

Mangrove Reforestation in Bohol: A Success Story

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ABSTRACT

Mangrove reforestation in Bohol started in Banacon Island in 1957. The need for life's essentials, such as firewood and poles for hut and fish fence construction, as well as the love for planting trees have been the driving forces in an ordinary man's establishment of his first bakauan plantation. The plantation, unexpectedly, had inspired and shaped the lives of the rest of the people in the island and the neighboring towns. At present, Boholanos, particularly in Banacon Island, are realizing bounties from their bakauan plantations aside from firewood and poles.

INTRODUCTION

Mangrove reforestation in Bohol first started in 1957 in Banacon, a small island north of Jetafe, Bohol. It has an approximate area of 425 ha, only 15 of which was dry land. The rest (410 ha) was mangrove plantation (tidal flat) area.

Banacon Island got its name from a species of fish called "banak" or mullet (*Mugil caphelus*), which was very abundant in the area before the proliferation of destructive fishing methods.

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Banacon is now inhabited by about 550 families dependent on the mangrove plantations and foreshore marine resources, such as fin fishes, shells, crabs and other mollusks and crustaceans. The most important commodities of the island today are the Bakauan (*Rhizophora stylosa*) plantation, the crabs and the shrimps that are directly dependent on the established mangrove forest.

How Bakauan Planting Started

At about the end of 1950, there were almost no mangroves left in Banacon Island. This was because of excessive cutting done by a certain Pilot Camacho, who professed to be the holder of a mangrove concession permit which included Banacon. Moreover, the people of the island were entirely dependent on their mangroves for firewood and poles for the construction of their dwellings and fish fence due to very limited dryland area. It was this great need for firewood and poles that gave me the idea to establish my own bakauan plantation. My observation of the propagules that fell, stuck in the mud and grew into young plants gave me the idea that bakauan could be direct planted/seeded. Hence, in 1957, I established my first bakauan plantation by direct seeding propagules.

At first, folks in the island called me "crazy." However, when I started harvesting and selling firewood and pole out of the bakauans I planted, that was in 1966, people in the island were encouraged to establish their own bakauan stand by following what they saw me doing. From then on, planting became extensive and every family wanted to establish its own bakauan plantation.

Hence, to facilitate passage, I, together with the other folks in the island, agreed to establish a 10-meter-wide highway at the center of the plantation (for motor boat passage) and foot trails between individual plantations (for human passage.) We are proud to claim that such beautiful experience we had in the island was appreciated and copied by residents of Pangangan Island, Calape, Talibon, Bien Unido, Ubay, Candijay and other neighboring islands and municipalities of Bohol. That is how planting of bakauan or "mangrove reforestation" became popular and successful in Bohol.

Tips/Technology To Share

1. **Selection of Planting Site.** The site best for planting bakauan-bangkau should have soft, stable and deep

sandy to sandy loam soil. Water must be shallow enough that during neap tides (when high and low tidal fluctuations are minimal), planted bakauans should be above or without water. The shallower the water that inundates the tidal flat, the higher the chance for bakauans to survive and get established. Moreover, the area should be sheltered from the general direction or yearly route of strong winds and typhoons.

2. **Selection of Propagules.** Bakauan propagules for planting should be mature, not defective and free from oviposition holes of beetles. Indicators of mature propagules are as follows: (a) they have attained the desired length of 40 - 60 cm for bakauan- bangkau; (b) extended appendages have appeared at the base of the pericarp; (c) pericarps are easy to remove; and (d) hypocotyls are sturdy, robust and with distinct lenticels, which appear as numerous black dots at the basal end.
3. **Planting.** Plant bakauans by direct seeding the mature propagules. Simply shove the pointed basal end of the propagules into the ground at very close spacing of around 25 - 30 cm without proper alignment (old method). Nowadays, we are planting at regular spacing of either 0.5m - 1.0m and observing uniform alignment of plants. Technicians of the Department of Environment and Natural Resources (DENR) have taught us the importance of proper alignment and spacing.

Benefits/Rewards Realized From Planting Bakauan

1. **Monetary.** In 1966, I started to harvest/cut my bakauans and sell them for firewood and poles. I was at that time selling my poles at ₱25 - ₱50 per hundred depending upon the size. From the income I got from my bakauan plantations, I was able to build a house and a concrete water tank for the collection of rain water. The collected rain water also gave me a little additional income because rain water in the island was sold at ₱0.20 per container (four-gallon capacity). People in the island realized that there was money in planting bakauans. Nowadays, bakauan poles aged 25 - 30 years, which are used for house posts, are sold at ₱17 per pole. The 20-year-old poles for beams, rafters and other skeletal parts of the

house are sold at ₱10 each; the 15-year-old poles at ₱5 each; and the 10-year old poles at ₱3 each.

2. Mangrove-Related Products

- a. **Firewood and Poles.** The Banacon populace are largely dependent on their bakauan plantations for firewood and poles. Having a free source of firewood, as well as poles for house construction/repair and for fish fence is of great help to us. If a fisherman has to buy his poles for a fish fence, he has to spend ₱3,000 - ₱5,000 every seven months for poles alone.
 - b. **Shells, Shrimps, Crabs and Fin Fishes.** These are important mangrove-related commodities that largely comprise the daily diet and contribute to the daily income of the people in the island. "Fat and Fleshy" crabs from Banacon Island are preferred by buyers because these are reportedly of superior quality compared to those of the neighboring islands. We attributed this to our extensive bakauan plantations which are not found in the neighboring islands. These extensive plantations provide rich foraging grounds for the shrimps and crabs.
3. **Protection.** Our extensive bakauan plantations have afforded us protective cover during typhoons. When there is a typhoon warning, the fishermen would keep their boats inside the plantations along the established highway for cover.
 4. **Expansion of Land Area.** There is an observed rise of the land occupied by the old plantations, making the water shallow. The established plantations have joined Banacon to its neighboring island, Jagoliao. During low tide, people from Banacon could walk to and from Jagoliao thru the highway provided at the center of the plantation.
 5. **Other Livelihood Opportunities.** Our established bakauan plantations have afforded us opportunities for additional income. One such opportunity was the seasonal income we realized by collecting and selling bakauan propagules during fruiting season. The propagules were sold in the island at ₱0.05 - ₱0.10 each. "Amatong", a type of artificial reef established along the highways and bounda-

ries of established plantations, provided another livelihood opportunity. Amatong was established by digging a hole (1 m deep and 1 m wide) and filling it with coral stones and tree branches. The hole retains water even during low tide hence affording sanctuaries to fishes. We are harvesting 3 - 4 kilos of finfishes from our amatong every three months.

Problems

1. **Tenurial problem.** The Island of Banacon was declared "Wilderness Area" by virtue of P.D. 2151. Hence, bakauan planters could not be issued Certificates of Stewardship Contract over the plantations they have established.
2. Due to instant need for cash, some of the planters had sold their young crops to people who were either residents or non-residents of the island. Some of the stands are now overmature, yet the buyers have not harvested the crops. Hence, the system deprives the planters of the opportunity to reuse the area. Some buyers are even presuming that they have bought the crops including the right for the land.

