AQD verifies culture technique

Mudcrab culture in mangrove areas

By **ET Aldon**

The commercial production of mudcrab in bamboo-fenced brackishwater ponds has already been established, and is being practiced in the country (see pages 14-16). Mudcrab culture in ponds can yield as much as 600 kg per ha per crop or 650 kg per ha per crop if cultured with milkfish (5,000 mudcrab juveniles per ha + 2,500 fingerlings per ha). Mudcrab can also be raised in mangrove areas or tidal flats. This technology does not need expensive inputs, which makes it ideal for coastal villages.

Mudcrab culture in mangroves or tidal flats has been practiced in Indonesia, Vietnam and China. It is ecologically friendly because it does not destroy mangroves and mostly uses locally available materials (see figure next page). The net enclosure requires a relatively small financial investment to construct and operate.

To test the feasibility, viability, and sustainability of this technology package as livelihood for fisherfolk, AQD forged an agreement with the Puerto Princesa city government and the Manalo Multi-Purpose Cooperative Inc. on June 19. Among the terms and conditions agreed are: (1) the cooperative to provide the site and technician to manage the project; (2) the city government to act as coordinator of the project and provide crablets and feeds for one crop; and (3) AQD to formulate the verification design, provide technical assistance, and package the technology. The project took off right after the signing of the agreement.

Nets were installed enclosing the area as specified in the design prepared by Dan Baliao. The mangrove area (which can have 0.5-1.0 ha water area) was enclosed with "A" net (1-2 cm mesh size) with bamboo or wooden post as structural framework. The upper end of the net extends about 30 cm above the waterline and is fitted with thick, plastic sheets (50 cm) to prevent mudcrab from escaping. The lower end of the net is staked 50-70 cm deep into the pond bottom.

"Mangrove areas used for crab culture should have sufficient supply of marine or brackishwater throughout the year," Baliao says. Mud crab grow best at 18-30 ppt and 25-30°C. The minimum dissolved oxygen requirement is 4 ppm. Sites must also be free from any source of pollution and protected from environmental hazards as typhoons, flood and erosion, and from poachers.

The mangrove area goes through the usual pond preparation stage. It is to be drained during the lowest tide to eradicate predators or treat undrainable areas with ammonium sulfate (21-0-0) and quick lime (CaO) at 1:5 ratio or at 0.1 to 0.5 kg per m^2 or with derris root containing rotenone at 0.5 to 2.0 g per ton water. (Derris root is more effective at higher temperatures during daytime and at lower pH). Teaseed cake may also be used at 12 g per ton for salinities lower than 15 ppt or at 20-30 g per ton for salinities higher than 15 ppt. Analyze soil samples for pH and organic matter.

Flooding should follow the normal tidal cycle but water depth should be maintained at 0.8-1.0 m.

Between 5,000 and 10,000 monosize mudcrab juveniles weighing 30 to 40 g per piece or measuring 5-10 cm carapace length can be stocked per hectare. Stocking should be done evenly during early morning or late afternoon when tidal water is available.

Chopped trash fish, animal hide or entrails and snails (golden *kuhol*) are broadcast twice daily. "I have misgivings on trashfish as it is becoming scarce," Dan says. "It has also become food for humans. We need to explore alternatives."

Dan also suggests that crab culturists monitor pH, DO, salinity and water temperature during high tide. Leaks, tearing off of net enclosure must be checked.

After three months, marketable sizes (200 g) may be partially or totally harvested by handpicking during low tide or by catching them with "bintol" during high tide.

A production yield of 600 kg/ha may be achieved with survival rate of 65-70%.

Dan is optimistic that the project in Honda Bay, Palawan will be as successful as similar projects in China, Vietnam and Indonesia.

"Given the needed support from all parties involved in the project, failure is very remote," he says.

Economics and costing of mudcrab culture in mangrove areas are shown next page.

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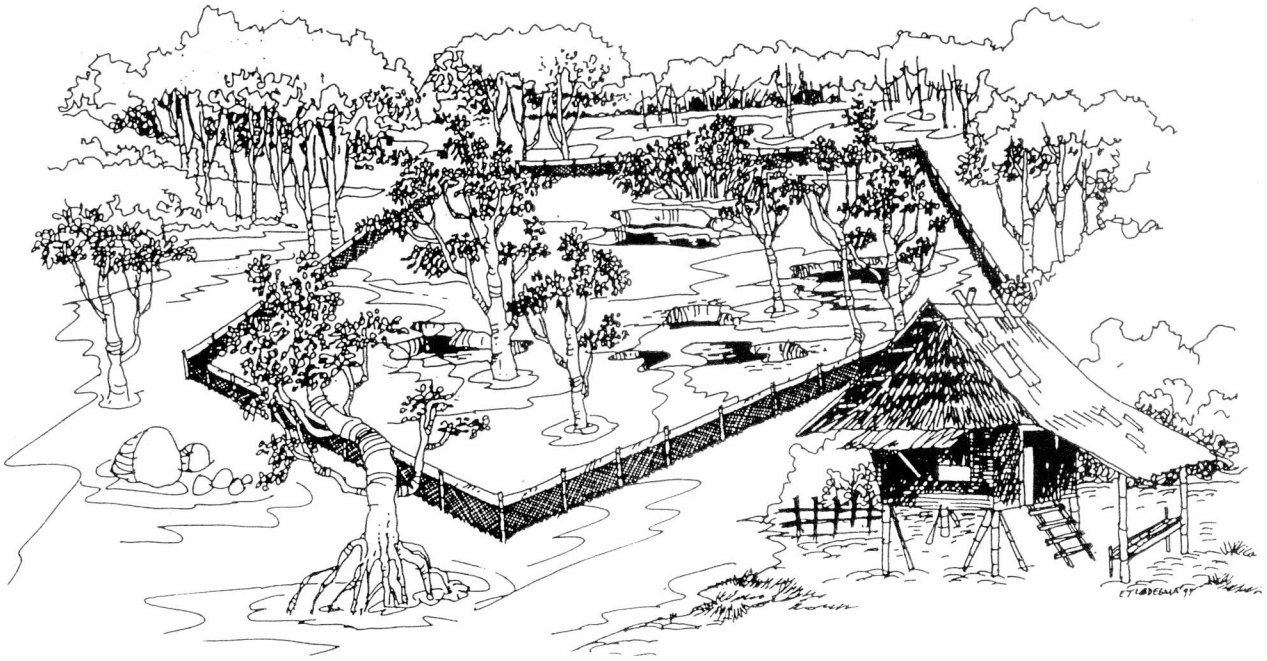

Cost-and-return analysis of mudcrab culture in mangrove areas (per hectare per year)

		Unit price	Total
To eradicate unwanted species or predators			
Hydrated lime	500 kg	₱ 1.50	₱ 300
Ammonium sulfate (21-0-0)	50 kg	4.00	200
Net enclosure			
Nylon nets (100m-1 side x 4 sides)	400 m	50.00	20,000
Bamboo ("pusog")	200 pcs	20.00	4,000
Bamboo (whole length) for horizontal brasing	50 pcs	50.00	2,500
Monofilament #180	5 kilos	20.00	600
Nylon sheet	1 roll		2,000
Crab juveniles	15,000 pcs	6.00	90,000
Trash fish	3,000 kg	8.00	24,000
Contract labor (fencing, uprooting of tree trunks, canal construction for fence)	100 man-days	100.00	10,000
Technician's salary	12 months	4,000.00	48,000
Miscellaneous			
Repairs and maintenance			3,000
Transport and freight			5,000
Tools and equipment			5,000
			₱ 206,600
Gross revenue (600 kg yield at ₱200 per kg x 3 croppings)		360,000.00	
Net profit before tax			₱ 145,400
Income tax (35%)			50,890
Net profit after tax			₱ 94,510
Return on investment			44%
Payback period			2.27 years