Alternative livelihoods

Alternative livelihoods (i.e. those not related to capture fisheries) are seen as a key tool in decreasing damage to coral reefs through reducing fishing effort and increasing income stability for fishing households.

Current strategies focus on providing education and skills training in a range of marine and non-marine based activities, such as seaweed aquaculture, eco-tourism, agriculture and craft production.

Assumptions for resilience: These strategies assume that diverting fishers away from fishing activity will decrease direct and indirect pressure on the reef. Social resilience is assumed through increased income diversification and hence stability for fishing families and communities.

Ecological impacts

Positive

It has been suggested that alternative livelihoods will decease fishing effort, which is linked to:

- Improved fish stocks.
- Increased biodiversity.
- Improved water quality.

Negative

It has been documented that:

- Increases in fishing effort can result from increased household income.

It has been suggested that alternative livelihoods:

- May lead to unsustainable harvesting of other coral reef-based biodiversity
- May damage seabed communities/ structure (e.g. seaweed farming)

Implications for ecological resilience

Evidence suggests that:

- Increases in fishers' income due to alternative livelihoods can lead to increased fishing effort as fishers have greater resources to invest in fishing activities.

Social impacts

Positive

Documented examples have shown that alternative livelihoods lead to:

- Increased income certainty for fishing families.
- Increased employment for women.
- Where women are the beneficiary, increased spend on the household and their children.

It has been suggested that alternative livelihoods will lead to:

- Increased community empowerment.
- Changes in the balance of decision-making between men and women in a household.

Negative

It has been suggested that alternative livelihoods will lead to:

- The potential loss of fishers' tacit ecological knowledge.
- The loss of fisheries-based identity.
- Increased inequality among fishing communities.

Implications for social resilience

Evidence suggests that:

- Increases in household income have positive impacts on fishing families.
- When the uptake of alternative livelihoods is by fishers' wives or other women in the community, this increase in income is usually spent on the household rather than on fishing activities.

Spatial scale: Local.

Temporal scale: Medium to long-term.

Case study: Tampolove Seaweed and Sea Cucumber Production

Tampolove is an isolated coastal community in the south of Madagascar. Working with a UK-based marine conservation NGO, Blue Ventures, the University of Toliara, Copefrito (the local seafood exporter) and aquaculture company Indian Ocean Trepang (IOT), community members from Tampolove have started to grow sea cucumbers and sea moss for the European and Asian markets. Sea moss is a type of red algae, from which carrageenan, a gel used in the food and cosmetic industry, is extracted. Sea cucumbers (known as trepang after processing) are in high demand in Asian markets where they are considered a delicacy, health food and aphrodisiac.

Why seaweed and sea cucumbers?

- Well suited to Madagascar's extensive shallow coastal lagoons.
- High demand from lucrative international markets.
- Farms operate with low running costs.
- Production methods are simple, requiring minimal initial training, and producing negligible adverse environmental impacts.
- An established network of business and research partners provides assured access to markets, hatchery technology and supply, and technical expertise to maximise the benefits to communities.

Has it been successful? In the last few years, aquaculture specialists with Blue Ventures have trained over 700 people to become farmers of sea cucumbers and red "cottonii" seaweed, with the most productive farmer earning $463 per annum. Algae production has risen from 13 tons in 2013 to 187 tons in 2016, with production expected to reach 250 tons in 2017. To date over 23,750 sea cucumbers have been farmed. Family and community life are also benefiting. Over 50% of farmers are women (who also act as farm leaders) and as such have become financially liberated. As a result, the birth rate in the area has decreased supported by increased reproductive health service provision and educational programmes targeting both men and women (see report card 3).

Challenges facing the project:

- Introducing new innovations in coastal aquaculture is not a simple task, and requires strong technical partnerships and practical experience.
- The commercial nature of many aquaculture businesses means that results and developments are generally not publicised; experiences of overcoming technical, logistical and financial challenges in production are rarely shared.
- Prices are set globally and price fluctuations are common.

Future application: the community is looking to cash in on sea cucumbers, which have a high commercial value. Fishers are also investigating whether coral and seahorses can also be farmed in their location.

Further reading

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Images courtesy of Imka Sta, flickr (front) and Gareth Cripps, Blue Ventures (back).