SEA TURTLES AND COASTAL HABITATS
IN SOUTH-EASTERN BANGLADESH

PROJECT REPORT TO THE SEA TURTLE
RESCUE FUND/CENTER FOR MARINE
CONSERVATION, WASHINGTON, D.C.

APRIL, 1989

INDRANEIL DAS
MADRAS CROCODILE BANK TRUST,
VADANEMVELI, PERUR POST,
MAHABALIPURAM ROAD,
MADRAS 603 104, INDIA
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INTRODUCTION

The Republic of Bangladesh (20° 34' to 26° 37' and 88° 45' to 92° 40'E) lies
indisposed by India and Burma in the west, north and east. The coastline of this
little country (total land area 142,771 sq km) is some 750 km, extending from
the Sunderbans in the west to Teknaf in the extreme southeast. A variety of
ecological conditions prevail near the coast. The Sunderbans forest of Bangladesh
and India is the largest patch of mangrove forest on earth. A similar, though
much smaller forest, Chakaria, exist in the Chittagong district. Most of the 136
beaches in the south-central and southeast are backed by plantations of Casuarina
: agricultural lands, and are thus utilised by humans in some manner. At the
northwest of the country, in Cox's Bazar district, a forest-clad hill range rises behind
the beach, presenting dramatic vistas. The only coral island of Bangladesh, St.
Robins, is situated 8 km from Shahpur Island and is densely populated.

The present report describes the results of two visits to the Republic of Bangla-
desh, in December 1988 and January - February 1989. Field work was conducted in
the southeastern districts of Chittagong and Cox's Bazar, to evaluate coastal
habitats and assess the sea turtle resource and their exploitation. The project
was funded by the Sea Turtle Rescue Fund, a program of the Center for Marine
Conservation, Washington, D.C., U.S.A.

METHODOLOGY

Field work on sea turtles and coastal habitats in southeastern Bangladesh, from
Chittagong to Teknaf was conducted in the winter of 1988-1989. Physical and biol-
ological characteristics of sea beaches were evaluated, human utilisation of beaches
and adjacent coastal areas were observed and their possible impact on sea turtle
nesting inferred. Local people were interviewed to obtain biological and socio-
economic data. An English translation of the proforma used in conducting these
interviews have been appended with the report.

Beach width and extent of vegetation were determined by pacing. Transect walks
at the Cox's Bazar beach were conducted to determine levels of pollution. Habitat
features were documented by photographs.

The following beaches were visited during the survey: Potenga (Chittagong distri-
ct), Cox's Bazar, up to Kataochar (Cox's Bazar district) and Teknaf (Cox's Bazar
district).
THE SEA TURTLE RESOURCE

The late Dr. S.L. Hora, once a Director of the Zoological Survey of India, reported seeing large numbers of chelonians on the Khulna section of the Eastern Bengal Railways, destined for Calcutta (Acharji 1950), but it is unknown what kind of turtles these were. Subsequently, especially since the early 1980’s, there has been a growing interest in the turtles of Bangladesh, among both local and foreign biologists, and numerous reports have appeared. Ahmed (1958) and Husain (1979) published reviews and lists of mainly the freshwater chelonians of the country, with no specific information on sea turtles. Shafi and Quddus (1979), in their account of the chelonians of Bangladesh listed 2 marine species, the leatherback (Dermochelys coriacea) and hawksbill turtle (Eretmochelys imbricata). Sarkar’s (1982) note mentioned that the green (Chelonia mydas), besides the leatherback turtle nest on the southern shores of Bangladesh. Both accounts thus exclude the species thought to be the commonest in the Bay of Bengal, the olive ridley (Lepidochelys olivacea), which makes their identification questionable.

Khan’s (1982b) checklist of the wildlife of Bangladesh listed 5 sea turtle species – besides the 4 aforementioned species, he included the loggerhead turtle (Caretta caretta). According to this work, except for the green turtle, which is said to be common and distributed from the Sunderbans to St. Martines, all other sea turtle species are uncommon – information published elsewhere by Khan (1982a) but is contrary to what is known of the nesting habits and distribution of sea turtles in the Bay of Bengal region. A checklist of the reptiles of Bangladesh by Sarkar and Sarkar (1985) indicates that the green is ‘fairly common’ in the country, while the other marine species are ‘rare’. Further, the authors go on to claim that all 5 sea turtles of Bangladesh inhabit estuaries. Ohuiyan et al. (1985) reported the occurrence of the loggerhead in the same region.

Relying on these published works, reviews by outsiders (Kar and Bhaskar 1981, Groombridge and Wright 1982) Fugler (1984) and Groombridge and Luxmoore (1987) could provide no population or distribution data.

Khan (1986) wrote that the green, hawksbill, olive ridley and loggerhead visit the southern islands of the Bangladesh Sundarbans, at localities such as Katka, Bhati, Nilkamal, Dubla and Putney, presumably indicating that they nest at these localities. At St. Martines, the same authority reported nesting by the green and
olive ridley between October and February (Khan 1985). More information on
sea turtles of this coral island can be found in Rashid (1986), who specifically
reported 3 species to nest - the green (between September and October), olive
ridley (December and February) and hawksbill (mid-December and January). The
same author commented that of the 3 species, only the olive ridley is common
here. Observations on the breeding biology of the ridley at St. Martins have
been made by Ahmed et al. (1986).

During the present survey, I have seen only the olive ridley at the museums
of the Dhaka University’s Zoology Department (a hatchling, labelled 'Dermochelys
coriacea') and at the Cox’s Bazar Marine Research Station (an adult). Moreover,
the entire western and part of the rest of the coastline is backed by mangroves,
presenting ecological conditions preferred by nesting olive ridleys. Thus, it
is reasonable to assume that the olive ridley is the commonest and most widespread
of the marine turtles seasonally occurring in the waters of, and nesting on the
shores of Bangladesh. Frazier (1981) suspected large numbers of these turtles
to occur in the country. Whitaker (1982) mentioned an island 10 km off the south
west of the Bangladesh Sunderbans, where there is nesting by large numbers of
sea turtles, which he suspected to be olive ridleys. The same authority mentions
obtaining sea turtle bones, tentatively identified as those of a ridley, from
the beach at Cox’s Bazar (Whitaker 1981).

HUMANS AND TURTLES

Perhaps the most densely populated country in the world, Bangladesh has a human
population approaching 125 million. Islam, the state religion of the country,
which is followed by some 90% of its human inhabitants, forbids the eating of
reptiles, such as turtles, considering them 'hamai' (unclean).

Thus, consumption of turtles and turtle eggs is largely restricted to the ethnic
minorities—Hindus, Christians and numerous tribes.

While the meat of sea turtles has no export value, freshwater turtles of several
species are heavily exploited and large numbers are exported (Anon 1987; Fugler,
1984) for food and medicine.

In Bengali, chelonians are variously known as 'kochchop', 'kathe' or 'kaitta'
(hardshells), 'kachim' or 'kaasim' (softshells). In the Chittagong region,
aquatic turtles may also be referred to as 'jal (water) kashi'. Sea turtles
in the same area are called 'sahumdi (sea) kaitta' and also 'faikya' or 'faki

Human-turtle interactions in these regions are not always negative from the viewpoint of conservation. Sea-farers, for example, consider harming turtles to bring bad luck, which seemingly parallels the western belief concerning the albatross. Besides setting offshore nets, fishermen often pray for their nets to be out of the way of the sea turtles, since entangled turtles damage fishing gear which late out the target species – fish and shrimps and are usually not marketable.

The carapace of turtles, called 'dhał' (=shield) in Bangla, are hung over entrances to human habitations and cowsheds in Hindu villages. This, according to the prevailing belief, wards off thieves, the turtle being considered inauspicious, and also to transmit the prolific nature of turtles to the cows. However, because of the large size, sea turtle carapaces have not been observed being thus used, rather they use shells of freshwater turtles.

An analysis of trade data indicates that the export of turtles from Bangladesh is growing. Items exported include live turtles, meat, 'fin' and eggs (Anon. 1987, Fugler 1984). Oliver (1979) wrote that the prospects of exporting pre-cooked meat and canned soups from the country look good. Many basic biological questions about the species concerned need to be answered before programmes of harvesting at such high levels could be attempted.

EXPLOITATION OF SEA TURTLES

While sea turtle meat and eggs are generally not consumed by Muslims, a significant demand for these commodities exist from the ethnic minorities. Eggs are reportedly collected by humans from all beaches where nesting occur, for direct consumption or sale. In the Cox's Bazar area, sea turtle eggs are sold both at the main market and at Ramu, about 15 km north. According to Huda (1978), pilfering of turtle eggs is a 'profitable industry' on Sonadia Island, and Choudhury (1988) reported the collection of sea turtle eggs 'in hundreds' from an unnamed island off the Sunderbans for subsequent sale in markets. Khan (1985) wrote that on St. Martins Island, 'all eggs from all the nests every night of the laying season' are removed by humans. On this island, locals exchange turtle meat and
eggs with people from Burma for rice (G.S.M. Asem, pers. comm.).

Eggs are located by beach-combers by following the tracks of nesting turtles and probing with a stick. Evidently, egg predation by man is a very serious threat, though no quantitative figure exists. According to Sarkar (1982), 'thousands of eggs' are annually collected from coastal Bangladesh.

Adults and eggs, presumably of the olive ridley, were once imported from the Indian state of Orissa (Frazier 1981). Though this trade has been stopped, killing of adult sea turtles from many localities within Bangladesh has been reported. At Cox's Bazar, nesting turtles are sometimes captured and carried away by the locals, presumably for food. Rashid (1986) mentioned the killing of sea turtles for meat, fat and carapace at St. Martin.

No evidence of trade in a turtle leather in Bangladesh could be found, and there are no traditional industries for tortoise-shell items. However, export of raw tortoise-shell has been documented: the export of this commodity was 4,960 kg in 1977 and 4,150 kg in 1979 (Mack et al., 1981). The customs statistics of Hongkong and Singapore showed imports of tortoise-shell from Bangladesh, which according to Groombridge and Luxmoore (1987) are likely to be from freshwater turtles. Interviews with turtle exporters based at Dhaka during the survey confirmed this.

'Turtle meat, eggs and fin' are items of export from Bangladesh, and these are also derived from non-marine species. Between July - December, 1985, the country earned foreign exchange the equivalent of Taka 148,000 (approximately U.S.$ 4,621) through this export (Anon., 1987).

Freshwater turtle catches peak during the winter (October to March), and according to one estimate, approximately 170 metric tons per day may be harvested, of which 3 tons are exported, the rest locally consumed (Oliver, 1979).

A curio-shop at New Elephant Road, one of the main business districts of the country's capital, displayed a stuffed juvenile (carapace length about 35 cm) green turtle. Reportedly from south-east Asia, it was being sold at Taka 7,000 (approximately U.S.$ 230).
EVALUATION OF COASTAL HABITATS

Investigations on beaches of southeastern Bangladesh were conducted to evaluate their suitability as nesting grounds for sea turtles. Data on St. Martin's Island, which could not be visited, have been compiled from published works or unpublished information, received as personal communication. Observations on human use of adjacent areas supplemented the analysis of coastal habitats.

1. Cox's Bazar:

The sea beach adjacent to which the resort of Cox's Bazar is situated is considered to be one of the longest beaches in the world (Hude 1978), extending from Maheshkhali (or Meishkhali) channel unto the tip of the Teknaf peninsula, totalling some 130 km. The following section is based on investigations on the main beach of Cox's Bazar, upto Bhangamura, a distance of 6 km from the main approach to the beach, between 24-25 January, 1989.

Beach width (high tide mark to beach vegetation patch) varied from 18.4 to 44.6 metres (x=30.8 metres). The dominant flora on the dunes was the ground glory (Ipomoea pes-caprae). A casuarina plantation, 101 metres in width, starts just behind the dunes, and is, in turn, backed by a village. The plantation, presumably created as a wind-break, is a common feature on many beaches of the subcontinent. A hill range rises behind the beach, clad in semi-evergreen forest. On a climb to these hills, now a part of Cox's Bazar National Park, 2 barking deer (Muntiacus muntjak) were seen. Near Bhangamura, wild elephant (Elephas maximus) tracts were sighted on the beach.

According to the locals, the heavy human use of the beach and nearby waters has resulted in fewer sea turtle nestings in recent years. An important resort, Cox's Bazar draws thousands of tourists every day. This has led to a number of developments that disturb the general tranquility of the area - the opening of numerous hotels close to the beach and the increased use of beach by tourists both on foot and on jeeps. A score or so sea-shell shops cater to tourists on the beach, displaying specimens collected from St. Martin's, Pancha and elsewhere. Intensive shrimp trawling on coastal waters is also thought to disturb turtles approaching the coast to mate and nest, as elsewhere.
A study to quantify the artificial debris on the sea beach was made. Two transects, each 460 metres in length and 0.5 metre wide were run parallel to the shore-line, one on the high tide mark (Transect I), the other above it (Transect II). All man-made objects touching the transects were recorded. Findings have been summarised in Tables I and II.

In both transects, paper was the most commonly found item (55.4% and 56.9%). However, plastic objects, which ranked second (26.7% and 18.97%), by virtue of being non-biodegradable, is a greater cause for concern. Included in this category are various synthetic substances, such as nylon ropes and nets that are detached from fishing gear or discarded. Above the high tide mark, thermocool comprised 4.3% of the artificial objects. This is used in packing the contraband goods that are smuggled in from Burma and elsewhere (Nasiruddin Sada pers. comm.). Pollution by such items as paper, plastic, cigarette butts, and metal foils can be largely attributed to tourism.

2. Teknaf:

The southernmost tip of the Bangladesh mainland, Teknaf still retains a relatively little-disturbed coast line. The beach, visited on 27 January, 1989 is smooth in profile, 21.6 - 39.3 metres (X=35 metres) in width, backed by small dunes clad with the ground glory (Ilicinea polystachya) as well as 2 unidentified grass species, the extent of which vary from 11.5 - 21.6 metres (X=16.9 metres) land behind the beach is utilised in the cultivation of paddy. Several kilometres north from the approach point, hill range that starts from near the township of Cox’s Bazar, ends.

Tourism is being promoted at Teknaf, though the beach is still on the whole little-disturbed and sea-shells strewn. Fishing and shrimp-trawling activities are evident, and the beach is also used as road for the transport of goods and a route for domestic buffaloes that are used in cultivation.

Nesting by sea turtles during the winter months at Teknaf was reported by the locals. Eggs are collected for consumption both by the Hindus and the Burmese, and natural predation by jackals, civet cats and feral dogs is known. An olive ridley was found at the museum of the Cox’s Bazar Marine Biology Laboratory, collected from this beach in 1985 by Mr. Nasiruddin Sada (pers. comm.). Measurements of the specimen include: curved carapace length 72 cm and curved carapace width 69 cm.
### TRANSECT I (HIGH TIDE MARK)

<table>
<thead>
<tr>
<th>Nature of debris</th>
<th>Number of items</th>
<th>% of total</th>
</tr>
</thead>
<tbody>
<tr>
<td>Paper</td>
<td>87</td>
<td>55.4</td>
</tr>
<tr>
<td>Plastic</td>
<td>42</td>
<td>26.7</td>
</tr>
<tr>
<td>Cigarette butts</td>
<td>28</td>
<td>12.7</td>
</tr>
<tr>
<td>Metal foils</td>
<td>5</td>
<td>3.2</td>
</tr>
<tr>
<td>Thermacoal</td>
<td>3</td>
<td>2.0</td>
</tr>
<tr>
<td><strong>Total</strong></td>
<td><strong>157</strong></td>
<td><strong>100.0</strong></td>
</tr>
</tbody>
</table>

### TABLE I

### TRANSECT II (ABOVE HIGH TIDE MARK)

<table>
<thead>
<tr>
<th>Nature of debris</th>
<th>Number of items</th>
<th>% of total</th>
</tr>
</thead>
<tbody>
<tr>
<td>Paper</td>
<td>66</td>
<td>56.9</td>
</tr>
<tr>
<td>Plastic</td>
<td>22</td>
<td>18.97</td>
</tr>
<tr>
<td>Cigarette butts</td>
<td>16</td>
<td>13.8</td>
</tr>
<tr>
<td>Metal foils</td>
<td>7</td>
<td>6.03</td>
</tr>
<tr>
<td>Thermacoal</td>
<td>5</td>
<td>4.3</td>
</tr>
<tr>
<td><strong>Total</strong></td>
<td><strong>116</strong></td>
<td><strong>100.0</strong></td>
</tr>
</tbody>
</table>

### TABLE II
There are fewer tourist jeeps at the Tekna beach compared to Cox's Bazar. At Jhajpurar beach, about 40 km south of Inani, a jeep ran over a nesting sea turtle killing it, on the night of 14 January, 1989 (Mr. Abdul Haye, pers. comm.). A smaller hard-shelled turtle reportedly lives in creeks near the sea mouth in this area, which, from descriptions provided, seem to be the river terrapin (Batagur baska), a species hitherto recorded from the Sunderbans, in the country, and listed as 'endangered' in the IUCN Red Data Book (Groombridge and Wright 1982).

J. Potenga:

The sea beach nearest to the city of Chittagong, Potenga, was visited on 28 January, 1989. The southern section lies within the jurisdiction of the Bangladesh Naval Academy and is thus presumably unsuitable for nesting by sea turtles. A steep, concrete embankment, protected from erosion on the sea-face by loose boulders and approachable by a motorable road, runs for a few hundred metres, and is an important tourist spot. Further north, a short strip of beach, less than a quarter kilometres in extent, is exposed, which measure 5.06 - 6.9 metres (x=5.9 metres) in width above the high tide mark. No dunes were observed in this stretch, and the reclaimed land at the back is used mainly for cultivating water melons. Signs of an earlier, broken embankment were found here and tides are seasonally reported to inundate both the agricultural fields and villages. North of this short, open beach, the sea side is put under coconut plantation. Cowan (1928) provided an account of the flora of the Chakaria region, south of Chittagong and the beach flora of Potenga, a few decades ago, when it was less disturbed, was probably similar.

According to the locals, no sea turtles come to nest at Potenga. However, dead turtles are occasionally washed ashore, mainly drowned in trawling nets.

J. St. Martin's Island:

Dumb-bell shaped, St. Martin's, the only coral island of Bangladesh lies between 20°54' and 20°59'N and 92°16' and 92°21'E, and is separated from the Tekna peninsula by a channel approximately 8 km wide. The area of the island is about 2.3 km² and consists of rocky platforms and coral formations extending into the sea. Susan habitations (1982 : population about 3,000) are found in the northern part of the island. Ixora coccinea and Pandanus odoratissimus are the dominant plant on the shore, besides which are Vitex negundo and Pandanus odoratissimus.
A good sandy beach has developed on the main island, covering the wave-cut bench of bed rock, which is wider along the east and north coasts. The west coast is exposed to the sea and the beach is thus considerably narrower and steeper, with calcareous and conglomerate boulders strewn in high concentrations. In Dakshinpara, in the central part of St. Martin’s, is a 6-metre cliff that runs for about 160 metres along the coast.

Limestone makes the foundation of the soil at St. Martin’s and along with conglomerate, are the principal economic resources of the island. Attempts to remove them on a large scale would thus be disastrous for the island. An unlimited collection of corals and other marine organisms from the island has been reported by Khan (1985), the effects of which is unknown.


Data on St. Martin’s, an important sea turtle nesting ground in Bangladesh, which could not be visited because of logistical problems, have been compiled from Khan (1982, 1985), Haque et al. (1979) and Ahmed et al. (1986).

CONSERVATION AND MANAGEMENT

The management of turtle resources of Bangladesh is left to the Ministry of Fisheries and Livestock, which is concerned with their commercial exploitation, a practice not based on rational management policies. The Bangladesh Wildlife (Preservation) (Amendment) Act, 1974, lists 3 sea-did species - Caretta caretta, Eretmochelys imbricata (a species not found in the country) and Melanochelys tricolor, and 3 trionychid species - Trionyx nigricans, T. gaesi and E. hurum. In its Third Schedule, implying those should receive the highest protection and may not be hunted or captured. Part I of the First Schedule lists 1 sea-did - Kachua testa, 1 trionychid - Limnognathia puntata and 1 testudinid - Indotestudo elongata, which are open to exploitation by individuals possessing an ordinary game hunting permit. The second Schedule, which covers all protected or 'game' species does not specifically mention any turtle species. Thus, none of the 3 Schedule of the country’s wildlife law give protection to sea turtles or to their eggs.
A conservation plan for the sea turtles of Bangladesh, based on good biological data, is urgently needed. Preliminary investigations and a review of literature cited in earlier sections suggest that medium to low intensity nesting by the olive ridley occur almost throughout the south-eastern coast and arribadas take place in some of the offshore islands in the Sunderbans. Egg collection 'in thousands' by humans have been reported by Choudhury (1968). I consider the olive ridley to be threatened in Bangladesh and recommend its inclusion in Schedule III of the Bangladesh Wildlife (Preservation) Act. Strict protection measures for sea turtle nesting beaches, preventing collection of eggs and killing of adult sea turtles are warranted and can be provided under the provisions of the Act.

Rehnd (1966) recommended the setting up of a sanctuary at St. Martin's, by restricting human use of several beaches and evacuating islanders to the mainland. In many of these areas, locals can be gainfully employed as sanctuary / marine park guards, utilising their experience and expertise in managing and protecting these coastal resources.

Also required for effective long-term research and conservation programmes, is active cooperation between the research faculties of the Zoology Departments of the Universities of Chittagong and Dhaka, the Forest Department, the Cox's Bazar Marine Biology Laboratory as well as various conservation organisations.

Establishment of hatcheries for 'head-starting' young sea turtles are unventured, as recent evidence indicates that sex of sea turtles is dependent on the incubation temperature of the eggs, and thus hatcheries tend to produce unnatural sex ratios of turtles, unless scientifically done.

Finally, public education and publicity about the plight of the country's sea turtles is needed. Coastal inhabitants in south-eastern Bangladesh in general do not disturb adult sea turtles, but collect eggs. Campaigns by local conservation organisations and the Forest Department, highlighting the role of sea turtles in marine ecosystems and their threatened status are needed.
Numerous individuals provided valuable assistance during the present survey. Mr. Md. Nurul Haque, Mr. Md. Saeed and Mr. Ghulam Mustafa assisted in the field and helped solve logistical problems. Information on sea turtles and habitats was provided by Mr. Nasiruddin Sada and Mr. Syed Abdul Quayyum, Scientific Officers of the Cox's Bazar Marine Biology Laboratory, Mr. Gazal S.M. Asmat and Mr. Md. Farid Ahsan, Assistant Professors of Zoology, Chittagong University, Mr. Abdul Wahab Akanda, Senior Research Officer, Bangladesh Forest Department, Mr. Nazrul Haque, Deputy Keeper, Natural History Department, Bangladesh National Museum, as well as numerous coastal people.

Mr. Syed Abdul Rahman, Conservator of Forests, Bangladesh Forest Department, provided permission and facilities to conduct the survey and his field personnel and officials at Cox's Bazar and Teknaf provided accommodation and information.

My investigations on the sea turtles of south-eastern Bangladesh was supported by the Sea Turtle Rescue Fund, a programme of the Center for Marine Conservation, Washington, D.C. I thank Mr. Michael Weber, Vice President for Programmes, CMC and Ms. Andrea Shotkin, Marine Habitat Programme Assistant, for the support to the project.

Mr. Roxulas Whitaker, Director, Madras Crocodile Bank Trust, provided useful comments on an earlier draft of the report.
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ANDON. 1987. Export from Bangladesh during the fiscal years 1972-73 to 1985-86. Export Promotion Bureau, Dhaka. 4 pp + 3 figs.


APPENDIX I

LIST OF CONTACTS IN BANGLADESH

1. Mr. Nasiruddin Sada, Scientific Officer, Cox's Bazar Marine Biology Laboratory, Motel Road, Cox's Bazar.

2. Mr. Syed Abdul Quayum, designation and address as above.

3. Mr. Ghazi S.M. Amin, Assistant Professor, Department of Zoology, University of Chittagong, Chittagong.

4. Mr. Benazir Ahmed, designation and address as above.

5. Mr. K.M. Nurul Huda, designation and address as above.

6. Mr. Mohammed Farid Ahsan, designation and address as above.

7. Mr. Abdul Wahab Akonda, Senior Research Officer, Forest Department of Bangladesh, Ban Bhaban, Gulshan Road, Mohakhali, Dhaka 1212.

8. Mr. Chula Mustafa, M.Phil, student of Zoology, 635 Shaheen Bagh, Tejgaon, Dhaka 1215.

9. Mr. Md. Anjrunul Hannan Khan, Assistant Secretary, Ministry of Agriculture, Bangladesh Secretariat, Building 4, Room 15, Dhaka 1000.

10. Mr. Anisuzzaman Khan, Nature Conservation Movement of Bangladesh (NACOM), 29/C/1, North Kamalapur, Dhaka 1217.

11. Mr. Nazrul Haque, Deputy Keeper, Department of Natural History, Bangladesh National Museum, Shahbag, Dhaka 1000.


14. Mr. Abdulla Al-Javed, Graduate student, Life Sciences Institute, Jahangirnagar University, Savar, Dhaka.

15. Mr. Abdul Haye, Range Officer, Inani Range Office, Inani, Cox's Bazar district.
APPENDIX II

QUESTIONNAIRE

NAME / AGE / OCCUPATION / EXPERIENCE / AREA(S) OF OPERATION / ADDRESS

1. How many kinds of turtles occur in your area of operation?
   Name/ identification/ where seen/ status/ remarks

2. How often are sea turtles seen / caught? Mention places where they occur.

3. What do you know about their breeding habits?
   Location/ beach type/ position/ clutch size/ nesting behaviour

4. When does nesting occur? Mention the peak nesting period.

5. If no nesting occurs in your area, do you have any knowledge or suspicion of where the sea turtles go to nest?

6. Mention of areas of concentration, other than nesting beaches, if you know any.

7. Are there any prejudices against killing and eating of sea turtles or their eggs in your area? Describe them in detail.

8. Are there any traditional laws or customs which tend to give protection to sea turtles or their nests? Describe them in detail.

9. Are the people in your area interested in farming sea turtles?

10. Mention names of individuals and organisations involved in turtle trade. Also, any other relevant information about their business.

11. Do people in your area collect sea turtle eggs from the beaches? How many eggs are collected by them annually? Mention areas from where eggs are collected.

12. How are turtles caught in your area?
   Nets/ harpoons/ capture of nesting females/ any other technique (specify)

13. If captured by nets, specify the type of net used, the shape, mesh size, etc.

14. What is done with the captured sea turtles?
   Food/ medicine/ other uses (specify)

15. Name markets where they are sold.

16. Assess rate of capture. Also indicate season.

17. What are the sizes/ weights of the captured sea turtles?
   Smallest/ biggest/ average

18. Give market values:
   Meat/ egg/ fat/ shell/ other parts (specify)

19. Are very young sea turtles ever caught? If they are, mention their sizes, methods of capture, purpose and fate.

20. What is the frequency of capture in relation to size?
21. For how long have your people been hunting sea turtles?

22. Is the sea turtle population in your area decreasing? If so, what are the factors responsible?

23. Do you have any specific recommendation of how one might save the sea turtle population in your area from becoming extinct?

24. Are there any myths/beliefs associated with sea turtles in your area? Give an account:

Note: Translated from Bangla. Space for answering deleted.