if no ban existed. They continued gathering the sea cucumbers, both for consumption and for export. Given this continued exploitation, there seemed to be little hope for a recovery of the sea cucumber population.

In 1991, at the request of some church leaders, the Pipuli Foundation, a local NGO, started a programme to establish a sanctuary or no-take zone and the rehabilitation of mangroves.

The established sanctuary area covered mangrove, sea grass and coral reef, and occupied 6 per cent of the total inter-tidal area in the bay.

The Foundation started to assist fishers and shell gleaners to unite around resource management, drawing on the positive and negative experiences of sanctuary establishment and

community-based resource management initiatives in other parts of the Philippines.

In early April 1998, it was again a sea cucumber that took centre stage in the battle over limited resources in Danao Bay. This time, the conflict was about the sandfish (*Holothuria scabra*), a gray, valuable sea cucumber. It was a month before the national and local elections when reports reached the office of the NGO from the organized community members that some fishers from Tugas village in the municipality of Baliangao were landing sacks full of sea cucumbers. Undoubtedly, these large quantities of big sea cucumbers could only have been poached from the last refuge of the sea cucumber in Danao Bay—the sanctuary.

### Alarm signals

Alarmed by these reports, the sanctuary guards sharpened their watchful eyes

gets two shares of the harvest, while the tenant gets only one, and also has to shoulder the costs of production.

Fish caught in Danao Bay is sold to local fish buyers, who sell to fish markets in the neighbouring town of Calamba. Commercial species (big mangrove crabs and groupers) are sold to Manila, while sea cucumbers are sold to Zamboanga for the international market (Hong Kong).

Baliangao is known for its beautiful beaches. The present administration is exerting a lot of effort to improve Baliangao's image as the most peaceful and hospitable municipality in the province. Its potential as a tourist destination has not yet been fully exploited. The absence of a good water system is a major stumbling block for tourism development.

The 1000 resource users (or one person per hectare of the inter-tidal zone) heavily exploit the resources of Danao Bay. Most of them concentrate on the inshore area, where 82 fish corrals have been set up; 70 trammel net fishers beat the fish into their nets, 80 gill-net fishers set their nets, 30 night-time speargun fishers operate, 60 fishers use hook-and-line, and 450 persons glean the reef for an average of 10 days/nights a month.

Fishing on the seaside of the reef crest is seasonal. Amihan (or the northeastern monsoon) brings gusty winds and strong waves

that make fishing in the open sea outside the protection of the reef too dangerous for small, non-motorized boats. From December to April, even the 54 fishers who own boats with small inboard 4-16 hp engines have to fish behind the protection of the reef crest.

The destruction of the mangroves, the heavy damage wrought on the reef by the use of explosives and the increase in fishing pressure brought about by a growing fisher population and the use of more efficient technologies have contributed to the steady decrease in catches. Through community workshops, involving fishers of different ages, the recent history of Danao Bay was reconstructed. The catch per unit effort (CPUE) for fish corrals and trammel nets has decreased significantly and is presently less than one-third of the CPUE in the 1980s.

Fish species caught in Danao Bay, like the rabbit fish (*Siganidae*—around 35 per cent of the catch), parrot fish (*Scaridae*), squid, blue crabs and goatfishes (*Mullidae*), command a high price in the market. This has somewhat offset the effect of the decline in catches on the income of the fishers, but income levels have definitely dropped in the last 10 years.

In 1998, fish corral owners earned an average of 45 pesos per day—far too little to pay for the basic needs of a family of four. Fish corral owners are really forced to augment their income with other activities.

and, after only a few nights of close patrolling, they found themselves facing 19 poachers inside the sanctuary, harvesting sacks of sea cucumbers.

**T**he poachers had eluded the guards the nights before, because they worked without lamps—the sea cucumbers were quite visible by moonlight. One man, who appeared to be the leader of the poachers, threatened the guards with his *bolo* (long knife), asking them why they so wanted to play the hero. Luckily, cooler heads prevailed.

The trespassers, who were all from one small community, were not arrested, but their names were handed over to the local *barangay* captain. The next day, he summoned the poachers to his office, but they did not show up, probably confident of the protection they enjoyed from one of the influential local politicians.

For the leaders of the fisher organizations, the threat of the sanctuary and the sea cucumber becoming a political issue was evident, and they decided to send a delegation for a dialogue with this politician. The four representatives, all women, were confronted by the politician, who reasoned that he was only helping his people to survive the drought caused by the El Niño. “Would you continue to support them even if they broke the law?” one of the women shot back. The man fell silent. There was nothing more to be said. He just sat back in his chair, apparently surprised by the fierce reaction. For the women, it was a point, boldly made and won.

#### Poachers summoned

The next day, the *barangay* captain again summoned the poachers to his office. This time, a hearing was held with the guards, leaders and staff of the community-based

coastal resource management (CBCRM) programme. Confronted with the testimonies of the guards, the poachers admitted their offence and signed a statement saying that a second violation would land them behind bars.

**M**eanwhile, a lot of lobby work was done by the NGO staff and the fisher leaders to explain the merits of the sanctuary and other resource management regulations. The incident had shown the fisher leaders that solving conflicts over resource use can not be left to politicians, and that they themselves will have to play a major role. Sea cucumber poaching in the sanctuary stopped totally a week after the newly elected mayor took office.

It was clear that there was an attitudinal change within the community since the CBCRM programme started. Based on the number of sacks of dried sandfish transported to Zamboanga City by the sea cucumber dealer, it was estimated that the people around this dealer poached for a total value of one million pesos. Poachers made a lot of money out of poaching—in one night they earned 10 times the daily catch of a fish corral, and in much less time. Although the fishers knew this, they did not follow the bad example. Some of them reasoned: “If this continues, they will destroy the sanctuary and we will all be victims”. This was an attitude much changed from the time the sanctuary was

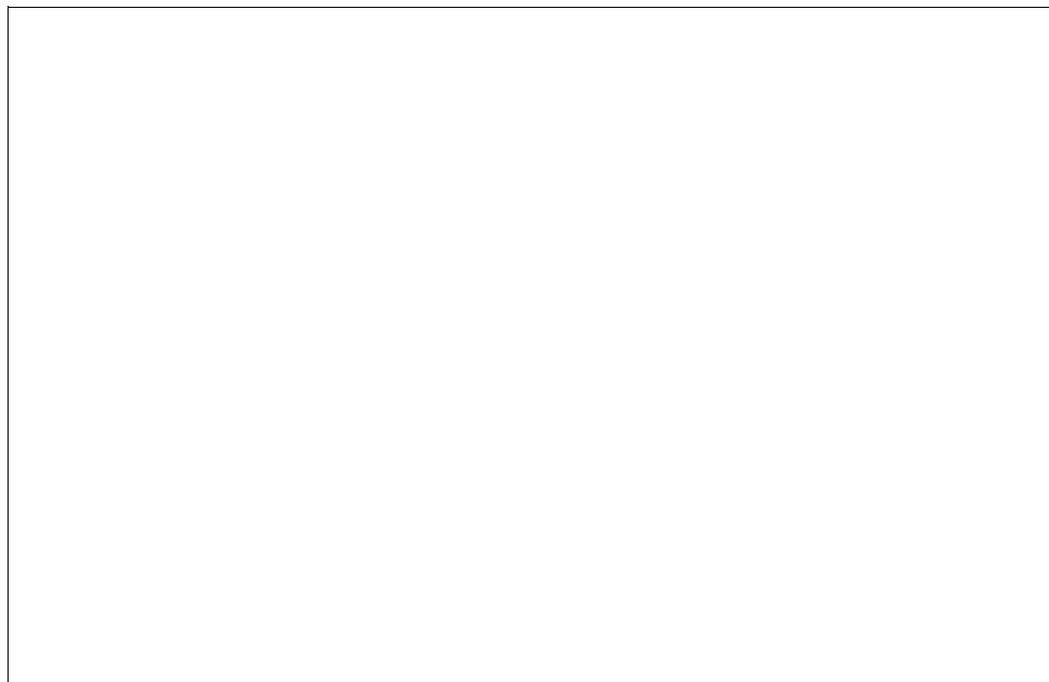
just being formed. People then would have jumped at the chance to harvest from the sanctuary, if they were assured of protection from political figures.

It was a happy surprise for the people from Balas Diyut, when, in early 2000, a reasonable population of the *mani-mani* (*Holothuria difficilis*), a brown-black sea cucumber with a maximum size of 20 cm, appeared on the reef. For several months, during low tide, whole families once again enjoyed their breakfast on the shore. However, it did not take long for the commercial gatherers to literally surface on the reef. At night, aided by the light of their kerosene lamps, they picked up kilos of sea cucumbers to be sold to their neighbour, the sea cucumber dealer.

This did not remain unnoticed by the gleaners and fishers from Balas Diyut. Remembering their experiences of the 1980s, a few of them decided that the sea cucumbers on the reef in front of their communities could only be harvested for local consumption. The next night, they shouted to the divers to leave the area. To further clarify their point, others started throwing stones. Afraid that their lamps might get damaged, the intruders hurriedly left the place.

**Community assembly**

Lourdes, an experienced reef gleaner of Balas Diyut, says, “By coincidence, a community assembly was scheduled in



**Table : Historical overview of catches of fishers in Danao Bay.**

Kind of gear	1950 <sup>1</sup>	1960 <sup>1</sup>	1980 <sup>1</sup>	1997 <sup>2</sup>
Fish Corral (kg per day)	25	14	3	1.3
Shell gathering (litres per 3 hours)		18	6	3
Sea cucumber gathering (kg live weight per hour) <sup>3</sup>		100	100	0.5 <sup>4</sup>
Status of the source of production:				
Mangrove	800 ha	30ha	Some natural regrowth	300 ha (90 hectare reforestation)
Corals	First fishing with explosives	Heavy explosive fishing	Heavy explosive fishing	Some explosive fishing around election time

1. Data based on results of workshops with fishers of different age groups
- 2.. Data based on catch sampling interviews and satellite data on mangrove cover
3. For 1950 to 1980, the catch stated is the potential sea cucumber catch. During the 1960s and 1980s, people would only use around half a kilo (which would take them less than a minute to gather) for their home consumption during a few days of the month.
4. Only fishers who specialize in gathering sea cucumbers at night could catch half a kilo per hour.

the village where the commercial sea cucumber gatherers live. One of the older fishers from our village attended this assembly and explained that we wanted to preserve the sea cucumbers for our own consumption. It looked as if the others understood, but four months later, they were back again. Chasing them away was not done systematically and this is the result." Disheartened, she shows me her poor harvest of the day.

Resource management is indeed more than getting angry once in a while and launching some immediate actions. It demands a structurally different way of treating the resource and fellow resource users. So, the local fisher leaders and the NGO Pipuli began to work on a written resource management plan, based on the experiences and ideas of the community. The plan projects some major changes in resource use. In the first place, the principle of open access was denounced as the main factor for the present dismal state of the resources. Only a limited-access regime would be able to generate enough fisherfolk support for

resource rehabilitation measures. In the future, fishers who want to make use of the bay's resources will have to register and contribute time for guarding and/or monitoring. Secondly, the stationary fish corrals will have to abide by the minimum mesh-size rules, in exchange for a total ban on the use of fish-scaring devices inside the bay. Also, there would be a two-year moratorium on the gathering of sea cucumbers for export. During that period, the stocks would be monitored and a sustainable harvesting scheme devised to give priority to local consumption, rather than foreign markets.

These measures call for sacrifices from people who sometimes find it hard to generate three meals a day. Still, a majority of the resident resource users has accepted the draft joint municipal ordinance (for Baliangao and Plaridel).

**Draft ordinance**

In the six communities around the Bay, the draft ordinance was presented during community consultations initiated by the local legislators. During these

consultations, the fishers who had not been part of the process because they were not members of one of the village-level organizations, raised a lot of critical questions.

**T**he questions focused on the necessity and costs for registration, the amount of time they would have to contribute to guarding and who would pay for the replacement of the fine-mesh nets with bigger ones. The fisher leaders themselves answered most of the questions, aided sometimes by the local legislators.

By August 2000, the ordinance had been well accepted and embraced by the municipal councilors of Plaridel, who passed a motion urging their colleagues in Baliangao to pass a joint ordinance. Their colleagues in Baliangao said they “didn’t have a problem” with the ordinance, but kept on postponing the decision.

Fisher leaders are now contemplating their next moves. A lot has been done to prepare for a structural change in the resource management regime in Danao Bay. Hopefully, the final steps will also be taken to allow a spillover to other areas, inspiring the small-scale fishers and shell gleaners in Balas Diyut to solve their problems in a more structural way. 

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