



# Indian Ocean – South-East Asian Marine Turtle Memorandum of Understanding



## Pakistan

### GENERAL INFORMATION

#### Agency or institution primarily responsible for the preparation of this report:

Inspector General Forests, Ministry of Climate Change Division, Government of Pakistan-Islamabad through office of the Conservator Wildlife, Climate Change Division, Government of Pakistan, Islamabad

#### Other agencies, institutions, or NGOs that have provided input:

- 1) Sindh Wildlife Department, Government of Sindh, Karachi
- 2) Forest and Wildlife Department, Government of Balochistan, Quetta
- 3) Centre of Excellence in Marine Biology (CEMB), The University of Karachi, Karachi
- 4) Pakistan Wetlands Programme
- 5) WWF-Pakistan
- 6) IUCN-Pakistan

#### Designated Focal Point:

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## OBJECTIVE I. REDUCE DIRECT AND INDIRECT CAUSES OF MARINE TURTLE MORTALITY

### 1.1 Introduction to marine turtle populations and habitats, challenges and conservation efforts. [INF]

Pakistan coastline is about 990km long and stretches from Sir Creek near Indian border in the east to Jiwani near Iranian border in west. The coastline is further divided into the Sindh coast which is about 320km and the Balochistan coast which is approximately 670km long.

Important sandy beaches for marine turtles along the coast include Sandspit, Hawkesbay, Paradise point, Cape Monze, and Mubarak village in Sindh province and Gaddani, Ras Malan, Ormara, Astola Island and Jiwani in Balochistan (Khan and Ghalib, 2006).

Only two species i.e. green turtles (*Chelonia mydas*) and olive ridley (*Lepidochelys olivacea*) occur along the Sindh coastline of Pakistan. Green turtle is more common and its population has shown a stable trend for past many years though it is presently facing a multitude of threats along the coast of Pakistan. On the other hand olive ridley has not been spotted since 2004 (Hussain, 2010) while hawksbill turtle is extremely rare and most recent sightings were made in year 2001 and 2003 in Cape Monze area near Karachi (Hussain, 2010).

Similarly, along the Balochistan coast the green turtles are most common while olive ridley is seen to nest occasionally and hawksbill (*Eretmochelys imbricata*) is extremely rarely reported.

In Past turtles have been exploited in Pakistan for their shells and skin which used to be exported to foreign countries but this practice no more exists and marine turtles are now declared "Protected" under Sindh Wildlife Protection Act 1972 and Balochistan Wildlife protection Act 1975. Export and domestic consumption of turtles is prohibited under the Pakistan Fish Inspection and Quality Act 1997. The main threats to marine turtles in Pakistan include incidental entanglement in fishing gear, habitat degradation, pollution and unregulated tourism along important turtle beaches.

Research on marine turtles has mainly focused distribution, diversity, studies on nesting and hatching, ecology, tagging and migration patterns. It is felt that the number of studies on marine turtles is still not increasing considering the fact there is two universities along the coastline of Pakistan and many relevant government and non-government organizations. There is a definite need to increase the knowledge about marine turtle and to make it more specific if Pakistan is to achieve a sustainable population of these charismatic animals.

### **1.2.1 Describe any protocol or approaches practiced in your country, which you consider exemplary, for minimising threats to marine turtle populations and their habitats, which may be suitable for adaptation and adoption elsewhere. [BPR]**

Provincial Wildlife Acts provide for the protection of marine turtles. There is a ban on the hunting and use of marine turtles or their products. Additionally, Sindh Wildlife Department has the practice to transfer turtle eggs and place them in safe enclosures for hatching. The hatchlings are safely guided to the sea for development in nature.

Some very good examples of conservation efforts and community participation for turtle conservation in Pakistan can be cited here. Main activities that are helping a great deal in turtle conservation in Pakistan include:

- Ban on the hunting and use of marine turtles or their products
- Staff of Sindh Wildlife Department transfers turtle eggs to safe enclosures for hatching. The hatchlings are safely released in the sea after hatching.
- Enforcement of legislation related to conservation of wildlife including marine turtles.
- Safeguarding key turtle nesting beaches along Sindh and Balochistan coast from poachers
- Protection against feral dogs and other negative human impacts particularly along the Karachi coast
- Turtle watching activities which have educational and awareness raising component associated with it.
- Ensuring hatchling safety by guarding turtle beaches against potential threats and their safe release in sea.
- Promotion of awareness among public and coastal communities relating to the conservation of marine turtles.
- Beach cleaning activities to remove debris and other non-biodegradable items from beaches that interfere the process of egg laying and also cause hatchling mortality due to entanglement particularly in pieces of abandoned fishing nets
- WWF Pakistan has established a Wetland Centre, very close to marine turtle beaches/habitat at Karachi and Jiwani. These centres and deputed staff is very helpful for education and awareness of the masses and to safeguard the turtles visiting beaches for feeding and egg laying.

All these have contributed considerably in promoting the need for conservation of marine turtles and habitats in Pakistan.

### **1.3.1 Describe any socio-economic studies or activities that have been conducted among communities that interact with marine turtles and their habitats. [BPR, INF]**

Under Pakistan Wetlands Programme (PWP), a GEF/UNDP funded project a socio-economic study was conducted on Astola Island during January 2011. Purpose of the study was to determine the dependence of various communities on the Island. [HASAN, S.A., 2011 Socio-Economic Baseline Report, Astola Island(Unpublished report)]

Sindh Wildlife Department, WWF Pakistan and IUCN are main Organizations that engage the coastal communities in conservation related activities not only for the benefit of nature but also to create alternative livelihood for these communities. Different studies mainly focused this aspect in light of declining fisheries along Pakistan coastline. One can always find one programme or the other launched by WWF Pakistan and IUCN. Such programmes are ongoing and presently WWF is trying to create more livelihood options for coastal communities by establishing different kinds of ecotourism e.g. turtle watching, turtle hatchling release, bird watching and dolphin watching.

It is important to note that most of these activities are concentrated presently along the Karachi coast so there is a apparent need of replicating such activities in other areas along the coastline so that fishers can get greater benefit from such programmes. This is particularly important in the present scenario where fisheries of Pakistan are under great pressure due to growing human population and fishing fleet size. A lot of published literature is available at WWF Pakistan and IUCN and can be searched through internet easily.

### 1.3.2 Which of these adverse economic incentives are underlying threats to marine turtles in your country?

[TSH]

☐ High prices earned from turtle products relative to other commodities

☐ Lack of affordable alternatives to turtle products

☒ Ease of access to the turtle resource (eg. by virtue of proximity or ease of land/water access)

☒ Low cost of land near nesting beaches

☒ Low penalties against illegal harvesting

☒ Other1: Illegal construction activities right on known turtle nesting sites particularly in Karachi and removal of sand from beaches for construction purposes.

☒ Other2: Unregulated tourist activities

☐ Other3:

☐ None of the above or Not Applicable

### 1.3.3 Has your country has taken any measures to try to correct these adverse economic incentives? [BPR]

☒ YES ☐ NO ☐ NOT APPLICABLE (no adverse economic incentives exist)

Marine Fisheries Department and provincial fisheries departments i.e. Sindh Fisheries and Balochistan Fisheries regularly work with fishers to convince them use of environment friendly fishing gear. Under Marine Fisheries Department Turtle Excluder Devices were installed on a given number of trawlers (exact figures not in hand). There is need to emphasise on these organizations to specifically talk about turtles when interacting with fisher organizations.

Pakistan Wetlands Programme, a GEF/UNDP funded programme has been launched with a strong component for coastal areas and conservation of marine turtles and their habitat. This programme has negotiated with the local communities for sustainable fishing and use of appropriate gears including TED. This programme is also planning to embark upon alternate livelihood practices to divert the dependence of local communities from the natural resources.

### 1.4.1 Indicate, and describe in more detail, the main fisheries occurring in the waters of your country, as well as any high seas fisheries in which flag vessels of your country participate, that could possibly interact with marine turtles. [INF]

a) *Shrimp trawls*: ☒ YES ☐ NO

Shrimp fishery is the major fishery along the coast of Pakistan but the evidences of turtle mortality in this gear is extremely limited or negligible (pers. comm. with Moazzam Khan Ex. Director General Marine Fisheries Department of Pakistan). This fishery is prevalent along entire Pakistan coastline and comprises the major portion of its fishing fleet. It is very old fishing method in Pakistan and is still very popular but due to declining fishery fishers are moving to other jobs as well. Trawling is being undertaken in shallow as well as in deep sea areas of Exclusive Economic zone (EEZ) of Pakistan. There are about 1248 trawlers (16 meter and above in overall length) these boats are mainly based at Karachi. In Baluchistan coast, the trawling is not being used by the fishermen voluntarily. In the past from mid 80's till 2007, the entire trawling fleet was used to harvest shrimps; however, now due to over fishing the stock of shrimps has been

depleted and major portion of the fleet (about 90 %) has been converted from shrimp catching to fin fish catching methods. These boats are high opening pelagic trawl to catch Ribbon and other fish species. Besides, our shrimp trawling fishery has concerted into seasonal fishing activities and now less than 100 boats (from Baba, Bhit Islands and Korangi area) are engaged to harvest shrimp by using shrimp trawl net only during August and September each year. During remaining part of the year these small size boats use other fishing methods like high opening bottom trawls to catch fin fish, long lining and hand lining etc.

**b) Set gill nets:** ☒ YES ☐ NO

These are common in Pakistan particularly in the Indus delta creeks. Mortality of turtles is extremely rare however, these are notorious for being unselective in their catch and are among major culprits involved in killing of small fish and thus degradation of ecosystem. This can have drastic effect on the overall food web because if more and more small fish is being caught there will be no fish to eat for other predators. This practice is also very old and is still very popular particularly along Sindh coastline. Gill netting is used to harvest tropical Tunas in deeper waters as well as other pelagic species in the EEZ of Pakistan. The fleet using drift gill nets comprised of about 1748 boats of 16 meter and in overall length (Actual operation). The mesh size of gill net is about 150mm (stretched). The overall length of typical gill-netter is around 22 m having gross tonnage of 144. Gill-netters are being used in coastal waters to harvest bottom/demersal species. These boats are mainly based at Karachi and Ketu Bunder area on Sindh coast and Gwader, Jiwani, Ormara, Pusni and Sonmiani on Baluchistan coast. The gill net used by these gill netters is made of Poly amide (Nylon) continuous multi filament netting. Besides, small gill netters of less than 16 m in overall length are also using gill nets made up of monofilament polyamide (Nylon)/polyethylene (PE) material, with different mesh sizes ranging from 40mm(stretched) to 100mm (stretched). These nets are used to harvest the Indian Mackerel, Sole and varieties of bottom and pelagic species. Another fishing method being used by small scale fishermento catch shrimp is called "Thukri net". This net consists of 2 or 3 stripes with such a hanging ratio to allow the net to entangle the shrimp in the webbing.

**c) Anchored Fish Aggregating Devices (FADs):**

Not in knowledge

**d) Purse seine (with or without FADs):** ☒ YES ☐ NO

Purse-seine typed surrounding nets are being use by local fishing boats called "Katra" to catch small pelagic species (sardine, anchovies etc) in the shallow coastal waters. The maximum overall length of the boat is not more then 12 meters. The net is without purse-line and bottom line is being hauled on board by fishermen manually.

**e) Longline (shallow or deepset):** ☒ YES ☐ NO

This gear is common along the coastline of Pakistan both in shallow and deep waters and mortality of dolphins and turtle is sometime reported. This is common along both the Sindh and the Balochistan coast of Pakistan. Only small scale fishing boats are being use to undertake longlining in shallow waters to harvest demersal / pelagic species mainly mackerel, red snappers etc. The small hooks are being used by these boats and duration of one trip is from 01-05 days. In Pakistan no long lining for tuna & tuna like species or other large pelagic species is used. As regards high sea fisheries, It is informed that Pakistani fleet consist on only small scale fishing methods being employed in shallow coastal waters and we do not have purse-seiners or tuna long liners to operate in the high seas. However, only few gill netters using drifting are operating in the high sea to catch tuna & tuna like species and there is no any report of interaction of these nets with marine turtles.

**f) Driftnet:** ☒ YES ☐ NO

Drift nets are common in form of gillnets and widely used along Pakistan coast. Dolphin and turtles mortalities are reported in this gear.

***g) Other1:***

***h) Other2:***

☐ **None of the above**

**1.4.2 Please indicate the relative level of **fishing effort** and **perceived impact** of each of the above fisheries on marine turtles (e.g. in terms of by-catch). [TSH]**

***a) Shrimp trawls***

**Fishing effort:**

☐ RELATIVELY HIGH ☒ **MODERATE** ☐ RELATIVELY LOW ☐ NONE ☐ UNKNOWN

**Perceived Impact:**

☐ RELATIVELY HIGH ☐ MODERATE ☒ **RELATIVELY LOW** ☐ NONE ☐ UNKNOWN

Source: Pers. communication with Shaukat Hussin, Director General, Marine Fisheries Department, Government of Pakistan.

***b) Set gill nets***

**Fishing effort:**

☐ RELATIVELY HIGH ☒ **MODERATE** ☐ RELATIVELY LOW ☐ NONE ☐ UNKNOWN

**Perceived Impact:**

☐ RELATIVELY HIGH ☒ **MODERATE** ☐ RELATIVELY LOW ☐ NONE ☐ UNKNOWN

Source: Pers. observation of the author

***c) Anchored Fish Aggregating Devices (FADs)***

**Fishing effort:**

☐ RELATIVELY HIGH ☐ MODERATE ☐ RELATIVELY LOW ☐ NONE ☒ **UNKNOWN**

**Perceived Impact:**

☐ RELATIVELY HIGH ☐ MODERATE ☐ RELATIVELY LOW ☐ NONE ☒ **UNKNOWN**

Source:

***d) Purse seine (with or without FADs)***

**Fishing effort:**

☐ RELATIVELY HIGH ☐ MODERATE ☒ **RELATIVELY LOW** ☐ NONE ☐ UNKNOWN

**Perceived Impact:**

☐ RELATIVELY HIGH ☐ MODERATE ☐ RELATIVELY LOW ☒ **NONE** ☐ UNKNOWN

Source: Pers. observation of the author

***e) Longline (shallow or deepset)***

**Fishing effort:**

☐ RELATIVELY HIGH ☐ MODERATE ☒ **RELATIVELY LOW** ☐ NONE ☐ UNKNOWN

**Perceived Impact:**

☐ RELATIVELY HIGH ☐ MODERATE ☐ RELATIVELY LOW ☒ **NONE** ☐ UNKNOWN

Source: Pers. communication with Shaukat Hussain, Director General Marine Fisheries Department of Pakistan.

***f) Driftnet***

**Fishing effort:**

☐ RELATIVELY HIGH ☒ **MODERATE** ☐ RELATIVELY LOW ☐ NONE ☐ UNKNOWN

**Perceived Impact:**

☐ RELATIVELY HIGH ☐ MODERATE ☐ RELATIVELY LOW ☐ NONE ☒ **UNKNOWN**

Source: Little is known based on anecdotal records and sporadic fisher inputs? Details required.

***g) Other1 (from 1.4.1):***

**Fishing effort:**

☐ RELATIVELY HIGH ☐ MODERATE ☐ RELATIVELY LOW ☐ NONE ☐ UNKNOWN

**Perceived Impact:**

☐ RELATIVELY HIGH ☐ MODERATE ☐ RELATIVELY LOW ☐ NONE ☐ UNKNOWN

Source:

***h) Other2 (from 1.4.1):***

**Fishing effort:**

☐ RELATIVELY HIGH ☐ MODERATE ☐ RELATIVELY LOW ☐ NONE ☐ UNKNOWN

**Perceived Impact:**

☐ RELATIVELY HIGH ☐ MODERATE ☐ RELATIVELY LOW ☐ NONE ☐ UNKNOWN

Source:

**1.4.3 Describe any illegal fishing that is known to occur in or around the waters of your country that may impact marine turtles. Describe the measures being taken to deal with this problem and any difficulties encountered in this regard. [TSH]**

No any illegal fishing activity that may impact marine turtles, has been reported to occur in or around the waters of Pakistan. Major issues are use of extremely small mesh sized nets in Indus delta creeks and the Sindh coast, overfishing, long lengths of nets which are not according to the internationally accepted standards, increasing and unchecked fleet size, presence of sealords particularly in the Sindh province where the people whose lands have been intruded by sea think that

they have full rights on the waters where their lands used to be and use of illegal fishing methods.

Federal Marine Fisheries Department along with provincial fisheries departments i.e. Sindh Fisheries and Balochistan Fisheries have a consistent monitoring programme to find and apprehend these culprits and the practice is so wide spread particularly along the Sindh coast (which unfortunately is also the most favoured area for marine turtles) that despite these efforts these illegal activities continue. There is need of thorough monitoring system and strict law enforcement to deal with this important issue.

**1.4.4 Which of the following methods are used by your country to minimise incidental capture/mortality of marine turtles in fishing activities? [IND]**

a) **Appropriate handling** of incidentally caught turtles (e.g. resuscitation or release by fishers using equipment such as de-hooking, line cutting tools and scoop nets)

☒ **YES** ☐ NO ☐ NOT APPLICABLE

Some fishers are good at releasing trapped turtles however there is need to raise awareness in the fisher communities about importance of turtles.

b) **Devices that allow the escape of marine turtles** (e.g. turtle excluder devices (TEDs) or other measures that are comparable in effectiveness)

☒ **YES** ☐ NO ☐ NOT APPLICABLE

Use of TEDs is mandatory for all fishing boats. The federal and provincial authorities have assigned the task to the Maritime Security Agency for ensuring compliance of TEDs on all fishing boats in the sea.

In November 2010, IUCN Pakistan under its Balochistan Partnership for Sustainable Development Programme, organized a training workshop for fishermen on use of TEDs.

c) **Measures to avoid encirclement** of marine turtles in purse seine fisheries

☐ YES ☐ NO ☒ **NOT APPLICABLE**

d) **Appropriate combinations** of hook design, type of bait, depth, gear specifications and fishing practices

☐ YES ☐ NO ☒ **NOT APPLICABLE**

Not applicable since only small scale long lining and hand lining methods are used by small scale fishermen which does not have any impact on marine turtles.

e) **Monitoring and recovery of fish aggregating devices** (FADs)

☐ YES ☐ NO ☒ **NOT APPLICABLE**

Not applicable as no fish aggregating device is used.

f) **Net retention and recycling schemes**

☐ YES ☐ NO ☒ **NOT APPLICABLE**

g) **Spatial and temporal control of fishing** (e.g. seasonal closures of fishing activities)

☒ **YES** ☐ NO ☐ NOT APPLICABLE

A ban on fishing is applied during southwest monsoon season for two months but for some years this is not well implemented. Seasonal ban on shrimp fishing during the month of June and July every year.

h) **Effort management control**

☒ **YES** ☐ NO ☐ NOT APPLICABLE

Yes through stock assessment surveys, control of size of the fleet on different fishing activities, mesh size regulation (enacted already), landing size regulations under process.

☐ Other (list and explain):

☐ None of the above

**1.4.5 Which of the following programmes has your country developed - in consultation with the fishing industry and fisheries management organisations - to promote implementation of measures to minimise incidental capture and mortality of turtles in national waters and in the high seas? [IND]**

**Onboard observer programmes**

☒ **YES** ☐ NO ☐ NOT APPLICABLE

Only for foreign vessels, there are no observers on indigenous vessels. Yes, it is mandatory requirement as per provision of Deep Sea Fishing Policy to depute one observer from Marine Fisheries Department on each deep sea fishing vessel operating in the EEZ of Pakistan

**Vessel monitoring systems**

☒ **YES** ☐ NO ☐ NOT APPLICABLE

Limited in extent. Yes, each vessel is required to install satellite- based Vessel Monitoring System (VMS) on board. Now attempts are being made to extend this facility to all the fishing vessels having over all length of 16 meters and above.

**Inspections** (i.e. at sea, in port, at landing sites)

☒ **YES** ☐ NO ☐ NOT APPLICABLE

Limited in extent. Yes, Officer of Pakistan Maritime Security Agency have been authorized by Fisheries Department of Government of Sindh and Federal Government to act as Fishery Officers to inspect the fishing boats at sea. As regards inspections in ports/landing sites, the routine inspections of Marine Fisheries Department contains the aspects of conservation of marine turtles.

**Training programmes / workshops** to educate fishers



☒ **YES** ☐ NO ☐ NOT APPLICABLE

Marine Fisheries Department, Sindh Fisheries and Balochistan Fisheries Department , in collaboration with NGOs like WWF-Pakistan and IUCN Pakistan conduct fisher trainings for proper use of fishing gears and for training them to properly use new technologies including TEDs.

**Informative videos, brochures, printed guidelines** etc.

☒ **YES** ☐ NO ☐ NOT APPLICABLE

A lot of work has been done on this aspect by government and non-government organizations (NGOs).

**Other (list and explain):**

☐ YES ☐ NO ☐ NOT APPLICABLE

An assessment of interception of turtles with small scale trawling methods is being undertaken by Marine Fisheries Department and Sindh Wildlife Department.

☐ **None of the above**

**1.4.6 Are the mitigation measures described in 1.4.4 and 1.4.5, periodically reviewed and evaluated for their efficacy? [SAP]**

☒ **YES** ☐ NO ☐ UNSURE

**1.4.7 In your country, what types of data collection, research and development have been undertaken to support the reduction of marine turtle incidental catch (while taking into consideration the impact of various mitigation measures on other species)? [SAP]**

Sindh Wildlife Department in collaboration with NGOs have carried out some surveys of fishing practices in relation to turtle by-catch. But research on this issue is at preliminary stage. Experiment of different types TED design were undertaken by Marine Fisheries Department to ensure compliance to the international requirement. Stock assessment of EEZ of Pakistan is being undertaken by Marine Fisheries Department in collaboration with FAO. A considerable data has been collected the last survey will be carried out in October 2014, report will be compiled accordingly

**1.4.8 Has your country exchanged information and provided technical assistance (formally or informally) to other Signatory States to promote the activities described in 1.4.4, 1.4.5 and 1.4.7 above? [SAP]**

☒ **YES** ☐ NO ☐ UNSURE

Yes, Pakistan has exchange information with relevant department of USA and of her countries to promote the activities for protection of marine turtles

**1.4.9 What legislative and practical measures has your country taken in support of UN General Assembly Resolution 46/215 concerning the moratorium on the use of large-scale driftnets? [SAP]**

Maine Fisheries Department is complying with the relevant resolution. Pakistan has taken relevant practical measures in support of US General Assembly Resolution 46/215 concerning moratorium on use of large scale drift net. This includes conversion of drifting gill net into tuna long lining. In this connection a pilot project is being introduced to convert 10 gill netter to tuna long liner as demonstration boats. After that the entire fleet of 1748 gill netter (operational ) will be converted into tuna long lining stage by stage by the boat owners of gill netter on their own expenses. The training is being provided to the fishermen of local gill netter to use the drifting gill net having length of not more than 2.5 km. Normally all the gill netter are using the gill net which is less than 2.5 km except some large vessels. However, they are being strictly monitored during port/ sea inspection. Following three main points may be considered. 1 Conversion from gill netting to Tuna long lining 2 Training 3 Monitoring at sea and port 4 Legislation is under process

**1.5.1 Does your country have legislation to prohibit direct harvest and domestic trade in marine turtles, their eggs, parts and products; and to protect important turtle habitats? [IND]**

☒ **YES** ☐ **NO** ☐ **UNSURE**

Marine turtles are "Protected" under Sindh Wildlife Protection Act 1972 and Balochistan Wildlife Protection Act 1975. Export and domestic consumption of turtles is prohibited under the Pakistan Fish Inspection and Quality Act 1997. Therefore the use or sale of marine turtles and their products is banned across the country. Pakistan is also a signatory to CITES (Convention on International Trade in Endangered Species) since 1976, the export or import or any traded in marine turtles or their products is prohibited and there is neither direct harvest nor domestic trade in turtles, their eggs, parts and products.

**1.5.2 Which, among the following list, are economic uses and cultural values of marine turtles in your country? Please rate the relative prevalence / importance of each consumptive or non-consumptive use. [INF]**

**USES /  
VALUES**

**Meat consumption**

☐ **YES** ☒ **NO**

**RELATIVE PREVALENCE /  
IMPORTANCE**

☐ **HIGH** ☐ **MODERATE** ☐ **LOW** ☐ **UNKNOWN**

**Egg consumption**

☐ **YES** ☒ **NO**

☐ **HIGH** ☐ **MODERATE** ☐ **LOW** ☐ **UNKNOWN**

**Shell products**

☐ **YES** ☒ **NO**

☐ **HIGH** ☐ **MODERATE** ☐ **LOW** ☐ **UNKNOWN**

**Fat consumption**

☐ **YES** ☒ **NO**

☐ **HIGH** ☐ **MODERATE** ☐ **LOW** ☐ **UNKNOWN**

**Traditional medicine**

☐ YES ☒ NO

☐ HIGH ☐ MODERATE ☐ LOW ☐ UNKNOWN

#### Eco-tourism programmes

☒ YES ☐ NO

☐ HIGH ☐ MODERATE ☒ LOW ☐ UNKNOWN

#### Cultural / traditional significance

☐ YES ☒ NO

☐ HIGH ☐ MODERATE ☐ LOW ☐ UNKNOWN

#### Other

Not relevant, eco-tourism is at an early stage.

#### 1.5.3 Please indicate the relative level and impact of traditional harvest on marine turtles and their eggs. [IND, TSH]

##### Level of harvest:

☐ RELATIVELY HIGH ☐ MODERATE ☐ RELATIVELY LOW ☒ NONE ☐ UNKNOWN

##### Impact of harvest:

☐ RELATIVELY HIGH ☐ MODERATE ☐ RELATIVELY LOW ☒ NONE ☐ UNKNOWN

Source of information:

N/A

#### 1.5.4 Have any domestic management programmes been established to limit the levels of intentional harvest? [SAP]

☐ YES ☒ NO ☐ UNKNOWN

N/A

#### 1.5.5 Describe any management agreements negotiated between your country and other States in relation to sustainable levels of traditional harvest, to ensure that such harvest does not undermine conservation efforts. [BPR]

No agreement has been signed.

#### 1.6.1 First, select one of the options at left to indicate whether or not your country has any of the following measures in place to minimise the mortality of eggs, hatchlings and nesting females. If yes, then estimate the relative effectiveness of these measures. [IND, SAP]

## MEASURES

## RELATIVE EFFECTIVENESS

### Monitoring/protection programmes

☒ **YES** ☐ NO ☐ N/A

☐ EXCELLENT ☒ **GOOD** ☐ LOW ☐ UNKNOWN

Patrolling on nesting beaches at Sandspit , Hawkes Bay and Jiwani with watch and Ward program and strict vigilance to protect turtles, their eggs and hatchlings from predators.

### Education/awareness programmes

☒ **YES** ☐ NO ☐ N/A

☐ EXCELLENT ☒ **GOOD** ☐ LOW ☐ UNKNOWN

WWF Pakistan with the co-operation from Sindh Wildlife Department established a Wetlands Centre at Sandspit Karachi where permanent staff is placed for providing information to general public about local ecosystems and wildlife. People from all sections of society visit this place and get information about local environment and its features. Special activities such as beach cleaning, turtle watching, release of turtle hatchlings is carried out from this centre. People usually leave this place feeling more motivated for conservation of local environment and associated wildlife. The activities are carried out year round and local fisher communities also get economic benefit as well as education about marine environment. Sindh Wildlife Department, Government of Sindh established Marine Turtle Laboratory at Hawkes Bay, Turtle Beach, Karachi for research, education and awareness. Guided Tours to nesting beaches are also organized by Sindh Wildlife Department to raise public awareness and education. Likewise seminars, workshops, conferences lectures, presentation have also been conducted by the department.

### Egg relocation/hatcheries

☒ **YES** ☐ NO ☐ N/A

☐ EXCELLENT ☒ **GOOD** ☐ LOW ☐ UNKNOWN

Sindh Wildlife Department has been engaged in this activity for the last 34 years eggs are safely transferred to the hatcheries and hatchlings on emergence are safely released into the sea protecting them from poachers and land predators. There are three turtle hatcheries ( Two at Sandspit and one at Hawkes Bay), with a capacity of 200 nests (small cages) in each

### Predator control

☒ **YES** ☐ NO ☐ N/A

☐ EXCELLENT ☐ GOOD ☒ **LOW** ☐ UNKNOWN

- Sindh Wildlife Department established hatcheries at Sandspit and Hawkes Bay for protection of turtle eggs and hatchlings from predators such as feral dogs, crows, kites ,eagles, seagulls, and ghost crabs. Safety wall has been constructed to restrict the hatchlings moving on the road and sometimes stranded in the marshy area opposite to the nesting beach. Hatchlings from outside the enclosure or hatcheries are also collected during patrolling at night and released safely to the sea. Hatchlings usually emerge at night and released at night to protect them from predators.
- Pakistan Wetlands Programme has involved communities of Daran beach, Balochistan to control predation on turtle nests.
- Pakistan Wetlands Programme has undertaken activities in collaboration with locals to control feral cats at Astola Island which is important nesting area for the turtles.

### Vehicle / access restrictions

☒ **YES** ☐ NO ☐ N/A

☐ EXCELLENT ☐ GOOD ☒ **LOW** ☐ UNKNOWN

In addition, there is generally no restriction on visiting beaches (apart from some areas where access is restricted).

### Removal of debris / clean-up

☒ **YES** ☐ NO ☐ N/A

☐ EXCELLENT ☒ **GOOD** ☐ LOW ☐ UNKNOWN

Beach cleaning activities are undertaken by the wildlife authorities of Sindh and Balochistan in collaboration with Pakistan Wetlands Programme and NGOs, like WWF-Pakistan, IUCN-Pakistan etc. A part from beach cleaning activities, dust bins have been provided on the nesting beach in front of visitor huts by Hino Pak Ltd, for collection of garbage and City District Government is responsible for proper disposal of garbage from these dust bins. • City District Government and Manora cantonment Board also look after the debris of old huts on beach and its proper removal from the turtle nesting beach.

#### **Re-vegetation of frontal dunes**

☐ YES ☒ **NO** ☐ N/A

☐ EXCELLENT ☐ GOOD ☐ LOW ☐ UNKNOWN

Balochistan Forest Department has implemented the Sand Dune Stabilization Project. The target species were not marine turtles, however, they have benefited from this project.

#### **Building location/design regulations**

☐ YES ☒ **NO** ☐ N/A

☐ EXCELLENT ☐ GOOD ☐ LOW ☐ UNKNOWN

#### **Light pollution reduction**

☒ **YES** ☐ NO ☐ N/A

☐ EXCELLENT ☒ **GOOD** ☐ LOW ☐ UNKNOWN

#### **Other (list and rate them)**

☐ YES ☐ NO ☐ N/A

#### **1.6.2 Has your country undertaken any evaluation of its nest and beach management programmes? [\[SAP\]](#)**

☒ **YES** ☐ NO ☐ NOT APPLICABLE

During 2013, evaluation was conducted at Sandspit and Hawkes Bay turtle beaches along Karachi coast by Conservator Wildlife, Sindh Wildlife Department.

### **OBJECTIVE II. PROTECT, CONSERVE AND REHABILITATE MARINE TURTLE HABITATS**

#### **2.1.1 What is being done to protect critical habitats *outside* of established protected areas? (NB: It is assumed that legislation relating to established protected areas will have been described in Section 1.5.1) [\[BPR, SAP\]](#)**

Pakistan Wetlands Programme has been interacted with the local communities for mass awareness and environmental friendly practices. Alternate livelihood practices are being promoted to reduce pressure from natural resources. In addition, WWF has their programmes of community participation and mass awareness. Sindh Wildlife Department also engaged local community people in conservation of marine turtles and their habitat. Provincial Wildlife Department along with NGOs like WWF Pakistan, IUCN Pakistan and Shehri CBO. mobilized local communities for mass awareness Through environmental friendly practices. Some alternate give hood practices have been introduced in the communities to reduce pressure from natural resources. Coastal areas along Baluchistan covering sonmiani -----Jiwani along Karachi and Sindh are covered

where effective measure have been taken award some livelihood to the communities

**2.1.2 Are assessments routinely made of the environmental impact of marine and coastal development on marine turtles and their habitats? [IND, SAP]**

☒ YES ☐ NO ☐ NOT APPLICABLE

EIA for all mega projects in environmentally sensitive areas including marine environment is obligatory under the Pakistan Environmental Protection Act 1997. Examples of EIA of mega projects. 1- Environmental Impact Assessment (EIA) for proposed 110-120 MV coal Fired power plant at Bin Qasim. 2- Environmental Imp Ass. (EIA) of proposed Extension Project of Indus Hospital in Korangi Crossing Karachi. 3- Environmental and Social Impact Assessment study of Pakistan Floating LNG import Termical project at sonmiani Bay Baluchistan

**2.1.3 Is marine water quality (including marine debris) monitored near turtle habitats? If yes, describe the nature of this monitoring and any remedial measures that may have been taken. [SAP]**

☒ YES ☐ NO ☐ NOT APPLICABLE

National Institute of Oceanography (NIO) monitors the water quality of the Arabian Sea. As such, no issue has been pointed out except for occasional oil spills like Tasman Spirit case near Karachi. Occasionally University of Karachi collect water samples for analysing the pollutants and other hazardous chemicals to see the impact of pollution on marine fauna and flora including marine turtles. Occasionally Marine Pollution due Oil Spill or some other factor is specially identified and water is analysed for impact of pollution on marine life particularly the marine turtles

**2.1.4 Are measures in place to prohibit the use of poisonous chemicals and explosives? [SAP]**

☒ YES ☐ NO ☐ NOT APPLICABLE

Pakistan Environmental Protection Act (PEPA) 1997 prohibits the use of poisonous chemicals and explosives. The provincial Environmental Protection Agencies of Sindh and Balochistan ensure the implementation PEPA in their respective territories. Provincial Environmental Protection Agency in Sindh and Balochistan kindly Pakistan Environmental Protecting Agency (PEPA) Prohibits the use of poisonous chemicals and explosive and provincial Environmental protection agencies ensure the implementation of PEPA in their respective territories,

**2.2.1 Are efforts being made to recover degraded coral reefs? If yes, give details (location, duration, effectiveness, lessons learned, future plans etc). [IND, SAP]**

☒ YES ☐ NO ☐ NOT APPLICABLE (no degraded coral reefs)

Coral reefs have recently been identified in territorial limits of Pakistan under an activity of Pakistan Wetlands Programme. The identified site is now being extensively surveyed. A Project on "Environmental Education activities with reference to Coral and Coral Reefs in Jiwani Gwater Bay-Baluchistan-Pakistan coastal area was implemented by Sindh Wildlife Department with the financial assistance of UNSP, GPA from July to November 2008 with the following main objectives: 1 Education of masses through print and electronic media to raise awareness of the importance of coral reefs 2 Production of a documentary on coral and coral reefs 3 Exchange of information with other IOSEA countries 4 Involvement of local communities in field activities

**2.2.2 Are efforts being made to recover degraded mangrove habitats that are important for turtles? If yes, give details (location, duration, effectiveness, lessons learned, future plans etc.) [IND, SAP]**

☒ **YES** ☐ **NO** ☐ **NOT APPLICABLE** (no mangrove habitats important for turtles)

During the last 5 years mangroves have been replanted in Sindh and Balochistan provinces. Mangrove replanting has been encouraged to increase nursery grounds for fish and shrimp stocks and other ecological benefits. In addition to Government initiatives, WWF and IUCN Pakistan are also very active in this regard.

**2.2.3 Are efforts being made to recover degraded sea grass habitats? If yes, give details (location, duration, effectiveness, lessons learned, future plans etc.). [IND, SAP]**

☐ **YES** ☒ **NO** ☐ **NOT APPLICABLE** (no degraded sea grass habitats)

Such habitat type is under search by the Pakistan Wetlands Programme.

**OBJECTIVE III. IMPROVE UNDERSTANDING OF MARINE TURTLE ECOLOGY AND POPULATIONS THROUGH RESEARCH, MONITORING AND INFORMATION EXCHANGE**

**3.1.1 Give a list of available literature that includes baseline information from studies carried out in your country on marine turtle populations and their habitats. [INF]**

- 1) GHALIB, S.A. AND ZAIDI, S.H., 1976 Observation on the survey and breeding of Marine Turtles of Karachi coast. Agric. Pak., 27: 87 – 96.
- 2) GROOMBRIDGE, B., 1987a. Makran Coast: a newly explored habitat for marine turtles. WWF–Pakistan Newsl., 6: 1–5.
- 3) GROOMBRIDGE, B., 1987b. A preliminary marine turtle survey on the Makran coast, Baluchistan, Pakistan with notes on birds and mammals. IUCN Conservation Monitoring Centre, Cambridge (Unpublished report) 25 pp.
- 4) GROOMBRIDGE, B., KABRAJI, A.M. AND RAO, A.L., 1988. Marine Turtle in Baluchistan (Pakistan). Marine Turtle Newsl., 42: 1–3.
- 5) FIRDOUS, F. 1988 Conservation of turtles at Sandspit and Hawkesbay, Karachi. In: Proc. Int. Conf. on Marine Sciences of the Arabian Sea (eds. M.F. Thompson and N.M. Tirmizi), American Institute of Biological Sciences, Washington D.C: pp. 217–222.
- 6) GROOMBRIDGE, B., 1989. Marine turtles in Balochistan: Report on Aerial Survey, 9–11 September 1988 with notes on wetland sites and a proposed marine turtle Conservation project. World Conservation Monitoring Centre, Cambridge. Unpublished report. 22 pp.
- 7) FIRDOUS, F., 2001 Sea Turtle Conservation and Education in Karachi, Pakistan. ASEAN. In: Sea turtles of the Indo-Pacific (eds. N.J. Pitcher and G. Ismail) Rev. Biodiv. Environ. Conserv. (ARBEC) pp. 1–10.
- 8) ARSHAD, M., ALI, Z., MAHMOOD, H. AND MUZAFFAR, M., 2002. Makran Coastal Wetlands Complex – A preliminary biological assessment, WWF, Pakistan. pp. 60 (Unpublished report)
- 9) FIRDOUS, F., 2003 Some aspects of bioecological studies of green turtle (*Chelonia mydas*) and Olive Ridley Turtle (*Lepidochelys olivacea*) from Karachi Coast. Ph.D. thesis, Karachi University.
- 10) WWF – Pakistan 2004 Rapid Rural Appraisal – Tehsil Jiwani (Unpublished report)
- 11) Hussain, B. 2010. Studies on population, status, distribution, and environmental impacts on reptiles in the vicinity of Karachi coast. PhD thesis. University of Karachi. Pakistan.
- 12) WAQAS, U., HASNAIN, S. A., AHMAD, E., ABBASI, M. and PANDRANI, A. 2011. Conservation of Green Turtle (*Chelonia mydas*) at Daran Beach, Jiwani, Balochistan. Pakistan J. Zool., vol. 43(1), pp. 85-90.). 13) Firdous, F., Barkati, S. & Rahman, S., 2009. Hatching and rearing of two species of marine turtles from Karachi, Pakistan. Rec. Zool. Surv. Pakistan, 19-01-07. 14) Firdous, F., 2009 Conservation of Marine Turtles at Sandspit and Hawkes Bay Karachi, Proc. Sem. Trans

Boundary Coastal and Marine Protected Areas with Special priorities for Spawning Grounds, prepared by Zoological Survey Department, Ministry of Environment, Government of Pakistan, Islamabad, 61-66. 15) Firdous, F., 2009, Environmental Education with reference to Coral and Coral Reefs at Jiwani (Gwater Bay), Pakistan, Proc. Sem. Trans Boundary Coastal and Marine Protected Areas with Special priorities for Spawning Grounds, prepared by Zoological Survey Department, Ministry of Environment, Government of Pakistan, Islamabad, 86-90. 16) Firdous, F., Barkati, S. & Rahman, S., 2010. Studies on nesting and tagging of two species of marine turtles of Karachi coast. Pakistan J. Oceanography.6 (1): 1-14. 17) Firdous, F., Rahman, S. & Barkati, S., 2011. The Nesting Dynamics of Sea Turtle at Karachi Coast. Pakistan International J. Biol. & Biotechnology, 8(4):495-504. 18) Firdous, F., Barkati, S. & Rahman, S., 2011 Studies on transplantation of marine turtles at Karachi Coast, Pakistan Journal of Science & Industrial Research, ser. B: Biol. Sci., Vol. 54(1):29-33. 19) Barkati, S., Firdous, F. & Rahman, S., 2011. Tagging and recovery of marine turtles from the coast of Karachi. LAP LAMBERT Academic Publishing GmbH & Co. KG, ISBN 978-3- 8454-7339-0: 96 pages.

**3.1.2 Have long-term monitoring programmes (i.e. of at least 10 years duration) been initiated or planned for priority marine turtle populations frequenting the territory of your country? [IND, BPR]**

☒ YES ☐ NO ☐ UNSURE

A long term monitoring programme for green turtles is underway at the Sandspit and Hakesbay beaches of the Sindh coast. This programme is being run by Sindh Wildlife Department for the last 34 years. This programme aims to provide better protection to female turtles coming on these beaches, reducing the number of stressors and predators, patrolling and safeguarding turtle nesting beaches, nests and hatchlings, local community awareness raising, beach cleaning activities and safe release of hatchlings after hatching.

A similar programme is also being carried out at Daran beach of the Balochistan coast where green turtles are taken care of that come for egg laying. There have been no breaks in data collection since these programmes started and it is now regular feature to collect yearly data about turtles coming for nesting, counting number of nests and number of hatchlings released.

**3.1.3 Has the genetic identity of marine turtle populations in your country been characterised? [INF, PRI]**

☐ YES ☒ NO ☐ UNSURE

NIL

**3.1.4 Which of the following methods have been or are being used to try to identify migration routes of turtles? Use the text boxes to provide additional details. [INF, PRI]**

**Tagging** ☒ YES ☐ NO

Sindh Wildlife Department tags selected females visiting beaches for nesting. A total of 7944 turtles including 7898 green and 46 olive ridley were tagged during the period from 1982 to 2013 at Sandspit and Hawkes Bay. Whereas 18 green turtle were tagged at Daharan Turtle Beach- Baluchistan during 2008, (Ref: Presentation by Abdul Rahim, Coordinator, WWF Pakistan-Baluchistan Office, Gwadar, March 2014)

**Satellite tracking** ☒ YES ☐ NO

Sindh Wildlife Department and WWF-Pakistan in collaboration with Environmental Research and Wildlife Agency (ERWDA) Abu Dhabi have carried out such activity (but at limited scale). Only four green turtles were affixed with satellite transmitters on the same beaches. Two during 2001 and two during 2006. Whereas 6 green turtles at Dahran and 2 at Astola Island along Baluchistan coast have been affixed with satellite transmitters during the year 2007-08.(Ref: Presentation by Abdul Rahim, Coordinator, WWF Pakistan-Baluchistan Office, Gwadar, March 2014)



☐ Other

☐ None of the above

**3.1.5 Have studies been carried out on marine turtle population dynamics and survival rates (e.g. including studies into the survival rates of incidentally caught and released turtles)?** [INF, PRI]

☐ YES ☒ NO ☐ UNSURE

**3.1.6 Has research been conducted on the frequency and pathology of diseases in marine turtles?** [INF, PRI]

☐ YES ☒ NO ☐ UNSURE

**3.1.7 Is the use of traditional ecological knowledge in research studies being promoted?** [BPR, PRI]

☒ YES ☐ NO ☐ UNSURE

Yes, up to some extent only in one or two recent publications i.e. Hussain (2010) and Waqas et al., (2011). This area need to be improved in upcoming studies.

**3.2.1 List any regional or sub-regional action plans in which your country is already participating, which may serve the purpose of identifying priority research and monitoring needs.** [INF]

Nil

**3.2.2 On which of the following themes have collaborative studies and monitoring been conducted? Use the text boxes to describe the nature of this international collaboration or to clarify your response. Answer 'NO' if the studies/monitoring undertaken do not involve international collaboration.** [INF, PRI]

**a) Genetic Identity** ☐ YES ☒ NO ☐ NOT APPLICABLE

**b) Conservation status** ☒ YES ☐ NO ☐ NOT APPLICABLE

Sindh and Balochistan Governments undertake conservation efforts in collaboration with the Federal Government.

**c) Migrations** ☒ YES ☐ NO ☐ NOT APPLICABLE

Marine turtles are tagged to monitor the migration pattern.

**d) Other biological and ecological aspects**

☒ **YES** ☐ NO ☐ NOT APPLICABLE

There is a growing trend to collaborate with the neighbouring countries, to share the experiences of biological and ecological studies under the umbrella of different conventions and United Nations agencies.

☐ **Other**

**3.3.1 List, in order of priority, the marine turtle populations in your country in need of conservation actions, and indicate their population trends. [PRI]**

Priority sites /locations in Sindh province: Hawks bay & Sandspit.

Priority sites /locations in Balochistan province: Omara Turtle Beaches, Jiwani Turtle Beaches, Hingol National Park Beaches and Astola Island

Population trend: Green turtle is more common and its population has shown a stable trend for past many years though it is presently facing a multitude of threats along the coast of Pakistan. On the other hand olive ridley has not been spotted since 2004 (Hussain, 2010). Green turtle nesting is observed throughout the year (Firdous, 2003). and Olive ridley was witnessed during March to October (Firdous, 2003)

**3.3.2 Are research and monitoring activities, such as those described above in Section 3.1 periodically reviewed and evaluated for their efficacy? [SAP]**

☒ **YES** ☐ NO ☐ UNSURE

Sindh Wildlife Department review the research and monitoring activities as and when required.

**3.3.3 Describe how research results are being applied to improve management practices and mitigation of threats (in relation to the priority populations identified in 3.3.1, among others). [SAP]**

Research results are being used to improve the efficacy of conservation actions through assessment of hatchery management practices and assessment of habitat loss. Data collected from turtle hatcheries established for protection of eggs and hatchlings is checked and reviewed by the concerned authority and if required changes have been made in methodology of hatcher management practice accordingly.

**3.4.1 Has your country undertaken any initiatives (nationally or through collaboration with other Range States) to standardise methods and levels of data collection? [BPR, INF]**

☐ YES ☒ **NO** ☐ UNSURE

**3.4.2 To what extent does your country exchange scientific and technical information and expertise with other Range States? [SAP, IND]**

☐ OFTEN (SYSTEMATICALLY) ☒ **OCCASIONALLY** ☐ RARELY ☐ NEVER

**3.4.3 If your country shares scientific and technical information and expertise with other Range States, what mechanisms have commonly been used for this purpose? Comment on any positive benefits/outcomes achieved through these interactions. [INF]**

Through sharing published materials. Exchange information through Question air regarding Marine Turtle information like Indian Turtle News letter

**3.4.4 Does your country compile and make available to other countries data on marine turtle populations of a regional interest? [INF]**

☐ YES ☒ NO ☐ UNSURE

## **OBJECTIVE IV. INCREASE PUBLIC AWARENESS OF THE THREATS TO MARINE TURTLES AND THEIR HABITATS, AND ENHANCE PUBLIC PARTICIPATION IN CONSERVATION ACTIVITIES**

**4.1.1 Describe the educational materials, including mass media information programmes that your country has collected, developed and/or disseminated. [INF, PRI]**

Posters, radio, TV awareness campaigns (marine turtle identification, ecology, threats, nesting beach protocol) targeted at coastal communities are carried out by the Provincial Wildlife Department in Sindh Province. Ongoing school trips to nesting sites to enhance awareness at grass root levels.

A programme was developed and implemented by the Sindh Wildlife Department in the form of brochures and posters.

Ministry of Environment has its own website.

Newsletters include: Zoological Records published by the Zoological Survey Department and WWF and IUCN- Pakistan newsletters and websites.

2006 as year of the turtle (YoT) was also celebrated in Pakistan with financial assistance of IOSEA, mainly based on education and awayness for turtle conservation. slickers posters and T-Shirts have been developed for distribution in public and students Articles on Turtle proctction and conservation in English, Urdu and Sindhi are written in various magazine and journals. Education material was preduced in a limited exantly and needs to be developed more with some new deas and themes as the material is very popular and useful for students, there is a need to publish a quarterly news titter specifically and exclusively on marine turtles.

**4.1.2 Which of the following groups have been the targets of these focused education and awareness programmes described in above in Section 4.1.1? [PRI, INF]**

- ☒ Policy makers
- ☒ Fishing industry
- ☒ Local/Fishing communities
- ☒ Indigenous groups
- ☒ Tourists
- ☒ Media
- ☒ Teachers
- ☒ Students
- ☒ Military, Navy, Police
- ☒ Scientists
- ☒ Other:Foreign delegates and tourists.
- ☐ None of the above

The school children are encouraged to visit the information centre established by WWF-Pakistan and also to undertake beach clean up activities to educate them in nature conservation issues. Specific intervention is required for school students, fishing communities, and policy makers.

#### **4.1.3 Have any community learning / information centres been established in your country? [BPR, SAP]**

☒ **YES** ☐ **NO**

WWF Pakistan with the co-operation from Sindh Wildlife Department established a Wetlands Centre at Sandspit Karachi where permanent staff is placed for providing information to general public about local ecosystems and wildlife. People from all sections of society visit this place and get information about local environment and its features. Special activities such as beach cleaning, turtle watching, release of turtle hatchlings is carried out by Sindh Wildlife Department. People usually leave this place feeling more motivated for conservation of local environment and associated wildlife. The activities are carried out year round and local fisher communities also get economic benefit as well as education about marine environment.

#### **4.2 Alternative livelihood opportunities [IND, BPR] Describe initiatives already undertaken or planned to identify and facilitate alternative livelihoods (including income-generating activities) for local communities.**

Turtle, bird and dolphin watching activities are carried out from the WWF Wetlands centre at Sandspit, Karachi and in all these activities local fisher communities are involved in order to help them economically through these alternative livelihood programmes. Turtle and bird watching is well established and hundreds of people come and join these activities year round however dolphin watching ecotourism is still in infancy but the response from general public is overwhelming.

Due to the concern about people security in sea and also to minimize disturbance to dolphins this activity is carried out at small scale and will be slowly built based on experience gained through these pilot trips. There are lot of challenges that come in the way of development of such enterprises which include lack of infrastructure, lack of skilled people, uneducated and poor fishers. These need to be addressed properly if such enterprises are to be developed. There is also need to expand this effort to other segments of the coastline to benefit greater fisher communities.

#### **4.3.1 Describe initiatives already undertaken or planned by your country to involve local communities, in particular, in the planning and implementation of marine turtle conservation programmes. Please include details of any incentives that have been used to encourage public participation, and indicate their efficacy. [BPR, IND]**

Recently stakeholder dialogue has been initiated by SWD with the support of WWF Pakistan and IUCN. Through these dialogues, local knowledge of marine and coastal ecosystems can be gained, and potential opportunities of how communities can be involved in protection and management can be explored.

#### **4.3.2 Describe initiatives already undertaken or planned to involve and encourage the cooperation of Government institutions, NGOs and the private sector in marine turtle conservation programmes. [IND, BPR]**

Office of the Conservator Wildlife, Disaster Management Division (previously National Council for Conservation of Wildlife (NCCW), Ministry of Environment) is trying to involve provincial wildlife departments in undertaking such initiatives with the collaboration of local and international NGOs.

A Wetlands Management Committee has also been created for better coordination among the line agencies. This office also coordinates with various ministries, provinces, NGOs and other agencies for cooperation on issues related to biodiversity conservation (including marine turtles).

## **OBJECTIVE V. ENHANCE NATIONAL, REGIONAL AND INTERNATIONAL COOPERATION**

**5.1.1 Has your country undertaken a national review of its compliance with Convention on International Trade in Endangered Species (CITES) obligations in relation to marine turtles? [SAP]**

☐ YES ☒ NO ☐ NOT APPLICABLE

**5.1.2 Does your country have, or participate/cooperate in, CITES training programmes for relevant authorities? [SAP]**

☒ YES ☐ NO ☐ NOT APPLICABLE

As a Party to the Convention, Pakistan actively participate in all relevant training workshops/programmes.

**5.1.3 Does your country have in place mechanisms to identify international illegal trade routes (for marine turtle products etc.)? Please use the text box to elaborate on how your country is cooperating with other States to prevent/deter/eliminate illegal trade. [SAP]**

☒ YES ☐ NO ☐ NOT APPLICABLE

Such information is provided by the CITES Secretariat and TRAFFIC international through their newsletters and circulars. NGOs also play a role in this regard and undertake different studies to monitor illegal trade and its routes.

**5.1.4 Which international compliance and trade issues related to marine turtles has your country raised for discussion (e.g. through the IOSEA MoU Secretariat, at meetings of Signatory States etc.)? [INF]**

None

**5.1.5 Describe measures in place to prevent, deter and eliminate domestic illegal trade in marine turtle products, particularly with a view to enforcing the legislation identified in Section 1.5.1. [INF]**

Legislation: Wildlife Protection Acts impose a complete ban on domestic and international trade in marine turtles and their products. The Marine Fisheries Department and Coast Guard are responsible for monitoring compliance.

Education and awareness programmes targeted at coastal communities are aimed at preventing illegal trade.

**5.2.1 Has your country already developed a national action plan or a set of key management measures that could eventually serve as a basis for a more specific action plan at a national level? [IND]**

☒ YES ☐ NO

- Strategic Plan for Conservation of Marine Turtles in Pakistan is being finalized by IUCN Pakistan under its Balochistan Partnership for Sustainable Development Programme in consultation with all stakeholders. It will address all issues.
- The Biodiversity Action Plan of Pakistan will provide the basis for development of national turtle action plan.
- In addition to that, Pakistan Wetlands programme is in process of developing an action plan for the conservation of wildlife, including marine turtles which are of global significance.
- The National Conservation Strategy (NCS) of Pakistan has also been reviewed.

**5.2.2 From your country's perspective, which **conservation and management activities**, and/or which particular **sites or locations**, ought to be among the highest priorities for action? [PRI]**

Conservation and management activities:

- Conservation of critical habitats of marine turtles in the water and the land.
- Awareness raising, capacity building and changing behaviour.
- Research and monitoring.

Priority sites /locations in Sindh province: Hawks bay & Sandspit.

Priority sites /locations in Balochistan province: Omara Turtle Beaches, Jiwani Turtle Beaches, Hingol National Park Beaches and Astola Island.

**5.2.3 Please indicate, from your country's standpoint, the extent to which the following **local** management issues require **international** cooperation in order to to achieve progress. [PRI]**

<b>Illegal fishing in territorial waters</b>	<input checked="" type="checkbox"/> <b>ESSENTIAL</b> <input type="checkbox"/> IMPORTANT <input type="checkbox"/> LIMITED <input type="checkbox"/> NOT AT ALL
<b>Incidental capture by foreign fleets</b>	<input type="checkbox"/> ESSENTIAL <input type="checkbox"/> IMPORTANT <input checked="" type="checkbox"/> <b>LIMITED</b> <input type="checkbox"/> NOT AT ALL
<b>Enforcement/patrolling of territorial waters</b>	<input type="checkbox"/> ESSENTIAL <input type="checkbox"/> IMPORTANT <input type="checkbox"/> LIMITED <input checked="" type="checkbox"/> <b>NOT AT ALL</b>
<b>Hunting/harvest by neighboring countries</b>	<input type="checkbox"/> ESSENTIAL <input type="checkbox"/> IMPORTANT <input type="checkbox"/> LIMITED <input checked="" type="checkbox"/> <b>NOT AT ALL</b>
<b>Poaching, illegal trade in turtle projects</b>	<input type="checkbox"/> ESSENTIAL <input checked="" type="checkbox"/> <b>IMPORTANT</b> <input type="checkbox"/> LIMITED <input type="checkbox"/> NOT AT ALL
<b>Development of gear technology</b>	<input checked="" type="checkbox"/> <b>ESSENTIAL</b> <input type="checkbox"/> IMPORTANT <input type="checkbox"/> LIMITED <input type="checkbox"/> NOT AT ALL
<b>Oil spills, pollution, marine debris</b>	<input checked="" type="checkbox"/> <b>ESSENTIAL</b> <input type="checkbox"/> IMPORTANT <input type="checkbox"/> LIMITED <input type="checkbox"/> NOT AT ALL
<b>Training / capacity-building</b>	<input checked="" type="checkbox"/> <b>ESSENTIAL</b> <input type="checkbox"/> IMPORTANT <input type="checkbox"/> LIMITED <input type="checkbox"/> NOT AT ALL
<b>Alternative livelihood development</b>	<input type="checkbox"/> ESSENTIAL <input checked="" type="checkbox"/> <b>IMPORTANT</b> <input type="checkbox"/> LIMITED <input type="checkbox"/> NOT AT ALL
<b>Identification of turtle populations</b>	<input checked="" type="checkbox"/> <b>ESSENTIAL</b> <input type="checkbox"/> IMPORTANT <input type="checkbox"/> LIMITED <input type="checkbox"/> NOT AT ALL
<b>Identification of migration routes</b>	<input checked="" type="checkbox"/> <b>ESSENTIAL</b> <input type="checkbox"/> IMPORTANT <input type="checkbox"/> LIMITED <input type="checkbox"/> NOT AT ALL
<b>Tagging / satellite tracking</b>	<input checked="" type="checkbox"/> <b>ESSENTIAL</b> <input type="checkbox"/> IMPORTANT <input type="checkbox"/> LIMITED <input type="checkbox"/> NOT AT ALL
<b>Habitat studies</b>	<input type="checkbox"/> ESSENTIAL <input checked="" type="checkbox"/> <b>IMPORTANT</b> <input type="checkbox"/> LIMITED <input type="checkbox"/> NOT AT ALL
<b>Genetics studies</b>	<input checked="" type="checkbox"/> <b>ESSENTIAL</b> <input type="checkbox"/> IMPORTANT <input type="checkbox"/> LIMITED <input type="checkbox"/> NOT AT ALL

Nil

**5.3.1 Identify existing frameworks/organisations that are, or could be, useful mechanisms for cooperating in marine turtle conservation at the sub-regional level. Please comment on the strengths of these instruments, their capacity to take on a broader coordinating role, and any efforts your country has made to enhance their role in turtle conservation. [INF, BPR]**

Informally share information through electronic media (email, internet). Geopolitical situation does not permit the frequent exchange of information.

Participation in regional and global level meetings under various conventions has resulted in synergies with other agencies.

**5.3.2 Has your country developed, or is it participating in, any networks for cooperative management of shared turtle populations? [BPR, INF]**

☐ YES ☒ NO ☐ NOT APPLICABLE

**5.3.3 What steps has your country taken to encourage Regional Fishery Bodies (RFBs) to adopt marine turtle conservation measures within Exclusive Economic Zones (EEZs) and on the high seas? [SAP]**

Nil

**5.4.1 Describe your country's needs, in terms of human resources, knowledge and facilities, in order to build capacity to strengthen marine turtle conservation measures. [PRI]**

Training of the researchers to carry out tagging, tracking and genetic studies is important and needs international co-operation. Development of a local facility to conduct such activities is essential if Pakistan is to save its marine turtle fauna for future generations. Help from international turtle experts in dealing with incidental turtle capture in local fisheries and development of proper methods to minimize or preclude this issue will be really helpful. Pollution along some of the key turtle areas along Pakistan coast e.g. Karachi coast is rising which needs quick response from government and researchers. Skill development and training to carry out such research according to international standards is key for the betterment of turtle habitats in Pakistan and for marine environment in general. More funding (if made available) can do a lot of good for these turtle populations.

**5.4.2 Describe any training provided in marine turtle conservation and management techniques (e.g. workshops held, training manuals produced etc.), and indicate your plans for the coming year. [PRI, INF]**

- In February IUCN Pakistan under its Balochistan Partnership for Sustainable Development Programme, organized arranged a seminar to highlight marine turtles conservation issues at Karachi.
- In November 2010 IUCN Pakistan under its Balochistan Partnership for Sustainable Development Programme, organized a four-day workshop "Finalization of Strategic Plan for Conservation of Marine Turtles in Pakistan" at Karachi.
- In November 2010 IUCN Pakistan under its Balochistan Partnership for Sustainable Development Programme, organized a training workshop for fishermen on use of TEDs.

**5.4.3 Specifically in relation to capacity-building, describe any partnerships developed or planned with universities, research institutions, training bodies and other relevant organisations. [BPR]**

Nil Partnership developed between Govt. Wildlife Department, NGOs and academia University students take up it turtles conservation campaign and activities going on by the wildlife department in the field. Marine Fisheries Department, Govt of Pakistan often organize training programs for fishermen communitarian regarding the use of TED and its benefits.

**5.5.1 National policies and laws concerning the conservation of marine turtles and their habitats will have been described in Section 1.5.1. Please indicate their effectiveness, in terms of their practical application and enforcement. [SAP, TSH]**

Marine turtles are "Protected" under Sindh Wildlife Protection Act 1972 and Balochistan Wildlife protection Act 1975. Export and domestic consumption of turtles is prohibited under the Pakistan Fish Inspection and Quality Act 1997. Therefore the use or sale of marine turtles and their products is banned across the country. A positive change is expected in future by effective implementation of these laws.

**5.5.2 Has your country conducted a review of policies and laws to address any gaps, inconsistencies or impediments in relation to marine turtle conservation? If not, indicate any obstacles encountered in this regard and when this review is expected to be done. [SAP]**

☒ YES ☐ NO ☐ UNSURE

Strategic Plan for Conservation of Marine Turtles in Pakistan is being finalized by IUCN Pakistan under its Balochistan Partnership for Sustainable Development Programme in consultation with all stakeholders. It will address all issues. Sindh Wildlife Department Government of Sindh has reviewed the existing law and amendments have been made accordingly. It is submitted for approval by the complementing authority.

**5.5.3 From the standpoint of law enforcement, has your country experienced any difficulties achieving cooperation to ensure compatible application of laws across and between jurisdictions? [TSH]**

☐ YES ☒ NO ☐ UNSURE

## **OBJECTIVE VI. PROMOTE IMPLEMENTATION OF THE MoU INCLUDING THE CONSERVATION AND MANAGEMENT PLAN**

**6.1.1 What has your country already done, or will it do, to encourage other States to sign the IOSEA MoU? [INF]**

Nil

**6.1.2 Is your country **currently** favourable, in principle, to amending the MoU to make it a legally binding instrument? [INF]**

☐ YES ☒ NO ☐ NO VIEW

**6.1.3 Would your country be favourable, over a **longer time horizon**, to amending the MoU to make it a legally-binding instrument? [INF]**

☐ YES ☐ NO ☒ NO VIEW

IUCN Pakistan is implementing a one year project on Saving the Endangered Sea Turtles on Coastal Areas of Pakistan funded by UNEP.

### **6.2 Secretariat and Advisory Committee**

**6.2.1 What efforts has your country made, or can it make, to secure funding to support the core operations of the IOSEA MoU (Secretariat and Advisory Committee, and related activities)? [IND]**

Not applicable.



**6.3.1 What funding has your country mobilised for domestic implementation of marine turtle conservation activities related to the IOSEA Marine Turtle MoU? Where possible, indicate the specific monetary values attached to these activities/programmes, as well as future plans. [IND]**

- Provincial wildlife authorities carry out different activities on their own allocated funds.
- Pakistan Wetlands Programme is funded by GEF and other donors like Embassy of the Kingdom of the Netherlands. This Programme has been carrying out various activities regarding marine turtle conservation.
- IUCN Pakistan is implementing Balochistan Partnership for Sustainable Development Programme funded by Embassy of the Kingdom of the Netherlands; this programme also has marine turtle conservation activities.

**6.3.2 Has your country tried to solicit funds from, or seek partnerships with, other Governments, major donor organisations, industry, private sector, foundations or NGOs for marine turtle conservation activities? [IND]**

☒ YES ☐ NO

WWF-Pakistan has funding mechanisms to encourage civil society conservation efforts, in the form of viable projects.

We are in the process of seeking international support for the Pakistan Wetlands Project. This project includes a component on marine turtle conservation.

**6.3.3 Describe any initiatives made to explore the use of economic instruments for the conservation of marine turtles and their habitats. [BPR]**

Sindh Wildlife Department, Karachi, is promoting ecotourism in collaboration with IUCN/WWF in the coastal areas and creating awareness among the public for conservation of coastal and marine ecosystems. Pakistan Wetlands Programme of (under ex. Ministry of Environment of Pakistan) is also putting in considerable effort to increase awareness among coastal communities and also for turtle conservation.

**6.4.1 Has your country designated a lead agency responsible for coordinating national marine turtle conservation and management policy? If not, when is this information expected to be communicated to the IOSEA MoU Secretariat? [IND]**

☒ YES ☐ NO

Office of the Conservator Wildlife, Ministry of Climate Change Division (ex. National Council for Conservation of Wildlife) Pakistan is the focal agency for inter-provincial coordination.

**6.4.2 Are the roles and responsibilities of all government agencies related to the conservation and management of marine turtles and their habitats clearly defined? [IND]**

☒ YES ☐ NO ☐ UNSURE

The roles of different agencies for conservation of marine turtles are clearly defined.

**6.4.3 Has your country ever conducted a review of agency roles and responsibilities? If so, when, and what was the general outcome? If not, is such a review planned and when? [SAP],**

☐ YES ☒ NO ☐ UNSURE

**Comments/suggestions to improve the present reporting format:**

Nil

**Additional information not covered above:**