Technical Report

Ganges River Dolphin Conservation Action Plans

Gap analysis

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## Contents

1. **Introduction**  
   2.1 Recommendations of the First Meeting of the Asian River dolphin committee - 1992  
   2.2 Recommendations of the Second Meeting of the Asian River dolphin committee - 1997 (Smith and Reeves 2000)  
   2.3 Conservation Action Plan for the Gangetic Dolphin, India (2010-2020)  
   2.4 Workshop on Operationalising the Indian Gangetic Dolphin Action Plan, 2014  
   2.5 Conservation Action Plan for Ganges River dolphin and Irrawaddy dolphin of Bangladesh (2020-2030)  
   2.6 CMS Concerted Action for the Ganges River dolphin  
   2.7 International Whaling Commission South Asian River dolphin Task Team  
   3.1 Action Plan Timeframe  
   3.2 Action Plan Content  
   3.3 Action Plan Finances and Budgeting  
   3.4 Action Plan Implementation  
   3.5 Action Plan Monitoring  
4. Summary: conclusions and recommendations regarding Ganges river dolphin Action Plans  
5. References  

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1. Introduction

There has been concern about the conservation status of the Asian river dolphins for at least the last 40 years, and, starting in the 1980’s there have been a number of meetings and workshops that have made recommendations about what is required to conserve or manage the Ganges River dolphin as well as other Asian river dolphins all of which are subject to similar threats. The earliest meetings (1986, 1994 and 1997) were organised by the IUCN Cetacean Specialist Group (CSG) and mobilised people working on river dolphins across rivers in Asia to evaluate the threats and status of each river dolphin population and to make recommendations regarding what was required to prevent their continued decline.

The first meeting of experts to discuss river dolphins was held in Wuhan, People's Republic of China, October 28-30, 1986 and the presented papers were published in an IUCN special volume ‘Biology and conservation of the river dolphins: proceedings of the Workshop on Biology and Conservation of the Platanistoid Dolphins’, edited by Robert Brownell, Jiankang Liu, Bill Perrin and Zhou Kaiya.

In 1992, Steve Leatherwood (CSG Chair from 1991 until his death in 1997), Reeves, and R.S. Lal Mohan organized a meeting of Asian river dolphin scientists in Delhi. This event launched the Asian River Dolphin Committee (ARDC), which met formally for the first time in Hong Kong in 1994 and again in Bangladesh in 1997. The ARDC was intended mainly to provide a forum and framework for scientists studying the main freshwater dolphins endemic to Asia: the Yangtze River dolphin, or baiji (Lipotes vexillifer); the Ganges River dolphin, or susu (Platanista gangetica); the Indus River dolphin, or bhulan (P. minor) and the Yangtze River population of the finless porpoise (Neophocaena asiaeorientalis asiaeorientalis).

The objective of the ARDC was to provide a forum for:
1. information exchange;
2. development of standard scientific methods;
3. coordinating research programs and conservation actions, with particular emphasis on situations in which river basins cross international borders, making bilateral or multilateral management of aquatic wildlife and habitat essential; and
4. generating appropriate advice to management bodies concerning the needs and priorities for research and conservation action (Smith and Reeves 2000).

More recently there have been government supported or led national dolphin action plans developed through a collaborative process by scientists, species experts and conservationists on behalf of both the
Indian and Bangladeshi governments. Nepal has an action plan for the Ganges dolphin in development but not yet publicly released. In addition there were recommendations made by a river dolphin Task Team of the International Whaling Commission and a Concerted Action for the Ganges dolphin developed by the Indian government and adopted by the Convention on Migratory Species in 2020. It is useful to explore which recommendations have been made in these various documents, how recommendations have evolved over time, compare the recommended actions within the dolphin action plans, explore how they were intended to be implemented and financed, evaluate whether recommendations have been enacted or achieved, and if not, why not.

Here we review a number of the most important or relevant action plans or documents that have provided recommendations to manage or conserve the Ganges River dolphin. We include some of the older workshop recommendations as well as those that are current for context regarding how long recommendations have been made and how these recommendations have changed over time. The following seven documents are summarised below and then compared and evaluated:

1. Recommendations of the First Meeting of the Asian River dolphin committee - 1992
2. Recommendations of the Second Meeting of the Asian River dolphin committee - 1997

Below we review each of the action plans or workshop recommendations including the following topics:

- overall goal or scope
- geographic focus
- timeframe
- development process
- recommended activities
- financial details
- implementation

2.1 Recommendations of the First Meeting of the Asian River dolphin committee - 1992

*Overall goal or scope*

The seminar on the conservation of river dolphins of the Indian subcontinent had three purposes:

1) To review information that had become available on platanistid dolphins (family Platanistidae: *Platanista gangetica* and *Platanista minor*) since the 1986 river dolphin workshop in Wuhan, China.
2) To develop recommendations for management actions and conservation related research.
3) To implement two priority projects of the CSG, to establish a regional river dolphin committee and an IUCN river dolphin project in the Indian subcontinent.

*Geographic Focus*

Entire range of the Ganges River dolphin including India, Bangladesh and Nepal as well as the Indus dolphin in Pakistan.

*Timeframe*

No details on a timeframe for implementation are provided.

*Development process*

The recommendations were developed during a two day workshop held in Delhi. There were presentations and participation from all range states and almost 40 participants.

*Recommendations*

The full recommendations are not reiterated here but are presented in abbreviated form.

1. a. development agencies to consider river dolphins in their plans
   b. Formation of an Asian River dolphin committee,
   c. census of dolphins in Sindh,
   d. Survey of the Ganges River dolphin
2. Concerns over impact of Bangladesh flood action plan.
3. Concerns over Chisapani dam on the Karnali River Nepal
4. Awareness raising with fishers
5. Preference for in situ conservation not ex situ
6. Establish new protected areas
7. Extend existing protected areas
8. Enforcement of law against killing dolphins
9. Establishment of GRD as national aquatic animal
10. Re-evaluate Red List status

Financial Details
The report provided scientific expert recommendations to governments and was not intended to be an action plan, therefore there were no costs attached to recommendations.

Implementation
The workshop report was intended to inform the governments of India, Bangladesh, Pakistan and Nepal. As such it was not intended to be implemented directly but to guide and advise those that needed to manage the dolphin.

2.2 Recommendations of the Second Meeting of the Asian River dolphin committee - 1997 (Smith and Reeves 2000)

Overall Goal or Scope
The second meeting of the Asian River dolphin committee was held in Bangladesh in October 1997 and it had a number of objectives, including the one most relevant here, to generate appropriate advice to management bodies concerning the needs and priorities for research and conservation action for Asian river dolphins. As such the meeting sought to make recommendations that would be provided to governments to assist them in implementing appropriate management actions.

Geographic Focus
Entire range of the Ganges River dolphin including India, Bangladesh and Nepal. There are country specific recommendations, overarching recommendations that apply to all countries and also more specific recommendations that refer to discrete portions of the species range.

Timeframe
No details on a timeframe for implementation are provided.

Development Process
The recommendations were made at the meeting of the Asian River dolphin committee which included a specific one-day workshop to discuss which recommendations were required. There were 17 representatives from river dolphin range-states, with three scientific members from India, three from China, two from Bangladesh, two from Nepal, and two from Pakistan but many more local and
international experts joined the meeting. The majority of participants were researchers and there were few representatives of government implementing partners.

**Recommendations**

**India**

1. The Committee recommends that regional wildlife, fishery, and water resource managers from the state governments of Bihar, Uttar Pradesh, Rajasthan, Assam, West Bengal, and Madhya Pradesh meet to develop a **nationwide river dolphin conservation plan** and that individual states organize dolphin conservation groups with assistance from the ARDC.

2. The Committee considers the **killing of river dolphins**, whether accidental or intentional, to be one of the primary reasons for population declines. We recommend that the Government of India, in consultation with state governments, encourage and support alternative employment for gillnet fishermen, enforce laws that prohibit deliberate killing of dolphins, regulate the use of non-selective fishing gear, and establish gillnet-free zones in river segments frequented by dolphins.

3. The use of **dolphin oil** to attract fish provides a market incentive for deliberate killing and reduces the incentive for fishermen to avoid incidentally capturing dolphins. We commend Indian scientists for their efforts to investigate and distribute alternative products and recommend that further experiments be conducted on vegetable, fish, and other oils. Appropriate substitutes should be made widely available at low cost to fishermen who currently use dolphin oil to attract fish. Considering that dolphin carcasses are expensive, it might be possible for local entrepreneurs to distribute substitutes as a profitable venture.

4. The Committee recommends that the Ministry of Environment and Forests collaborate with state wildlife management agencies to strengthen efforts to **assess populations and habitats** of river dolphins in India. Emphasis should be given to fragmented populations.

5. The Committee emphasizes the importance of protected areas for conserving river dolphins and commends the states of Bihar and Uttar Pradesh for establishing the Vikramshila Gangetic Dolphin Sanctuary and Sarnath Turtle Sanctuary, respectively. We urge that **management plans for these areas** be strengthened and that **new protected areas** be established in additional areas of dolphin habitat.

6. The Committee recommends that the Government of India initiate consultations with the Government of Nepal to create a **transboundary protected area** for river dolphins and other aquatic fauna in the segment of the Karnali or Ghaghara River between Katerniya Ghat, India, and Gola Ghat, Nepal. Management plans for the area should integrate the conservation of aquatic fauna with the economic and nutritional needs of local people.

**Nepal**

1. The Committee re-emphasizes the urgency of the situation of river dolphins in Nepal. We restate the recommendation from the Hong Kong meeting that the segment of river between Gola Ghat, Nepal, and Katerniya Ghat, India, be designated as a **protected area** for the conservation of aquatic biodiversity (Reeves and Leatherwood 1995). This portion of the Karnali contains the only potentially viable population of dolphins in Nepal. We also recommend that
the protected area be managed to include the development needs of local people. Establishment of the protected area will require coordination between the Ministry of Forests, Ministry of Population and Environment, and Ministry of Local Development in Nepal, and appropriate agencies of the Government of India.

2. The Committee expresses alarm about reports that plans for a high dam on the Karnali River have been renewed with support from private investors. We unequivocally state that, if built, the dam will seriously reduce biodiversity and almost certainly lead to the extinction of dolphins in Nepal.

3. The Committee expresses disappointment that no action has been taken to prohibit commercial gillnet fishing in the Karnali River, as recommended in the Hong Kong meeting report (Reeves and Leatherwood 1995). We thus restate the recommendation that immediate action be taken in this regard, preferably as part of a fishery management program that encourages traditional fishing practices by local people and prohibits the sale of fishing rights to outside contractors.

4. The Committee recommends that a long-term biomonitoring program, which includes dolphins as a major component, be implemented in the Karnali River. Such a program could be accomplished with the financial support and assistance of research-oriented nature tourism.

Bangladesh

1. The Committee acknowledges that its previously expressed concern about the Bangladesh Flood Action Plan (FAP) has been partially addressed by the work of Smith et al. (1998). It also recognizes that the current FAP emphasizes a more integrated approach than did previous versions, with more attention now being paid to environmental impacts and management. We express concern, however, about the impacts of specific projects implemented as part of the FAP, and others implemented outside the FAP, by the Government of Bangladesh. These projects include: (1) the Bank Protection and River Training Pilot Projects (FAP 21/22), (2) the Brahmaputra River Bank Protection Works, (3) the Dhaleswari Closure Dam (part of the Jamuna Bridge Project), (4) the Jamalpur Priority Project (FAP 3.1), (5) the Jamuna Bridge Embankments, and (6) the Kalni-Kushiyara River Improvement Project (FAP 6). We recommend that river dolphins be routinely considered in independently reviewed environmental impact assessments of these projects. Mitigation should involve designs to reduce or avoid impacts in the first place, and the option of abandoning projects with excessive environmental impacts should be considered.

2. The Committee expresses continuing concern about the status of dolphins in Kaptai Lake and in the Karnaphuli, Feni, Sangu, and Matamuhuri rivers. We recommend that these areas be investigated more systematically than has been done to date.

3. The Committee commends the Forest Department of the Government of Bangladesh for their dolphin survey efforts. We recommend that this work be strengthened by standardizing survey techniques, conducting training seminars, and including components related to habitat assessment.

4. The Committee recommends that protected areas be established for river dolphins and other aquatic fauna in deep pool areas (duars) of the Surma and Kalni/ Kushiyara rivers. This recommendation can be accomplished as a component of fishery management initiatives for
protecting the overwintering habitat of commercially valuable fishes (boromaach), including major carp, catfish, and other large migratory species such as Hilsa. When effectively implemented, such sanctuaries have been successful in protecting fish broodstock (Bangladesh Water Development Board 1994). The involvement of local fishermen in surveillance and enforcement is essential.

5. The Committee recommends that prohibitions against the use, sale, transport, and manufacture of destructive fishing gear, such as current jals and kona ber jals (small mesh monofilament nets used to catch small fish), jam jals (rectangular bottom nets used to catch broodstock of commercially valuable fish species in duars), and vim jals (extremely fine-mesh fixed nets used mainly to catch prawns) be implemented and strictly enforced. Enforcement will require shutting down marketing centers and eliminating smuggling.

Recommendations applying to all states

1. Relevant and important literature on dolphin biology, population assessment methods, river ecosystems etc., is generally unavailable to researchers in Asia. We recommend that a bibliography of source materials be compiled and that a library be established so that Asian researchers have access to this literature.

2. The Committee emphasizes the need for transboundary perspectives for conserving river dolphin populations. A transboundary approach requires cooperation among national and international agencies. One mechanism for establishing links among such agencies within Asia would be the environmental component of the South Asian Association for Regional Cooperation (SAARC).

3. The Committee recognizes that conservation initiatives not supported by local people are likely to fail, even if some short-term success is achieved. We recommend that public awareness programs be strengthened in areas where they exist and implemented in riverine communities where they do not. Emphasis should be placed on communities located adjacent to existing and proposed protected areas. Such programs must be interactive and respect local values, perceptions, and traditions. Aranyak-an NGO based in Assam state in the North-East part of India have done such remarkable work in creating wide awareness among fishers and river dependent communities towards conserving Gangetic river dolphin in Brahmaputra drainage.

4. The environmental consequences of water development projects are significant and far-reaching. Engineering structures often fragment cetacean populations and reduce the environmental complexity that makes rivers suitable for aquatic species. Water development proceeds with little understanding or concern about the effects on cetaceans and other aquatic organisms. We recommend that international and national financial institutions, public and private, be required to address the question of impacts of proposed development on river cetaceans and other aquatic fauna. In every case, water development planning should include an independently reviewed environmental impact assessment, and project financing should include funds to mitigate the harmful effects identified in such an assessment.

5. Preserving river cetaceans requires the availability of sufficient prey. Local people depend on fish and crustaceans as important sources of food and income. In many areas, non-local contractors purchase exclusive fishing rights from regional governments. These professional
fishermen often use non-selective fishing methods (e.g. monofilament plastic gillnets and electricity) that deplete fish resources and result in the accidental removals of river cetaceans. We recommend that traditional fishing methods (e.g. single hook and lines, throw-nets, seine nets) be encouraged and that riverine fisheries be managed on a sustainable basis for the benefit of local communities.

6. Research and conservation initiatives aimed at river cetaceans can be most effectively implemented by agencies, organizations, and people from the range states. However there is often a shortage of adequately trained people. We recommend that education and training be recognized as high priorities and that regional programs in aquatic wildlife and fishery management be developed, with scholarships provided to qualified students.

7. The Committee recognizes the difficulty of implementing effective conservation programs when there is so much uncertainty about the status, distribution, life history, ecology, behavior, and habitat of river cetaceans throughout most of their range. The need for standardized survey techniques has been noted by the IUCN/SSC Cetacean Specialist Group (Project #49 of the 1994-1998 Action Plan for the Conservation of Cetaceans; Reeves and Leatherwood 1994), and the ARDC endorses the call for workshops and seminars to address this need. Specifically, we recommend that regional meetings be held within Asia to develop appropriate methods and instruct local researchers.

Financial Details
The report provided scientific expert recommendations to governments and was not intended to be an action plan, therefore there were no costs attached to recommendations.

Implementation
The workshop report was intended to inform the governments of India, Bangladesh and Nepal and included the recommendation for them to use the information contained and the recommendations to produce national action plans. As such it was not intended to be implemented directly but to guide and advise those that needed to manage the dolphin.
2.3 Conservation Action Plan for the Gangetic Dolphin, India (2010-2020)

The Action Plan to conserve the Ganges River dolphin was prepared in an impressive collaborative effort in 2010 and was published by the National Ganga River Basin Authority, Ministry of Environment and Forests of the Government of India. The document was prepared by RK Sinha, Sandeep Behera and BC Chaudhary most of whom were members of the earlier Asian River Dolphin Committee and participated in the workshop that developed the recommendations detailed in the section above. The document was prepared during the workshop for the formulation of the Action Plan, held at Patna on the 22 and 23 February, 2010. Invited experts included Dr. Randall R. Reeves, Chair of the Cetacean Specialist Group of International Union for Conservation of Nature (IUCN), Sri P. R. Sinha, Director, Wildlife Institute of India, Dehradun, Sri B. A. Khan, Chief Wildlife Warden, Government of Bihar, and Dr. A. R. Rahmani, Director, Bombay Natural History Society. There were 20 participants in the workshop which included primarily scientific experts but also a small number of government representatives from wildlife boards etc.

The report includes a review of the background literature on the species and details on threats. Chapter 4 includes a summary of potential strategies for conservation and Chapter 5 gives the main recommendations.

Overall Goal or Scope
The Prime Minister declared the Ganges River dolphin as the National Aquatic Animal in the First Meeting of the National Ganga River Basin Authority (NGRBA) on the 5th of October 2009. The Ministry of Environment and Forests (MoEF) subsequently notified the Ganges River dolphin as the National Aquatic Animal on the 10th of May 2010 and constituted a Working Group to prepare a Conservation Action Plan for the Ganges River dolphin. The plan was developed later in the year and included recommendations of a number of specific conservation actions, including some related directly to management. The challenge is to implement these plans and ensure the long-term survival of the dolphin in the rivers of India.

Geographic Focus
This Action Plan for the Conservation of the Ganges River dolphin has been prepared under the auspices of the National Ganga River Basin Authority and thus these recommendations concern dolphin populations only in the Ganga and its tributaries. Conservation recommendations for the Brahmaputra River and its tributaries were intended to be covered in a subsequent publication, however this never came to fruition.

Some areas of the Ganga river system which need urgent protection measures were identified. Critical stretches for Ganges River dolphins listed included:
**Uttar Pradesh**
- Middle Ganga Barrage at Bijnor to Lower Ganga Barrage at Narora (165 km)
- Fatehpur to Mirzapur (150 km).
- Chambal-Yamuna confluence near Etawah to Ganga-Yamuna confluence at Allahabad

**Bihar**
- Gangi-Ganga Confluence near Sinha Ghat, Ara 20km upstream Ghaghara-Ganga confluence at Doriganj, Chhapra to Fatuha (confluence of Ganga and Punpun (80 km).
- Barh to Mokama to Maniharighat (Katihar) (210 km). This stretch includes the Vikramshila Ganges Dolphin Sanctuary (60 km).
- River Gandak from Triveni Barrage at Indo-Nepal border to Ganga – Gandak confluence at Patna (320 km)

The Action plan also identified ‘gap areas’ in dolphin distribution range as:
   (a) areas within the known historical range of the Ganges River dolphin that have not been surveyed systematically and scientifically or
   (b) areas within the known historical range where there is evidence indicating that the dolphins are no longer present (i.e. gaps or discontinuities in dolphin distribution).

Category (a) areas were identified and prioritised to be surveyed at least once a year to monitor the population.

**Timeframe**
The action plan was for 10 years, 2010 to 2020. Each action includes a timeframe for completion. The action plan has currently expired and no new plan has been developed.

**Development Process**
The Action Plan was developed during a workshop attended by around 20 Indian scientists and managers.

**Activities/Recommendations**
Identification of areas of research for long-term conservation of the Dolphin in the River Ganga and its tributaries included:
- Evaluate the viability of the Ganges River dolphin populations for long-term survival, and prepare management plans for each population.
- Develop and utilise the most appropriate methodology for the population estimation of dolphins.
- Develop methods for safe handling of Ganges River dolphins for scientific and rescue efforts.
- Assessment of the habitat of the Ganges River dolphin
- Study the movement and dispersal pattern of the Ganges River dolphin to assess the home range and habitat utilising modern technologies such as satellite tracking.
- Develop and utilise health markers in the Ganges River dolphin to rapidly assess the health of an individual.
- Study bio-accumulation of toxins, and their effects, in the Ganges River dolphins.
Evaluation of the genetic diversity of the species and development of in vitro systems for possible future captive breeding efforts.

To increase National Awareness about the Ganges River dolphin and the importance of freshwater ecosystems the following were recommended:

- Identification of target groups to execute conservation actions
- Designation of Brand Ambassadors for awareness campaigns.
- Development of education and publicity material.
- Development of a dedicated web portal for the Ganges River dolphin

Finally the following were also recommended:

- Potential sites for intense dolphin conservation should be demarcated in the Ganga River System.
- Provision of institutional support for the long-term survival of the Ganges River dolphin
- The establishment of Dolphin Conservation Centers and strengthening of research facilities available in India will aid in better coordination among agencies responsible for the conservation of the Ganges River dolphin.
- Each state with Ganges River dolphin populations should have a regional Dolphin Conservation Center, with a nodal agency responsible for its operation. It is proposed that WWF-India in Uttar Pradesh, Morena Center of National Chambal Sanctuary for Madhya Pradesh, Patna University/Central University of Bihar for Bihar and Zoological Survey of India, Kolkata for West Bengal should be designated as the state-specific nodal agencies.
- The use of nylon monofilament fishing gillnets in stretches of rivers having dolphin populations should be banned, as this net injures dolphins. Use of fishing nets made up of mosquito netting material (Hindi - ‘Kapda jal’) should also be banned as it collects small fish and freshwater prawns which serve as food for dolphins, and fetch very little or no income to fishermen.
- Since the Ganges River dolphin is a Schedule I animal under Wildlife (Protection) Act 1972, use of its body parts, such as tissue and oil, is illegal. Wildlife officials should conduct frequent raids to enforce this law and culprits must be punished under the Wildlife (Protection) Act 1972, amended till date.
- The 5th of October should be celebrated as “National Indian River Dolphin Day” as on this day the animal was declared as the National Aquatic Animal of India by the Prime Minister of India. This date is also suitable as the week from the 2nd October to 8th October is celebrated as the Indian ‘Wildlife Week’.
- Universities and research institutions and conservation organisations should be encouraged to develop dolphin research programs.
Ten priority actions were identified:

<table>
<thead>
<tr>
<th>Action</th>
<th>Timeframe</th>
<th>Agency</th>
<th>Cost</th>
</tr>
</thead>
<tbody>
<tr>
<td>1. Initiating state-wise Ganges Dolphin Population Status Surveys and Threat Assessment</td>
<td>Immediate</td>
<td>State Wildlife Agencies</td>
<td>50 crore rupees</td>
</tr>
<tr>
<td>2. Setting up of Protected Areas for the Ganges River dolphin</td>
<td>Immediate</td>
<td>Chief Wildlife Warden MoEF</td>
<td>5 crore rupees</td>
</tr>
<tr>
<td>3. Capacity Building for Ganges River Dolphin Conservation and Management</td>
<td>Immediate</td>
<td>MoEF</td>
<td>10 crore rupees</td>
</tr>
<tr>
<td>4. Minimising Fisheries Interface and Incidental Capture of River Dolphins</td>
<td>Immediate</td>
<td>MoEF</td>
<td>5 crore rupees</td>
</tr>
<tr>
<td>5. Prevention, Mitigation and Restoration of Impacts on Dolphin Habitats from Developmental Projects</td>
<td>Immediate</td>
<td>MoEF</td>
<td>5 crore rupees</td>
</tr>
<tr>
<td>6. Community Involvement in river dolphin Conservation and Management</td>
<td>2 years</td>
<td>MoEF, Central and State Tourism Departments.</td>
<td>5 crore rupees</td>
</tr>
<tr>
<td>7. Ensuring Critical Levels of Water Flow in Riverine Habitats of Dolphins</td>
<td>3 years</td>
<td>MoEF</td>
<td>5 crore rupees</td>
</tr>
<tr>
<td>8. Education and Awareness</td>
<td>5 years</td>
<td>MoEF</td>
<td>5 crore rupees</td>
</tr>
<tr>
<td>9. Rescue &amp; Rehabilitation of Ganges River Dolphin</td>
<td>5 years</td>
<td>MoEF and State Forest Dpt</td>
<td>5 crore rupees</td>
</tr>
<tr>
<td>10. Allocation and Initiation of Identified Research</td>
<td>5 years</td>
<td>MoEF</td>
<td>20 crore rupees</td>
</tr>
</tbody>
</table>

Financial Details
The ten action items were given a budget of 115 crore rupees in total which in 2010 was around US$26,000. By far the greatest allocation of funds was for research activities (70 crore ≈ US$15,500 or about 60% of the total) with only 5 crore for education and awareness, and 5 crore for community involvement in management and 10 crore for capacity building.
Implementation
The majority of activities were to be accomplished by the MoEF. As the Action Plan was commissioned by and endorsed by the MoEF it was anticipated that funding would be forthcoming from the government to accomplish the tasks and that they would do the necessary detailed planning and monitoring of each of the ten primary activities. The workshop described below was a follow-on meeting to layout the implementation of the action plan.

2.4. Workshop on Operationalising the Indian Gangetic Dolphin Action Plan, 2014

In February, 2014, during a meeting chaired by Shri Rajiv Ranjan Mishra, Mission Director, the delay in operationalisation of the Dolphin Action Plan 2010-2020 was discussed. It was also decided to develop an operational matrix to implement the recommendations of the Dolphin Action Plan 2010-2020. A workshop on the “Operationalisation of Dolphin Action Plan 2010-2020” for the Ganges river dolphin (Platanista gangetica gangetica) in Ganga River was jointly organized by the National Mission for Clean Ganga (NMCG) and WWF-India from March 19 to 20, 2014 at WWF-India. Dolphin experts from across the country participated in the workshop to deliberate on key actions needed to implement the Dolphin Action Plan.

The objectives of the workshop were:

i. To develop an operational plan to implement the dolphin strategy and

ii. To develop a unified methodology for dolphin census in river Ganga

The two-day workshop focused on developing an operational plan so that the National Mission for Clean Ganga (NMCG) is in a position to implement the Dolphin Action Plan 2010-2020, engaging various stakeholders, including local communities, and helping the species to prosper.

The workshop brought together 46 experts from various backgrounds, and included Government agencies, universities, Forest Departments, conservation NGOs, and members of the National Mission for Clean Ganga as well as the MoEF. In total, around 17 organizations and institutions were represented at the workshop.

The workshop was organised around four thematic areas:

Theme 1. Population surveys and threat assessment
Theme 2. Protected areas and community engagement in conservation
Theme 3. Capacity-building and emerging areas of research
Theme 4. Addressing other ecosystem challenges

The workshop generated more detailed plans than were originally articulated in the Action Plan to assist with implementation.
### Short-term activities


<table>
<thead>
<tr>
<th>Objectives</th>
<th>Outputs (Activities)</th>
<th>By When</th>
<th>Coordinating Agency</th>
<th>Supporting Agencies/ Orgs.</th>
</tr>
</thead>
<tbody>
<tr>
<td>Action 1: Initiating state-wise Ganges River Dolphin population status surveys and threat assessment</td>
<td>National dolphin census and threat assessment across all states in the Ganga using the agreed-upon uniform methodology.</td>
<td>October to November, 2014</td>
<td>NMCG with support from - River stretch of Uttar Pradesh, Madhya Pradesh and Rajasthan – Forest Department, Uttar Pradesh, River stretch of Bihar – Forest Department, Bihar, River stretch of West Bengal – Forest Department, West Bengal.</td>
<td>NGOs, Universities, Individuals</td>
</tr>
<tr>
<td>Identification of partners for the survey and threat assessments.</td>
<td></td>
<td>By July to August, 2014</td>
<td>River stretch of Uttar Pradesh, Madhya Pradesh and Rajasthan – Forest Department, Uttar Pradesh, River stretch of Bihar – Forest Department, Bihar, River stretch of West Bengal – Forest Department, West Bengal.</td>
<td>NGOs, Universities, Individuals</td>
</tr>
<tr>
<td>Developing the survey plan including the distribution range to be covered, number of teams and other planning required for the survey.</td>
<td></td>
<td>By July to August, 2014</td>
<td>CWLW of range states River stretch of Uttar Pradesh, Madhya Pradesh and Rajasthan – Uttar Pradesh, Forest Department, River stretch of Bihar – Forest Department, Bihar, River stretch of West Bengal – Forest Department, West Bengal.</td>
<td>NGOs, Universities, Individuals</td>
</tr>
<tr>
<td>Development of the protocol including the census methodology, critical/essential species to be surveyed and datasheets.</td>
<td></td>
<td>By July, 2014</td>
<td>NMCG</td>
<td>WWF-India, Patna University, ZSI, Patna, ATREE, Bhagalpur University</td>
</tr>
</tbody>
</table>

**ATREE: Ashoka Trust for Ecology and Environment**  
**CWLW: Chief Wildlife Warden**  
**NMCG: National Mission for Clean Ganga**  
**ZSI: Zoological Survey of India**
<table>
<thead>
<tr>
<th>OBJECTIVES</th>
<th>OUTPUTS (ACTIVITIES)</th>
<th>BY WHEN</th>
<th>COORDINATING AGENCY</th>
<th>SUPPORTING AGENCIES/ORG.</th>
</tr>
</thead>
<tbody>
<tr>
<td>Action 2</td>
<td>Setting up of Protected Areas for the Ganges River Dolphin</td>
<td>By December, 2014</td>
<td>NMCG</td>
<td>State Forest Departments, Technical institutions</td>
</tr>
</tbody>
</table>

- A report on potential high density areas or hot-spots which can be declared as community reserves/go-go areas/Ramsar Site (based on existing research) and community consultations.

<table>
<thead>
<tr>
<th>OBJECTIVES</th>
<th>OUTPUTS (ACTIVITIES)</th>
<th>BY WHEN</th>
<th>COORDINATING AGENCY</th>
<th>SUPPORTING AGENCIES/ORG.</th>
</tr>
</thead>
<tbody>
<tr>
<td>Action 2</td>
<td>Development of management plans for existing Ramsar sites and dolphin sanctuaries (Vikramshila).</td>
<td>March, 2016</td>
<td>River stretch of Uttar Pradesh, Madhya Pradesh and Rajasthan – Forest Department, Uttar Pradesh, Patna University, WWF-India, CIFRI, Bhagalpur university, ZSI-Patna, AMU</td>
<td>WWF-India, AMU, ZSI,</td>
</tr>
</tbody>
</table>

- Idea: For Vikramshila : The Bihar State Forest Department has already assigned the task of preparation of Management Plan for Vikramshila Ganges Dolphin Sanctuary (VGDS) to ZSI.

<table>
<thead>
<tr>
<th>OBJECTIVES</th>
<th>OUTPUTS (ACTIVITIES)</th>
<th>BY WHEN</th>
<th>COORDINATING AGENCY</th>
<th>SUPPORTING AGENCIES/ORG.</th>
</tr>
</thead>
<tbody>
<tr>
<td>Action 2</td>
<td>Identification of potential areas and partners for community-led dolphin conservation programmes.</td>
<td>October, 2014</td>
<td>NMCG</td>
<td>WWF-India, Patna University, ZSI-Patna, AMU, Bhagalpur University, CIFRI</td>
</tr>
<tr>
<td>OBJECTIVES</td>
<td>OUTPUTS (ACTIVITIES)</td>
<td>BY WHEN</td>
<td>COORDINATING AGENCY</td>
<td>SUPPORTING AGENCIES/ORG.</td>
</tr>
<tr>
<td>------------</td>
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</tr>
<tr>
<td><strong>Action 3</strong></td>
<td><strong>Education &amp; Awareness</strong></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>Community-led dolphin conservation programmes initiated in Upper Ganga River.</td>
<td>January, 2015</td>
<td>NMCG</td>
<td>WWF-India, CEE, Patna University, ZSI-Patna, AMU, Bhagalpur University</td>
</tr>
<tr>
<td></td>
<td>Rolling out education and outreach programmes to engage opinion leaders, students, youth groups, and fishing communities.</td>
<td>Immediate</td>
<td>NMCG</td>
<td>CEE, Other NGOs, technical institutions and Universities working for dolphin conservation</td>
</tr>
<tr>
<td></td>
<td>Documentation of best management practices in habitat and threat management.</td>
<td>March, 2015</td>
<td>CEE and/or any other agency as decided by NMCG.</td>
<td>NGOs, technical institutions and Universities working for dolphin conservation</td>
</tr>
<tr>
<td></td>
<td>Development of a dolphin communication and outreach plan.</td>
<td>February, 2015</td>
<td>CEE and/or any other agency as decided by NMCG</td>
<td>NGOs, Universities</td>
</tr>
<tr>
<td></td>
<td>Target specific education and outreach modules/tools/materials.</td>
<td>January, 2015</td>
<td>CEE and/or any other agency as decided by NMCG</td>
<td>Patna and Bhagalpur University, WWF-India, ZSI</td>
</tr>
<tr>
<td><strong>Capacity-building</strong></td>
<td>SOP/Protocol document on rescue and rehabilitation of dolphins (both from fishing nets and for translocation).</td>
<td>February, 2015</td>
<td>NMCG with State Forest Departments.</td>
<td>Patna University and ZSI, WWF-India</td>
</tr>
<tr>
<td></td>
<td>Formation, training and certification of rescue teams in different stretches.</td>
<td>March, 2015</td>
<td>Range State Forest Departments.</td>
<td>WWF-India, Patna University, ZSI</td>
</tr>
<tr>
<td></td>
<td>Training of fisherman/forest guard for immediate release of dolphins.</td>
<td>March, 2015</td>
<td>Range State Forest Departments.</td>
<td>WWF-India, Patna University, ZSI</td>
</tr>
<tr>
<td></td>
<td>Setting up of a call centre system for an alert and rescue by an authorized expert.</td>
<td>January, 2015</td>
<td>Range State Forest Departments.</td>
<td></td>
</tr>
<tr>
<td><strong>Emerging areas of research</strong></td>
<td>Setting up of a small grants programme on research.</td>
<td>Immediate</td>
<td>NMCG</td>
<td>Open to all</td>
</tr>
<tr>
<td></td>
<td>Formulation of research appraisal committee</td>
<td>Immediate</td>
<td>NMCG</td>
<td></td>
</tr>
<tr>
<td></td>
<td>Pilot studies on habitat characterization and preference assessment (15-20 kms/specific for each habitat types in the Ganga Basin).</td>
<td>Immediate</td>
<td>Bhagalpur, Patna University, ZSI, WWF-India, AMU, CIFRI.</td>
<td></td>
</tr>
</tbody>
</table>

CEE: Centre for Environment Education
<table>
<thead>
<tr>
<th>OBJECTIVES</th>
<th>OUTPUTS (ACTIVITIES)</th>
<th>BY WHEN</th>
<th>COORDINATING AGENCY</th>
<th>SUPPORTING AGENCIES/ORG.</th>
</tr>
</thead>
<tbody>
<tr>
<td>Exploring possibilities of development of post-mortem/neuropathy protocol.</td>
<td>March, 2015</td>
<td>WII</td>
<td>CWLW of Forest Departments of range state, Wildlife Crimes Control Bureau</td>
<td></td>
</tr>
<tr>
<td>Research on natural breeding, feeding, prey, social behavior; anatomy, etc of the Ganges river dolphin.</td>
<td>Immediate</td>
<td>Patna University, WWF-India, Bhagalpur, ZSI.</td>
<td>AMU, ATREE, CIFRI, and other research institutes and NGO’s</td>
<td></td>
</tr>
<tr>
<td>Research to develop acoustic equipments to be used for dolphin census.</td>
<td>Immediate</td>
<td>WWF and/or any other agency as decided by NMCG.</td>
<td>IIT’s and/or any other agency as decided by NMCG</td>
<td></td>
</tr>
<tr>
<td>Action 4 Critical level of flow in riverine habitats, commercial fishing</td>
<td>Review of inland fisheries policy and its implementation at the State level.</td>
<td>June, 2015</td>
<td>CIFRI and/or any other agency as decided by NMCG.</td>
<td></td>
</tr>
<tr>
<td>Review of the impact of various types of fishing gear fisheries and dolphin, both.</td>
<td>June, 2015</td>
<td>CIFRI and/or any other agency as decided by NMCG.</td>
<td>NGO’s, Universities, Researchers</td>
<td></td>
</tr>
<tr>
<td>Sand mining</td>
<td>Sand mining should be regulated in identified no-go areas.</td>
<td>June, 2015</td>
<td>Range State Forest Departments.</td>
<td></td>
</tr>
<tr>
<td></td>
<td>Research on impact of sand mining in the lower food chain needs to be incorporated.</td>
<td>June, 2015</td>
<td>NMCG</td>
<td>Proposed &amp; open for all</td>
</tr>
</tbody>
</table>

Long-term Actions (next page)
### 2. A. 2 LONG TERM ACTION (2014-15)

<table>
<thead>
<tr>
<th>OBJECTIVES</th>
<th>OUTPUTS (ACTIVITIES)</th>
<th>By WHEN</th>
<th>WHO will be the coordinating agency</th>
<th>Other supporting agencies/org.</th>
</tr>
</thead>
<tbody>
<tr>
<td>Action 1: Initiating state-wise Ganges dolphin population status surveys and threat assessment</td>
<td>National dolphin census and threat assessment across all states in range of the Ganges, using the agreed uniform methodology.</td>
<td>Every year (October to November)</td>
<td>NMCQ with -</td>
<td>NGOs, Universities, Individuals</td>
</tr>
<tr>
<td>Identification of partners for the survey and threat assessments.</td>
<td></td>
<td></td>
<td>River stretch of Uttar Pradesh, Madhya Pradesh and Rajasthan – Forest Department, Uttar Pradesh,</td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>– Forest Department, Bihar,</td>
<td></td>
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<tr>
<td></td>
<td></td>
<td></td>
<td>– River stretch of West Bengal – Forest Department, West Bengal.</td>
<td></td>
</tr>
<tr>
<td>Developing the survey plan including the distribution range to be covered, number of teams and other planning required for the survey.</td>
<td>By April every year</td>
<td>NLCW of Range States</td>
<td>NGOs, Universities, CIFRI</td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>River stretch of Uttar Pradesh, Madhya Pradesh and Rajasthan – Forest Department, Uttar Pradesh,</td>
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<tr>
<td></td>
<td></td>
<td></td>
<td>– Forest Department, Bihar,</td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>– River stretch of West Bengal – Forest Department, West Bengal.</td>
<td></td>
</tr>
<tr>
<td>Publication of annual dolphin Census and Ganga threat assessment report.</td>
<td>By June every year</td>
<td>GOI, Forest Departments, technical institutions</td>
<td>NGOs, Universities, Organizations</td>
<td></td>
</tr>
<tr>
<td>Action 2: Setting up of Protected Areas for the Ganges river dolphin</td>
<td>Identifying and declaration of critical dolphin stretches or community reserves/ no-go areas/ Ramsar sites</td>
<td>Within 4 months of the survey every year</td>
<td>NMCQ &amp; Range State Forest Departments</td>
<td>WWF, India, Patna University, ZSI, AMU, BHAGALPUR University, CIFRI</td>
</tr>
<tr>
<td></td>
<td>Social mobilization, capacity-building and participatory planning and implementation of community-led conservation programmes.</td>
<td>2018</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td>2018 to 2019</td>
<td>NMCQ to invite proposal (State Forest Departments to take lead)</td>
<td></td>
</tr>
<tr>
<td>Action</td>
<td>Education &amp; Awareness</td>
<td>Objectives</td>
<td>Outputs (Activities)</td>
<td>By When</td>
</tr>
<tr>
<td>--------</td>
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</tr>
<tr>
<td>3</td>
<td></td>
<td></td>
<td>Rolling out education and outreach programmes to engage opinion leaders, students, youth groups, and fishing communities.</td>
<td>2014 to 2017</td>
</tr>
</tbody>
</table>

Exploring possibility to use some electronic implant device (satellite telemetry) to provide information of home range movement and habitat utilization. | 2015 to 2017 | Range State Forest Departments |
Development and adoption of health markers in this species to assess health status. | 2017 | Patna University |
Exploring possibilities of development of post-mortem/necropsy protocol. | 2015 | Wildlife Crime Control Bureau of India |
Conduct basic research on natural breeding, feeding, prey, social behavior, anatomy, etc. of the Ganges river dolphin. | 2014 to 2019 | Patna University, WWF-India, Bhagalpur, ZSL |
Evaluation of the genetic diversity of the species and development of in vitro systems such as cell lines to study effects of pollutants on the health and survival of dolphin as well as for the long term conservation. | 2017 | Patna University |
Research to develop acoustic equipments to understand the dolphin habitat preferences. | 2014–2019 | WWF-India |
Exploring possibilities of development of protection devices around propellers that cause injuries and deaths. | December, 2015 | IIT, Delhi |
Research to develop acoustic equipments to be used for dolphin census. | 2014 to 2019 | WWF-India |
<table>
<thead>
<tr>
<th>OBJECTIVES</th>
<th>OUTPUTS (ACTIVITIES)</th>
<th>By WHEN</th>
<th>WHO will be the coordinating agency</th>
<th>Other supporting agencies/org.</th>
</tr>
</thead>
<tbody>
<tr>
<td>Action 1</td>
<td>Critical level of flow in riverine habitats, Commercial fishing</td>
<td>Research on defining the flow requirements of dolphins in the Ganga and its tributaries (depth, volume, velocity, connectivity - both lateral and longitudinal).</td>
<td>2015 to 2019</td>
<td>NMCG</td>
</tr>
<tr>
<td></td>
<td></td>
<td>Pilot study on dolphin migration across the barrages.</td>
<td>2015 to 2017</td>
<td>NMCG</td>
</tr>
<tr>
<td></td>
<td></td>
<td>Research on the impact of exotic species on dolphins.</td>
<td>2018</td>
<td>CIFRI</td>
</tr>
<tr>
<td></td>
<td></td>
<td>Research on impact of commercial fishing on dolphins.</td>
<td>2019</td>
<td>CIFRI</td>
</tr>
<tr>
<td></td>
<td></td>
<td>Possibilities of development of fishing regulation vis-à-vis dolphin conservation.</td>
<td>2015</td>
<td>CIFRI</td>
</tr>
<tr>
<td></td>
<td></td>
<td>There is a paucity of information about the fish diversity in dolphin protected and non-protected areas and there is a need of information generation in this area.</td>
<td>2018</td>
<td>CIFRI</td>
</tr>
<tr>
<td>Sand mining</td>
<td></td>
<td>Draft policy on regulating sand mining in dolphin habitats.</td>
<td>2010</td>
<td>State Forest Departments:</td>
</tr>
<tr>
<td></td>
<td></td>
<td>Declaration of no-go areas from sand mining in high density area.</td>
<td>2014 to 2019</td>
<td>NGO's, Universities, Researchers</td>
</tr>
</tbody>
</table>
2.5 Conservation Action Plan for Ganges River dolphin and Irrawaddy dolphin of Bangladesh (2020-2030)

The Bangladesh national conservation action plan was commissioned by the Forest Department in the Ministry of Environment, Forests and Climate Change. The dolphin action plan was developed within a project titled ‘Expanding the Protected Areas System to Incorporate Important Aquatic Ecosystems (EPASIIAE)’ undertaken by the United Nations Development Programme (UNDP Bangladesh office) in partnership with the Government of Bangladesh (through the Bangladesh Forest Department) with support from the Global Environment Facility. The action plan has not yet been formally published or endorsed by the government and is still in draft form.

**Overall Goal or Scope**
The Action Plan includes the following:
Vision: Secured river and coastal ecosystems of Bangladesh where dolphins flourish up to the carrying capacity so that they can continue to provide crucial ecological services to human communities.

The entire action plan is focussed on two primary pillars, or goals to address threats:
- Reduce dolphin population decline in rivers and coastal waters of Bangladesh
- Ensure protection of existing dolphin habitats of Bangladesh

The action plan is structured by focusing on major threats affecting dolphins and their habitats. To address each threat as outlined under several goals, a set of priority-based action-oriented activities were identified with a tentative implementation timeline, budget and implementing agencies.

**Geographic Coverage**
The entire country of Bangladesh and all rivers with dolphins

**Timeframe**
The Bangladesh action plan is intended to span a 10 year period, and each of the identified actions includes a timeframe for completion.

**Development Process**
The action plan was formulated using information collected from published and unpublished reports, field surveys, workshops, meetings and community consultations. The draft action plan was presented and shared in a national seminar with participants from the Bangladesh Forest Department, conservationists and field researchers held in the conference room of the Bangladesh Forest Department on 25th April 2019. The comments and suggestions from the participants were incorporated to revise and improve the content of the action plan.
Activities/Recommendations
There are 26 action points identified to mitigate the two major categories of threats to dolphins and their habitats. All actions identified under these threat categories were evolved around four major themes:

(i) research on population, ecology and habitats of dolphins,
(ii) investigations on social dimensions of aquatic resource harvest and illegal killing of dolphins by local communities,
(iii) engagement of local communities with the management of dolphins and their habitats, and
(iv) enforcement and advocacy for the protection of dolphins at local and regional levels.

Each of the activities includes a priority, either high, medium or low, and an approximate cost and who should be involved in taking the lead.

<table>
<thead>
<tr>
<th>Objective</th>
<th>Strategic Action</th>
<th>Priority</th>
<th>Timeline</th>
<th>Cost Million BDT</th>
<th>Implementing Agencies</th>
</tr>
</thead>
<tbody>
<tr>
<td>Increase knowledge base of dolphins and their habitats</td>
<td>Assess and monitor country-wide population status, distribution and their habitats</td>
<td>High</td>
<td>2020-2022</td>
<td>50</td>
<td>BFD, Research Institutions, NGOs</td>
</tr>
<tr>
<td></td>
<td>Investigate home range, dispersal and movement patterns of dolphins</td>
<td>Medium</td>
<td>2020-2025</td>
<td>30</td>
<td>BFD, Research Institutions, NGOs</td>
</tr>
<tr>
<td></td>
<td>Understand ecology, feeding and breeding behaviour of dolphins</td>
<td>High</td>
<td>2020-2025</td>
<td>20</td>
<td>BFD, Research Institutions, NGOs</td>
</tr>
<tr>
<td>Reduce intentional and incidental killing of dolphins</td>
<td>Assess and monitor the scale and seasonality of incidental and intentional killing of dolphins</td>
<td>High</td>
<td>2020-2022</td>
<td>30</td>
<td>BFD, Research Institutions, NGOs</td>
</tr>
<tr>
<td></td>
<td>Train and engage communities in rescue and rehabilitation of entangled dolphins</td>
<td>High</td>
<td>2020-2022</td>
<td>50</td>
<td>BFD, NGOs</td>
</tr>
<tr>
<td></td>
<td>Explore early warning device for gillnet to reduce killing by entanglement</td>
<td>Medium</td>
<td>2020-2025</td>
<td>20</td>
<td>BFD, Research Institutions, NGOs</td>
</tr>
<tr>
<td></td>
<td>Understand and reduce the scale of traditional use of dolphin body parts</td>
<td>High</td>
<td>2020-2029</td>
<td>30</td>
<td>BFD, Research Institutions, NGOs, Police</td>
</tr>
<tr>
<td>Develop skill, capacity and governance for improved protection</td>
<td>Train and orient local BFD staff on dolphin ecology, human-dolphin interaction and their protection</td>
<td>Medium</td>
<td>2020-2022</td>
<td>50</td>
<td>BFD, Research Institutions, NGOs</td>
</tr>
<tr>
<td></td>
<td>Enforce Wildlife (Protection and Security) Act 2012 to stop intentional killing of dolphins</td>
<td>High</td>
<td>2020-2029</td>
<td>50</td>
<td>BFD, Police, Local Gov</td>
</tr>
<tr>
<td>Objective</td>
<td>Strategic Action</td>
<td>Priority</td>
<td>Timeline</td>
<td>Cost (Million BDT)</td>
<td>Implementing Agencies</td>
</tr>
<tr>
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</tr>
<tr>
<td>Ensure protection of deep water pools in winter when upstream waterflow remains critically low</td>
<td>Implementing Agencies</td>
<td>High</td>
<td>2020-2029</td>
<td>20</td>
<td>BFD, NGOs</td>
</tr>
<tr>
<td>Coordinate and sensitize local administration and law enforcement agencies on the importance of dolphin protection</td>
<td></td>
<td>Medium</td>
<td>2020-2025</td>
<td>50</td>
<td>BFD, Local Gov, Dpt Fisheries, Police</td>
</tr>
<tr>
<td>Understand socio-economic dimensions about dolphins</td>
<td>Assess knowledge, perceptions and attitude of local communities about dolphins and their habitats</td>
<td>Medium</td>
<td>2020-2022</td>
<td>10</td>
<td>BFD, Research Institutions, NGOs</td>
</tr>
<tr>
<td></td>
<td>Assess nature scale and economical value of dolphin body parts in local markets</td>
<td>High</td>
<td>2020-2022</td>
<td>10</td>
<td>BFD, Research institutions, NGOs</td>
</tr>
<tr>
<td></td>
<td>Raise awareness about ecological importance and legal protection about dolphins and their habitats</td>
<td>High</td>
<td>2020-2029</td>
<td>300</td>
<td>BFD, NGOs</td>
</tr>
<tr>
<td>Increase knowledge base on dolphin habitat and threats</td>
<td>Assess country-wide seasonal habitat and range of dolphins</td>
<td>High</td>
<td>2020-2022</td>
<td>50</td>
<td>BFD, Research institutions, NGOs</td>
</tr>
<tr>
<td></td>
<td>Identify and prioritise threats to dolphin habitats</td>
<td>High</td>
<td>2020-2022</td>
<td>20</td>
<td>BFD, Research institutions, NGOs</td>
</tr>
<tr>
<td></td>
<td>Identify and monitor critical winter habitats of dolphins</td>
<td>High</td>
<td>2020-2022</td>
<td>20</td>
<td>BFD, Research institutions, NGOs</td>
</tr>
<tr>
<td>Increase protected area network for dolphins</td>
<td>Declare protected areas of identified dolphin hotspots and implement regulations</td>
<td>High</td>
<td>2020-2025</td>
<td>50</td>
<td>BFD</td>
</tr>
<tr>
<td>Engage all actors and stakeholders in protection of dolphin habitat</td>
<td>Protect and restore dolphin habitats from the impact of development projects (e.g. dams)</td>
<td>Medium</td>
<td>2020-2029</td>
<td>50</td>
<td>Ministry of Environment Forests and Climate Change, Ministry of Water Resources, Ministry of Land</td>
</tr>
<tr>
<td></td>
<td>Engage local communities in protection of dolphin habitat through CBOs, CMCs etc.</td>
<td>High</td>
<td>2020-2029</td>
<td>50</td>
<td>BFD, NGOs</td>
</tr>
<tr>
<td>Objective</td>
<td>Strategic Action</td>
<td>Priority</td>
<td>Timeline</td>
<td>Cost Million BDT</td>
<td>Implementing Agencies</td>
</tr>
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<td>--------------------------------------------------------------------------</td>
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<td>---------------------------------------------------------------------------------------</td>
</tr>
<tr>
<td>Advocate with neighbouring countries for ensuring critical level of water</td>
<td>Implementing Agencies: Ministry of Environment, Forests and Climate Change,</td>
<td>High</td>
<td>2020-2029</td>
<td>20</td>
<td>Ministry of Environment, Forests and Climate Change, Ministry of Foreign Affairs,</td>
</tr>
<tr>
<td>flow from upstream rivers</td>
<td>Ministry of Foreign Affairs, Ministry of Water Resources</td>
<td></td>
<td></td>
<td></td>
<td>Ministry of Water Resources</td>
</tr>
<tr>
<td>Coordinate with relevant government bodies for dolphin habitat protection</td>
<td>Implementing Agencies: Ministry of Environment, Forest and Climate Change,</td>
<td>Medium</td>
<td>2020-2025</td>
<td>20</td>
<td>Ministry of Environment, Forest and Climate Change, Ministry of Water Resources</td>
</tr>
<tr>
<td>and management at a local level</td>
<td>Ministry of Water Resources</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Mainstream dolphin and their habitat conservation with national and</td>
<td>Implementing Agencies: Ministry of Environment, Forest and Climate Change,</td>
<td>High</td>
<td>2020-2029</td>
<td>20</td>
<td>Ministry of Environment, Forest and Climate Change, Ministry of Water Resources</td>
</tr>
<tr>
<td>regional development activities</td>
<td>Ministry of Water Resources</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Understand and reduce dependency of local communities on dolphin habitats</td>
<td>Implementing Agencies: BFD, Research institutions, NGOs</td>
<td>Medium</td>
<td>2020-2022</td>
<td>10</td>
<td>BFD, Research institutions, NGOs</td>
</tr>
<tr>
<td>Assess site based socio-economic dimensions and dependency of fishermen</td>
<td>Implementing Agencies: BFD, Research institutions, NGOs</td>
<td>Medium</td>
<td>2020-2022</td>
<td>10</td>
<td>BFD, Research institutions, NGOs</td>
</tr>
<tr>
<td>on dolphin habitats</td>
<td></td>
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<tr>
<td>Assess current patterns of resource harvest and explore mechanism or</td>
<td>Implementing Agencies: BFD, Research institutions, NGOs</td>
<td>Medium</td>
<td>2020-2022</td>
<td>10</td>
<td>BFD, Research institutions, NGOs</td>
</tr>
<tr>
<td>determine threshold of sustainable resource use of dolphin habitats</td>
<td></td>
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<tr>
<td>Explore and provide AIGAs for heavily dependent fishermen who earn a</td>
<td>Implementing Agencies: BFD, NGOs</td>
<td>High</td>
<td>2020-2025</td>
<td>500</td>
<td>BFD, NGOs</td>
</tr>
<tr>
<td>living in dolphin habitats</td>
<td></td>
<td></td>
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**Financial Details**
The total budget of the ten year draft action plan is 1540 Million Bangladesh Taka which is approximately equivalent to US$ 18.5 Million. The majority of the budget is for actions at the community level, with a third for finding alternative income for fishers who work in dolphin habitats and a large amount also for awareness raising.

**Implementation**
Each of the goals and activities has one, or a number of agencies to implement them noted in the action plan. The lead organisation in most cases is the Bangladesh Forest Department. It is not clear however whether any of these agencies, other than the Forest Department were involved in the development of the plan and in order for these activities to be implemented there would need to be considerable engagement with those departments in order for them to fulfill their roles. There is mention in the action plan of the importance of monitoring and evaluation of progress against the goals to measure the
success of intended conservation activities. It was noted that this would allow conservation managers to evaluate the effectiveness of efforts and initiatives undertaken so that necessary adjustment or improvement can be made based on previous failures and new information from scientific investigations. However, it is not clear who would be responsible for monitoring.

2.6 CMS Concerted Action for the Ganges River dolphin

The Convention on Migratory Species (CMS) Concerted Action for the Ganges River dolphin was adopted by the Conference of Parties at its 13th Meeting at Gandhinagar, India, in February 2020. Ganges River dolphins are listed on Appendix 1 of the Convention.

Appendix I comprises migratory species that have been assessed as being in danger of extinction throughout all or a significant portion of their range. The Conference of the Parties has further interpreted the term “endangered” as meaning “facing a very high risk of extinction in the wild in the near future” (Res. 11.33 paragraph 1). Res. 11.33 also defines a general correspondence between the term ‘endangered’ as defined within CMS and the IUCN Red List Criteria (Version 3.1).

Parties that are a Range State to a migratory species listed in Appendix I shall endeavour to strictly protect them by: prohibiting the taking of such species, with very restricted scope for exceptions; conserving and where appropriate restoring their habitats; preventing, removing or mitigating obstacles to their migration and controlling other factors that might endanger them.

Overall Goal or Scope
The Concerted Action was submitted by the Government of India and the key action point was that ‘small and isolated sub-populations must be given priority for concerted action’. The motivation was to secure the connectivity of riverine habitat within range countries and trans boundary regions (Nepal, Bangladesh & India). As a result, the document primarily discusses:

1. potential interventions to better manage ecological water demand and
2. support to conduct research on migration and dispersal of Ganges River Dolphins

The goal is to help find ways of maintaining ecological flows in rivers regulated by dams, barrages, and other barriers to connectivity.

Geographic Focus
The concerted action includes details of the areas that work should be focused split into cross-border areas, and those in India, Bangladesh and Nepal specifically. The result is that basically the entire range of the Ganges River dolphin is included under the Concerted Action. A large number of specific locations are noted including the following:

- dolphins in rivers in Nepal
- Brahmaputra-Jumna and Barak-Meghna cross border areas between India and Bangladesh
- the entire range of the dolphin in the Ganges basin in India
- the entire range of the dolphin in the Brahmaputra basin in India
- specifically dolphins between Bijnor and Narora barrages
- populations in link canals or feeder canals
- Karnaphuli-Sangu rivers

**Timeframe**
The Concerted Action is intended to be completed in three years and activities span 2020 to 2022. Each activity is time bound.

**Activities**
Activities fall into two components:
1. Addressing knowledge gaps
2. Information sharing and awareness raising
3. Capacity building of implementing organisations

**Addressing knowledge gaps**
Six topics have been proposed. These include ecological flow assessments, transboundary water management scenarios and agreements, development of a standard protocol on stranding and response and collection of data on mortality, genetic studies, studies to detect dolphins in marginal habitats, and telemetry to understand movements.

**Information sharing and awareness raising**
This activity includes citizen science networks and rescue from canals as well as awareness raising about damaging effects of water development, waterways and inter-basin transfer projects. Annual scientific meetings are also scheduled.

**Capacity building**
This topic includes capacity building targeting fisher folk, researchers, government officials, civil society organisations and conservationists.

**Financial Details**
There are no costs associated with each of the activities and it is unclear the total budget required to fulfill the Concerted Action or where the funds would come from. However, as it was developed by the Indian Government the implication is that funds would come from the government.

**Implementation**
There is no specific mechanism or budget detailed for implementing the Concerted Action however it is implied that this will be fulfilled through government supported action. According to the CMS Concerted Action: ‘At present, two major projects with a core focus being the recovery of *Platanista gangetica* are being supported by India’s Ministry of Water Resources, River Development & Ganga Rejuvenation and Ministry of Environment, Forests, and Climate Change. These include the National Mission for Clean Ganga’s biodiversity documentation project and the Compensatory Afforestation Management and Action Plan (CAMPA)-funded Species Recovery Program for Ganges River Dolphins. Both are well-
endowed projects helmed by scientists from the Wildlife Institute of India, a premier governmental organization.

2.7 International Whaling Commission South Asian River dolphin Task Team

Discussion and deliberations within the Scientific Committee (SC) of the International Whaling Commission led to the formation of a Task Team, in 2017, to assess emerging issues from across the range of the South Asian river dolphins. The IWC creates task teams to provide timely advice on situations where populations of cetaceans are known or suspected to be in danger of significant decline that could lead to extirpation or extinction, with the ultimate aim of ensuring that this does not occur. A meeting of the Task Team occurred from 19th to 21st July 2019 in Kuala Lumpur, Malaysia.

Overall Goal or Scope
The Task Team workshop aimed to:

a) Identify information gaps and research priorities for South Asian river dolphin populations;
b) Identify research projects that require coordinated effort and sharing of expertise;
c) Identify key threats across the entire range of the species and any region – or country-specific threats;
d) Communicate the results of the workshop to government agencies and other bodies concerned with river wildlife conservation.

The following themes were discussed in detail:
- dams, hydro-climatic change and water availability;
- population surveys and ecological modelling approaches;
- dolphin bycatch and human use of the animals (aquatic wild meat)

Geographic Focus
The workshop and the recommendations considered the entire range of the South Asian river dolphin in all four range states and included experts from all countries.

Timeline
The recommendations include dates by which they should be initiated or completed. These timeframes are typically fairly short, e.g. 2-3 years.

Development Process
The report of the IWC Task Team was developed at a workshop held from 19th to 21st July 2019 in Kuala Lumpur, Malaysia. The workshop was attended by a small number of experts including 1-2 from each range state and a handful of international experts.

Activities/Recommendations
The workshop made 8 recommendations detailed below
- all existing survey methods in use for population estimation be reviewed, and a decision system prepared to guide monitoring agencies and conservationists to identify and implement statistically robust and optimal survey methods based on river conditions and available survey resources.
- starting from 2020, surveys to establish population size be initiated as early as possible in the Padma, Jamuna and Meghna mainstems and tributary networks (excluding the Bangladesh Sundarbans), Bangladesh and the Budhi Gandak, Baghmati, Rapti and Mahananda, India.
- the review of Platanista taxonomy be completed and published.
- as a priority, studies to be conducted to better understand movements of dolphins across barrages in all countries and quantify the extent of population connectivity and impacts on dolphin populations in fragmented riverine habitats.
- Pingers are assessed as an effective tool, both to minimise bycatch and to reduce the risk of dolphins becoming stranded in canals.
- A feasibility study should be conducted to assess areas and methods to translocate Indus River dolphins (WWF-Pakistan) and to adapt existing marine mammal translocation initiatives specifically for river dolphins (co-ordinated by the Society for Marine Mammalogy and IUCN).
- as a priority and with data currently available, assess the level of dolphin bycatch throughout the species’ range and evaluate its impact on local populations. From the outcomes of this assessment, provide recommendations for future monitoring and actions to mitigate impacts, ranging from technical changes to the revision of fisheries policies.
- assessment be undertaken of the extent of targeted take and the use of dolphins for oil and as wild meat, particularly in India and Bangladesh, by involving social and ecological scientists – as part of co-ordinated survey actions listed above.

**Implementation**
Each recommendation includes an implementing agency or agencies responsible.

3.1 Action Plan Timeframe

Of the five documents reviewed and summarised in the previous section, two, the 1997 Asian River Dolphin Committee Report and the IWC South Asian River dolphin Task Team report provided recommendations to advise governments on what they should do for the species, but, they were purely advisory documents and not action plans that were intended to be implemented directly.

Of the remaining three documents, the Indian Dolphin Action Plan, the Bangladesh Dolphin Action plan and the CMS Concerted Action, the Indian Action plan spanned the period 2010-2020 and thus has expired, the Bangladesh Action Plan is only just developed and has not yet been approved by the Government and is still in draft form, therefore it is only the CMS Concerted Action that is actually being implemented at present.

3.2 Action Plan Content

- The Indian Action Plan 2010-2020 is now expired. It was a scientifically robust document with clear objectives that provided a landmark in Ganges dolphin conservation and management at that time. It was a very significant publication and marked a big increase in the perceived importance of the Gangetic dolphin coinciding with its nomination as the National Aquatic Animal. The main actions and activities that it contained were largely scientific research, and it was extremely low on details regarding exactly which studies were required and how they should be accomplished as well as detail on how aspects such as community led work, awareness raising and liaison among different Ministries would occur. The document was useful as an overarching strategy but in order to be enacted to be effective it needed a far greater financial investment than was available, and for each of the individual actions to be elaborated extensively with its own detailed action plan, monitoring strategy and indicators etc. The 2014 Workshop on Implementation of the Action Plan was an important step to develop the original actions and explore what was required to implement them.

- The CMS Concerted Action which is currently being implemented is a much more advanced and detailed document than the Indian Action plan. However, it was developed following CMS guidelines for Concerted Actions (see, https://www.cms.int/sites/default/files/document/cms_cop12_res12.28_concerted-actions_e.pdf) and has a defined scope to tackle several specific threats and is not intended to be an action plan to address all threats for the entire species across the entire range of all countries. It is also intended to be accomplished in a relatively short time frame (3 years) and therefore actions are relatively short-term. The document is low on detail regarding how it will be financed and how it will be implemented and by whom.
• The draft Bangladesh Action Plan is the most comprehensive and detailed of all the dolphin action plans. It includes a large number of activities that are specifically to address the most important threats, it includes identification of key habitats, protection of those habitats, aspects of transboundary conservation, water allocation, and liaison between government departments. There are also a number of activities that involve education, awareness raising, capacity building and working with fisher and riverside communities, all of which are of great importance for making positive changes for river dolphins. Most importantly the budget described is sufficiently large to enable the type of interventions described to be conducted on the scale to make a positive impact. It is unclear at this stage whether the described budget is actually available, and work would need to be conducted to involve the other government ministries and departments noted.

• All action plans are fairly high level documents with overarching goals and activities but few details on how those will be implemented.

3.3 Action Plan Finances and Budgeting

Information on the finances and budget required or available for each of the three action plans is extremely limited. The CMS Concerted Action does not have a budget attached to individual actions or the entire plan and it is totally unknown how much it will cost and how it will be financed. The Indian Action Plan includes rough estimates of cost against the main actions, however, the entire budgeted amount is far too small to be effective at changing the conservation status of the dolphin, and it is anyway unclear whether the budgeted sums are actually available and will be allocated. The Bangladesh Action Plan does include far more detail in terms of actions, indicators and costs and the overall budget is large enough to actually accomplish the tasks mentioned. However, it is unclear whether such a large budget, US$18 Million, is actually available from the government to support the actions.

3.4 Action Plan Implementation

Implementation of Action Plans is the major hurdle to effective conservation of the Ganges dolphin. The various recommendations and actions detailed in the documents reviewed here, as well as those available as the products of many other smaller meetings, provide numerous recommendations as to what is required to address threats and improve the status of the species. It is taking those recommendations and implementing them that is the real hurdle to Ganges dolphin conservation.

The lead organisation for implementation is generally the government forest / environment / wildlife departments and there can be a lack of transparency to those outside the government circles regarding what actions are, or are not being conducted, and lack of open collaboration with other non-governmental organisations.

The action plans are really just a starting point and or a strategy, in order to actually be implemented each individual action would require its own detailed plan, indicators, actors, time frame and budget as well as strategy for monitoring of success. To date no such advanced planning has been conducted, or
monitoring of success. For example, the Ganges dolphin conservation action plan recommends transboundary cooperation for maintaining flows, however, it does not prescribe an institutional coordination mechanism or process. Moreover, it does not consider the political economy or elements of geopolitical contestations while prescribing transboundary cooperation to maintain flows and therefore the recommendation is almost certainly doomed to failure and is simply existing on paper. The action plan also mentions that “Environmental Impact Assessments (EIAs) of (developmental) projects need to focus and indicate possible impact of the proposed activities on dolphins. However, it falls short in recognizing that a) large infrastructural projects such as hydropower plants have cumulative impact and transboundary implications in the same basin; b) efforts to strategise and mitigate impact of such projects on dolphin habitats require assessments at a transboundary scale; and c) the action plan does not take into account the anticipated upstream and downstream impacts of proposed hydropower projects in the GBM basin and the burden sharing that would be required to mitigate adverse impacts on dolphin habitats d) does not lay out a framework for how impacts to dolphins might be evaluated to offer guidance to EIA practitioners.

Most actions require collaboration amongst many different organisations and government departments to be effective and mechanisms for coordination, collaboration, sharing of information are frequently lacking. The action plans are generally developed by scientists, conservationists or wildlife managers and not in collaboration with other key stakeholders, for example water resources departments, fisheries departments, pollution control board representatives, fisher community members, and therefore these important stakeholders are not a part of the process or of finding solutions.

Probably the biggest issue with regards to implementation of Ganges dolphin action plans is that addressing many of the overarching threats to the Ganges dolphin, including aspects such as pollution, construction of dams and other water infrastructure, maintenance of ecological flows etc involve working with actors, officials, departments and ministries who at best have low interest or motivation to make changes that will benefit dolphins and in many/most cases who have priorities that are absolutely in conflict with Ganges dolphin conservation.

3.5 Action Plan Monitoring

None of the action plans have laid out a method or mechanism for monitoring progress towards achieving goals and for transparently communicating progress. Monitoring should be an essential component of any plan so that it is clear whether action is progressing, so that hurdles can be identified and the plan adapted if necessary. One of the challenges with evaluating how effective each plan has been is that there have not been any progress reports produced that document what activities have been conducted or what elements have been accomplished and which have not. Lack of monitoring and regular progress reports and clear communication is a clear weakness in all of the current action plans and contributed to the lack of implementation.
4. Summary: conclusions and recommendations regarding Ganges river dolphin Action Plans

Action Plan Content

- Ganges action plans are heavy with scientific research and weaker in terms of community engagement and education, transboundary work and details on implementation.
- Bangladesh action plan is well thought out and balanced and includes the majority of key elements required in an action plan, including scientific research, community engagement, capacity building and education etc.
- CMS CA is short-term and intended only to address a few key topics and not be a species action plan.
- All action plans address the important threats and thus if implemented should improve conservation status of the species.
- Unrealistic goals – some goals, such as ensuring adequate flows downstream of transboundary barrages are absolutely unrealistic and unlikely to succeed, especially because of the absence of a plan on how this goal would be achieved through what actions and mechanisms.

Overall conclusion – the content of action plans is adequate. It is implementation that is weak.

Budget

- To change the trajectory of species trends requires sustained financial input to consistent and well thought out activities over time.
- India budget too small to be effective.
- Bangladesh budget large enough to be effective but are those funds actually available?
- CMS budget is not stated.

Overall conclusion: there needs to be a significant financial contribution consistently invested over the long-term in order to be able to implement the action plan and to result in a change in the status of the dolphin. Available budgets to date have been too small to effect change.

Implementation

- Making recommendations on paper is relatively easy. Implementing action on the ground to address recommendations is much more challenging, especially where budgets are limited and lead and supporting agencies are not invested.
- Most action plans the implementing agency is the government Ministry of Environment or Forests depending on country.
- Each individual action within each action plan requires its own implementation and monitoring plan including priority locations, timelines and budgets and a monitoring plan.
- Many of the identified actions require involvement of other government departments who have no interest, expertise or remit to implement actions. These organisations need to be involved in the development of the plan.

Overall conclusions:

Action plans do not implement themselves. Each action needs a full and detailed implementation plan, detailed budget and a monitoring and reporting strategy.
Actions reliant on other government departments that have remits that do not feature dolphins as important will fail without a very specific strategy for engagement and their early involvement in plan development.

Monitoring / Reporting

- None of the action plans have laid out a method or mechanism for monitoring progress towards achieving goals and for transparently communicating progress.
- Monitoring includes more than just monitoring dolphin populations, but monitoring progress towards meeting each step of the implementation plan and adaptive management of the plan.
- Reporting back to the wider community on progress towards meeting identified goals in the action plan has also been missing, meaning a lack of transparency about what is happening.

Overall conclusion: monitoring, reporting and transparency in communicating progress are currently very weak making it hard to evaluate how well action plans have been implemented.

Regional Coordination and Collaboration

- Almost all action plans include the need for regional coordination and collaboration.
- None of the action plans propose a mechanism for how this would be achieved.

Overall conclusion: there is a need for regional coordination and collaboration, including a governance structure to make that happen

edd new DAP for long term purpose.
5. References


