

## REAPING THE BENEFITS FROM TURTLE CONSERVATION IN KABUPATEN BERAU, KALIMANTAN TIMOR, INDONESIA

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There has been considerable discussion of the need for both the local community in the Berau archipelago and the Berau Kabupaten Government to derive some direct benefits from turtle conservation. Most of this discussion has been associated with the commencement of 100 percent conservation on Sangalaki and Derawan, but it has also been raised in connection with the possible extension of this level of protection to the remainder of the Berau archipelago.

In general discussions of the anticipated benefits of turtle conservation in the region, the expectation frequently arises that the community will benefit directly from conservation management, though exactly how this might happen is mostly unstated. There often seems to be a hope that within a short time the community will be able to harvest turtle eggs, either as an economic activity or on a "subsistence" (i.e. personal consumption) basis<sup>1</sup>.

Conversations with a few groups of community members during a short visit to Derawan in late January 2002 revealed an expectation on the part of some people that there would be direct benefits to the community from conservation management, possibly from being allowed a share of the turtle / egg resource. Similar views have been expressed by some government officials. Government officials have also referred to the need to have some benefit flow to government from turtle conservation, to compensate for either the loss of income from the concession, and / or the current and future expenditure on conservation management<sup>2</sup>.

The apparent lack of clarity as to the source of any future benefits has not been appropriately dealt with by NGOs involved in the issue. It might even be that some NGOs have an interest in maintaining an expectation of benefits from conservation, without being forced to define precisely what these might be, or when they might eventuate. They may see this as a way of "selling" the concept of turtle conservation. This impression was heightened by an occurrence at a recent meeting between District government officials and NGOs in connection with a proposed three-country agreement on management of shared turtle populations. A question from a senior government official as to the experience of the Philippines in deriving benefit from turtle conservation led to the response (in English) from the Filipino NGO representative that after three years of conservation management the local community on a turtle nesting island was deriving benefits from an associated integrated conservation and development project (i.e. the benefit was not directly from the turtle resource, but from inputs provided by the project). This was translated into Indonesian (by an Indonesian NGO representative) as

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<sup>1</sup> See companion paper on community management and awareness raising.

<sup>2</sup> It needs to be noted that on other occasions high level officials have stated that there is no problem funding conservation management and that this has been provided for in annual budgets. However statements in this regard are somewhat inconsistent - there have also been expressions of disappointment that the central government has passed legislation protecting turtles but has not made funds available for the implementation of these laws.

the conservation management having resulted in benefits for the local population within three years, and the translator added that it was possible that benefits would flow even more quickly in the case of turtle conservation in the Berau archipelago.

All parties with an interest in conservation of the turtle populations in the Berau archipelago also have an interest in seeing that there are no false expectations generated among either the local community, local entrepreneurs, or local government agencies. The only possible result of such a situation would be future disappointment and reaction against conservation management. Since conservation outcomes clearly depend on the commitment of local communities and agencies, such a situation would be likely to detract significantly from any possibility of achieving conservation goals.

All parties need to be clear not only on the most likely sources of any benefits from conservation management of turtle populations, but also on the likely time frames involved and the inputs that will be necessary to achieve these benefits.

One of the possible reasons for a lack of clarity on the source of benefits is a lack of any in-depth understanding of turtle biology and particularly population dynamics among the individuals involved at the local level. This has been coupled with the lack of any individual or agency involved in awareness raising in Berau with the capability to translate this information into concepts that can be readily understood by local communities and non-specialist government agency staff.

Considering what is known of the decline in local turtle populations, it seems clear that management of this resource has now reached an "emergency" situation in which every effort needs to be directed toward getting as many recruits into the nesting population as possible, and as quickly as possible. Given that any hatchlings entering the sea now will not enter the breeding population for 25-30 years, the number of breeding individuals (and therefore the number of available hatchlings) can be expected to continue to decrease for at least that period. In other words, the situation will appear to get worse, in terms of nesting individuals, before it improves, and any demonstrable improvement in the level of the breeding population cannot be expected for at least 30-40 years.

During this period it does not make ecological sense to allow any harvesting of eggs or adults. Such harvesting would only prolong (if not endanger) the recovery process. Local communities and government officials need to understand this clearly.

The other avenue of potential benefit from conservation of turtle populations derives from the segment of the ecotourism market with an interest in turtles. There is no doubt that there is a high level of such interest among tourists coming from countries where environmental awareness among the middle and upper classes is high. This market segment is not restricted to western countries. It is clear that there is a significant market for turtle-related experiences among Asian tourists from countries such as Malaysia, Singapore, Taiwan, and Japan.

The potential for significant benefits to the regional economy (and thereby to local communities) can be gauged by studies done in Kenya, Africa, on the economic benefits deriving from conservation management of lion populations. In the early 1980s the Kenyan government was faced with considerable pressure to turn national parks over to grazing or other land uses. As a result, they initiated economic studies of the benefits of lion conservation in the Amboseli National Park.

At that time (1984) it was possible to obtain a permit to hunt one male lion in the park for a fee of US\$8,500. This was clearly a "once only" benefit to the park management and the local economy.

As part of a government review of the park management policy, resource economists carried out studies of the "flow-on" or "multiplier" effect of expenditure by tourists whose aim was to see lions in a wild situation (i.e. sustainable lion-based ecotourism). The multiplier effect measures the extent to which expenditure by tourists generates income, directly and indirectly, for local people. Because one dollar spent by a tourist might flow through several suppliers and service providers in the local economy, it has a total effect greater than one dollar. Multiplier effects associated with tourist expenditure might be of the order of 3.5 or higher.

The studies in Kenya found that in 1984 one male lion was responsible for an annual positive contribution to the local economy of at least the equivalent of US\$27,000 - every year of its life. If this figure were to be adjusted for inflation and the spectacular growth in the level of ecotourism since 1984, the equivalent figure today would be likely to be well over US\$100,000 per male lion per year injected into the Kenyan national economy.

While turtles are not lions, and the level of interest in viewing turtles does not approach that associated with lions, they are clearly a group of animals in which there is considerable public interest.

Sharks are perhaps more similar to turtles in terms of environment and tourist interest. One of the world's most popular sites for diving with sharks is the Maldives, in the Andaman sea, roughly between Burma and India. A study in the early 1990s estimated that in 1992 a single grey reef shark was worth about US\$33,500 per year at what was then the most popular shark watching site, 'Fish Head'. In contrast, a dead grey reef shark was calculated to have a one-time value of about US\$32 to a local fisherman.

Despite this, commercial shark fishing continued in the Maldives, even in the core of the dive tourism area, with the result that the average number of sharks seen per dive at Fish Head decreased from more than 20 in 1987 to one per dive in 1997. A number of operators stopped conducting tours to the area, and its reputation as a tourist destination was adversely affected. The resulting loss of diving revenue from this one site has been roughly estimated at US\$500,000 per year. The cause of this loss is the removal of perhaps 20 grey reef sharks, with a current market value of little more than US\$1000.

The following two examples illustrate the level of the interest in turtle-related tourism in the region. In the Turtle Islands of Sabah, Malaysia, Pulau Selingaan is managed by the government for turtle conservation and ecotourism. Overnight accommodation is available for only 24 guests and stays are limited to one night. Guests can view only one nesting turtle, though only if accompanied by a ranger / guide, and no photographs are allowed. Despite these restrictions, the program is booked out for up to two years ahead. Guests come largely from Malaysia but include people from all regions of the world. The profits from this one operation are said to finance all of the turtle conservation activities in Sabah.

In Australia, the Mon Repos Turtle Research Facility also operates a visitor centre. Tourist pay an entrance fee and wait for up to five hours to go on the beach in groups

accompanied by guides to see nesting turtles under tightly controlled conditions. Nightly visitor numbers range from around 100 to more than 500, and visitors come from all over the world. The economic inputs to the regional economy from this activity are not restricted to the entrance fees and the prices of the many souvenirs, books and posters that the visitors purchase. Most of them stay in local hotels, motels or camping areas and buy meals, fuel, etc. in the local area.

Even if the potential benefit from a single turtle under turtle-associated tourism is only 1/100 of that likely to be derived from individual lions in Africa, this would mean that one nesting turtle might provide a benefit to the regional economy equivalent to US\$1,000 per nesting turtle per year. (It needs to be remembered that this figure is highly speculative and detailed studies would need to be done to arrive at a more exact figure. However US\$1,000 is regarded as a conservative estimate of the benefit that could accrue to the local economy from fully developed turtle-based ecotourism - the Maldives research on the value of sharks through ecotourism suggests that the value of an individual turtle in regional economic terms could easily reach more than \$10,000 per year). This can be compared with the average annual value of eggs produced by a Green Turtle (taking into account an average nesting frequency of once per 3-4 years) of US\$45 per year (at February 2002 egg prices). Clearly the regional economic benefit from turtle-based ecotourism activities would not need to be very large to exceed that generated by the harvesting of turtle eggs. Because turtle eggs are mostly traded within the local economy there is a considerably lower benefit to the regional economy than from ecotourism expenditure, which typically brings money into the local economy from international sources.

It also has to be remembered that a turtle whose eggs are totally harvested will not replace itself, so that the annual benefit will cease when the turtle dies. On the other hand the income from a fully protected turtle will be continued by its descendants indefinitely.

It should not be imagined that the kinds of economic benefits discussed above will be apparent in Kabupaten Berau in the short-term. There are several good reasons why this is unlikely. These include:

- the lack of any promotion of turtle-based ecotourism until now, and the time needed to gear up a promotional campaign and to develop a market on this basis. Until the present, the resorts in the area have largely promoted themselves on the basis of diving, manta rays, coral quality and the presence of unusual invertebrate organisms. Little or no mention is made of nesting turtles. In the current situation local dive resorts are competing directly with most other dive destinations in SE Asia and the Pacific. No additional market will begin to develop in the field of turtle-based tourism until there is a significant change in promotional emphasis to include turtles (and other significant local attractions).

- the general lack of tourism infrastructure in Berau Kabupaten and the surrounding region.

The tourism infrastructure in Berau and the vicinity is significantly deficient in almost all important aspects. For example:

- transport is poorly developed, both to the region and within it. Airline services are basic and unreliable. Roads are in extremely bad condition. Boat services are inadequate in several respects, including range of sizes of craft and safety.

- accommodation services are inadequate in terms of number and quality of rooms. None of the hotels in Tanjung Redeb (and probably none in Tarakan) meets international standards.
- tourist information on the area is significantly deficient, both within the region and outside. Apart from the material put out by dive companies there is no good source of information on the tourist attractions of the area or the available infrastructure.
- standards of service in all aspects of the industry are well short of even basic international levels. Not only do the majority of staff in tourism-related business not speak English, but their knowledge of service expectations of international travellers is far from adequate. In addition, there is an element in the way in which many people in the local community deal with westerners that can easily be interpreted as rudeness, though this may not be intentional.
- the lack of qualified guides or other interpretative staff to lead ecotourism activities.
- the lack of any overall tourism strategy within which ecotourism development can occur.  
Unless turtle-based ecotourism is developed in conjunction with a range of other aspects of tourism (including other ecotourism opportunities), the region will fail to capture the maximum benefit from tourists visiting the area. Such a strategy would also include priorities for development of infrastructure and services, in such a way as to integrate them with other regional developmental needs.

As these issues begin to be addressed it can be expected that the benefit to the local economy from turtle-based ecotourism will gradually develop. However the realisation of full benefits will come only after a significant period (the length of which will depend on the urgency with which the above issues are addressed) and after a substantial level of investment. Some benefits will begin to flow as soon as these issues begin to be resolved, and could begin as soon as ecotourism businesses develop and to promote professional, international standard turtle-based ecotourism experiences.

## Summary

Turtle conservation has the potential to provide very significant inputs into the regional economy of East Kalimantan, particularly Kabupaten Berau, through turtle-based ecotourism. The majority of these inputs will not flow directly to the local people, though a number will benefit from direct or indirect employment and business involvement. In general the benefits to local communities will flow through the improved local and regional economy and will be in the form of better employment prospects, and improved public infrastructure in areas such as transport, health and education.

There is no possibility of long-term sustainable benefits from the direct exploitation of turtles or turtle eggs. Any attempt at direct exploitation of the turtle resource will endanger the recovery of the turtle population.

The regional economic benefits will not be fully realised until appropriate strategies and infrastructure are in place, and this will take a number of years, quite probably more than a decade. As the necessary components are put into place the level of benefit to the regional economy will increase, and some benefits will begin to flow as soon as key components are in place.

Government agencies and NGOs need to understand this situation and to be honest with local communities about the way in which benefits will be achieved from turtle conservation.

Tourism businesses in the Kabupaten, particularly Sangalaki Dive Lodge, should recognise the potential for increased business from turtle-based ecotourism. They should publicly support turtle conservation and should promote and provide highly professional turtle-based experiences for their guests. These should be of a standard consistent with latest international best practice in this field.

The governments of Kabupaten Berau and Kalimantan Timur Province need to begin to develop a comprehensive turtle-based ecotourism strategy within the context of a broader tourism development strategy that includes all aspects of infrastructure and services.