

Coastal Livelihood Opportunities in Cambodia

By Anna Beloff



With decreasing fish stocks and the rapid development of coastal areas, Cambodia is facing a challenge in maintaining these areas as profitable on a long-term sustainable basis. Marine resources are quickly depleted completely if planning decisions for coastal development are made too hastily, and where there is a lack of support to low-income local communities, most of which base their whole income generation and subsistence on fishing practises. Therefore measures to be taken must include not only changes in policy level but also grass-root education and training with local communities that provide them with opportunities and possibilities for maintaining their livelihoods in the changing environment.

The changing environment

Cambodia's coastal area is 435km long, with a wide range of coastal habitats that include mangrove forests, sea grass beds, white sandy beaches, open sea and coral reefs, and a total area coverage of 55,600 km². The Exclusive Economic Zone area on the relatively shallow coastline (average depth 50m) includes 69 islands, and 28,065 km² of coastal zone has been identified as coral reefs (Department of Fisheries, 2005). The total coastal population living in this area is about 1 million. Administratively, the coastal zone is divided into two provinces (Koh Kong and Kampot) and two municipalities (Sihanoukville and Kep).

Cambodian marine waters have been reported by FAO as some of the most productive in the world. Most people living in coastal areas make their living from fishing, trading, tourism and timber processing. Sixty percent of this population is involved in marine fishing, which is mainly artisanal and small-scale fishery. The Cambodian fish export market is still in the development stage, lacking foreign and local investment as well as proper processing facilities for fish products. Due to the lack of

an established cold-chain, most fish products end up in nearby local markets and restaurants. Several districts in Koh Kong province have established more commercial fishing, and have already developed export markets, primarily in Thailand.

The number of motorized vessels in coastal areas was recorded in 2001 at over 5,300, most of which were concentrated in Koh Kong Province. This number is estimated to have increased in the past few years. Women living in coastal areas work in peeling crabs, processing of fish sauce and paste (*prahok*), repairing and manufacturing fishing gear and selling fish products in the markets. The collection of invertebrates by fishers using snorkels and masks is popular in inshore waters, which provide a high proportion of the daily protein needs of local people. This is most relevant during the dry season, when the lack of water for both irrigation and drinking causes major livelihood problems on coastal areas.

The present Fisheries Law imposes several restrictions on marine fisheries. These include prohibitions on trawling in water less than 20 m deep, restrictions on gear types and sizes, bans on destructive fishing methods, such as electronic fishing, and poison and dynamite fishing, boat licenses for boats exceeding a maximum specified size, and fishing licenses and permits for both local and foreign commercial fishing boats. According to the Department of Fisheries, most of the fishers in Kampot and Kep use traditional fishing gear, such as gill net, crab net and long line. The greatest commercial fishing pressure comes from foreign vessels fishing illegally on Cambodian waters. These efficient trawlers clear large coastal areas from all age-class fishes, and destroy the bottom composition, and with it marine resources and local people's livelihoods. This trawling can only be stopped by transparent and efficient non-corrupt interference by fisheries authorities. In recent years, most coastal shrimp trawlers have ceased



Photo: A typical cambodian coastal village; and the whole family is working (Beloff)

operation, while it seems that shrimp gill-netters have increased. In 1998, the depletion of shrimp stocks led to a crash in shrimp fishing, but since then Cambodia has risen to fifth among shrimp exporting countries. In 2004, the registered marine fisheries production was in total 55,800 tons (DoF statistics). This total catch includes commercially important fish species, low-value fish and shrimp, cephalopods, crabs, gastropods and bivalves. From 2000, the marine fish catch has grown almost 20,000 tons and the proportion of so-called 'trash-fish' to the total catch is increasing, indicating continuing declines in high-value species such as large tuna and grouper, and fishing down the food chain. From Cambodia's total yearly catch, this constitutes only 17%, but as mentioned earlier, the catch has almost doubled in past couple of years.

Compared to inland fisheries, marine fishing does not appear to have a clear seasonality for local residents. On the other hand, seasonal changes in inland fisheries and farming practises causes seasonal migration to coastal areas. In the dry season, some people from inland provinces move to coastal areas as an optional livelihood in the lack of opportunities in their own areas. This generates a greater seasonal pressure on coastal fisheries. It also affects conservation efforts in some places, with migrants using destructive fishing methods, which might be attributed to their lacking any long-term interest in the fishing areas concerned. Currently, coastal areas are second after Phnom Penh in migration from other areas in country.

Recently, mangrove coverage has decreased rapidly due to increasing demand for charcoal and building materials. The impact of the degradation of mangrove forest coverage on coastal fish stocks and their recruitment cannot be estimated due to a lack of research and hence data on fish stocks and marine resources. The general view is still that exploitation of Cambodian marine fishery

resources comes close to exceeding the maximum sustainable yield, and therefore means of assessing new options are required both at the policy level and in terms of livelihoods.

Options available - sustainability and rationality?

The importance of generating subsistence activities, diversification of livelihood options and increasing the resilience of declining marine fisheries resources are therefore essential to people whose livelihoods depend on coastal areas of Cambodia. Much effort has been put into vocational skills training in order to create supportive or alternative livelihoods. The few projects working in coastal areas have to date been concentrated on creating new opportunities by training people as hair-dressers and mechanics. But in follow up evaluation, it appears that subsequently few of the young people trained have succeeded in finding or creating work for themselves.

Interest in ecotourism, tourism, and the related development of infrastructure is growing all the time. But tourism does not create many opportunities for the coastal poor, who lack the needed skills and capital. Ecotourism and tourism in general provide excellent opportunities for coastal people when they are properly planned using integrated approaches, linking multi-use areas with ecotourism and developing the vocational skills needed.

Other sectors developing at this moment include garment manufacturing, salt production, cement production and seafood processing. These work opportunities are concentrated around the towns of Koh Kong and Sihanoukville. Most rural coastal areas and islands lack these opportunities.

Seaweeds

One interesting option for coastal areas is seaweed production. Seaweed production in country increased from 3,500 tons in 2001 to 16,840 tons by 2004. Estimates from last year indicate higher production values than this. Production had already started in Cambodia in 1999 when a Malaysian company provided free seaweed stems to fishers in Kampot Province, and general information on how to plant and culture it. The concession area for seaweed farming given to this company by the government (Ministry for Agriculture, Forestry and Fisheries) covers 4,100 ha, and is valid from 2000 to 2030. Different species of seaweed were initially introduced, but in the end *Kappaphycus* seaweed was selected as the main species for cultivation.

In the past couple of years, seaweed production in the selected villages has completely changed the livelihoods of local fishers. Villages previously dependent on fishing have adapted exceptionally to seaweed farming, and the former fishers have found new livelihoods and small-scale seaweed farmers. The establishment of seaweed farms has also provided more work options for women living in the area. Men are responsible for planting the seaweed in off-shore areas in deeper water. Women handle the rest of the work, tying the new stems to the support ropes as well as removing the fully-grown seaweed, drying it and finally cleaning it. The seaweed produced at this moment has around 50% water content, and is dirty, with small shells and sand attached, when brought to the processing facilities, so the company still has to process it further before packing. This creates extra labour costs for the processor that reduces the amount of money paid to the small-scale farmer.



woman at work (Beloff)



Small-scale coastal fishers landing their harvest of seaweed (Beloff)

The introduction of seaweed farming practices in villages living nearby the already established concession areas is a future option. The current farmers welcome new outsiders to join the cultivation of seaweed, saying that the economic returns from seaweed are so good that even new entrants are welcome in the same area. According to these seaweed farmers, all of their time is now used for seaweed farming, and as a result the amount of fish in the area has increased with the decreased interest of local people in fishing. The companies seem to have very little interest in how farmers are managing the concession area among different small-scale farmers as long as seaweed is provided without delay to the processing facilities. The growing interest due to the high-market value of seaweed has created even greater interest among new entrepreneurs entering this area.

But as always, the situation is now deteriorating as bigger players start to invest ever greater sums in the sector. There is discussion among fisheries authorities about the environmental impact of seaweed aquaculture and its damaging effect on local ecosystems. Concerns have been raised about the changes in nutrition cycle and sedimentation as well as changes in habitat that affect the population structure of different species. For example, in Kampot Bay there have been sightings of dugong (*Dugong dugon*), whose natural foraging areas the sea-grass beds, may be jeopardized by seaweed farming. In many areas, a thorough environmental assessment was not performed before establishment of new cultivation sites, and some anecdotal suggests the establishment of seaweed farms on coral reef areas or other unsuitable areas such as extensive sea-grass areas. Anecdotal evidence from small-scale seaweed farmers from Prek Ampil village indicates an increase in fish stocks which in their opinion is based on the fact that almost no fishing other than subsistence is done anymore, due to an increase of income via the seaweed farming.

Another negative side-effect is currently placing local fishers in a difficult position. Conflicts between different companies and some authorities have been recorded, apparently triggered by demands for compensation for “evaluation of seaweed farming practises” and “official visits to the sites”. This is causing a considerable additional financial burden for the private sector, and might soon threaten the profitability of production. This could force companies to move to other countries, where they would have better opportunities to sustain themselves. If most companies shift their production to other countries, this would deteriorate the competition between different seaweed entrepreneurs for seaweed supply from small-scale farmers, creating a monopoly market with low market-prices for farmers. As income decreases for former fishers, they would change back to their former livelihoods as fishers, again further depleting already decreased fish stocks in the area.

The absence of policies and laws relevant to seaweed aquaculture management and practises, coupled with the lack of transparent enforcement, all point to an urgent need to enhance management capacity for the seaweed industry. This is to protect the interests of all stakeholders (private industry, local fishers and authorities with concern over sustainable use of the country’s natural resources), and to manage the growing seaweed aquaculture industry in a way that will maintain ecologically and financially sustainable best practises.

Only way forward

Cambodian coastal areas offer excellent opportunities for development. New roads are being built that will greatly improve infrastructure and transportation. In coming years, export markets will open and create greater demand for new products. The same will happen to tourism, accelerating the pace of change for local communities. How well prepared these communities are to participate in the growing economy and at the same time to take care of their natural resources, depends on the government’s interest in helping their own people to adapt to this change. The same includes donors who sometimes seem to follow one another in funding interest and policy support. The need to change funding and interest flow towards coastal areas of Cambodia is now, and not after all its marine resources have already been lost.



*At the fishmarket...
(Beloff)*

About the Author

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