



# Darwin Initiative Annual Report

## Important note:

To be completed with reference to the Reporting Guidance Notes for Project Leaders: it is expected that this report will be about 10 pages in length, excluding annexes



**Submission Deadline: 30 April 2012**

## 1. Darwin Project Information

Project Reference	18-006
Project Title	Integrated River Dolphin Conservation for Sustainable Ecosystem Services in the Brahmaputra
Host Country/ies	India
UK contract holder institution	Zoological Society of London
Host country partner institutions	Aaranyak
Other partner institutions	Wildlife Institute of India, Department of Environment and Forest (Wildlife)
Darwin Grant Value	£292,000
Start/end dates of project	1 July 2010 – 30 June 2013
Reporting period (eg Apr 2010 – Mar 2011) and number (eg Annual Report 1, 2, 3)	April 2011-March 2012 Annual Report 2
Project Leader name	Lucy Boddam-Whetham, Dr Wakid Abdul
Project website	<a href="http://www.zsl.org/conservation/regions/asia/river-dolphin-india/">http://www.zsl.org/conservation/regions/asia/river-dolphin-india/</a>
Report authors, main contributors and date	Lucy Boddam-Whetham, Abdul Wakid, Rajan Amin, Helen Wilson. 30 April 2012.

## 2. Project Background

The Endangered Ganges River dolphin (*Platanista gangetica gangetica*); CITES & CMS Appendix 1, Schedule I species - Wildlife Act of India) occurs in the Ganges-Brahmaputra-Meghna and Karnaphuli river systems of India-Nepal and Bangladesh, with a surviving population of approx. 2,000 individuals. Following the extinction of the Yangtze River dolphin, the Ganges River dolphin together with the endangered Indus River dolphin, are now the world's most threatened freshwater cetaceans. Few robust data are available on their regional status or on the significance of the different drivers of their ongoing decline which include overfishing (resource depletion, by-catch and direct exploitation), habitat alteration, water development projects, and pollution of industrial, agricultural and domestic origin, and even less is known about other threats such as disease. Since the threats to dolphins also have wider impacts on freshwater biodiversity and the human communities dependent upon freshwater resources, long-term dolphin conservation must also address factors including maintenance of fish stocks and water quality within a wider-scale integrated conservation framework.

The Brahmaputra River originates in Tibet and flows through India (Arunachal Pradesh and Assam) into Bangladesh, before reaching its delta with the Bay of Bengal (figure 1). Until recently, it was one of the last refuges containing relatively healthy populations of Ganges River dolphins, but research by the Assamese NGO, Aaranyak, indicates that this population is now highly threatened and is experiencing a severe decline, with <300 surviving individuals. There is therefore an urgent need to develop a long-term integrated conservation programme for the Brahmaputra dolphin, involving leading research, applied conservation action, capacity building and environmental education/awareness. The enhanced quantitative evidence-base and

conservation skill set that will be established for understanding dolphin decline, and supporting population recovery and wider-scale ecosystem regeneration will then be transferrable across the species' range. Successful river management will require effective planning, implementation and enforcement, which in turn will depend partly on the resources, priorities and political will of those in positions of authority, and partly on the understanding and support of local people.

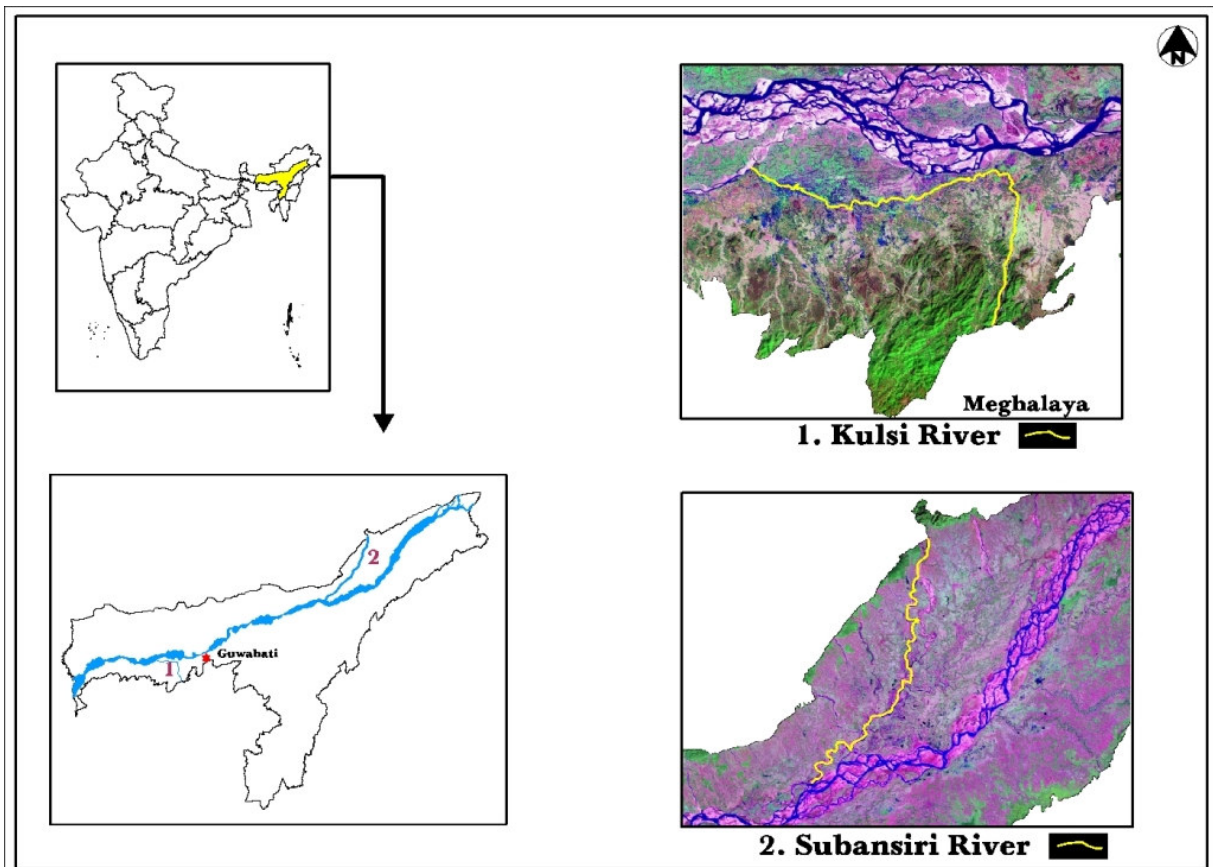


Figure 1. Project location.

The project was initiated by ZSL in response to an appeal by Aaranyak for support for dolphin conservation. It was setup with the following objectives:

1. To implement quantitative methods for monitoring dolphin status, habitat preferences and population movements in a dynamic, challenging riverine environment, using visual/acoustic surveys, habitat/prey-base mapping, spatial analysis, and local interview techniques.
2. To investigate the significance of different threat factors responsible for dolphin mortality, using international post-mortem protocols, interview data, and initiating efforts to reduce/prevent the prioritized threats in association with concerned stakeholders.
3. To quantify effects of water-borne pollutants on dolphins, the Brahmaputra ecosystem and riverside communities through water quality monitoring.
4. To strengthen local stakeholder capacity to protect identified dolphin hotspot habitats.

These initiatives will be complemented by collaborative investigation of associated trends in commercially and/or ecologically important fish species and other indices of wider-scale ecosystem health. The resulting scientific evidence-base will permit development and implementation of appropriate sustainable recovery plans for both the Brahmaputra dolphin population and regional freshwater ecosystem services through in situ community-based conservation areas and protected area river sections with associated protective management mechanisms.

### 3. Project Partnerships

#### **LEAD HOST COUNTRY PARTNER: Aaranyak**

Aaranyak is the primary environmental conservation NGO in northeast India and also a recognized Scientific and Industrial Research Organisation (SIRO). They have considerable experience in conservation of river dolphins in the Brahmaputra river system through their Gangetic Dolphin Research Conservation Programme. Aaranyak has taken the lead role in implementing and managing the project in Assam. They have taken responsibility for: the hire of field staff; the construction of the survey boat; equipments procure; strengthening community based Dolphin Conservation Network in 30 priority sites; the production of education and publicity material; establishing a community engagement and awareness programme through local theatre group, conducting Dolphin Yatra; alternate livelihood pilot project; threat assessments (dolphin oil fish bait; fisheries surveys, carcass monitoring); advocacy and input into policy (dams); training and liaising with local partners including the State Forest Department; and conducting the dolphin surveys. Aaranyak have worked closely with ZSL, collaborating on survey design, development of methods for the surveys and data analysis. ZSL has also provided technical and administrative support to Aaranyak and have assisted in the procurement of equipment. Three field visits were made by ZSL staff during the second year of the project (including an assessment visit in December 2011). The partnership has also been managed through regular email, Skype and telephone communication and the production of monthly progress reports.

#### **OTHER PARTNERSHIPS: Wildlife Institute of India (WII)**

The Wildlife Institute of India is the premier wildlife research organisation in India under the Ministry of Environment & Forest Govt. of India, with considerable experience in endangered species research and management, and influencing policy and legislation of wildlife conservation in India. The partnership operates under a MoU between ZSL and WII. WII have been involved with the project thus far in an advisory capacity. Survey design and methodologies have been developed with input from Professor Qamar Qureshi (a Senior Faculty at WII). WII is also providing technical input into data analysis and capacity building. As the project develops, WII will be providing input at the policy to develop an appropriate River Conservation Programme for the Brahmaputra River.

#### **OTHER PARTNERSHIPS: Department of Environment and Forest (Assam)**

The Wildlife Division of the Department of Environment and Forest, Govt. Of India, is the management authority of the Ganges River Dolphin in Assam. During Year two, the Department granted necessary permission to undertake the project on the Brahmaputra. It is expected that in year 3 they will provide management support and policy revision based on the dolphin survey results.

**OTHER PARTNERSHIPS: Dr. Tomonari Akamatsu, National Research Institute of Fisheries Engineering, Japan.** A collaboration has been established with Dr. Tomonari Akamatsu, who heads the bioacoustics group at the National Research Institute of Fisheries Engineering, Japan. Dr. Akamatsu visited the project site in January, 2012. During the visit he demonstrated the use of acoustic methods to survey river dolphins, trained four local scientists in the survey methods, data collection and data analysis. He donated two hydrophones which were used widely in conjunction with the visual survey methods to assess the river dolphin population in Feb-Mar, 2012. Dr. Akamatsu has continued to provide input to the project by advising with survey design and acoustic data analysis.

#### **CBD FOCAL POINT**

Outputs of the project in the second year have contributed to the Indian Government's obligations to the CBD including: Improving capacity of local NGOs and field biologists in the conservation of threatened species through a training workshop held for members of the dolphin conservation network and the involvement of local MSc students in the project; Protecting biodiversity through standardised monitoring of key environmental and biological parameters of the riverine ecosystem, which feed into legislation and protective mechanisms; Exchange of information through collaboration and sharing of data entry forms and methods with the team working on river dolphins in Bangladesh and the Vikramshila Sanctuary, Bihar.

## 4. Project Progress

### 4.1 Progress in carrying out project activities

**Output 1:** Coordination framework and institutionalised monitoring and reporting systems at the Brahmaputra River basin level in Assam (activities carried out listed below).

**1.1** Steering committee established; project management reporting procedures and ToRs setup; project meeting held in Guwahati - attended by all partners and relevant NGOs, groups; working groups for each project area established and detailed implementation plans drawn up.

This activity is now complete, delays occurred due to delays in obtaining permission for foreign nationals to visit and support relevant project sites. Permission has now been received from the Chief Wildlife Warden of Govt of Assam. The steering committee has now been established

and consists of ZSL Conservation Programme staff including: Dr Rajan Amin; Dr Matthew Gollock; Dr Heather Kolderway, Lucy Boddam-Whetham and staff from Aaranyak including Project Leader in Assam Dr Abdul Wakid, Dr Bibhab Talukdar (Secretary General, Aaranyak) and Shyamal Datta (Director, Aaranyak). Now that the winter surveying is complete, monthly Skype meetings of at least three members of this committee will be held to review project progress following submission of the monthly progress update.

**1.2** Project research posts advertised, interviews held, two Indian scientists with relevant experience in freshwater ecology recruited as research staff; 2 local research assistants recruited; ToRs and contracts setup.

Recruitment of suitably qualified staff has been very challenging and the four positions including two PhD researchers have had to be replaced by a number of recent graduates as project researchers and assistants. Following the most recent recruitment of a Project Administrator this activity is now complete and the chosen staff are doing well in their positions, as well as their specific responsibilities as listed below, they also take part in the dolphin monitoring surveys. The Project Administrator has been taken on to assist with all financial and administration tasks. The team continues to be lead by Dr Abdul Wakid. The three Researchers also took part in ZSL's Edge of Existence Conservation Tools training course which was held over four weeks in Nepal in November, 2011 to build their knowledge further.

Researchers:	Project officer/assistants:
Miss Sunny Deori – Fisheries assessment study Mr Chandan Ri – Dolphin oil use study Miss Anumitra. Phukan- Pollutants and water quality study	Ms Sonali Sarna – Coordinator of the Dolphin Conservation Network (DCN) Mr Dhruva Chetri- boat manager and surveys Miss Ankita Sarkar – GIS database development (Aaranyak GIS Group) under the guidance of Dr. Pranjit Sharma, Head, GIS Division, Aaranyak Mr. Manoj Das – Environmental education Mr. Biswa Das - Environmental education Mr Zakir Bora – Project Administrator

Lucy Boddam-Whetham took over as UK Project Leader at the beginning of 2012; Rajan Amin continues to act as Technical Advisor. Helen Wilson started a six-month internship in February to provide project support from the UK.

**1.3** Purpose-built boat constructed; additional river boat procured for use in smaller tributaries, monitoring and sample analysis equipment procured and installed for dolphin and ecosystem surveys.

Due to a lack of suitable boat building skills and man-power in Assam, and the considerable costs associated, the boat construction was delayed. Heavy monsoon rain in 2010 caused additional construction delays due to non-availability of boat construction materials. The team developed the boat design by themselves to make it suitable both as survey boat as well as education boat with all lodging, survey and community interaction facilities needed. Construction was completed in ten months. The boat is 75 feet long, with six cabins, two engines and has two fixed observation platforms and other survey facilities (Annex 3.1). This boat is a major resource for the long term research and conservation work on the Gangetic dolphin and wider ecosystem of the Brahmaputra river system. (The boat completion was published in an article from the India *Telegraph* newspaper (Annex 3.2). Instead of procuring an additional smaller boat for tributary surveys as the main survey boat is too large, the team is hiring locally available country boats from the local community for survey work in both Kulsri and Subansiri River.

**1.4** GIS database system for Brahmaputra River dolphin and ecosystem developed with detailed design specification approved by steering committee; manual produced; at least two project core staff trained in its use.

The database development has been completed, and a manual produced (Annex 3.3). Training of four project staff on the use of GIS database has also been completed. Recent survey data (Feb-Mar, 12) (including tracks, waypoints, habitat quality and anthropogenic activities) is being

fed into the database. Substantial baseline spatial data has been compiled into this geo-database and initial analysis / modelling performed. The database is being used for the following outputs: (a) to understand and monitoring spacio-temporal trends in the status and distribution of dolphins; (b) to monitor drivers / threats to dolphins over time and space in conjunction with dolphin distributions; (c) to identify / refine priority sites for targeted conservation both community based as well as strengthening protected areas; (d) to produce maps and reports for site and policy level decision-making and advocacy and also for awareness raising; (e) to perform a Population and Habitat Viability Assessment (PHVA) analysis and developing of strategic plans; (f) to ensure compilation and integration of all relevant data within one platform to provide a standardised approach for future monitoring and management.

**1.5** Protocols, training material and data recording forms developed and at least 5 programme core staff and 30 Dolphin Conservation Network (DCN) members trained in standardised land-based dolphin surveys.

The training manual has been completed, as well as training of 30 DCN members and core programme staff. Accredited DCN members have also been given the role of training new staff as well as for refresher training. Mentoring and support will continue to be provided especially during the initial phases to ensure high quality of training. Monthly progress reports also help identify weaknesses and the need for targeted training. DCN members were selected due to being educated and with an interest in nature/environment as well as their locality to the nearest prioritised dolphin habitats. The first revised training was delivered in March, 2011, where altogether 26 DCN members participated from 25 different sites. New land-based dolphin and habitat monitoring protocols including data recording forms were introduced and these DCN members were trained on these new protocols. They started land-based dolphin and habitat monitoring from the first week of April 2011. This monitoring process continued for seven months until October 2011 to cover the entire summer season (April-October), the season which has the potential to have the highest dolphin mortalities. After that an assessment was done on the effectiveness with the newly introduced monitoring protocol, a couple of weaknesses were observed, which were later corrected and a modified monitoring protocol was introduced. The DCN members were trained in this newly modified land-based dolphin and habitat monitoring protocol in November, 2011. Altogether 38 DCN members from 30 DCN sites participated in this training camp in Gangetic dolphin biology and conservation. The trainees are now working in their respective sites conducting regular land-based dolphin and ecosystem monitoring as well as undertaking community engagement and awareness campaigns, co-ordinated by the DCN co-ordinator from Dec 2011 to March 2012 and considerable progress was achieved during this time (Annex 3.4). Altogether 882 land-based dolphin monitoring efforts were conducted in 2011-12 with mortality records of nine dolphins. Altogether 145 awareness campaigns were conducted by these DCN members, with approx. 1189 people participating. These campaigns seem to be increasing the interest of the local community, especially the school children, in conserving the dolphins within their locality. The campaigns are also helping to reinforce the idea that DCN members are the dolphin ambassadors of that area. In many DCN sites, the community has been coming to the DCN member to report any dolphin mortality, dolphin habitat disturbance or any wild animal rescue problems. DCN members did an excellent job in the stranded dolphin case in Dikhow River between Dec,11-March, 12 and in Beki River on 13 March 12. Also, the DCN did an excellent job in the carcass recovery of one calf dolphin in Jugighopa on 17 June 2011, one adult dolphin Dikhow river dolphin on 18 March, 12 and one calf carcass recovery in Subansiri River on 19 April 12. It is vital that the Forest Dept are able to collect any carcasses quickly so that the dolphins are not interfered with and cause of death can be verified, also the communities see that this is a protected animal.

**1.6** Land-based dolphin and habitat monitoring surveys (weekly) in 30 priority sites across Brahmaputra Valley initiated by trained DCN members supported by research staff; monthly progress reporting template developed and implemented in the 30 sites.

DCN staff continue to conduct land-based dolphin and habitats monitoring every Sunday in 30 priority sites. Monitoring data is collected on a weekly basis by the DCN Coordinator, who uses the information for the monthly report preparation with the following objectives:(a) as a simple surveillance / early warning system for monitoring dolphins and high impact / illegal activities;

(b) to provide on-going basic standardised data on movement patterns and an index of status within these priority areas; (c) to use this information for targeted community engagement activities and encourage involvement of the wider community in dolphin conservation. The DCN Coordinator has already made extensive field visits covering all of the DCN sites to monitor the progress of the work.

**1.9 Detailed specific research projects, methodologies, monitoring and data collection procedures developed for quantifying factors impacting on dolphins and wider ecosystem; identified staff enrolled in PhD research, training, projects initiated.**

The following topics were identified as part of the research projects:

- a. Impact of pollutants (industrial, agricultural and domestic) on dolphins and fish (necropsies, water quality testing etc): Anumitra Phukan, is leading this study. A literature review is currently being done (Annex 3.5). A detailed water quality assessment has already been carried out along a 980 km stretch of the Brahmaputra, 65 km stretch of Kulsi River and 96 km stretch of Subansiri River alongside the Feb-Mar 2012 dolphin surveys. Analysis of the results are ongoing with expected results and reports by June 2012. Mapping of medium to high impact sites is also being undertaken, which will help to develop a longer term standardised monitoring programme on selected sites and will also help at the policy level.
- b. Dolphin mortality levels and causes: (This is reliant on permission from the Forest Dept, an application has been submitted). Baseline data collection on mortality is ongoing with the help of mortality monitoring system of Dolphin Conservation Network. This work is currently limited to observational cause of death, until permission is received to handle the carcasses and be able to carry out post-mortems which will strengthen the understanding of the cause of death (see 1.12).
- c. Riverine habitat status and restoration: GIS-based habitat mapping completed. The team has done extensive digitisation on satellite imagery and also initial modelling. Field based habitat assessment has been completed alongside the dolphin survey in the entire distribution range of the species across the Brahmaputra Valley. Data analysis is being carried out and the report is expected in June 2012.

- e. Impact of siltation and sand-mining: The siltation and sand mining is a major disturbing factor for the dolphins of Kulsi River. The team has already established good linkages with the local communities involved in sand mining, the lease holders and concerned divisional forest office. Field data collection is being completed on the intensity of sand mining in this river. Data analysis is ongoing. This data collection will continue seasonally and based on the data analysis, an action plan will be developed in year 3 to minimize / prevent sand mining impact on dolphins, which will be submitted to the concerned management authority.
- f. Dolphin sensitivity to salinity, water depth and temperature (inc. climate change impact): Data has already been collected on the impact of these parameters on the distribution pattern and habitat selection of the species in the entire Brahmaputra river system during the already completed dolphin survey. Report is expected in late June 2012.
- g. Development of river system protected area network (community based and expanding existing grassland and floodplain protected areas of Dibru-Sikhowa NP, Kaziranga NP and Orang NP), concept paper: This will be completed within October 2012 once the collected data analysis and report is completed as well as priority sites identified.

- h. Impact of commercial non-traditional fishing on dolphins and fish stocks (fish surveys): The survey questionnaire on commercial non-traditional fishery has been developed and trialled. (See activity 2.1 and 2.4).
- i. Cost-benefit analysis of aquacultures and alternative livelihoods (medicinal and aromatic cash crop), recommendations on fisheries based livelihood options: In aquaculture as a potential alternate livelihood, site visits and discussions were held with the few local aquaculture providers / managers, experts and input from ZSL. Significant investment is required for setup, maintenance, long term training and support for communities and their full participation is needed in order to reduce fishing in the river system. There is also a risk of invasive species introduced if not fully controlled and licensed. The aim now is to provide an assessment and recommendations to feed into the longer term management plan. For medicinal and aromatic plant, Vetiver was the only plant identified to grow in the poor sandy soils. Following cost-benefit analysis by North Eastern Development Finance Corporation (NEDFi) it was concluded that it would need significant scaling up for buyers to be interested. This would need a long term plan and again recommendations will feed into the action plan. Evaluation also showed that fishermen are less enthusiastic given it's a very different occupation from what they have been doing for generations. For all these reasons, water hyacinth based cottage industry has been chosen to pilot. NEDFi is already promoting this; there is a ready market and long term support from NEDFi so it is institutionalised and environmentally positive activity. Water hyacinth is a major invasive in river systems, causing environmental problems as well as problems for the fisherman.
- j. Site and national dolphin recovery plans: Planned for year 3.

There have been no PhD students enrolled so this element will be removed as per the revised work plan.

**1.12** Standardised dolphin post mortem procedures developed; training of at least four veterinary college department (Assam) staff completed in post-mortem, necropsy and pathology.

This is currently reliant on receiving permission to handle carcasses from the Forest Department. However in the meantime, the project is working with the ZSL-based Cetacean Stranding Investigation Programme (CSIP) who are starting to work towards developing a standardised necropsy protocol and appropriate training materials to help provide training for the local veterinarians (including a video of a life-demonstration of a post-mortem of a marine dolphin or porpoise and training materials appropriate for field necropsy or tissue sampling on site in India depending on the freshness of the carcass).

**2.2** Protocols, training material and data recording forms developed and at least 5 programme core staff and 30 DCN members trained in standardised boat-based dolphin surveys.

Protocols, training materials and data recording forms for boat based dolphin survey were finalised after some trial surveys in Nov-Dec 2011 in Brahmaputra with inputs from Qamar Qureshi (WII), Raj Amin (ZSL) and Tomonari Akamatsu (Japan). These protocols were reviewed by the IUCN SSC Cetacean Specialist Group experts, namely Brian Smith (Wildlife Conservation Society, USA) and Gill Braulik (University of St. Andrews, UK). Based on their review comments, the protocols were finalised. (Annex 3.6). All the project staff were trained in this finalised survey methodology. This methodology is a combination of four survey methods: direct sighting, distance sampling, mark-recapture and acoustic surveying. Core staff members participated in the trial survey and new observers were trained before the main survey. Preliminary training included investigations to find appropriate boat speed to prevent boat avoidance and to prevent double count. Detailed training in distance surveying was also completed in order for the survey team to accurately measure distance and angle of sightings. Training in age classification was also conducted. Protocols and data recording forms developed. Dr Tomonari Akamatsu visited the project and provided further technical advice for the staff in the use of acoustic surveillance technology in an extensive training session between 6-13 January 2012.

**2.3** Winter standardised dolphin and habitat survey across the Brahmaputra mainstream and its tributaries completed (inc. acoustic and sample collection/analyses); database populated, report and maps produced and circulated to relevant stakeholders and steering committee.



The first standardised winter dolphin and habitat survey was conducted in February and March 2012. This was one of the major exercises of the project, which altogether involved four teams to work simultaneously with two observer teams, one habitat data recorder team and one acoustic data recorder team. The survey covered the entire dolphin inhabited river stretch of Brahmaputra river system including 890 km stretch of Brahmaputra River from Assam-Arunachal Pradesh border to India-Bangladesh border, 65 km stretch of Kushi River and 96 km stretch of Subansiri River. The survey was started on 10 Feb 2012 and completed on 6 April 2012. The Data entry has been completed and data analysis will be completed in May 2012 at the Wildlife Institute of India. One of the aims of this whole survey is to standardize dolphin survey methodology for Gangetic dolphin in Brahmaputra and later bring it to the national level for all India dolphin surveys coordinated by the Wildlife Institute of India.

**2.9 Early summer/pre-monsoon season standardised dolphin and habitat survey across the Brahmaputra mainstream and its tributaries initiated (inc. acoustic and sample collection/analyses).**

An early summer dolphin and habitat survey was carried out in April-June 2011 as a trial of the new survey methodology. The next summer survey will be carried out in the tributaries in June 2012 and the results and reports will be produced by October 2012. It will be useful to see the difference of dolphin distribution on seasonal level and identifying factors affecting this seasonal distribution.

**Output 2:** Enhanced capacity of local authorities and fishing communities for dolphin population recovery and for contributing towards wider-scale ecosystem management.

**1.7 Development of initial set of material and tools for community outreach and awareness activities completed; training of at least two programme staff and 30 DCN members completed.**

Two Environmental Educators, Manoj Das and Biswa Das, joined the project at the beginning of January 2012. Posters and booklets targeting school students (Class-V to X) have been printed (Annex 3.8). The Dolphin Conservation Drama and a dedicated well trained theatre troupe were formed from DCN members and local fishing community members, after a two week long drama workshop in Guwahati in November 2011 in association with Earthbeat, Nepal. 30 DCN Members and the selected theatre troupe members were trained on the use of these Environmental Education (EE) tools, and how to reach local communities. Finally a team of seven members was developed to bring the developed tools to the communities. A booklet for Class V to VII standard students and a poster for Class VIII to X standard students were developed in 2011. These materials were developed to target the students of the schools primarily located in and around dolphin habitats. The drama described above has been developed for the general public, particularly for fisher communities. Further, a Dolphin Conservation Manual is being developed for Class XI and above, as well as anyone who wishes to know more about the Gangetic dolphin and its conservation.

**1.8 Community engagement and awareness programmes initiated in 30 prioritised dolphin areas by DCN members with support provided on an on-going basis.**

The 30 DCN members were trained on the developed EE tools (posters, booklet, dolphin drama) during the training in November 2011. From December 2011 onwards they conducted local community engagement and awareness activities in and around their allotted DCN sites,

primarily targeting the local fishermen and school students. Within the last three months altogether 145 community awareness programmes being conducted by DCN members, where 1189 community people including 658 students participated.

**1.10** Dolphin Rapid Response Team (DRRT) established; equipment for dolphin carcass sample storage and transportation procured and setup in 30 sites, training of relevant programme staff and 30 DCN members in stranded dolphin releases and carcass collection completed.

A Dolphin Rapid Response Team has been established. The team investigated the dolphin mortalities in Dhubri, identified the associated people, and organized a meeting with them and convinced them not to be involved in such an incident in the future. The team also provided immediate assistance to the stranded dolphin in Dikhow River, which helped the local Forest Department officials in the protection of the dolphin. As well as providing immediate response to the accidental stranded dolphin in Beki River. However, the carcass collection and stranded dolphin release has not been undertaken yet due to permission issue from the local government, for which a separate application has been submitted. This entire aspect is reliant on permission to handle dolphin carcasses being given from the Government of Assam Department of the Environment and Forests. This is a lengthy process, and a proposal with inputs from ZSL has already been submitted to the local Government. This activity has therefore been revised to start in the third year.

**1.11** Training of fishermen in entangled dolphin releases by trained DCN members and programme staff in dolphin core areas completed.

This will be done once the above permission has been approved, since this involves schedule-I species handling.

**1.13** Study initiated on the use of dolphin oil, size and trade followed up by initiatives for preventing use of dolphin oil (protection and awareness-raising of fishermen in hotspots). The study proposal has been completed (Annex 3.7) and the questionnaire has been trialled and finalised. Altogether 42 fishermen were interviewed from four sites. Much needed trust and engagement is being developed by the project team with the concerned fishermen. Data analysis is currently being carried out and the report will be produced in June 2012. Based on this report, follow up initiatives to minimize and prevent dolphin oil use will be undertaken. A collaboration has been established with Prof. R. K. Sinha's team from Ganges, who successfully introduced alternate oil to the fishermen in Bihar.

**1.14** Website enhanced (and maintained) on all partner sites with link to downloadable documents (resource centre).

Education materials (poster, booklet), summary of Dolphin Yatra and photos of recent dolphin survey are being uploaded to Aaranyak's website. Once the other reports are completed, these will also be uploaded.

**2.1** Detailed survey design, data recording forms and procedures developed for fishermen surveys, fishing community socio-economic surveys and fishery data collection at landing and market sites; DCN members and programme staff trained and surveys conducted.

Detailed survey design, data recording forms and protocols were developed for fishermen survey. 14 DCN members and two project staff were trained on data collection protocols. The survey completed in 14 DCN sites covering the seven sectors of Brahmaputra, two sites per sector. Altogether 654 fishermen were interviewed. Data analysis ongoing. Report expected by October 2012. Only fishermen survey completed; landing and market sites were not surveyed, since in these sites, the fishermen also bring the fishes from other non-dolphin inhabited rivers and wetlands. Catch calendars will be investigated in the Yr-3 fishing season.

**2.4** First intensive fishing community engagement and awareness programmes completed along the Brahmaputra mainstream (during the upstream journey of the survey boat).

With all the education tools developed in activity 1.7, the team conducted a massive 'Dolphin Yatra' (in the form of a well-designed drama on dolphin conservation was performed in these sites along with other education tools) in January-March, 2012 carried out in two phases at riverside villages, aiming to promote river dolphin ecosystem conservation. The Yatra covered

about 1100 km of dolphin inhabited river stretches of the Brahmaputra river system, where altogether 51 awareness campaigns were conducted in 49 sites covering 15 districts, where about 20,375 people participated including 6,066 students mainly from the riverside areas (Annex 3.8). This engagement was carried out using the survey boat and a team of 12 boat staff, educators and drama artists. Excellent feedback was received from the local communities where this took place. In many places, the community expressed that for the first time they came to know about the species in such detail. People also openly said that the dolphins were killed due to a lack of awareness and they would now try to prevent any such incidents in the future. In a couple of places, the communities asked that the team conduct more such activities in their area, so that more people will be aware about this.

**2.6** First annual Dolphin Day, review meeting and refresher workshop for project staff and DCN members held.

On the occasion of the International Freshwater Dolphin Day on 24 Oct 2011, the Brahmaputra River Dolphin Day was organised. On 23 October, an interaction programme with various aspects of the research and conservation of Gangetic dolphins in Brahmaputra river system was held and students from 15 different schools and colleges of Guwahati city took part in this event. This was followed on the 24 October by "A Day with Dolphin at Kushi River". About 80 students from local schools, teachers and community youths participated in this event. The programme ended with a conservation drama named "Xihu", which emphasized the key issues of Gangetic Dolphin conservation in the Brahmaputra river system. This was developed by EarthBeat ([www.earthbeat.org](http://www.earthbeat.org)) during a drama workshop held in Guwahati. The same group was a part of the development of ZSL's previous DI project in Nepal. About 300 people from the local community enjoyed the show, where such a drama was performed for the first time and received an excellent reception (Annex 3.9).

**2.8** Analyses of data on the use of dolphin oil, size and trade completed, report circulated to relevant stakeholders; initiatives for stopping use of dolphin oil through protection and awareness-raising of fishermen in hotspots by DCN members.

This has been delayed and will be produced in summer 2012 as per the revised plan sent to Darwin in Jan 2012.

**2.10** DCN activities in 30 priority sites across Brahmaputra Valley by trained DCN members supported by research staff (land-based dolphin and habitat monitoring surveys (weekly); fishermen community engagement activities, stranded dolphin releases and carcass collection, protection, research support activities, monthly reporting etc).

Ongoing. See above

**2.x** Additional activities to promote alternative livelihoods in collaboration with North Eastern Development Finance Corporation (NEDFi).

Collaboration established with NEDFi, a financial organisation based in Guwahati, who was promoting handicrafts made of water hyacinth (fibrous invasive aquatic plant which causes problems not only for the river ecosystem but also for the fisherman) with support from the North Eastern Council of Government of India. Observing the availability of raw materials and its impact on the ecosystem, water hyacinth handicraft product development was identified as a potential alternate livelihood, products can include weaved baskets and bags and even jewellery. Jhanjimukh area was selected as a model site for this water hyacinth based cottage industry development, based on availability of raw materials, fishermen abundance and dolphin abundance. The first skill development workshop for the local community was conducted in 28 Oct-7 Nov 2011, where altogether 26 local people were trained. Among them, one local youth was selected as a mentor for increasing the quality of the products. This mentor was provided with one-month advanced training in Mar 2012 at the NEDFi Centre where experts from Thailand trained altogether 30 of the best water hyacinth craft artisans of North East India. This was followed by another ten-day workshop in the same site. Altogether 23 fishermen received skill development training during this workshop. A cottage has been built to provide a common platform for the product development in this site and provide community support in WH product development. (Annex 3.10). The assessment of the impact of this WH alternate livelihood pilot project and whether it can act as an alternative or just a supplement, will be made in Summer,

2012 when the raw materials will be available in the area and products will be made and marketed.

**Output 3:** Local and national stakeholder supported recovery plans and improved protective mechanisms for Brahmaputra River dolphins and regional freshwater ecosystem.

These activities are not due to begin until year 3.

#### **4.2 Progress towards project outputs**

**Progress towards Output 1:** Coordination framework and institutionalised monitoring and reporting systems at the Brahmaputra River basin level in Assam (activities carried out listed below)

Significant progress has been made towards the development of a coordination framework and institutionalised monitoring and reporting systems at the Brahmaputra River basin level in Assam and an improved appropriately equipped and trained research and standardised monitoring unit has been established. The pilot surveys have been carried out and expert advice sought on which surveying techniques were most suitable for both the large Brahmaputra and the smaller tributaries, with finalisation of the standardized surveying protocol. This has led to a successful winter surveying season which finished in early April 2012. The team will complete the data analysis by June 2012. The findings of this will be incredibly important in providing a clearer picture of dolphin population dynamics; information on dolphin hotspots; highlighting any areas of decline; and further understanding of the level and severity of threats facing the dolphins. In addition, The Dolphin Conservation Network after the SWOT analysis continues to go from strength to strength and is actively carrying out land-based monitoring surveys on a weekly basis.

Unfortunately, we have still not secured permission to handle dolphin carcasses but we are hoping to receive permission for dolphin handling soon from the Chief Wildlife Warden (CWW) of Government of Assam. Whilst we wait for permission we will continue to develop the protocols and training manuals and video needed to assist the vet department with the necropsies once this has been approved. This will be a vital stage in trying to establish more information on what is causing mortalities of dolphins in the Brahmaputra and its tributaries which can aid management and later feed into the conservation action plan.

Focus in year 3 under this output will be; the continuation of the dolphin surveys; all other baseline research, survey and monitoring studies and research information disseminated; priority dolphin segments identified; so that all of this information can be put towards regional plans and enable activities under output 3 to begin.

**Progress towards Output 2:** Enhanced capacity of local authorities and fishing communities for dolphin population recovery and for contributing towards wider-scale ecosystem management

Significant progress has been made towards the community engagement and awareness-raising activities in year 2. All appropriate environmental education materials have been produced and delivered to various schools and river-side communities. A highly motivated dolphin drama team was also formed and trained by Nepalese NGO, Earthbeat. Performances were successfully undertaken both for the urban and rural communities and were delivered along a large stretch of the Brahmaputra river and were well received. The members of the Dolphin Conservation Network (DCN) continue to go from strength-to-strength following an assessment in Year 2 and have all been trained in using the Environmental Education materials as well as carrying out weekly land-based dolphin monitoring and acting as dolphin ambassadors for their site. The DCN is now present in 30 key sites along the Brahmaputra River. Socio-economic fisherman questionnaires have also been established, as well as a study initiated on the use of dolphin oil as fishing bait. In order to try and explore alternative income for the fishing communities, an alternative livelihood pilot project was establishing using water hyacinth as a handicraft material, training workshops were provided and a cottage site base constructed.

Focus in year 3 under this output will be; the continuation of the community outreach and awareness activities in 30 prioritised dolphin areas, including the delivery of the 'Dolphin Yatra' alongside winter dolphin boat surveys; securing permission and enabling the Dolphin Rapid Response Team (DRRT) to train fishermen in entangled dolphin releases; recommendations on alternative uses to dolphin oil; cross-ecosystem linkages developed with Bangladesh river dolphin projects.

**Progress towards Output 3:** Local and national stakeholder supported recovery plans and improved protective mechanisms for Brahmaputra River dolphins and regional freshwater ecosystem.

Activities under this output are planned for year 3 and 4.

The focus will be: to hold a multi- stakeholder workshop in order to develop a regional Species Recovery Plan including site-specific plans, regional species recovery plan (SRP) and a Population and Habitat Viability Assessment; advocacy of Species Recovery Plan to relevant lead agencies and on integration of the plan into Brahmaputra River Action Plan; participatory enforcement plan developed and activities initiated in all dolphin hotspot areas coordinated by DCN members.

#### 4.3 Standard Measures

**Table 1 Project Standard Output Measures**

Code no.	Description	Year 1 Total	Year 2 Total	Year 3 Total	Year 4 Total	Total to date	Number planned for reporting period	Total planned during the project
2	Number of people to attain Masters qualification (MSc, MPhil etc)		1			1	0	1
3	Number of people to attain other qualifications (ie. Not outputs 1 or 2 above)							
4A	Number of undergraduate students to receive training		3			3	3	3
4B	Number of training weeks to be provided		4			4	4	4
4C	Number of postgraduate students to receive training		3			3	3	3
4D	Number of training weeks to be provided		4			4	4	4
6A	Number of people to receive other forms of education/training (which does not fall into categories 1-5 above)	30 DCN	103 38+  50+ WH 15)D W			236	55 (30+25)	55
6B	Number of training weeks to be provided	1	5	1		6	2	4
7	Number of (ie different types - not volume - of material produced) training materials to be produced for use by host country	1	3			4	1	1
13.8	Number of weeks to be	3	5	2	1			

	spent by UK project staff on project work in the host country							
9	Number of species/habitat management plans (or action plans) to be produced for Governments, public authorities, or other implementing agencies in the host country	1			1	1		1
10	Number of individual field guides/manuals to be produced to assist work related to species identification, classification and recording		1			1	1	1
11A	Number of papers to be published in peer reviewed journals				4	4		4
11B	Number of papers to be submitted to peer reviewed journals			4		4		4
12A	Number of computer based databases to be <b>established</b> and handed over to host country		1 GIS			1	1	1
14A	Number of conferences/seminars/workshops to be <b>organised</b> to present/disseminate findings				1	1		1
14B	Number of conferences/seminars/workshops <b>attended</b> at which findings from Darwin project work will be presented/disseminated.			1	1	2	1	2
15A	Number of national press releases in host country(ies)		5	5	5	5	5	15
15B	Number of local press releases in host country(ies)		5	5	5	5	5	15
15C	Number of national press releases in UK				2	2		
16A	Number of newsletters to be produced			2				
16B	Estimated circulation of each newsletter in the host country(ies)							
16C	Estimated circulation of each newsletter in the UK							
17A	Number of dissemination networks to be <b>established</b>							
17B	Number of dissemination networks to be <b>enhanced/ extended</b>					2		
18A	Number of national TV			3	2	5	-	5

	programmes/features in host country(ies)							
18B	Number of national TV programmes/features in UK							
18C	Number of local TV programmes/features in host country(ies)	1	2	2	2	3	2	7
18D	Number of local TV programmes/features in UK							
19A	Number of national radio interviews/features in host county(ies)	1	1			2	1	2
19B	Number of national radio interviews/features in UK			2				
19C	Number of local radio interviews/features in host country(ies)	1	1	1	1	2	1	4
19D	Number of local radio interviews/features in UK							
20	Estimated value (£'s) of physical assets to be handed over to host country(ies)	40,000				40,000		40,000
21	Number of permanent educational/training/research facilities or organisations to be established and then continued after Darwin funding has ceased	1				1		1
23	Value of resources raised from other sources (ie in addition to Darwin funding) for project work	15,000				15,000		15,000

**Table 2 Publications**

Type (eg journals, manual, CDs)	Detail (title, author, year)	Publishers (name, city)	Available from (eg contact address, website)	Cost £
Booklet	Let's know our dolphin 'Hihu'; Gangetic dolphin Research and Conservation Programme, Aaranyak; 2011	Aaranyak	Aaranyak <a href="http://www.aaranyak.org">www.aaranyak.org</a>	Free
Poster	The ideal and disturbed conditions of Gangetic dolphin: Gangetic dolphin Research and Conservation Programme, Aaranyak; 2011	Aaranyak	Aaranyak <a href="http://www.aaranyak.org">www.aaranyak.org</a>	Free
CD	Dolphin Drama: Hihu; Gangetic dolphin Research and Conservation Programme, Aaranyak; 2011	Aaranyak	Aaranyak <a href="http://www.aaranyak.org">www.aaranyak.org</a>	Free
Manual	A guidebook to the conservation of Gangetic dolphin in Brahmaputra (draft); Gangetic dolphin: Gangetic dolphin Research and Conservation	Aaranyak	Aaranyak <a href="http://www.aaranyak.org">www.aaranyak.org</a>	Free

#### **4.4 Progress towards the project purpose and outcomes**

The purpose of the project is to initiate a long-term integrated conservation programme for the Ganges river dolphin in the Brahmaputra river system and to support ecosystem services through research and monitoring, capacity building, environmental awareness and participatory conservation action. Activities have picked up considerably in the last six months of year 2 now that many of the original delays and challenges have been overcome and progress towards the outcomes is very much on track.

1. Improved information on dolphin population dynamics and threats for effective management and implementation of conservation strategy.

We have made much progress towards this outcome, through the dolphin surveys, baseline research collection and the socio-economic fisherman questionnaires. We are confident that we can deliver on this outcome following the publication of the results.

2. Adoption of ecosystem management recommendations by relevant agencies (forest, fisheries, water, energy, industries etc).

We are working towards progressing this outcome in year 3 and 4.

3. Decline in dolphin mortality through poaching and by-catch.

This outcome will be harder to quantify in the short term but we believe that our current community engagement activities as well as the strengthened Dolphin Conservation Network manned by local villagers and investigation of possible alternative livelihood initiatives is helping to mitigate some of these issues.

#### **4.5 Progress towards impact on biodiversity, sustainable use or equitable sharing of biodiversity benefits**

This project is moving towards considerable contribution on the impact on aquatic biodiversity and sustainable use of aquatic resources in the Brahmaputra river system through strengthening the community based Dolphin Conservation Network (DCN) as well as strengthening knowledge on the population dynamics of the river dolphin and the threats it is facing. The DCN network is covering thirty of the most ecologically important sites across the Brahmaputra Valley. These sites are not only the habitats for breeding dolphin population, but also the home of variety of fish species, aquatic birds, aquatic mammals and fishermen. Introducing regular and close monitoring process on these important aquatic sites through local community based DCN members has had a positive influence on the protection of the sites. For instance, in 2011-12, in cases of fish poisoning incidents in two DCN sites, the local community people were coming to the concerned members of those DCN sites with requests to undertake measures to stop illegal fish poisoning and the DCN members supported the community. Our plan is to develop the capacity of the DCN in such a way that in the near future they can lead the sustainable aquatic resources utilisation movement of their area. Progress towards sustainable fishing practices and alternative livelihoods is also being made through careful evaluation and building longer term partnerships with the fisheries department and relevant institutions in a challenging environment both politically and on the ground. Discussions have also taken place with senior authorities, with a view to develop an action plan for the dolphin and its Brahmaputra ecosystem.

### **5. Monitoring, evaluation and lessons**

Our strategy for Monitoring and Evaluation has been to have an established steering committee to review project progress according to the logframe, involving all the partners. The permission issue has resulted in delay in this and through extensive meetings has now been resolved and a steering committee has been set up. Dr Rajan Amin (previous PL) visited the project twice in Year 2 and as previously mentioned, Dr Matt Gollock from the Marine and Freshwater Programme at ZSL visited the project in December 2011 to carry out an assessment and review of progress and a revised work plan and budget were submitted to Darwin in January



2012. The UK side now has a new Project Leader, Lucy Boddam-Whetham to aid project management and planning and Rajan Amin will continue to act as a Technical Advisor. The UK team also has the support of a voluntary Project Assistant.

Ongoing evaluation is being undertaken through examination and discussion of monthly reports with colleagues in country or in UK and regular communication on issues and problems in order to trouble shoot and find solutions if required. On specific topics we continue to engage with regional colleagues, particularly WII, and also continuing a strong partnership with an acoustic expert in Japan. The project programme has been divided into the four main areas (research and monitoring, livelihoods, environment awareness and education, policy) and Aaranyak staff with relevant background / programmes have been selected to manage these areas following an extensive project progress review.

If this project has its desired effect, there will be clear indications of its impact in stabilising dolphin populations, reduced mortality (by-catch or direct exploitation) measured (actual numbers) through presence in 30 priority sites and community support and advocacy in overall changes in or introduction of new policies and uptake of recommendations (fisheries, industries, dams, sustainable livelihoods, community stewardship), and robust scientific methods (boat based surveys, environment monitoring, post-mortems, fishermen surveys, ecosystem services, capacity in these scientific methods and research, dolphin rapid recovery (accidental entanglement), advocacy, novel approached in community engagement (drama etc); strategies formulated following pilot projects on alternative to dolphin fish oil and dolphin eco-tourism, handicraft based aquatic weed (principal weed the water hyacinth which will also help in its control), improved engagement between the community, authorities and other stakeholders (strengthened public support, network working, increased income in poor fishing communities with sustainable resource use, cross linkages with regional dolphin programmes and monitoring) and with strong political support (steering committee and technical committee and site DCN functioning). All these aspects will be measured quantitatively where possible and through an end-of-project review, workshops and consultations.

## **6. Actions taken in response to previous reviews (if applicable)**

n/a

## **7. Other comments on progress not covered elsewhere**

As mentioned, the project underwent an extensive review and assessment in December 2011. Following on from this, a revised work plan and budget were submitted to Darwin in January 2012 and have subsequently been approved.

## **8. Sustainability**

The project has begun the process of building capacity and technical skills for the key conservation NGO (Aaranyak) in the region. Extensive equipment has been procured or constructed including a purpose- built monitoring and survey boat capable of operating in a complex river system and equipped with the necessary tools for environment monitoring including water quality sensors, testing kits and a navigation system. Extensive monitoring equipment including acoustic, sensors, binoculars, range finders and a high resolution camera have been procured and key staff trained in their use. With careful use and maintenance all of this equipment will last well beyond the lifetime of the project. The project is also enhancing existing methods and finalising standardised monitoring and survey protocols along with a scientific GIS geo-database, which together will enable the primary partners to continue monitoring the status of dolphins and their ecosystem beyond the lifetime of the project. Realistic sustainable livelihood options are being explored. A partnership has been developed with NEDFi (North Eastern Development Finance Corporation Limited) to initiate development of water hyacinth based handicraft in the poor fishermen communities. Water hyacinth is the principal invasive alien plant species (IAPS) in the water systems in Assam and impacting biodiversity, increasing sediment levels and mosquito breeding sites. The fishermen have very good weaving skills, material is plentiful and there is a guaranteed market through NEDFi (for

good quality products) and can also be sold locally. Dolphin priority sites have been selected. Support from the State Government and involvement from the District Administrations will provide the framework for implementation and should help to reduce local community impacts on ecosystem services in prime dolphin habitat in the long term, especially as the focus of these livelihoods is their economic, social and environmental sustainability.

The team is also now equipped with various EE tools and skilled human resources, which will ensure the sustainability of the environment education.

The DCN with 30 sites has finally been established and will provide a longer term presence in the fisher communities. Three core project staff has received conservation biology training through a four-week course developed by ZSL in Nepal. This has strengthened the project capacity and will contribute towards the conservation of the species in the region. All of these three project staff are now planning for their PhDs. Aaranyak are planning to continue the work at the end of this funding, and are currently considering funding options.

## 9. Dissemination

In addition to the community engagement and livelihoods training the project activities were covered in the following ways.

- The completion of the survey boat construction was reported by *The Telegraph*, a national daily newspaper ([http://www.telegraphindia.com/1120310/jsp/northeast/story\\_15224226.jsp](http://www.telegraphindia.com/1120310/jsp/northeast/story_15224226.jsp)) on 10 March 2012. (Annex 3.2).
- Dolphin Day, 2011 was published by a couple of local newspapers.
- Starting of dolphin survey was covered by Times of India, a national daily newspaper ([http://articles.timesofindia.indiatimes.com/2012-01-30/guwahati/31005070\\_1\\_kulsi-dolphin-population-ganges-brahmaputra-meghna](http://articles.timesofindia.indiatimes.com/2012-01-30/guwahati/31005070_1_kulsi-dolphin-population-ganges-brahmaputra-meghna)).
- Dolphin Yatra was covered by a few local newspapers and television channels. Aaranyak website also uploaded this.
- Swiss Radio covered the project activities on 24 March 2012. Australian National Radio also covered the project in 2011.

The dolphin survey 2012 results will be published widely once the reports are complete. This will go as Research Articles in leading international level journals. Likewise the findings from the fisheries investigations and oil bait use study will be published in peer-reviewed journals. The dissemination will continue beyond the project life and will be ensured by the host country agency – Aaranyak.

## 10. Project Expenditure

Please note that the original budget was revised three quarters of the way through Year 2 with approved carry over into year 3 and 4. (Actual expenditure up until Dec 2011 was clarified and the remaining funds available was redistributed over Year 2 Q4 and Year 3 and Year 4).

But there was also an advance to the project which was reported in year 1, but the actual expenditure occurred in Year 2 and has therefore been adjusted in the table below.

A revised budget was submitted and approved in January 2012, this included a Year 2 Q4 budget of £20,150, the actual spend against this is £19,476 so spend is as expected.

**Table 3 project expenditure during the reporting period (1 April 2011 – 31 March 2012)**

Item	Budget (please indicate which document you refer to if other than your project application or annual grant offer letter) Revised budget	Expenditure adjusted for £29,627.20 already reported in year 1	Variance/ Comments
<b>Staff costs (specify)</b> UK Project Leader Host Country Project Manager Researchers (x3) Project Assistants (x4) Vehicle Driver Boat staff (x4) DCN Members (x30)			
<b>Staff costs subtotal</b>			
<b>Overhead costs</b>			
<b>Travel and subsistence</b>			
<b>Operating costs</b>			
<b>Capital items/equipment (specify)</b> Monitoring and analysis equipment Transport systems (boat, vehicle)			
<b>Capital items/equipment subtotal</b>			
Others: Consultancy			
<b>Others (please specify)</b> Boat fuel & maintenance Vehicle fuel & maintenance Batteries GIS database development Pilot projects (aquaculture, cash crop etc) Field station rent and costs			
<b>Others subtotal</b>			
<b>TOTAL</b>			

**11. OPTIONAL: Outstanding achievements of your project during the reporting period (300-400 words maximum). This section may be used for publicity purposes**

I agree for LTS and the Darwin Secretariat to publish the content of this section (please leave this line in to indicate your agreement to use any material you provide here)

The key achievements of this project in Year 2 include:

- The construction completion of a fully equipped 75 feet long survey and education boat for long term conservation work on the Ganges river dolphin, the first of its kind in India.
- Successful completion of dolphin surveys in about 1050 km stretch of Brahmaputra river system using revised survey methods.
- Use of acoustic surveillance technology for first time in Brahmaputra River.
- The strengthening of the Dolphin Conservation Network in 30 key sites along the Brahmaputra River. Carrying out land-based monitoring surveys and community engagement activities.
- Completion of key environmental education materials and training provided on their use to core project staff and DCN members.
- Formation of a highly motivated dolphin drama team and performances undertaken both for the urban and rural communities. The Dolphin Yatra received excellent coverage and was well received.
- Alternate livelihood pilot project establishing using water hyacinth as a handicraft material, training workshops provided and a cottage site base constructed.

## Annex 1: Report of progress and achievements against Logical Framework for Financial Year 2011-12

Project summary	Measurable Indicators	Progress and Achievements April 2011 - March 2012	Actions required/planned for next period
<p><b>Goal:</b> <i>To draw on expertise relevant to biodiversity from within the United Kingdom to work with local partners in countries rich in biodiversity but constrained in resources to achieve</i></p> <ul style="list-style-type: none"> <li>⇒ The conservation of biological diversity,</li> <li>⇒ The sustainable use of its components, and</li> <li>⇒ The fair and equitable sharing of the benefits arising out of the utilisation of genetic resources</li> </ul>		<p>This project is moving towards considerable contribution on the impact on aquatic biodiversity and sustainable use of aquatic resources in the Brahmaputra river system through strengthening the community based Dolphin Conservation Network (DCN) as well as strengthening knowledge on the population dynamics of the river dolphin and the threats it is facing. Progress towards sustainable fishing practices and alternative livelihoods is also being made through careful evaluation and building longer term partnerships with the fisheries dept and relevant ecosystem.</p>	
<p><b>Purpose</b> To initiate a long-term integrated conservation programme for the Ganges River dolphin in the Brahmaputra River system and to support ecosystem services through research and monitoring, capacity building, environmental awareness and participatory conservation action</p>	<ol style="list-style-type: none"> <li>1. Improved information on dolphin population dynamics and threats for effective management and implementation of conservation strategy.</li> <li>2. Adoption of ecosystem management recommendations by relevant agencies (forest, fisheries, water, energy, industries etc).</li> <li>3. Decline in dolphin mortality through poaching and by-catch.</li> </ol>	<ol style="list-style-type: none"> <li>1. We have made much progress towards this outcome, through the dolphin surveys, baseline research collection and the socio-economic fisherman questionnaires. We are confident that we can deliver on this outcome following the publication of the results.</li> <li>2. We are working towards progressing this outcome in year 3 and 4.</li> <li>3. This outcome will be harder to quantify in the short term but we believe that our current community engagement activities as well as the strengthened Dolphin Conservation Network manned by local villages and investigation of possible alternative livelihood initiatives is helping to mitigate some of these issues.</li> </ol>	<p>Continuation of the dolphin surveys; other baseline research, research information disseminated; priority dolphin segments identified; post-mortem work established; continuation of community outreach and awareness activities; securing permission and enabling the DRRT to train fishermen in entangled dolphin releases; recommendations on alternative uses to dolphin oil; cross-ecosystem linkages developed with Bangladesh; develop a regional Species Recovery Plan and PHVA; advocacy of Species Recovery Plan to relevant lead agencies and on integration into Brahmaputra River Action Plan; participatory enforcement plan developed and activities initiated in all dolphin hotspot areas by DCN.</p>

<p><b>Output 1.</b> Coordination framework and institutionalised monitoring and reporting systems at the Brahmaputra River basin level in Assam</p>	<p><b>1a.</b> An improved, appropriately equipped and trained research and standardised monitoring unit established by Yr 2 with at least 5 programme core staff and 30 community-based Dolphin Conservation Network/DCN members).</p> <p><b>1b.</b> Quantified baseline information on dolphin population dynamics, drivers of decline, habitat status and regional ecosystem services produced, disseminated and used for planning; at least four staff trained in resource ecology by Yr 3</p> <p><b>1c.</b> Standardised dolphin post mortem procedures developed; training of at least 4 veterinary college dept staff completed in post-mortem, necropsy and pathology from Assam Vet College, Guwahati. (Permission for carcass handling is still being pursued so training will be based on other species via production of a training video.)</p> <p><b>1d.</b> Standardised boat-based dolphin surveys across the Brahmaputra mainstream and its tributaries completed (inc. acoustic and sample collection/analyses); database populated, report and maps produced and circulated to relevant stakeholders and steering committee. (Yr2-3). Development of standardised surveys with trials (Yr 1).</p> <p><b>1e.</b> Land-based dolphin monitoring surveys (every Sunday) in 30 priority sites conducted by DCN staff across Brahmaputra Valley. Yr 1-3. Assessment and updating of DCN, basic training and trials in selected sites (Yr 1).</p> <p><b>1f.</b> Fishery data collected. Detailed survey design, data recording forms</p>	<p>Significant progress has been made towards the development of a coordination framework and institutionalised monitoring and reporting systems at the Brahmaputra River basin level in Assam and an improved, appropriately equipped and trained research and standardised monitoring unit has been established. This has led to a successful winter surveying season which finished in early April 2012. The team will complete the data analysis by June 2012. The findings of this will be incredibly important in providing a clearer picture of dolphin population dynamics; information on dolphin hotspots; highlighting any areas of decline; and further understanding on the level and severity of threats facing the dolphins. In addition, The Dolphin Conservation Network after the SWOT analysis continues to go from strength to strength and is actively carrying out land-based monitoring surveys on a weekly basis and have also started to carry out socio-economic surveys in those areas.</p> <p>Unfortunately, we have still not secured permission to handle dolphin carcasses but we are hoping to receive permission for dolphin handling of Govt of Assam. Whilst we wait for permission we will continue to develop the protocols and training manuals and video needed to assist the vet department with the necropsies once this has been approved.</p>
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	<p>and procedures developed for fishermen surveys; DCN members and programme staff trained and surveys conducted in the 14 dolphin priority sites, 7 river sectors with 2 sites each (Yr 1-4).</p> <p><b>1g.</b> Fishermen community socio-economic surveys in the same 14 identified sites.</p> <p><b>1h</b> Standardised annual dolphin and habitat status reporting template developed, staff trained in statistical data analysis and report production.</p> <p><b>1i.</b> Priority dolphin river segments identified by Yr 3.</p> <p><b>1j.</b> Ecosystem information synthesised for inclusion in regional plans and statutory processes around threatened / protected species and freshwater ecosystems by Yr 3.</p> <p><b>1k.</b> Research information disseminated by Yr 3.</p>	
<p>Activities planned for Year 2:</p> <p>1.1: Steering committee established; Project management reporting procedures and ToRs setup; Project meeting held in Guwahati - attended by all partners and relevant NGOs, groups; working groups for each project area established and detailed implementation plans drawn up.</p>		<p>Complete. At least three members of the SC will meet via Skype on a monthly basis.</p>
<p>1.2: Project research posts advertised, interviews held, two Indian scientists with relevant experience in freshwater ecology recruited as research staff; 2 local research assistants recruited; ToRs and contracts setup.</p>		<p>Complete. All staff now in place included two Environmental Educators and a Project Administrator.</p>
<p>1.3: Purpose-built boat constructed; additional river boat procured for use in smaller tributaries, monitoring and sample analysis equipment procured and installed for dolphin and ecosystem surveys.</p>		<p>Boat complete, monitoring and sampling equipment procured. Calculated that it is more cost effective to hire an additional river boat than purchase one.</p>
<p>1.4: GIS database system for Brahmaputra River dolphin and ecosystem developed with detailed design specification approved by steering committee; manual produced; at least 2 project core staff trained in its use.</p>		<p>The database development has been completed, and a manual produced. Training of four project staff on the use of GIS database has also been completed.</p>
<p>1.5: Protocols, training material and data recording forms developed and at least 5 programme core staff and 30 DCN members trained in standardised land-based dolphin surveys.</p>		<p>The training manual has been completed, as well as training of 30 DCN members and core programme staff. Accredited DCN members have also been given the role of training new staff as well as for refresher training.</p>
<p>1.6: Land-based dolphin and habitat monitoring surveys (weekly) in 30 priority sites across Brahmaputra Valley initiated by trained DCN members supported by</p>		<p>DCN staff continue to conduct land-based dolphin and habitats monitoring every Sunday in 30 priority sites. Monitoring data is collected on a weekly basis by the</p>

research staff; monthly progress reporting template developed and implemented in the 30 sites.	DCN Coordinator, who uses the information for the monthly report preparation
1.9: Detailed specific research projects, methodologies, monitoring and data collection procedures developed for quantifying factors impacting on dolphins and wider ecosystem; identified staff enrolled in PhD research, training, projects initiated.	The following projects have been developed and are ongoing: impact of pollutants; dolphin mortality levels and causes; riverine habitat status and restoration; impact of dams; impact of siltation and sand mining; dolphin sensitivity to salinity, water depth and temperature; impact of commercial non-traditional fishing on dolphins and fish stocks
1.12: Standardised dolphin post mortem procedures developed; training of at least 4 veterinary college dept staff completed in post-mortem, necropsy and pathology.	This is currently reliant on receiving permission to handle carcasses from the Forest Department. However in the meantime, the project is working with the ZSL-based Cetacean Stranding Investigation Programme (CSIP) to develop a standardised necropsy protocol and appropriate training materials to help provide training for the local veterinarians.
2.2: Protocols, training material and data recording forms developed and at least 5 programme core staff and 30 DCN members trained in standardised boat-based dolphin surveys.	Complete. Protocols, training materials and data recording forms for boat based dolphin survey were finalised after some trial surveys in Nov-Dec 2011 with input from advisors from ZSL, WII, Japan and the Cetacean Specialist Group.
2.3: Winter standardised dolphin and habitat survey across the Brahmaputra mainstream and its tributaries completed (inc. acoustic and sample collection/analyses); database populated, report and maps produced and circulated to relevant stakeholders and steering committee.	The first standardised winter dolphin and habitat survey was conducted in February and March 2012, a combination of four survey methods were used: direct sighting; distance sampling; mark-recapture; and acoustic.
2.9: Early summer/pre-monsoon season standardised dolphin and habitat survey across the Brahmaputra mainstream and its tributaries initiated (inc. acoustic and sample collection/analyses).	An early summer dolphin and habitat survey was carried out in April-June 2011 as a trial of the new survey methodology. The next summer survey will be carried out in the tributaries in June 2012.
<p><b>Output 2.</b> Enhanced capacity of local authorities and fishing communities for dolphin population recovery and for contributing towards wider-scale ecosystem management</p>	<p><b>2a.</b> Conventional and novel community outreach and awareness activities in 30 prioritised dolphin areas; DCN members trained and supported. (Yr 2–3).</p> <p><b>2b.</b> Training of 10 DCN members in dolphin-watching guided tours completed; community-based river dolphin tourism pilot project initiated (Yr 3).</p> <p><b>2c.</b> Alternative livelihoods pilot project in water hyacinth handicraft at Jhanimukh; local stakeholders trained in fisheries resource management and enforcement.</p> <p><b>2d.</b> Dolphin Rapid Response Team (DRRT) established; project staff and DCN members trained in stranded dolphin releases and carcass</p>
	<p>Significant progress has been made towards the community engagement and awareness-raising activities in year 2. All appropriate environmental education materials have been produced and delivered to various schools and river-side communities. A highly motivated dolphin drama team was also formed and trained by Nepalese NGO, Earthbeat. Performances were successful undertaken both for the urban and rural communities and were delivered along a large stretch of the Brahmaputra river and were well received. The members of the Dolphin Conservation Network continue to go from strength-to-strength following an assessment in Year 2 and have all been trained in using the Environmental Education materials as well as carrying out weekly land-based dolphin monitoring and acting as dolphin ambassadors for their site, the DCN is now present in 30 key sites along the Brahmaputra River.</p> <p>Socio-economic fisherman questionnaires have also been established, as well as a study initiated on the use of dolphin oil as fishing bait. In order to try and explore alternative income for the fishing communities, an alternative livelihood pilot project was establishing using water hyacinth as a handicraft material, training workshops were provided and a cottage site base constructed.</p>



	<p>collection; at least 50 fishermen trained in entangled dolphin releases._– NB this is still dependent on obtaining permission to handle dolphins.</p> <p><b>2e.</b> Study initiated on the use of dolphin oil, size and trade followed up by recommendations for stopping use of dolphin oil with protection and awareness-raising of fishermen in hotspots by DCN members. (Yr2-3). Initiatives to stop use of dolphin oil developed (Yr 3) .</p> <p><b>2f.</b> Cross-ecosystem linkages developed with Bangladesh meet the people of Bangladesh Cetacean Diversity project and build links with the other ZSL project carried out by Nadia Richman (Yr 3).</p> <p><b>2g.</b> Second annual Dolphin Day- October 2012 Third annual Dolphin Day –October 2013</p>	
<p>1.7: Development of initial set of material and tools for community outreach and awareness activities completed; training of at least 2 programme staff and 30 DCN members completed.</p>		<p>Complete. Posters and booklets targeting school students have been printed. The Dolphin Conservation Drama and a dedicated well trained theatre troupe were formed and trained on use of these materials. Including 30 DCN members and core staff in November 2011.</p>
<p>1.8: Community engagement and awareness programmes initiated in 30 prioritised dolphin areas by DCN members with support provided on an on-going basis.</p>		<p>From December 2011 onwards they conducted local community engagement and awareness activities in and around their allotted DCN sites. Within the last three months altogether 145 community awareness programmes have been conducted.</p>
<p>1.10: Dolphin Rapid Response Team (DRRT) established; equipment for dolphin carcass sample storage and transportation procured and setup in 30 sites, training of relevant programme staff and 30 DCN members in stranded dolphin releases and carcass collection completed.</p>		<p>DRRT established. Currently limited to observational help and alerting the Forest Department of any issues. Further activities reliant on handling permissions.</p>
<p>1.11: Training of fishermen in entangled dolphin releases by trained DCN members and programme staff in dolphin core areas completed.</p>		<p>Not started, awaiting handling permissions.</p>
<p>1.13: Study initiated on the use of dolphin oil, size and trade followed up by initiatives for stopping use of dolphin oil (protection and awareness-raising of fishermen in hotspots).</p>		<p>The study proposal has been completed and the questionnaire has been trialled and finalised. Altogether 42 fishermen were interviewed from four sites. Data analysis is currently being carried out and the report will be produced in June 2012.</p>
<p>1.14: Website enhanced (and maintained) on all partner sites with link to downloadable documents (resource centre).</p>		<p>Ongoing.</p>

<p>2.1: Detailed survey design, data recording forms and procedures developed for fishermen surveys, fishing community socio-economic surveys and fishery data collection at landing and market sites; DCN members and programme staff trained and surveys conducted.</p>	<p>Detailed survey design, data recording forms and protocols were developed for fishermen survey. 14 DCN members and two project staff were trained on data collection protocols. The survey completed in 14 DCN sites covering the seven sectors of Brahmaputra, two sites per sector. Altogether 654 fishermen were interviewed. Data analysis ongoing. Report expected by October 2012.</p>
<p>2.4: First intensive fishing community engagement and awareness programmes completed along the Brahmaputra mainstream (during the upstream journey of the survey boat).</p>	<p>With all the education tools developed in activity 1.7, the team conducted a massive 'Dolphin Yatra' in January-March, 2012 carried out in two phases at riverside villages, aiming to promote river dolphin ecosystem conservation. The Yatra covered about 1100 km of dolphin inhabited river stretches of the Brahmaputra river system.</p>
<p>2.6: First annual Dolphin Day, review meeting and refresher workshop for project staff and DCN members held.</p>	<p>Complete, dolphin day activities were held in Guwahati and at Kulsi River.</p>
<p>2.8: Analyses of data on the use of dolphin oil, size and trade completed, report circulated to relevant stakeholders; initiatives for stopping use of dolphin oil through protection and awareness-raising of fishermen in hotspots by DCN members.</p>	<p>This has been delayed and will be produced in Summer 2012 as per the revised plan sent to Darwin in Jan 2012.</p>
<p>2.x: Additional activities to promote alternative livelihoods in collaboration with North Eastern Development Finance Corporation (NEDFi).</p>	<p>Collaboration established with NEDFi, a financial organisation based in Guwahati, in implementing a pilot project using water hyacinth to produce weaved handicrafts. Training received.</p>
<p><b>Output 3.</b> Local and national stakeholder supported recovery plans and improved protective mechanisms for Brahmaputra River dolphins and regional freshwater ecosystem.</p>	<p><b>3a.</b> Multi-stakeholder workshop held, regional Species Recovery Plan developed (based on synthesised baseline information and policy guiding documents) Site-specific plans, regional species recovery plan (SRP); PHVA and stakeholder workshops and approved by MoEF (Yr 3-4).  <b>3b.</b> Advocacy of Species Recovery Plan to relevant lead agencies and on integration of the plan into Brahmaputra River Action Plan and national species planning initiated by trained programme core staff (Yr 4).  <b>3c.</b> Participatory enforcement plan developed and activities initiated in all dolphin hotspot areas coordinated by DCN members. Priority dolphin river segments identified, PA network discussion paper developed, (Yr 3-4).</p>
<p>Activities under Output 3 are planned for Yr 3 and 4.</p>	<p>Not due until Year 3 and 4.</p>

## Annex 2 Project's full current logframe (Revised and approved January 2012)

Project summary	Measurable Indicators	Means of verification	Important Assumptions
<b>Goal:</b> Effective contribution in support of the implementation of the objectives of the Convention on Biological Diversity (CBD), the Convention on Trade in Endangered Species (CITES), and the Convention on the Conservation of Migratory Species (CMS), as well as related targets set by countries rich in biodiversity but constrained in resources.			
<b>Sub-Goal:</b> Brahmaputra River dolphin population is safeguarded and viable in the long-term, and Brahmaputra riverine ecosystem is well-conserved, regenerating and providing sustained and equitable services to local fishing communities and beyond	Surveys show clear evidence that dolphins are at least stable, fish populations in dolphin hotspots are stable or increasing, fishing communities have increased income and security from products yielded from improved management of rivers, and an increased portion of the riverine ecosystem is under protected area management within five years of end of project.	Annual dolphin population monitoring reports, fishery reports, socio-economic survey reports  Protected area management reports	
<b>Purpose:</b> To initiate a long-term integrated conservation programme for the Ganges River dolphin in the Brahmaputra River system and to support ecosystem services through research and monitoring, capacity building, environmental awareness and participatory conservation action	1. Improved information on dolphin population dynamics and threats for effective management and implementation of conservation strategy. 2. Adoption of ecosystem management recommendations by relevant agencies (forest, fisheries, water, energy, industries etc). 3. Decline in dolphin mortality through poaching and by-catch.	Survey and status reports  Management plans and recommendations	Local government policies and communities remain supportive  Political stability in the region / country
<b>Outputs:</b> 1. Coordination framework and institutionalised monitoring and reporting systems at the Brahmaputra River basin level in Assam	<b>1a.</b> An improved, appropriately equipped and trained research and standardised monitoring unit established by Yr 2 with at least 5 programme core staff and 30 community-based Dolphin Conservation Network/DCN members). <b>1b.</b> Quantified baseline information on dolphin population dynamics, drivers of decline, habitat status and regional ecosystem services produced, disseminated and used for planning; at least four staff trained in resource ecology by Yr 3 <b>1c.</b> Standardised dolphin post mortem procedures developed; training of at least 4 veterinary college dept staff completed in post-mortem, necropsy and pathology from Assam Vet College, Guwahati. (Permission for carcass handling is still being pursued so training will be based on other species via production of a training video.) <b>1d.</b> Standardised boat-based dolphin surveys across the Brahmaputra mainstream and its tributaries completed (inc. acoustic and sample collection/analyses); database	<b>1a.</b> Protocols, training manuals and data-recording forms for standardised boat- and land-based dolphin surveys; reports and evaluation summaries by training co-ordinator; one purpose-built boat for dolphin surveys and community engagement; equipment in place with trained staff. <b>1b.</b> Technical reports on impact assessments (on dolphins, habitat and ecosystem services, incl. policy analysis) reviewed by experts and Steering Committee (SC); scientific spatial database for dolphins and habitat established- This work will be collated into the final Strategy and Action Plan for Gangetic dolphin. Some works are ongoing. <b>1c.</b> Post-mortem reports; report and evaluation summary by trainers.	Project staff and trained DCN members remain active in relevant positions  Research staff are well qualified and motivated to undertake the work  Survey boats are well maintained and remain operational  Fishing communities remain cooperative

	<p>populated, report and maps produced and circulated to relevant stakeholders and steering committee. (Yr2-3). Development of standardised surveys with trials (Yr 1).</p> <p><b>1e.</b> Land-based dolphin monitoring surveys (every Sunday) in 30 priority sites conducted by DCN staff across Brahmaputra Valley. Yr 1-3.</p> <p>Assessment and updating of DCN, basic training and trials in selected sites (Yr 1).</p> <p><b>1f.</b> Fishery data collected. Detailed survey design, data recording forms and procedures developed for fishermen surveys; DCN members and programme staff trained and surveys conducted in the 14 dolphin priority sites, 7 river sectors with 2 sites each (Yr 1-4).</p> <p><b>1g.</b> Fishermen community socio-economic surveys in the same 14 identified sites.</p> <p><b>1h</b> Standardised annual dolphin and habitat status reporting template developed, staff trained in statistical data analysis and report production.</p> <p><b>1i.</b> Priority dolphin river segments identified by Yr 3.</p> <p><b>1j.</b> Ecosystem information synthesised for inclusion in regional plans and statutory processes around threatened / protected species and freshwater ecosystems by Yr 3.</p> <p><b>1k.</b> Research information disseminated by Yr 3.</p>	<p><b>1d.</b> Survey and monthly reports; high-resolution habitat map of Brahmaputra ecosystem.</p> <p><b>1e.</b> Survey and monthly reports; high-resolution habitat map of Brahmaputra ecosystem.</p> <p><b>1f.</b> Fisheries report. Fishermen, fisheries and socio-economic survey data analysed, reports produced and disseminated to relevant stakeholders and steering committee.</p> <p><b>1g.</b> Socio-economic survey reports with feedback from SC and experts.</p> <p><b>1h.</b> Standardised monthly progress and annual status reports with feedback from SC and experts. Manuscript based on standardised seasonal dolphin and habitat surveys submitted for publication in peer reviewed scientific journals.</p> <p><b>1i.</b> Maps and report.</p> <p><b>1j.</b> Synthesised report.</p> <p><b>1k.</b> Academic and public media articles and presentations.</p>	
<p>2. Enhanced capacity of local authorities and fishing communities for dolphin population recovery and for contributing towards wider-scale ecosystem management</p>	<p><b>2a.</b> Conventional and novel community outreach and awareness activities in 30 prioritised dolphin areas; DCN members trained and supported. (Yr 2–3).</p> <p><b>2b.</b> Training of 10 DCN members in dolphin-watching guided tours completed; community-based river dolphin tourism pilot project initiated (Yr 3).</p> <p><b>2c.</b> Alternative livelihoods pilot project in water hyacinth handicraft at Jhanimukh; local stakeholders trained in fisheries resource management and enforcement.</p> <p><b>2d.</b> Dolphin Rapid Response Team (DRRT) established; project staff and DCN members trained in stranded dolphin releases and carcass collection; at least 50 fishermen trained in entangled dolphin releases.— NB this is still dependent on obtaining permission to handle dolphins.</p> <p><b>2e.</b> Study initiated on the use of dolphin oil, size and trade followed up by recommendations for stopping use of dolphin oil with protection and awareness-raising of fishermen in hotspots by DCN members. (Yr2-3).</p>	<p><b>2a.</b> Community engagement tools and material (local radio, press, theatre troupe, posters, education material); training reports.</p> <p><b>2b.</b> Pilot tourism project implementation and assessment reports, training report.</p> <p><b>2c.</b> Assessment and training reports. Pilot programme of community training and microcredit awareness workshop scheduled in Janjimumukarih occurred in October 2011.</p> <p><b>2d.</b> Training and monthly progress reports.</p> <p><b>2e.</b> Assessment report. Analyses of data on the use of dolphin oil, size and trade completed, report circulated to relevant stakeholders.</p> <p><b>2f.</b> Visit debrief report.</p>	<p>Fisheries department, fishing communities maintain the goodwill required for local co-operation and for co-operation with DoEF</p> <p>Good relationships remain between Bangladesh and Brahmaputra dolphin conservation programmes</p> <p>Trained fishermen supportive</p> <p>Co-operative relations between villagers and DoEF can be developed to ensure effective and</p>

	<p>Initiatives to stop use of dolphin oil developed (Yr 3). .</p> <p><b>2f.</b> Cross-ecosystem linkages developed with Bangladesh meet the people of Bangladesh Cetacean Diversity project and build links with the other ZSL project carried out by Nadia Richman (Yr 3).</p> <p><b>2g.</b> Second annual Dolphin Day-October 2012 Third annual Dolphin Day –October 2013</p>		equitable partnership
3. Local and national stakeholder supported recovery plans and improved protective mechanisms for Brahmaputra River dolphins and regional freshwater ecosystem	<p><b>3a.</b> Multi-stakeholder workshop held, regional Species Recovery Plan developed (based on synthesised baseline information and policy guiding documents) Site-specific plans, regional species recovery plan (SRP); PHVA and stakeholder workshops and approved by MoEF (Yr 3-4).</p> <p><b>3b.</b> Advocacy of Species Recovery Plan to relevant lead agencies and on integration of the plan into Brahmaputra River Action Plan and national species planning initiated by trained programme core staff (Yr 4).</p> <p><b>3c.</b> Participatory enforcement plan developed and activities initiated in all dolphin hotspot areas coordinated by DCN members. Priority dolphin river segments identified, PA network discussion paper developed, (Yr 3-4).</p>	<b>3a.</b> Manuscript based on species recovery plan submitted for publication in peer-reviewed scientific journals. Plans checked, approved and implemented by MoEF. .	Baseline data ready for PHVA and for developing plans
<p><b>Activities</b> (details in work plan)</p> <p><b>OUTPUT 1: Coordination framework and institutionalised monitoring and reporting systems at the Brahmaputra River basin level in Assam</b></p> <p>1.1 Steering committee established; Project management reporting procedures and ToRs setup; Project meeting held in Guwahati - attended by all partners and relevant NGOs, groups; working groups for each project area established and detailed implementation plans drawn up.</p> <p>1.2 Project research posts advertised, interviews held, two Indian scientists with relevant experience in freshwater ecology recruited as research staff; 2 local research assistants recruited; ToRs and contracts setup.</p> <p>1.3 Purpose-built boat constructed; additional river boat procured for use in smaller tributaries, monitoring and sample analysis equipment procured and installed for dolphin and ecosystem surveys.</p> <p>1.4 GIS database system for Brahmaputra River dolphin and ecosystem developed with detailed design specification approved by steering committee; manual produced; at least 2 project core staff trained in its use.</p> <p>1.5 Protocols, training material and data recording forms developed and at least 5 programme core staff and 30 DCN members trained in standardised land-based dolphin surveys.</p> <p>1.6 Land-based dolphin and habitat monitoring surveys (weekly) in 30 priority sites across Brahmaputra Valley initiated by trained DCN members supported by research staff; monthly progress reporting template developed and implemented in the 30 sites.</p> <p>1.9 Detailed specific research projects, methodologies, monitoring and data collection procedures developed for quantifying factors impacting on dolphins and wider ecosystem; identified staff enrolled in PhD research, training, projects initiated.</p> <p>1.12 Standardised dolphin post mortem procedures developed; training of at least 4 veterinary college dept staff completed in post-mortem, necropsy and pathology.</p> <p>2.2 Protocols, training material and data recording forms developed and at least 5 programme core staff and 30 DCN members trained in standardised boat-based dolphin surveys.</p> <p>2.3 Winter standardised dolphin and habitat survey across the Brahmaputra mainstream and its tributaries completed (inc. acoustic and sample collection/analyses); database populated, report and maps produced and circulated to relevant stakeholders and steering committee.</p>			

- 2.5 Standardised annual dolphin and habitat status reporting template developed, staff trained in statistical data analysis and report production; 1st annual dolphin and habitat status report produced, steering committee sitting to review annual status report, report disseminated to all relevant stakeholders.
- 2.9 Early summer/pre-monsoon season standardised dolphin and habitat survey across the Brahmaputra mainstream and its tributaries initiated (inc. acoustic and sample collection/analyses).
- 2.11 Baseline research, survey and monitoring studies ongoing.
- 3.2 Early summer/pre-monsoon season standardised dolphin and habitat survey across the Brahmaputra mainstream and its tributaries completed (inc. acoustic and sample collection/analyses); database populated, report and maps produced/updated and disseminated to all relevant stakeholders and steering committee.
- 3.4 Monsoon season standardised dolphin and habitat survey mainly in the Brahmaputra tributaries for documenting seasonal distribution of dolphins completed; database populated, report and maps produced/updated and disseminated to all relevant stakeholders and steering committee.
- 4.2 Manuscript based on standardised seasonal dolphin and habitat surveys submitted for publication in peer-reviewed scientific journals.
- 4.7 Winter standardised dolphin and habitat survey across the Brahmaputra mainstream and its tributaries completed (inc. acoustic and routine sample collection/analyses); database populated, report and maps produced and circulated to relevant stakeholders and steering committee.
- 4.9 Priority dolphin river segments identified, PA network discussion paper developed, report produced and circulated to relevant stakeholders and steering committee.
- 4.10 2nd annual dolphin and habitat status report produced, steering committee sitting to review annual status report, report disseminated to all relevant stakeholders.
- 4.12 Early summer/pre-monsoon season standardised dolphin and habitat survey across the Brahmaputra mainstream and its tributaries initiated.
- 5.1 Early summer/pre-monsoon season standardised dolphin and habitat survey across the Brahmaputra mainstream and its tributaries completed (inc. acoustic and routine sample collection/analyses); database populated, report and maps produced/updated and circulated to relevant stakeholders and steering committee.
- 5.3 At least two manuscripts based on synthesised baseline studies submitted for publication in peer-reviewed scientific journals.
- 6.3 Winter (final) season standardised dolphin and habitat survey across the Brahmaputra mainstream and its tributaries completed (inc. acoustic and routine sample collection/analyses); database populated, report and maps produced/updated and circulated to relevant stakeholders and steering committee.
- 6.5 3rd annual dolphin and habitat status report produced, steering committee sitting to review annual status report, report disseminated to all relevant stakeholders
- 6.8 ZSL scientific meeting held on integrated river dolphin conservation and sustainable ecosystem services to present/disseminate findings.
- OUTPUT 2. Enhanced capacity of local authorities and fishing communities for dolphin population recovery and for contributing towards wider-scale ecosystem management**
- 1.7 Development of initial set of material and tools for community outreach and awareness activities completed; training of at least 2 programme staff and 30 DCN members completed.
- 1.8 Community engagement and awareness programmes initiated in 30 prioritised dolphin areas by DCN members with support provided on an on-going basis.
- 1.10 Dolphin Rapid Response Team (DRRT) established; equipment for dolphin carcass sample storage and transportation procured and setup in 30 sites, training of relevant programme staff and 30 DCN members in stranded dolphin releases and carcass collection completed.
- 1.11 Training of fishermen in entangled dolphin releases by trained DCN members and programme staff in dolphin core areas completed.
- 1.13 Study initiated on the use of dolphin oil, size and trade followed up by initiatives for stopping use of dolphin oil (protection and awareness-raising of fishermen in hotspots).
- 1.14 Website enhanced (and maintained) on all partner sites with link to downloadable documents (resource centre).
- 2.1 Detailed survey design, data recording forms and procedures developed for fishermen surveys, fishing community socio-economic surveys and fishery data collection at landing and market sites; DCN members and programme staff trained and surveys conducted.
- 2.4 First intensive fishing community engagement and awareness programmes completed along the Brahmaputra mainstream (during the upstream journey of the survey boat).
- 2.6 First annual Dolphin Day, review meeting and refresher workshop for project staff and DCN members held.
- 2.8 Analyses of data on the use of dolphin oil, size and trade completed, report circulated to relevant stakeholders; initiatives for stopping use of dolphin oil through protection and awareness-raising of fishermen in hotspots by DCN members.
- 2.10 DCN activities in 30 priority sites across Brahmaputra Valley by trained DCN members supported by research staff (land-based dolphin and habitat monitoring surveys (weekly); fishermen community engagement activities, stranded dolphin releases and carcass collection, protection, research support activities, monthly

- reporting etc).
- 2.x Additional activities to promote alternative livelihoods in collaboration with NEDFi.
- 3.1 Development of further set of material and tools for community outreach and awareness activities completed for use by DCN members. (see 1.5)
- 3.3 Second intensive fishing community engagement and awareness programmes completed along the Brahmaputra mainstream (during the upstream journey of the survey boat).
- 4.3 Visit to Bangladesh programmes conducted; cross-ecosystem linkages for exchange of skills and information established.
- 4.4 Fishermen, fisheries and socio-economic survey data analysed, reports produced and disseminated to relevant stakeholders and steering committee.
- 4.6 Pilot controlled projects in small-scale native species aquaculture and alternative supportive livelihoods (medicinal and aromatic cash crops) in two identified dolphin hotspots set-up; selected local stakeholders trained in fisheries resource management (traditional, artisanal and subsistence fishing methods) and enforcement; community alliance setup.
- 4.8 Third intensive fishing community engagement and awareness programmes completed along the Brahmaputra mainstream (during the upstream journey of the survey boat).
- 4.11 Second annual Dolphin Day, review meeting and refresher workshop for project staff and DCN members held
- 5.2 Fourth intensive fishing community engagement and awareness programmes completed along the Brahmaputra mainstream (during the upstream journey of the survey boat).
- 5.4 Training of 10 DCN members in dolphin-watching guided tours completed; community-based river dolphin tourism pilot project initiated.
- 6.4 Fifth intensive fishing community engagement and awareness programmes completed along the Brahmaputra mainstream (during the upstream journey of the survey boat).
- 6.6 Third annual Dolphin Day, review meeting and refresher workshop for project staff and DCN members held.
- 6.7 Cost-benefit analysis of aquaculture and alternative supportive livelihoods completed, report with recommendations circulated to relevant stakeholders and steering committee.
- OUTPUT 3. Local and national stakeholder supported recovery plans and improved protective mechanisms for Brahmaputra River dolphins and regional freshwater ecosystem**
- 4.14 Training workshop in PHVA completed, site-specific stakeholder workshops held, site-specific plans developed (based on synthesised baseline information) and approved by DoEF.
- 4.15 Participatory enforcement plan developed and activities initiated in all dolphin hotspot areas coordinated by DCN members
- 6.1 Multi-stakeholder workshop held, regional Species Recovery Plan developed (based on synthesised baseline information and policy guiding documents) and approved by MoEF.
- 6.9 Advocacy of Species Recovery Plan to relevant lead agencies and on integration of the plan into Brahmaputra River Action Plan and national species planning initiated by trained programme core staff.
- 6.10 Manuscript based on species recovery plan submitted for publication in peer-reviewed scientific journals.

#### Indicators

- 1.1 Committee in place.
- 1.2 ToRs and contracts in place (Yr 1 and 2).
- 1.3 Purpose-built boat; additional river boat and monitoring and sample analysis equipment in operation (Yr 1).
- 1.4 GIS database system in operation, detailed design specification, manual and training report (Yr 1-2).
- 1.5 Protocols, training material and data recording forms, training report (Yr 1-2).
- 1.6 Monthly reporting from 30 priority sites (Yr 1-3).
- 1.7 Research study progress and final reports (Yr 1-3 2).
- 1.8 Dolphin post mortem procedures; training report (Yr 2-3 1).
- 1.9 Survey designs, data recording forms and procedures; training reports (Yr 1-2).
- 1.10 Protocols, training material and data recording forms, training report (Yr 1-2).
- 1.11 Survey reports, maps, populated database, stakeholder and steering committee feedback (Yr 1-3).

- 1.12 Standardised annual dolphin and habitat status reporting template, training report; reports and feedback from steering committee and relevant stakeholders
- 1.13 Reports and feedback from relevant stakeholders and steering committee (Yr 2).
- 1.14 Policy guiding documents (Yr 2).
- 1.15 Priority dolphin river segments report, PA network discussion paper; feedback from relevant stakeholders and steering committee (Yr 2 3).
- 1.16 PhD theses draft (Yr 3).
- 1.17 ZSL scientific meeting presentations (Yr 3 after project completion).
- 1.18 Copies of manuscripts (Yr 2-3).
- 2.1 Material and tools; training report (Yr 1 2-3).
- 2.2 Monthly progress reports, field visits (Yr 1-3).
- 2.3 Monthly progress reports, field visits, training report (Yr 1-3).
- 2.4 Monthly progress reports, field visits, training report (Yr 1-3).
- 2.5 Meeting reports, media coverage (Yr 1-3).
- 2.6 Report and feedback (Yr 1-3).
- 2.7 Media coverage, reports (Yr 1-3).
- 2.8 Reports, field visits (Yr 2-3).
- 2.9 Monthly reports, field visits (Yr 1-3).
- 2.10 Monthly reports, field visits (Yr 2-3).
- 2.11 Report and feedback from relevant stakeholders and steering committee (Yr 3).
- 2.12 Training report, field visits and progress reports (Yr 2-3).
- 2.13 Study tour report (Yr 2 3).
- 3.1 Training report, site-specific plans (Yr 3).
- 3.2 Species Recovery Plan (Yr 3).
- 3.3 Training report, progress reports, revised plans (Yr 3).
- 3.4 Progress reports, revised Brahmaputra River Action Plan-and national species plan (Yr 3).
- 3.5 Participatory enforcement plan; monthly report and field visits (Yr 3).
- 4.1 Steering committee meeting minutes, project management reporting procedures and ToRs, project implementation plans (Yr 1-3).
- 4.2 Monthly progress meetings minutes, site visit reports (Yr 1-3).
- 4.3 Half yearly, annual and final project reports, articles, Defra review reports (Yr 1-3).
- 4.4 Websites and downloadable documents (Yr 1-3).
- 4.5 Presentations and media coverage material (Yr 1-3).
- 4.6 Alternative livelihoods pilot project in water hyacinth handicraft at Jhanimukh.; local stakeholders trained in fisheries resource management and enforcement.
- 4.7 Winter standardised dolphin and habitat survey across the Brahmaputra mainstream and its tributaries completed (inc. acoustic and routine sample collection/analyses); database populated, report and maps produced and circulated to relevant stakeholders and steering committee.
- 4.8 Third intensive fishing community engagement and awareness programmes completed along the Brahmaputra mainstream
- 4.9 Priority dolphin river segments identified, PA network discussion paper developed, report produced and circulated to relevant stakeholders and steering committee.
- 4.10 2nd annual dolphin and habitat status report produced, steering committee sitting to review annual status report, report disseminated to all relevant stakeholders
- 4.11 Second annual Dolphin Day, review meeting and refresher workshop for project staff and DCN members held
- 4.12 Early summer/pre-monsoon season standardised dolphin and habitat survey across the Brahmaputra mainstream and its tributaries initiated.
- 4.13 DCN activities in 30 priority sites across Brahmaputra Valley by trained DCN members supported by research staff (land-based dolphin and habitat monitoring surveys (weekly); fishermen community engagement activities, dolphin stranded dolphin releases and carcass collection, protection, research support activities, monthly reporting etc).



- |      |  |
|------|--|
| 4.14 | Training workshop in PHVA completed, site-specific stakeholder workshops held, site-specific plans developed (based on synthesised baseline information) and approved by DoEF. |
| 4.15 | Participatory enforcement plan developed and activities initiated in all dolphin hotspot areas coordinated by DCN members.   |
| 4.16 | Annual report (plus article for DI newsletter) prepared and submitted to Defra.  |

**Annex 3 Onwards – supplementary material (optional but encouraged as evidence of project achievement)**

**Annex 3.1:** A photo of the finished survey boat, fully equipped for both survey use and educational activities.



## Annex 3.2: An article from the Indian newspaper *The Telegraph*



# The Telegraph

calcutta, india

Follow Us: Today's Edition

| Saturday, March 10, 2012 |

### IN TODAY'S PAPER

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Nation  
Calcutta  
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International  
Business  
Sports  
Entertainment  
Sudoku  
Sudoku New BETA  
Crossword  
Jumble  
Gallery  
Horse Racing  
Press Releases  
Travel

### WEEKLY FEATURES

Knowhow  
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Front Page > Northeast > Story

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## Dolphin vessel named *Kahua* - NGO names survey boat after the beautiful autumn grass

ROOPAK GOSWAMI



SB Kahua. Telegraph picture

"*Kahua* is beautiful grass that grows on the islands and banks of the Brahmaputra in September and October. It is an integral part of the Brahmaputra riverine ecosystem. Therefore, I am naming the boat (white) *Kahua* with the hope that one day this boat will be a very important part of Brahmaputra ecosystem conservation and will be a flagship effort for dolphin and ecosystem conservation in the Brahmaputra," said Abdul Wakid, head of Gangetic Dolphin Research and Conservation Programme of Aaranyak.

For several years, Aaranyak has been using hired boats for its surveys.

Wakid said owning a boat was extremely important because understanding the dolphin population change and associated factors over time is very important for long-term conservation of endangered Gangetic dolphin. For this, a permanent survey boat with fixed observation platforms and other survey facilities are required.

The boat would also work as an "education boat", Wakid said.

"We have been conducting research and conservation work on Brahmaputra dolphin by hiring boats from different agencies, which is expensive, time-consuming and conditional, as boats from Upper Assam do not want to come to lower Assam and vice-versa for security reasons and lack of proper experience," Wakid said.

The new boat has already made one trip from Guwahati to Sadiya.

The Gangetic river dolphin is primarily an inhabitant of the Ganga and Brahmaputra river systems of India and Bangladesh, with a population of less than 2,000.

The Brahmaputra river system in Assam has been identified as one of the last habitats of the species by scientific communities.

The species, in fact, was declared a national aquatic animal by the Centre in 2009.

"After a couple of years of support-raising efforts and more than one year of hard work, we built *Kahua* with support from the Darwin Initiative through Zoological Society of London (UK), Rufford Small Grant Foundation (UK) and Mohammed Bin-Zayed Species Conservation Fund (UAE)," Wakid said.

The 75-foot boat is equipped with modern scientific equipment, safety and security arrangements, lodging facilities and experienced crew. It is registered with the inland water transport department.

"We are using Japanese underwater acoustic surveillance technology in the Brahmaputra-Kulsi-Subansiri survey, which will be end in March 12. This technology will confirm the visual sightings," Wakid said.

"Direct sighting has been useful but we would like to increase the detection as all dolphins cannot be sighted visually. The underwater acoustic device or hydrophone, which measures the clicking sounds emitted by the dolphins, can help in detection," Wakid said.

Nearly 300 dolphins have been recorded in the Brahmaputra mainstream so far.

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