



## Darwin Initiative – Final Report

(To be completed with reference to the Reporting Guidance Notes for Project Leaders (<http://darwin.defra.gov.uk/resources/>) it is expected that this report will be a **maximum** of 20 pages in length, excluding annexes)

### Darwin project information

Project Reference	18-006
Project Title	Integrated River Dolphin Conservation for Sustainable Ecosystem Services in the Brahmaputra
Host country(ies)	India
Contract Holder Institution	Zoological Society of London
Partner Institution(s)	Aaranyak, Wildlife Institute of India
Darwin Grant Value	£ 292,000
Start/End dates of Project	1 <sup>st</sup> July, 2010-21 <sup>st</sup> July, 2013
Project Leader Name	Rajan Amin/Gitanjali Bhattacharya
Project Website	<a href="http://www.zsl.org">www.zsl.org</a>
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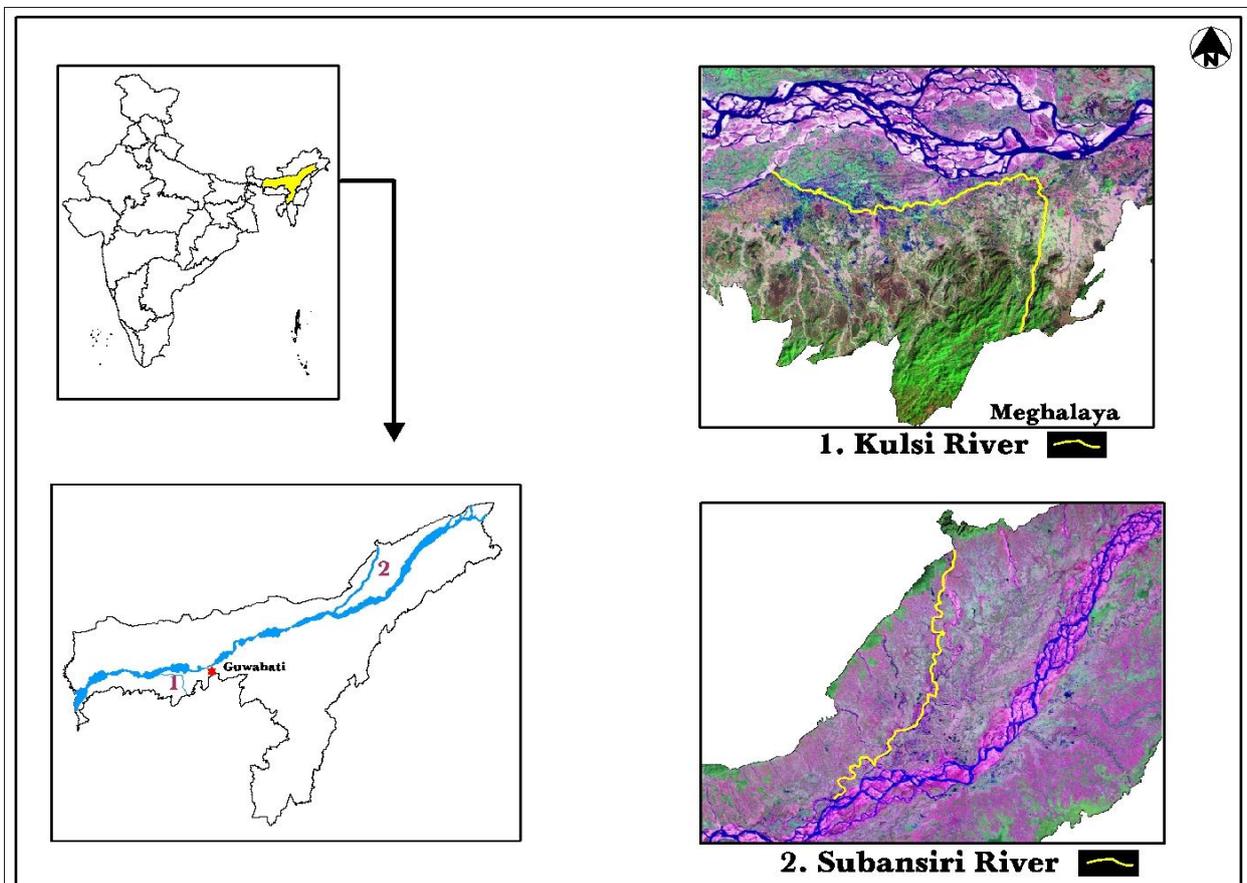
## 1 Project Rationale

Asian river dolphins are amongst the most threatened large vertebrates because of the burgeoning human population in the region they occur, resource overexploitation, environmental degradation with escalating pressures on local biodiversity and diminishing ecosystem services. Following the extinction of the Yangtze River dolphin, the endangered Ganges river dolphin is now the world's most threatened freshwater cetaceans. There was little robust data on their status in the Brahmaputra river systems or the significance of different drivers of their ongoing decline before the inception of this project, although previous studies had indicated that they were threatened by overfishing (resource depletion, by catch, direct exploitation), habitat alteration (due to proposed dams along the course of the Brahmaputra river system with heavy impacts on hydrology and water flow rates) as well as industrial, agricultural and domestic pollution. These threats also have wider ramifications for the well-being of freshwater ecosystems and ultimately upon human communities dependent upon freshwater resources for their survival. Hence, setting up a long term dolphin conservation programme focussing on the Brahmaputra river system using the river dolphin as a "flagship" predator species was vital.

The purpose and outputs of the project relate to 1) standardised long term integrated monitoring of the Ganges River dolphin population and its habitat in the Brahmaputra river system, providing scientific base to support dolphin conservation and sustainable ecosystem services; 2) enhanced relationships and goodwill with local communities across a network of identified dolphin priority sites through targeted education and awareness programmes, fostering deeper understanding and ownership of the river ecosystem and the plight of the dolphin as an indicator species; 3) strengthened local and national stakeholder supported recovery plans for the Brahmaputra river dolphin and the regional freshwater ecosystem.

The project was based upon initial findings and work undertaken by partner Assamese NGO Aaranyak under Dr. Abdul Wakid. It was developed in consultation with key stakeholders focussed on dolphin conservation in India. There have been technical inputs from key international organizations in refining the methodologies adopted by the project as well as on delivery of the designed outputs.

The study encompassed the length of the Brahmaputra River from Assam-Arunachal Pradesh border to India-Bangladesh border, Subansiri River in the Lakhimpur district of Assam and Kulsiriver within the Kamrup district of Assam. A focus was on key sites along the banks of the Brahmaputra river system to engage with local stakeholders and raise awareness for the conservation challenges facing the river dolphin as well as looming ecosystem service crisis facing the human populations if these challenges were left unresolved. The Brahmaputra River (hereafter referred to as the Brahmaputra) is one of the longest rivers in the world. The 2,880 km long Brahmaputra, longer than the Ganges River in length and volume, traverses its first 1,625 km in Tibet, the next 918 km in India and the remaining 337 km in Bangladesh up to its confluence with the Ganges. The river is known as the Tsangpo in Tibet, the Siang or Dihang in Arunachal Pradesh, the Luit or Brahmaputra in Assam, the Jamuna, and then further downstream as the Padma, in Bangladesh. The Brahmaputra river system harbours an important population of river dolphins which serves as an insurance policy for this highly threatened species in the Ganges river system.



The Brahmaputra River in Assam (bottom left); Kulsiriver (top right) and ~~Subansari~~ Subansiririver (bottom left)

## 2 Project Achievements

### 2.1 Purpose/Outcome

The project was designed to catalyse change by ensuring that the dolphin populations were monitored using scientifically robust methods across the diverse Brahmaputra river system that they inhabit, document habitat status as well as significant drivers impacting the long term survival of the species. The dolphin is a flagship species and its protection will benefit a wide range of freshwater species while safeguarding ecosystem services for the vast human population dependent on the river systems for their livelihoods and survival. The project focussed on establishing an integrated dolphin and habitat status monitoring system across the Brahmaputra river system (Brahmaputra, Kulsi and Subansiri Rivers). Comprehensive baseline has been established. Status reports are in production to be shared with policy makers and will be valuable for site management and national planning. The regular and systematic monitoring using a purpose built research vessel and modified country boats for smaller rivers has been initiated. It also offered an opportunity to test all the methods currently being used in the Asian context to measure dolphin abundance and determine distribution. The most commonly used direct sighting method was found to be less robust than the statistically sound method being employed by the Brahmaputra team and also being used in one other site in the Ganges to monitor dolphins. This is a significant achievement. Results of these methods were shared with all the Indian stakeholders monitoring India's total population of river dolphins. During the participatory workshop to disseminate results from the Darwin Initiative funded project as well as share findings across this important group with close links to policy makers, it was agreed that an annual nation-wide survey would be conducted by all groups using the standardised methods tested in the Brahmaputra river system to monitor the total dolphin population across India. Funding would be jointly sought from the Government of India to conduct these surveys on an on-going basis. This has been a major achievement for the project as prior attempts to use a standardised methodology across India have hitherto been unsuccessful. Standardised protocols for habitat quality and other freshwater species are also being finalised as part of the national programme. This approach needs to be integrated into management plans for freshwater resources, particularly by the concerned forest departments. Work has been initiated in engaging with staff in the field as well as senior officials to demonstrate the need for such an integrated approach and leverage funds to integrate freshwater monitoring into management plans.

During the course of the project, there has also been significant interaction with the IUCN SSC cetacean specialist group as well as WCS's Bangladesh Cetacean Diversity Project which will result in significant overlap in resources and expertise going forward.

There was also an urgent need to strengthen local stakeholder capacity to protect identified dolphin hotspot habitats. The plan was to lay the groundwork for sustainable recovery plans for the river dolphin population and regional freshwater ecosystem services through in situ community based conservation areas and protected area river sections with associated protected management mechanisms. As a result of the standardised dolphin and habitat surveys, the project team has identified key riverine areas contiguous with existing protected areas including Kaziranga National Park, Dibru- Saikhowa National Park and Orang National Park that are suitable for incorporation into the existing protected area. The northern boundary of Kaziranga NP has already been extended to include part of the Brahmaputra River; this sector has one of the highest encounter rates of dolphins. Key sites have also been identified where the local communities are keen to set up community based conservation areas for river dolphins. The public engagement and awareness campaign succeeded in reaching 39,266 individuals over 141 sites across the Brahmaputra, Kulsi and Subansiri Rivers using novel methods including community theatre and other participatory approaches that were adapted by local communities to spread the message of dolphin conservation. Results from the questionnaire survey at the end of the public awareness campaigns revealed that more than 90% of the people are interested to support the various activities for conserving the dolphins in their localities.

Local communities and stakeholders including fishermen were engaged in an active awareness raising process employing participatory tools, education and providing access to alternative livelihood training and opportunities. Assessment of the impacts on alternative livelihoods revealed interesting trends and is an area that will require concerted focus and attention to make it a viable option for the local communities. It was felt that the project team had very limited capacity to conduct work on sustainable alternative livelihoods over the longer term and therefore, the project worked collaboratively with the North East Development and Financial Institution (NEDFI) which has expertise in developing such alternative livelihood projects.

Training on making alternative oil bait to replace the use of dolphin oil for fishing was provided by fishermen trained by peers in the Ganges river system and showed promising results. Further work to continue fishing community engagement will be taken forward with funding that has been secured leveraging DI funding. There was uptake from half the local communities engaged in these activities. However, on the negative side, the real costs and benefits are yet to be evaluated and there is some concern over the viability of supplying raw materials for alternative livelihood measures as well as for producing the dolphin oil, which will have to be thoroughly assessed and ameliorated through better management and ensuring a sustainable supply of raw materials.

The most important indicator of the project (impact) was the establishment of baseline information on dolphin and habitat status; and scale and impact of the various threats. This information led to the preparation of an Action Plan (being finalised). An additional significant output from this process was the development of a standardised dolphin and habitat monitoring system that is being employed across the Brahmaputra river system and agreement by senior scientists across India to accurately estimate dolphin abundance across the range through the adoption of this standardised system to conduct systematic annual surveys across the entire dolphin range. In order to accurately monitor this indicator and evaluate project success against this indicator, two status reports were prepared based on two annual censuses across the entire Brahmaputra river system employing the standardised methodology. The efficacy of the methodology was also measured against results from the previously used direct sighting protocol. Two national workshops were held to discuss the robust baseline on the dolphin population at an accuracy level never achieved previously. Results from these censuses are being prepared for publication in peer reviewed journals. The accuracy of the estimates is now providing a powerful incentive to be rolled across the entire dolphin range in India. There is improved understanding of seasonal variations and movement patterns of dolphins through four standardised dolphin and habitat surveys in Kulsi and Subansiri Rivers. Additionally, there is now a standardized method for land-based dolphin and river ecosystem monitoring by the community based dolphin conservation network (DCN) members in 30 sites across the Brahmaputra river system.

Indicators of outputs were varied and some required prior baselines. Such indicators on public engagement were nonspecific but the fact that communities that are resistant to dolphin conservation and are currently employing dolphin oil as bait for fishing and fishing during the fish ban season have been documented along the entire Brahmaputra river system. Consequently community based conservation areas have also been identified based on dolphin distributions and the enthusiasm of the local communities to safeguard their fresh water resources and livelihoods. The dolphin conservation network (DCN) has been very successful in engaging local youth as spokespersons for dolphin conservation and act as sentinels mitigating incidences of dolphin poaching through active engagement within their communities and monitoring dolphins on a regular basis in their section of the river. Consistent messaging through the permanent dolphin conservation network volunteers has had an impact which has been emotionally reinforced through the community theatre which has proved to be very popular. It has worked effectively across different cross sections of society living beside the river and may have influenced a general positive attitude to dealing with sensitive issues such as poaching and illegal fishing activity.

Indicators on governance and management were difficult to prepare for and provide indicators for because of the sensitive nature of working with this Schedule-I species which is also the state aquatic animal of Assam. The permission process took longer than anticipated which delayed the start of the project. Permission to conduct post mortems was not deemed possible due to the sensitivity of handling Schedule 1 species.

A project management structure was setup by Aaranyak. An operations manager was assigned to the project to support the host project lead – Dr Wakid who has been managing the dolphin conservation programme at Aaranyak.

## **2.2 Goal/ Impact: achievement of positive impact on biodiversity and poverty alleviation**

The ultimate goal of the project was to implement effective contribution in support of the implementation of the objectives of the Convention of 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 by resources.

In order to fulfil the goals set out in our log frame, this project resulted in **a robust baseline on dolphin and habitat status and scale and impact of threats** along with a **standardised dolphin and habitat monitoring system** along the Brahmaputra river system that is being implemented on an annual basis. A landmark agreement was established to implement the standardised protocol developed for the Brahmaputra river system across the Ganges river system as an all India census at a national workshop attended by all the relevant stakeholders. Additionally, this has resulted in improved collaboration and information sharing amongst different project sites and dolphin conservation groups across India and neighbouring countries.

The project has had an impact on better conservation of dolphins in the Brahmaputra through improved **in situ conservation**. The project teams have engaged with local stakeholders through intensive **public awareness and education** campaigns in order to reduce accidental by catch as well as poaching of dolphins; its oil being used as bait in certain fisheries sectors. A dolphin conservation network across 30 priority dolphin habitats is providing continuous dolphin monitoring and surveillance along with fisher community engagement especially for the safe release of caught dolphins. There have also been intensive training sessions for concerned local communities in producing alternatives to this lucrative dolphin oil bait by using indigenously developed alternatives. There have been significant **other contributions** in the development of collaborative target studies especially on the impact of dams (IUCN, dolphin experts), fishermen socio-economic surveys (local NGOs), alternative livelihoods (NEDFI, Ketaki), dolphin oil alternative bait, potential for dolphin based tourism, standardizing monitoring protocols and developing and rigorously testing with all the methods that have been hitherto employed in measuring dolphin abundance and habitat quality in the region (WII, WWF, Vikramshila Dolphin Sanctuary, Patna University). There have been improvements in the awareness and engagement of local communities in dolphin conservation. Training manuals, posters and booklets were produced and distributed. A highly effective and innovative local theatre troupe has been established (with expertise “Earthbeat” developed from a previous Darwin Project in Nepal) and extensively performing in local communities and during the month-long annual dolphin yatra along the whole stretch of the Brahmaputra River. Extensive capacity and resource base has been established including a dolphin research and education vessel, extensive water quality testing equipment, dolphin monitoring equipment including acoustic sensors, binoculars, range finders, cameras, GPS receivers including for boat navigation, project vehicle. Extensive capacity building included: 1) water quality monitoring using specialised equipment; 2) dolphin surveys based on distance sampling and double observer mark recapture methods; 3) acoustic sensor based surveys; 4) socio economic surveys; 5) statistical data analysis and use of advanced population estimation software packages: Distance and Mark; 6) alternative livelihoods; 7) research including two PhD studies developed for project staff; 8) species action planning; 9) education and community engagement tools including training of a theatre troupe; 10) fishermen trained in dolphin release and concerned community groups in the preparation of alternative fish bait; 11) local communities trained in making products out of water hyacinths; 12) one ZSL intern has progressed to a) permanent position in the UK and Europe Regional Programme focussed on freshwater and marine projects; another is pursuing a PhD on marine ecology; and the third intern holds a university research and teaching position in the US. Considerable technical and information exchange has taken place with various stakeholders and livelihood opportunities have been explored and this element of work is being successfully handed over to a local social

NGO to finance into the future. All this will continue to have a lasting impact on conservation and specifically on dolphin and wider freshwater ecosystem in the region.

### 2.3 Outputs

The project outcomes, in summary, were at three levels:

1. Coordination framework and institutionalized monitoring and reporting systems at the Brahmaputra river basin level.
2. Enhanced capacity of local authorities and fishing communities for dolphin population recovery and for contributing towards wider scale ecosystem management
3. Local and national stakeholder supported recovery plans and improved mechanisms for Brahmaputra river dolphins and regional freshwater systems

Towards this end, the project has made excellent progress in setting up an institutionalized monitoring system at the Brahmaputra river basin level. There has also been considerable effort invested in engaging relevant stakeholders in the process in a bid to get the support of other conservation groups working on river dolphins in the Ganges river system. The team has also invested significant effort in raising the profile of the species amongst local stakeholders and impressing upon them the importance of river dolphin survival for the long term well-being and livelihoods of the human communities dependent on the same freshwater ecosystem. There is a need to continue engaging with the Assam Forest Department to shoulder the responsibility to enforce protection of the species. As a first step, it has been suggested to the host institutions that training is organized for frontline forest department staff to participate in the annual dolphin surveys as a part of a coordinated state-wide census that also involves universities, NGO's and local institutions. Alongside this, identified forest department staff need to be trained in dolphin carcass handling, and post-mortem and necropsy along with selected veterinary staff from other institutions such as the state veterinary college and universities. It is expected that this will build closer linkages with the forest department at the ground level and also help enforce legislation that already exists at the state level through better communication between the conservation groups and the forest department. The implementation of a Brahmaputra river dolphin conservation strategy for the species will also greatly help this process. Key strategic objectives include 1) protection of dolphin populations and their freshwater habitat; 2) research and monitoring for dolphin and freshwater ecosystem management; 3) stakeholder engagement for dolphin conservation and ecosystem health; 4) multi-stakeholder coordination, capacity and support for implementation of strategy.

A standardised dolphin and habitat monitoring and reporting systems has been established at the Brahmaputra river basin level. Surveys have provided much needed robust baseline on dolphin population dynamics as well as quantification of threats facing the population. There is an on-going effort to input data from the project into a GIS system within Aaranyak. A national dolphin research resource database is being setup through WII that will be accessible to all stakeholders and will be maintained by Aaranyak.

A draft conservation strategy for the Brahmaputra river dolphins is being currently developed with input from other conservation groups and experts based on the information from these surveys. Status survey reports have been compiled and will be shared with local stakeholders and the IUCN SSC cetacean specialist group. Manuscripts are being prepared to publish these results and disseminate findings to a wider audience including policy makers.

Standardised post mortem protocols have been developed in collaboration with ZSL's Cetacean Stranding Investigation Programme (CSIP). Training in conducting post mortems and necropsy on dolphin carcasses is planned for the latter half of the year contingent on funding and will be carried out by ZSL's CSIP team to a team of identified veterinarians in state veterinary colleges and forest departments. Protocols, training manuals and data recording forms have been shared with all stakeholders and joint protocols on dolphin status, habitat quality and other selected species are being synthesised for implementation of this monitoring programme across the entire Ganges river dolphin range. The standardised protocol has already been adopted by ZSL's river dolphin project in Bangladesh.

The project has also contributed significantly towards increased local capacity in designing targeted scientific studies, implementing, analysing and presenting their findings in a manner suitable for the scientific community as well as for policy makers.

A dolphin conservation network at 30 dolphin priority sites has been established undertaking routine dolphin monitoring and surveillance on threats including bycatch. This is providing information on population dynamics and importantly helping to mitigate against bycatch. Conventional and novel community outreach and awareness programmes have yielded significant success in building support for dolphin conservation at the local level. Community theatre has been highly popular as part of a mobile education and awareness programme particularly suited to the fishing communities along the banks of the Brahmaputra and its tributaries and has also been beneficial for engaging with politicians, managers and city based conservationists (as part of dolphin day). Community engagement tools will continue to be used beyond the lifetime of this project. An assessment was carried out for a pilot tourism project to investigate alternative livelihood opportunities. Training was also provided to produce handicrafts from water hyacinths which is a readily available raw material for the local women. Dialogue and training were conducted with fishermen to halt the use of dolphin oil as bait for fishing with mixed success. This work will continue through other grants as it has been identified as a significant threat to dolphins in identified stretches of the river. Cross ecosystem linkages have been developed with exchange of lessons learnt from various initiatives and knowledge including training of resource personnel and fishing community members. Assessment and training reports are available and will serve to provide useful background knowledge into the future as these programmes are further developed.

The project has had limited success in formulating local and national stakeholder supported recovery plans and improved protective legislation due to lack of support from the Assam forest department. Conservation groups working in the Ganges river system have expressed support in collaborating on a joint range wide monitoring programme. A draft project proposal is being developed for an all India dolphin and river health monitoring (also containing survey protocols) led by Wildlife Institute of India and will be reviewed and finalised in a meeting in New Delhi in the 3rd week of September to be organised by WWF-India with expected attendance by the Ministry of Environment and Forest, Department of Science and Technology and other potential funding agencies. A draft conservation strategy for the Brahmaputra river dolphin has also been developed with input from key dolphin experts and conservationists in the country. It is hoped that the next phase of engagement with relevant forest departments will yield their support. This will be valuable for implementing improved legislation and implementation of existing policies such as the fishing ban season during the monsoons which was demonstrated to result in competition for fish during the low availability season.

### **3 Project support to the Conventions (CBD, CMS and/or CITES)**

CBD: Please see section 2.2.

Aichi Targets: The project addressed strategic goal A to investigate the underlying causes of biodiversity loss in the freshwater ecosystem through the establishment of a robust baseline on the dolphin and habitat status in the Brahmaputra river system. Continuous monitoring capacity has been established through the setting up of standardised boat based annual dolphin monitoring system and dolphin conservation network (DCN) for regular monitoring of dolphins and threats with the goal of mainstreaming biodiversity across local governments and local communities. The project also supported strategic goals B and C by reducing direct pressures on dolphins and fish populations in the Brahmaputra by a) quantifying the significance of by-catch and poaching on the dolphin population as well as other species that inhabit the freshwater ecosystem; b) exploring alternative livelihood initiatives; c) engaging with local communities and providing targeted hands-on training. Significant capacity building and enhanced resource base is contributing towards Strategic goal E. The project team will follow up their current scope of work through participatory planning in setting up community managed conservation reserves and protected areas as a network across the Brahmaputra river system, knowledge management and further capacity building a part of an integrated conservation strategy for the species.

There was no contact with Mr. Hem Pande, India's focal point for CBD. However, the significant strengthening of links between the host institution and the national scientific institution "Wildlife Institute of India" and WII's involvement in the conserving the National Aquatic Animal would serve to build those bridges to national focal points in the near future.

## **4 Project Partnerships**

The Darwin Initiative project led to a formal partnership with Aaranyak to take the project forward through the signing of a joint MoU between the two organizations. It is hoped that this MoU will enable the two organizations to work closely together on biodiversity conservation in north east India beyond the lifespan of the river dolphin project.

ZSL has strong linkages with the Wildlife Institute of India (WII) and was thus able to facilitate a link between Aaranyak and WII. WII's leading expert in project design and nationwide implementation of a monitoring programme for tigers, Prof. Q. Qureshi was brought in to advice on study design and played a critical role along with UK fellows in developing the standardised monitoring programme. Prof. Qureshi was also instrumental in facilitating the final workshop with key conservation groups focussing on dolphin conservation and assisted in gaining support for implementing a nationwide dolphin monitoring programme with support from the Government of India. This central coordination role will be played by WII with support from Aaranyak which will have significant impact on improved collaborations amongst scientists and policy makers alike. One Ph.D. student is registered at WII/Forest Research Institute (FRI) with another field biologist expected to register in the latter half of the year. Both researchers will focus on aspects of river dolphin ecology in the Brahmaputra river system. This will facilitate further closer ties between the two organizations. It is hoped that this will also extend WII's support to other projects within Aaranyak as needed.

## **5 Contribution to Darwin Initiative Programme Outputs**

### **5.1 Technical and Scientific achievements and co-operation**

Science based conservation: improved dolphin census methods have been developed and standardised; annual censuses have been conducted in the entire Brahmaputra river basin over two consecutive years providing much needed scientific baseline for conservation planning; science based assessments of habitat status and threats have been conducted with greater engagement with local communities to raise awareness of illegal activities such as poaching for dolphin oil as well as the quantification of human activities on the dolphin population. Scientific assessments have also been carried on mitigation measures. Strong partnerships have been developed between scientific institutions Aaranyak, WII and ZSL. Monitoring protocols have been disseminated amongst other scientific institutions. Publications are in preparation to disseminate findings from the project at a wider scale.

### **5.2 Transfer of knowledge**

There has been significant knowledge transfer from the two scientific institutions to the host institution (see below). Dissemination has also taken place with key stakeholders both within the State (such as the fisheries department and local communities) and nationally. However, there have been challenges in communicating with policy makers and initiating knowledge transfer to the Assam forest department due to the initially strained relations between the host institution and the forest department over obtaining permits to carry out the study. There is renewed focus by Aaranyak in building trust and engaging with the forest department to share findings from the study at the state and national level. The project partner in the host organization is also working on writing a book in the local language to disseminate findings from this study with the local communities in an interesting and engaging manner and sensitise the local communities about the conservation challenges facing river dolphins in the Brahmaputra. A short piece on the BBC World Service also helped to raise awareness more widely on the challenges facing dolphin conservation in the Brahmaputra river basin.

### 5.3 Capacity building

Evidence for improved capacity can be demonstrated by a variety of outcomes: the success of conducting a census for 2 years covering all seasons along the length of the Brahmaputra river system, standardised monitoring protocols that are being adapted to cover the entire range of the dolphin and will be implemented nationally in the coming months across the Ganges and Brahmaputra river systems. Training in alternative livelihoods was provided to local communities and is being taken forward by NEDFI and local NGO, Ketaki with the potential of being rolled out across other districts. There have also been regular and ongoing activities by trained trainers in research, public outreach, community theatre and growing conservation and environmental awareness through capacity achieved and popularity of the events and message resulting in a powerful local voice for conservation (details provided in Section 2.2).

The main way that capacity has been enhanced is through field training and mentoring of staff in situ and provision of vital equipment. Capacity in the innovative use of street and stage theatre to highlight conservation and environmental issues has also been established. Earthbeat, a trained Nepali theatre company provided training to project staff who were able to take this forward with developing their own production and trained local troupe.

The UK lead institution has been able to a limited extent been able to improve its own capacity through the project, to be more effective as a partner, leverage connections for delivering sound science based conservation on the ground. Results from the study have motivated the lead organization to look at longer term engagement and presence in India to further its mission.

### 5.4 Sustainability and Legacy

Systems for monitoring dolphin populations, their habitat and threats and education and awareness campaigns are in place and likely to endure as they are seen to be successful. The motivation to sustain these programmes is high. The setup of a range wide monitoring programme for dolphins within India will be an important step forward along with the implementation of the conservation strategy.

It is likely that the improved foundation for partnership achieved through the project between Aaranyak, WII and ZSL as well as with key contacts made by the project partner with the IUCN cetacean specialist group will continue to build on the positive outcomes from this project. Significant funds have been leveraged: Rufford Small Grant Foundation (£25000), Mohammed bin Zayed Species Conservation Fund (£16,450), IUCN SOS fund (£58,500), Ocean Park Conservation Foundation (£16,500), International Whaling Commission (£20,000) for implementing the developed standardised survey methodology for Ganges River dolphin, Irrawaddy dolphin and finless porpoise in the Sundarbans in India.

A number of further initiatives are now being planned with others in the pipeline including major initiatives encompassing mega herbivores and their grassland habitats, a transboundary standardised monitoring programme for freshwater species with Bangladesh and potential work with carnivores in the region.

## 6 Lessons learned

Key lessons:

1. It is possible to achieve outputs despite serious political constraints provided that there is careful thought given to secure the support and involvement of key project partners.
2. It is necessary to have close engagement with the forest department and key policy makers in order to ensure smooth delivery of project outputs. It is important to build networks with key experts who will be able to strategically resolve disputes amongst stakeholders and help overcome challenges either through direct intervention or through their networks.
3. India has highly competent and dedicated conservation biologists working in the conservation and wildlife management sector who can sometimes be disadvantaged by social and political dynamics. Given requisite support, the response and outputs are highly significant.

4. It was deemed that setting up clear reporting lines within ZSL and the host organization and setting up a stringent monitoring framework early on the project would have been valuable in ensuring that project timelines and budgets were tightly monitored to mitigate for delays outside our control such as delays in obtaining permissions, heavy and prolonged monsoons and delay in delivery of the custom built research vessel in order to ensure timely and consistent delivery of outputs. There were plans to have a steering committee in place to undertake the task of regular monitoring and evaluation. However, this was unsuccessful given the sensitive nature of the relationship between the host institution and the forest department during the course of the project. Future groundwork is being put into place to ensure that requisite permits are in place before funds are secured with close liaison with appropriate government departments to ensure that there are no delays in delivery of project outputs.
5. Information dissemination could be improved through better communications with stakeholders and having adequate resource personnel in place to ensure that the burden of administering the project and leading the scientific monitoring and community engagement work didn't fall on the shoulder of a single individual.

## **6.1 Monitoring and evaluation**

There were a few major changes to the project design.

Radio was not used for public awareness mainly because it was felt that there was lack of adequate return on investment on the development of radio programmes to be broadcast regionally. Radios are traditionally not used by the traditional fishing communities in the Brahmaputra. The use of theatre in targeted communities compensated for this and enabled more targeted approaches to engaging communities.

Post mortem protocols could not be implemented due to the lack of permissions to handle dolphin carcasses on account of dolphins being granted the highest protection under India's Wildlife Protection Act. Carcass handling can only be carried out by forest department staff. Forest department veterinarians were constrained by the lack of capacity to carry out such post mortems and also being unable to handle all post mortems across the length of the Brahmaputra river system.

The suitability of small scale native species aquaculture was investigated and it was decided not to undertake a pilot study due to the risks in the introduction of non-native species into the river system as a result of flooding and limited local capacity. Substantial expertise and resources would be required to make this approach effective beyond the time scales of this project.

Establishment of Dolphin ambassadors was dropped due to the lack of engaged local celebrities.

The establishment of local and national stakeholder supported delivery plans is underway in collaboration with conservation groups and experts. Continued engagement with policy makers will assist in enforcing improved protective mechanisms for Brahmaputra river dolphins and regional freshwater ecosystems.

For a further summary of indicators, please see Section 2.1

In general, the process of using indicators has been useful. In this project, the outcome was oriented towards a species recovery approach. The success indicators have however been useful in engaging stakeholders more fully and gaining institutional support for range wide dolphin conservation. There was internal M&E within each organization through their systems. At ZSL, a personal development review process was used as well as bi-weekly meetings to assess progress against the project timelines.

## 7 Darwin identity

Darwin Initiative branding was used on all training and education materials including reports, booklets and posters that were disseminated to local communities and shared with prominent stakeholders. The brand was used in all internal and external meetings, seminars and training workshops. The branding was also used at two major workshops where findings from the project were disseminated which included a Royal Society funded ZSL-WII on 'Mammalian Diversity Assessments – Interdisciplinary and multi-scale approaches' and at a review workshop where experts working on dolphin conservation were convened to discuss collaborations and initiate a nation-wide standardised monitoring protocol. The DI branding featured in a radio feature on the BBC World Service.

It was not possible to place DI branding on the field vehicle and the research and education vessel as has been the norm with other projects due to security issues within the state of Assam and a reluctance to highlight financial resources at the disposal of the project team especially in the remote impoverished regions of Assam.

DI is well recognised in India due to its significant support for conservation through prior projects focussed on vulture conservation, pigmy hog conservation and elephant conservation. Through supporting dolphin conservation, which is the state aquatic animal of Assam and Bihar and the national aquatic animal of India, DI is now well known to conservation groups and relevant government departments such as the forest department and fisheries department.

## 8 Finance and administration

### 8.1 Project expenditure

Project spend since last annual report	2012/13 Grant (£)	2012/13 Total actual Darwin Costs (£)	Variance %	Comments (please explain significant variances)
Staff costs (see below)			0.13	
Consultancy costs			0.00	
Overhead Costs			-0.49	
Travel and subsistence			22.38	Greater number of days in the field than previously estimated which led to increased travel and subsistence costs for the project team
Operating Costs			7.35	
Capital items (see below)			7.30	
Others (see below)			-24.28	Greater number of days in the field than previously estimated which led to increased costs of boat and vehicle fuel
<b>TOTAL</b>	<b>103,371.00</b>	<b>102,248.55</b>		

Staff employed(Name and position)	Total salary in 2012-13(£)
Dr. Abdul Wakid, Project Manager	
Sunny Deori, Research Assistant	
Anumitra Phukan, Research Assistant	
Chandan Ri, Research Assistant	
Zakir Islam Bora, Project Coordinator	
Manoj Kr. Das, Project Assistant	
Biswajit Das, Project Assistant	
Boat Staff	
Driver	
DCN payment	
<b>TOTAL</b>	

Capital items – description	Capital items – cost (£)
<b>Year 3</b> Software-IGOR monitoring & analysis Binoculars Survey Team Observer Table Survey Equipment Repairing Range Finder purchase  <b>Year 4</b> Antivirus Software purchase Laptop Servicing	
<b>TOTAL</b>	

Other items – description	Other items – cost (£)
<b>Year 3</b> Intern costs Bank charges Boat running costs Fuel Batteries Pilot projects  <b>Year 4</b> Fuel Boat & Vehicle Maintenance Hardware Electrics Vehicle Insurance premium Boat Insurance premium Parking charge Battery purchase	
<b>TOTAL</b>	

## Additional funds or in-kind contributions secured

Source of funding for project lifetime	Total (£)
Rufford Small Grant Foundation	
Mohammed bin Zayed Species Conservation Fund	
<b>TOTAL</b>	<b>41,450</b>

Source of funding for additional work after project lifetime	Total (£)
IUCN SOS Fund	
Ocean Park Conservation Foundation	
Rufford Small Grant Foundation (Result awaited)	
<b>TOTAL</b>	<b>100,000</b>

### 8.2 Value for Money

The funding was catalytic to the activities in the Brahmaputra river system which has led to significant progress in the field of dolphin conservation in Assam and for the region with marked improvements in baseline information on dolphin and habitat status and associated threats; and monitoring methodologies and community engagement. A Dolphin Conservation Network across 30 dolphin priority habitats providing much needed site level dolphin monitoring and surveillance along with targeted fishermen training and new approaches in public engagement, particularly through the use of community theatre has led to improved motivation amongst the dolphin conservation networks, local communities sensitised to dolphin conservation and aware of the importance of freshwater ecosystem services that could be jeopardized by unsustainable use of the river system and unplanned development. The DI funding has also helped leverage further funds for the dolphin conservation programme in the Brahmaputra river system. The introduction of the concept of community managed dolphin conservation reserves has also been well received by the local communities and the results from the project have been able to identify priority sites for dolphin conservation across the entire length of the Brahmaputra. A draft dolphin conservation strategy for the Brahmaputra river system has been developed. A national dolphin monitoring system is being developed with the Government of India to be requested to fund this on an annual basis. A list of priority research projects is also being compiled nationally for support from the Government of India as part of a collaborative long term strategy for conserving the Ganges River dolphin and the wider Ganges and Brahmaputra freshwater ecosystems.

# Annex 1 Report of progress and achievements against final project logframe for the life of the project

Note: For projects that commenced after 2012 the terminology used for the logframe was changed to reflect DFID's terminology.

Project summary	Measurable Indicators	Progress and Achievements in the last Financial Year	Actions required/planned for next period
<p><b>Goal/Impact:</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.</p>			Do not fill not applicable
<p><b>Purpose/Outcome</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>		Do not fill not applicable
<p><b>Output 1.</b> Coordination framework and institutionalised monitoring and reporting systems at the Brahmaputra River basin level in Assam</p>	<ol style="list-style-type: none"> <li>1a. An improved, appropriately equipped and trained research and standardised monitoring unit established by Yr 1 (with at least five project staff and 30 community-based Dolphin Conservation Network/DCN members).</li> <li>1b. 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 and animal health by Yr 2.</li> <li>1c. Standardised post mortem procedures implemented; four trained veterinary dept staff (Yr 1).</li> <li>1d. Standardised boat-based dolphin surveys (seasonal) along the</li> </ol>	<ol style="list-style-type: none"> <li>1a. Five project staff and 30 DCN Members were recruited, trained and equipped in Yr 1-2.</li> <li>1b. Baseline information on dolphin population abundance, distribution, habitat status and anthropogenic activity status were generated through standardised survey methods in Yr2. Yr1 was utilized in standardising the methods and training of the project staff in newly developed methods. 4 project staff were trained in methodology design and statistical analysis.</li> <li>1c. Standardised post-mortem protocol weredeveloped; however, training will take place nationally at Patna University, Bihar due to the sensitivity situation in Assam. Prof. R. K. Sinha (Patna University) has agreed to provide dolphin carcasses for training of vet staff.</li> <li>1d. Standardised boat-based dolphin and habitat surveys in Brahmaputra tributaries (Kulsi and Subansiri River) completed in Yr2-3.</li> <li>1e. Land-based dolphin monitoring conducted weekly in 30 DCN sites since January, 2012.</li> <li>1f. Fishery data collection in landing and market sites was not conducted due to bias in data collection, since such landing centres also have fishes from nearby wetlands</li> </ol>	

Project summary	Measurable Indicators	Progress and Achievements in the last Financial Year	Actions required/planned for next period
	<p>Brahmaputra River system (Yr 1-3).</p> <p>1e. Land-based dolphin monitoring surveys (weekly) in 30 priority sites across Brahmaputra Valley (Yr 1–3).</p> <p>1f. Fishery data at landing and market sites collected and analysed; fishermen surveys conducted in the same 30 priority sites (Yr 1-2).</p> <p>1g. Fishermen community socio-economic surveys in the same 30 identified sites (Yr 1-2).</p> <p>1h. Annual Dolphin And Habitat Status Reports produced and disseminated to stakeholders; at least five core staff trained in statistical data analysis (Yr 1-3).</p> <p>1i. Priority dolphin river segments identified by Yr 2.</p> <p>1j. Ecosystem information synthesised for inclusion in regional plans and statutory processes around threatened / protected species and freshwater ecosystems by Yr 3.</p> <p>1k. Research information disseminated by Yr 3.</p>	<p>and non-dolphin inhabited rivers.</p> <p>1g. Fishermen socio-economic survey conducted in 13 DCN sites. Total 593 fishermen were interviewed. Report produced.</p> <p>1h. 4 Project staff trained in statistical data analysis at the Wildlife Institute of India. Annual dolphin and habitat status report produced in Yr2 and Yr3.</p> <p>1i. The southern boundary of Dibru-Saikhowa National Park, northern boundary of Kaziranga National Park and southern boundary of Oranga National Park where Brahmaputra River is flowing as the park boundary, were identified as priority river segments for future dolphin protected area.</p> <p>1j. Draft strategy and action plan developed for Brahmaputra River Dolphin and ecosystem conservation in Yr3.</p> <p>1k. Dissemination of research activities through manuscript preparation and submission is on-going.</p>	
<p>Activities:</p> <p>1.1 Recruitment of two Indian scientists with relevant experience in freshwater ecology; recruitment of 2 local research assistants; setup of ToRs and contracts.</p>		<p>Research posts advertised twice, but no suitable candidates were found in the beginning due to security issue in Assam especially after the kidnapping of WWF India field staff in Manas National Park by extremist group. One staff Chandan Ri recruited as Research Assistant in Aug, 2010. Two local research assistants Sanjay Das and Dhruva Chetry were recruited in July, 2010. ToRs and contracts were set up. Two research staff Sunny Deori and Anumitra Phukan joined the project in Oct, 2011.</p>	
<p>1.2 Completion of purpose-built boat; additional river boat, procurement of monitoring and sample analysis equipment.</p>		<p>A 75-foot long purpose-built boat construction started in July. However, due to excessive rain and availability of skilled man-power delayed the construction of the boat. The boat was completed in March, 2011. Additional boat procurement was cancelled due to availability of country boats for hire for the smaller channel surveys; monitoring and analysis equipment (hydrophone, YSI multiparameter, photometer, turbidity meter, chartplotter, GPS, rangefinder) purchased; Acoustic</p>	

Project summary	Measurable Indicators	Progress and Achievements in the last Financial Year	Actions required/planned for next period
		sensors were donated were bought and some provided to the project by National Institute of Fisheries Engineering, Japan.	
1.3 Development of GIS database system for Brahmaputra River dolphin and ecosystem with detailed design specification, training of staff in its use.		GIS database developed with the help of the GIS Unit, Aaranyak and being populated with data.	
1.4 Development of protocols, training material and data recording forms and training of at least 5 programme core staff and 30 DCN members in standardised land-based dolphin surveys.		Standardised land-based dolphin and habitat monitoring protocol, training manual and data recording forms developed. Two project staff and 30 DCN members were trained in two DCN training workshops in March and November, 2011.	
1.5 Land-based dolphin and habitat monitoring surveys (weekly) with monthly reporting in 30 priority sites across Brahmaputra Valley.		Land-based dolphin and habitat monitoring at weekly intervals conducted since Jan, 2012 through standardised protocols.	
1.6 Specific research studies for quantifying factors impacting on dolphins and wider ecosystem; PhD enrolment of identified project staff.		One project research staff enrolled for PhD at the Wildlife Institute of India (WII) and Forest Research Institute; a second project research staff cleared the WII PhD entrance exam; PhD proposal being developed. Recruitment of suitably qualified staff was a problem due to the security situation in Assam.	
1.7 Development of standardised dolphin post mortem procedures; training of at least 4 veterinary college dept staff in post-mortem, necropsy and pathology.		Post mortem procedures developed; but the training could not be completed due to permission delays from the local Govt. agency for carcass handling.	
1.8 Development of detailed survey design, data recording forms and procedures for fishermen surveys, fishing community socio-economic surveys and fishery data collection at landing and market sites; training of DCN members and programme staff in interview techniques, undertaking of surveys.		Fishermen survey data recording forms and protocols developed; 14 DCN members trained in fishermen interview techniques; survey conducted in 13 DCN sites; total 693 interviews completed.	
1.9 Development of protocols, training material and data recording forms, training workshop in standardised boat-based dolphin surveys (at least 5 programme core staff and 30 DCN members).		Standardised boat-based dolphin surveys methods developed, reviewed by IUCN Cetacean Specialist group members; 4 project staff and 10 DCN members trained in boat based surveys.	
1.10 Seasonal standardised dolphin and habitat surveys (2 early summer/pre-monsoon, 2 monsoon-mainly in the tributaries, 3 winter surveys) across the Brahmaputra mainstream and its tributaries (inc. acoustic and sample collection/analyses); populating of database, production and circulation of report and maps to relevant stakeholder and steering committee (for monitoring status and documenting seasonal migration).		Seasonal standardised dolphin and habitat surveys conducted in Kulsi and Subansiri Rivers; total 4 surveys conducted in both rivers; report prepared.	
1.11 Development of standardised annual dolphin and habitat status reporting template, training of staff trained in statistical data analysis and report production; production and review of annual dolphin and habitat status reports by steering committee, circulation of report to relevant stakeholders.		Standardised annual dolphin and habitat status reporting template developed; 4 staff trained in statistical data analysis and report production; report reviewed by IUCN CSG experts; report presented in all India dolphin status review workshop held in Guwahati in July, 2013.	

Project summary	Measurable Indicators	Progress and Achievements in the last Financial Year	Actions required/planned for next period
1.12 Analyses and reports on fishermen, fisheries and socio-economic survey data; dissemination of report to relevant stakeholders and steering committee.		Fishermen survey data analysed; report prepared; report presented in all India dolphin status review workshop held in Guwahati in July, 2013.	
1.13 Production of policy guiding documents from baseline research, survey and monitoring studies.		On-going.	
1.14 Identification of priority dolphin river segments, development of PA network discussion paper; production of report circulated to relevant stakeholders and steering committee.		The southern boundary of Dibru-Saikhowa National Park, northern boundary of Kaziranga National Park and southern boundary of Orang National Park were identified as priority river segments for future dolphin protected area.	
1.15 Draft PhD theses produced for review		PhD research is on-going.	
1.16 ZSL scientific meeting on integrated river dolphin conservation and sustainable ecosystem services.		Not completed being planned in 2015.	
1.17 Preparation and submission of at least four manuscripts for publication in peer-reviewed scientific journals.		Four manuscripts being prepared on standardised survey methodology for Gangetic dolphin population estimation; Kushi seasonal surveys; Subansiri seasonal surveys and fishermen surveys.	
<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>2a. Conventional and novel community outreach and awareness activities in 30 prioritised dolphin areas; 30 DCN members trained and supported (Yr 1–3).</p> <p>2b. Sustainable community-based river dolphin tourism pilot project developed; min. 10 DCN members trained in dolphin-watching guided tours by Yr 3.</p> <p>2c. Pilot projects in small-scale native species aquaculture and alternative livelihoods in two identified dolphin hotspots; local stakeholders trained in fisheries resource management and enforcement by Yr 3.</p> <p>2d. Dolphin Rapid Response Team (DRRT) established; project staff and DCN members trained in stranded dolphin releases and carcass collection;</p>	<p>2a. Conventional and novel community outreach and awareness activities conducted in 30 DCN sites in Yr2-3; DCN members trained in Yr2.</p> <p>2b. Kukurmara area in Kushi river was identified as potential dolphin eco-tourism sites; 10 community youths were trained extensively on dolphin conservation to employ them as future dolphin-watching guides.</p> <p>2c. Water hyacinth based products development was identified as the most suitable alternate livelihood for the fishermen community. A pilot project was initiated at Jhanjimukh in collaboration with North East Development and Financial Corporation (NEDFi) and a local NGO Keteki. Altogether 48 local community people mainly from fishermen community were trained in two 10 days product development workshops. One cottage was built in the site for the trained artisans.</p> <p>2d. Couldn't be undertaken due to permission issue for handling the carcass of schedule-I species.</p> <p>2e. Sites and community involved in dolphin oil bait fishing identified; 5 fishermen from the concerned fishermen community were trained in the use and production of alternate oil in Patna University, Ganges; alternate oil successfully trialled in Brahmaputra; total 90 fishermen were trained in alternate oil use and production in Brahmaputra.</p> <p>2f. Linkages developed with dolphin experts and conservationists working in Ganges;</p>	

Project summary	Measurable Indicators	Progress and Achievements in the last Financial Year	Actions required/planned for next period
	<p>at least 50 fishermen trained in entangled dolphin releases (Yr 1).</p> <p>2e. Fisherman surveys/dialogue on the use of dolphin oil and initiatives to stop use of dolphin oil, data gathered, size and trend in the trade assessed by Yr 2.</p> <p>2f. Cross-ecosystem linkages developed with Ganges River programmes for exchange of skills and information; study tours conducted (Yr 2).</p> <p>2g. Self-regulatory mechanisms for natural resource management in fishing communities enhanced (Yr2-3).</p> <p>2h. Dolphin ambassadors established; local women / youth leaders plus celebrities (Yr2).</p>	<p>5 fishermen from the Brahmaputra who are engaged in dolphin oil bait fishing were trained with the fishermen team of Prof. R. K. Sinha of Ganges in alternate oil bait use and preparation. Final all India workshop held in 2013.</p> <p>2g. Discussions held with Fisheries Department. Draft dolphin conservation strategy prepared.</p> <p>2h. Not undertaken due to lack of required interest from the local celebrities in dolphin conservation.</p>	
<p>Activities:</p> <p>2.1 Development of material and tools for community outreach and awareness activities; training of at least 2 programme staff and 30 DCN members.</p>		<p>One booklet and one poster developed; local theatre troupe trained over two weeks by Earthbeat, Nepal, one drama on dolphin and river ecosystem conservation developed; Additional 15 DCN staff trained in the drama performance; 30 DCN members were trained in community awareness activities including the use of education material and ..</p>	
<p>2.2 Community engagement and awareness programmes in 30 prioritised dolphin areas by DCN members with support on an on-going basis.</p>		<p>Community engagement and awareness programmes being conducted by trained DCN members in 30 DCN sites since January, 2012 in close coordination and monitoring by the dedicated DCN Coordinator.</p>	
<p>2.3 Establishment of Dolphin Rapid Response Team (DRRT) with equipment for dolphin carcass sample storage and transportation in 30 sites, training of relevant programme staff and 30 DCN members in stranded dolphin releases and carcass collection.</p>		<p>Could not be undertaken due to permission issue with carcass handling of Schedule-I species.</p>	
<p>2.4 Training of fishermen in entangled dolphin releases by trained DCN members and programme staff in dolphin core areas.</p>		<p>Could not undertaken due to lack of permission to handle dolphin carcasses because of its Schedule 1 species status.</p>	
<p>2.5 Annual Dolphin Days and review meetings and refresher workshops for project staff and DCN members.</p>		<p>Two annual Dolphin Days were conducted – one in October, 2011 and another in December, 2012; review workshop held for DCN members in November, 2011.</p>	
<p>2.6 Intensive fishing community engagement and awareness programmes along the Brahmaputra mainstream (during the upstream journey of the survey boat).</p>		<p>Intensive fishing community engagement and awareness campaigns were conducted in Jan-Mar, 2012 and Jan-Mar, 2013 across the Brahmaputra river system; in 2012 a total of 51 programmes were conducted in 49 different sites throughout 15 districts to an overall audience of 20,375 people, including 6,066 students. In 2013 Dolphin Yatra was conducted in total 90 sites covering Brahmaputra, Kulsi and Subansiri River with a total of 18891 local people</p>	

Project summary	Measurable Indicators	Progress and Achievements in the last Financial Year	Actions required/planned for next period
		participating.	
2.7 Training and establishment of Dolphin ambassadors.		Not undertaken due to lack of local celebrities in dolphin conservation.	
2.8 Study on the use of dolphin oil, size and trade, production and circulation of report to relevant stakeholders; initiatives for stopping use of dolphin oil, protection and awareness-raising of fishermen in hotspots coordinated by DCN members.		Bin fishermen community was identified as the only community engaged in dolphin oil bait fishing and Dhubri as their main activity area; from Dhubri the fishermen move up-to Upper Assam during winter; total 90 fishermen were trained on alternate oil bait preparation and use with active involvement of local forest and fishery officials; awareness campaigns conducted among the fishermen community; one Bin community youth is being trained as a DCN member working closely with his community to bring the change.	
2.9 DCN activities in 30 priority sites across Brahmaputra Valley by trained DCN members supported by project core 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).		Conducted in Yr2 and Yr3.	
2.10 Pilot controlled projects in small-scale native species aquaculture and alternative supportive livelihoods (medicinal and aromatic cash crops) in two identified dolphin hotspots; training of selected local stakeholders in fisheries resource management (traditional, artisanal and subsistence fishing methods) and enforcement; setup of community alliance.		Total 26 community members from Jhanimukh area were trained in water hyacinth products development in two 10-day long workshops in collaboration with NEDFi; market link for the products setup with NEDFi; one cottage was built on-site for product development.	
2.11 Cost-benefit analysis of aquaculture and alternative supportive livelihoods, circulation of report with recommendations to relevant stakeholders and steering committee		Cost benefit analysis of water hyacinth based products development conducted; report produced.	
2.12 Training of 10 DCN members in dolphin-watching guided tours; Initiation of community-based river dolphin tourism pilot project.		Kukumara area in Kulsi river was identified as potential dolphin eco-tourism site; 10 community youths were trained extensively as dolphin guides.	
2.13 Study tour of Ganges River programmes; establishment of cross-ecosystem linkages for exchange of skills and information.		Linkages developed with dolphin experts and conservationists working in the Ganges; 5 fishermen from the Brahmaputra who are engaged in dolphin oil bait fishing were trained with the fishermen team of Prof. R. K. Sinha of Ganges in alternate oil bait preparation and use.	
<b>Output 3.</b> Local and national stakeholder supported recovery plans and improved protective mechanisms for Brahmaputra River dolphins and regional freshwater ecosystem	3a. Site-specific plans, regional species recovery plan (SRP); PHVA and stakeholder workshops (Yr 2,3). 3b. Advocacy of SRP to relevant lead agencies and on integration of the plan into Brahmaputra River Action Plan and national species planning by end of Yr 3.	3a. PVA modelling was not conducted due to limited data on the demography and ecology of the species; regional species recovery plan drafted; an all India review workshop organised involving key experts and organisations engaged in dolphin research and conservation in India. 3b. Draft Brahmaputra River Dolphin Action Plan developed; reviewed by leading experts at atthe all India dolphin status review workshop.	

Project summary	Measurable Indicators	Progress and Achievements in the last Financial Year	Actions required/planned for next period
	<p>3c. Policy leveraging in regional development plans; government officials educated and lobbied to ensure regulation of fishing and wildlife; 5 staff trained in advocacy and lobbying techniques (Yr2).</p> <p>3d. Community alliance and participatory enforcement activities initiated in dolphin hotspot areas (Yr2-3).</p>	<p>3c. To be undertaken following release of strategy..</p> <p>3d. Community alliance and participatory enforcement activities are being developed and will be initiated through the IUCN SOS supported project.</p>	
<p><b>Activities:</b></p> <p>3.1 Training workshop in PHVA, site-specific stakeholder workshops for developing site-specific plans; plans submitted to DoEF for approval.</p>		<p>PVA modelling was not undertaken due to limited data on demography and ecology of the species; regional species recovery plan drafted.</p>	
<p>3.2 Multi-stakeholder workshop for development of regional Species Recovery Plan (based on synthesised baseline information and policy guiding documents); plan submitted to MoEF for approval.</p>		<p>An all India review workshop organised involving key experts and organisations engaged in dolphin research and conservation in India. A national long term programme for monitoring of dolphin population abundance, distribution, habitat status and threats being developed with funding requested from the Government of India. Draft conservation strategy reviewed.</p>	
<p>3.3 Training of 5 dolphin programme core staff in advocacy and lobbying; initiation of policy leveraging in regional development plans to ensure regulation of fishing and wildlife.</p>		<p>To be undertaken by host institution following launch of strategy (through IUCN SOS grant).</p>	
<p>3.4 Advocacy of Species Recovery Plan to relevant lead agencies and on integration of the plan into Brahmaputra River Action Plan and national species planning by trained programme core staff.</p>		<p>To be undertaken by host institution following launch of strategy (through IUCN SOS grant).</p>	
<p>3.5 Development of participatory enforcement plan; initiation of activities in all dolphin hotspot areas coordinated by DCN members.</p>		<p>To be undertaken by host institution following launch of strategy (through IUCN SOS grant).</p>	

## Annex 2 Project's full logframe, including indicators, means of verification and assumptions

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	1a. An improved, appropriately equipped and trained research and standardised monitoring unit established by Yr 1 (with at least five project staff and 30 community-based Dolphin Conservation Network/DCN members). 1b. 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 and animal health by Yr 2. 1c. Standardised post mortem procedures implemented; four trained veterinary dept staff (Yr 1). 1d. Standardised boat-based dolphin surveys (seasonal) along the Brahmaputra River system (Yr 1-3). 1e. Land-based dolphin monitoring surveys (weekly) in 30 priority sites across Brahmaputra Valley (Yr 1–3).	1a. 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. 1b. Technical reports on impact assessments (on dolphins, habitat and ecosystem services, incl. policy analysis) reviewed by experts and <b>Steering Committee (SC)</b> ; scientific spatial database for dolphins and habitat established. 1c. 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

Project summary	Measurable Indicators	Means of verification	Important Assumptions
	<p>1f. Fishery data at landing and market sites collected and analysed; fishermen surveys conducted in the same 30 priority sites (Yr 1-2).</p> <p>1g. Fishermen community socio-economic surveys in the same 30 identified sites (Yr 1-2).</p> <p>1h. Annual Dolphin And Habitat Status Reports produced and disseminated to stakeholders; at least five core staff trained in statistical data analysis (Yr 1-3).</p> <p>1i. Priority dolphin river segments identified by Yr 2.</p> <p>1j. Ecosystem information synthesised for inclusion in regional plans and statutory processes around threatened / protected species and freshwater ecosystems by Yr 3.</p> <p>1k. Research information disseminated by Yr 3.</p>	<p>1d,e. Survey and monthly reports; high-resolution habitat map of Brahmaputra ecosystem.</p> <p>1f. Fisheries report.</p> <p>1g. Socio-economic survey reports with feedback from SC and experts.</p> <p>1h. Standardised monthly progress and annual status reports with feedback from SC and experts.</p> <p>1i. Maps and report.</p> <p>1j. Synthesised report.</p> <p>1k. 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>2a. Conventional and novel community outreach and awareness activities in 30 prioritised dolphin areas; 30 DCN members trained and supported (Yr 1–3).</p> <p>2b. Sustainable community-based river dolphin tourism pilot project developed; min. 10 DCN members trained in dolphin-watching guided tours by Yr 3.</p> <p>2c. Pilot projects in small-scale native species aquaculture and alternative livelihoods in two identified dolphin hotspots; local stakeholders trained in fisheries resource management and enforcement by Yr 3.</p> <p>2d. 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 (Yr 1).</p> <p>2e. Fisherman surveys/dialogue on the use of dolphin oil and initiatives to stop use of dolphin oil, data gathered, size and trend in the trade assessed by Yr 2.</p> <p>2f. Cross-ecosystem linkages developed with Ganges River programmes for exchange of skills and information; study tours conducted (Yr 2).</p> <p>2g. Self-regulatory mechanisms for natural resource management in fishing communities enhanced (Yr2-3).</p> <p>2h. Dolphin ambassadors established; local women / youth leaders plus celebrities (Yr2).</p>	<p>2a. Community engagement tools and material (local radio, press, theatre troupe, posters, education material); training reports.</p> <p>2b. Pilot tourism project implementation and assessment reports, training report.</p> <p>2c. Assessment and training reports.</p> <p>2d. Training and monthly progress reports.</p> <p>2e. Assessment report.</p> <p>2f. Reports on study tours with Ganges River programmes.</p> <p>2g,h. Monthly field reports.</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 Ganges 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 equitable partnership</p>

Project summary	Measurable Indicators	Means of verification	Important Assumptions
<p>3. Local and national stakeholder supported recovery plans and improved protective mechanisms for Brahmaputra River dolphins and regional freshwater ecosystem</p>	<p>3a. Site-specific plans, regional species recovery plan (SRP); PHVA and stakeholder workshops (Yr 2,3).</p> <p>3b. Advocacy of SRP to relevant lead agencies and on integration of the plan into Brahmaputra River Action Plan and national species planning by end of Yr 3.</p> <p>3c. Policy leveraging in regional development plans; government officials educated and lobbied to ensure regulation of fishing and wildlife; 5 staff trained in advocacy and lobbying techniques (Yr2).</p> <p>3d. Community alliance and participatory enforcement activities initiated in dolphin hotspot areas (Yr2-3).</p>	<p>3a,b. Plans checked, approved and implemented by MoEF.</p> <p>3c. Training reports.</p> <p>3d. Monthly field reports and annual status reports assessed for trends in illegal activities.</p>	<p>Baseline data ready for PHVA and for developing plans</p>
<p><b>Activities</b> (details in workplan)</p> <ol style="list-style-type: none"> <li>1. Coordination framework and institutionalised monitoring and reporting systems at the Brahmaputra River basin level in Assam</li> <li>1.1 Recruitment of two Indian scientists with relevant experience in freshwater ecology; recruitment of 2 local research assistants; setup of ToRs and contracts.</li> <li>1.2 Completion of purpose-built boat; additional river boat, procurement of monitoring and sample analysis equipment.</li> <li>1.3 Development of GIS database system for Brahmaputra River dolphin and ecosystem with detailed design specification, training of staff in its use.</li> <li>1.4 Development of protocols, training material and data recording forms and training of at least 5 programme core staff and 30 DCN members in standardised land-based dolphin surveys.</li> <li>1.5 Land-based dolphin and habitat monitoring surveys (weekly) with monthly reporting in 30 priority sites across Brahmaputra Valley.</li> <li>1.6 Specific research studies for quantifying factors impacting on dolphins and wider ecosystem; PhD enrolment of identified project staff.</li> <li>1.7 Development of standardised dolphin post mortem procedures; training of at least 4 veterinary college dept staff in post-mortem, necropsy and pathology.</li> <li>1.8 Development of detailed survey design, data recording forms and procedures for fishermen surveys, fishing community socio-economic surveys and fishery data collection at landing and market sites; training of DCN members and programme staff in interview techniques, undertaking of surveys.</li> <li>1.9 Development of protocols, training material and data recording forms, training workshop in standardised boat-based dolphin surveys (at least 5 programme core staff and 30 DCN members).</li> <li>1.10 Seasonal standardised dolphin and habitat surveys (2 early summer/pre-monsoon, 2 monsoon-mainly in the tributaries, 3 winter surveys) across the Brahmaputra mainstream and its tributaries (inc. acoustic and sample collection/analyses); populating of database, production and circulation of report and maps to relevant stakeholder and steering committee (for monitoring status and documenting seasonal migration).</li> <li>1.11 Development of standardised annual dolphin and habitat status reporting template, training of staff trained in statistical data analysis and report production; production and review of annual dolphin and habitat status reports by steering committee, circulation of report to relevant stakeholders.</li> <li>1.12 Analyses and reports on fishermen, fisheries and socio-economic survey data; dissemination of report to relevant stakeholders and steering committee.</li> <li>1.13 Production of policy guiding documents from baseline research, survey and monitoring studies.</li> <li>1.14 Identification of priority dolphin river segments, development of PA network discussion paper; production of report circulated to relevant stakeholders and steering committee.</li> <li>1.15 Draft PhD theses produced for review.</li> </ol>			

Project summary	Measurable Indicators	Means of verification	Important Assumptions
<p>1.16 ZSL scientific meeting on integrated river dolphin conservation and sustainable ecosystem services.</p> <p>1.17 Preparation and submission of at least four manuscripts for publication in peer-reviewed scientific journals.</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>2.1 Development of material and tools for community outreach and awareness activities; training of at least 2 programme staff and 30 DCN members.</p> <p>2.2 Community engagement and awareness programmes in 30 prioritised dolphin areas by DCN members with support on an on-going basis.</p> <p>2.3 Establishment of Dolphin Rapid Response Team (DRRT) with equipment for dolphin carcass sample storage and transportation in 30 sites, training of relevant programme staff and 30 DCN members in stranded dolphin releases and carcass collection.</p> <p>2.4 Training of fishermen in entangled dolphin releases by trained DCN members and programme staff in dolphin core areas.</p> <p>2.5 Annual Dolphin Days and review meetings and refresher workshops for project staff and DCN members.</p> <p>2.6 Intensive fishing community engagement and awareness programmes along the Brahmaputra mainstream (during the upstream journey of the survey boat).</p> <p>2.7 Training and establishment of Dolphin ambassadors.</p> <p>2.8 Study on the use of dolphin oil, size and trade, production and circulation of report to relevant stakeholders; initiatives for stopping use of dolphin oil, protection and awareness-raising of fishermen in hotspots coordinated by DCN members.</p> <p>2.9 DCN activities in 30 priority sites across Brahmaputra Valley by trained DCN members supported by project core 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).</p> <p>2.10 Pilot controlled projects in small-scale native species aquaculture and alternative supportive livelihoods (medicinal and aromatic cash crops) in two identified dolphin hotspots; training of selected local stakeholders in fisheries resource management (traditional, artisanal and subsistence fishing methods) and enforcement; setup of community alliance.</p> <p>2.11 Cost-benefit analysis of aquaculture and alternative supportive livelihoods, circulation of report with recommendations to relevant stakeholders and steering committee.</p> <p>2.12 Training of 10 DCN members in dolphin-watching guided tours; Initiation of community-based river dolphin tourism pilot project.</p> <p>2.13 Study tour of Ganges River programmes; establishment of cross-ecosystem linkages for exchange of skills and information.</p> <p>3. Local and national stakeholder supported recovery plans and improved protective mechanisms for Brahmaputra River dolphins and regional freshwater ecosystem</p> <p>3.1 Training workshop in PHVA, site-specific stakeholder workshops for developing site-specific plans; plans submitted to DoEF for approval.</p> <p>3.2 Multi-stakeholder workshop for development of regional Species Recovery Plan (based on synthesised baseline information and policy guiding documents); plan submitted to MoEF for approval.</p> <p>3.3 Training of 5 dolphin programme core staff in advocacy and lobbying; initiation of policy leveraging in regional development plans to ensure regulation of fishing and wildlife.</p> <p>3.4 Advocacy of Species Recovery Plan to relevant lead agencies and on integration of the plan into Brahmaputra River Action Plan and national species planning by trained programme core staff.</p> <p>3.5 Development of participatory enforcement plan; initiation of activities in all dolphin hotspot areas coordinated by DCN members.</p>			

Project summary	Measurable Indicators	Means of verification	Important Assumptions
<p>4. Project Management, Dissemination and Reporting</p> <p>4.1 Establishment of steering committee, project management reporting procedures and ToRs, preparation of detailed project implementation plans</p> <p>4.2 Monthly progress meetings and regular site visits.</p> <p>4.3 Preparation and submission of half yearly, annual and final project reports, articles for DI newsletter to Defra.</p> <p>4.4 Updating of project website pages inc. downloadable documents (resource centre).</p> <p>4.5 Media coverage, attendance of meetings and conferences (such as SSC-Cetacean Specialist Group, marine mammal congress) at which findings from Darwin project work are presented / disseminated.</p>			
<p><b>Monitoring activities:</b></p> <p><u>Indicators</u></p> <p>1. Coordination framework and institutionalised monitoring and reporting systems at the Brahmaputra River basin level in Assam</p> <p>1.1 ToRs and contracts in place (Yr 1).</p> <p>1.2 Purpose-built boat; additional river boat and monitoring and sample analysis equipment in operation (Yr 1).</p> <p>1.3 GIS database system in operation, detailed design specification, manual and training report (Yr 1).</p> <p>1.4 Protocols, training material and data recording forms, training report (Yr 1).</p> <p>1.5 Monthly reporting from 30 priority sites (Yr 1-3).</p> <p>1.6 Research study progress and final reports (Yr 1-2).</p> <p>1.7 Dolphin post mortem procedures; training report (Yr 1).</p> <p>1.8 Survey designs, data recording forms and procedures; training reports (Yr 1).</p> <p>1.9 Protocols, training material and data recording forms, training report (Yr 1).</p> <p>1.10 Survey reports, maps, populated database, stakeholder and steering committee feedback (Yr 1-3).</p> <p>1.11 Standardised annual dolphin and habitat status reporting template, training report; reports and feedback from steering committee and relevant stakeholders (Yr 1-3).</p> <p>1.12 Reports and feedback from relevant stakeholders and steering committee (Yr 2).</p> <p>1.13 Policy guiding documents (Yr 2).</p> <p>1.14 Priority dolphin river segments report, PA network discussion paper; feedback from relevant stakeholders and steering committee (Yr 2).</p> <p>1.15 PhD theses draft (Yr 3).</p> <p>1.16 ZSL scientific meeting presentations (Yr 3).</p> <p>1.17 Copies of manuscripts (Yr 2-3).</p> <p>2. Enhanced capacity of local authorities and fishing communities for dolphin population recovery and for contributing towards wider-scale ecosystem management</p>			

Project summary	Measurable Indicators	Means of verification	Important Assumptions
<p>2.1 Material and tools; training report (Yr 1-2).</p> <p>2.2 Monthly progress reports, field visits (Yr 1-3).</p> <p>2.3 Monthly progress reports, field visits, training report (Yr 1-3).</p> <p>2.4 Monthly progress reports, field visits, training report (Yr 1-3).</p> <p>2.5 Meeting reports, media coverage (Yr 1-3).</p> <p>2.6 Report and feedback (Yr 1-3).</p> <p>2.7 Media coverage, reports (Yr 1-3).</p> <p>2.8 Reports, field visits (Yr 2-3).</p> <p>2.9 Monthly reports, field visits (Yr 1-3).</p> <p>2.10 Monthly reports, field visits (Yr 2-3).</p> <p>2.11 Report and feedback from relevant stakeholders and steering committee (Yr 3).</p> <p>2.12 Training report, field visits and progress reports (Yr 2-3).</p> <p>2.13 Study tour report (Yr 2).</p> <p>3. Local and national stakeholder supported recovery plans and improved protective mechanisms for Brahmaputra River dolphins and regional freshwater ecosystem</p> <p>3.1 Training report, site-specific plans (Yr 3).</p> <p>3.2 Species Recovery Plan (Yr 3).</p> <p>3.3 Training report, progress reports, revised plans (Yr 3).</p> <p>3.4 Progress reports, revised Brahmaputra River Action Plan and national species plan (Yr 3).</p> <p>3.5 Participatory enforcement plan; monthly report and field visits (Yr 3).</p> <p>4. Project Management, Dissemination and Reporting</p> <p>4.1 Steering committee meeting minutes, project management reporting procedures and ToRs, project implementation plans (Yr 1-3).</p> <p>4.2 Monthly progress meetings minutes, site visit reports (Yr 1-3).</p> <p>4.3 Half yearly, annual and final project reports, articles, Defra review reports (Yr 1-3).</p> <p>4.4 Websites and downloadable documents (Yr 1-3).</p> <p>4.5 Presentations and media coverage material (Yr 1-3).</p>			

## Annex 3 Project contribution to Articles under the CBD

### Project Contribution to Articles under the Convention on Biological Diversity

Article No./Title	Project %	Article Description
6. General Measures for Conservation & Sustainable Use	5	A major step forward has been the establishment of a draft strategy for the Brahmaputra river system with inputs from scientists and other conservation groups working across the dolphin range. This will be presented before the Assam Forest department and other stakeholders for their inputs and for them to take forward into the future.
7. Identification and Monitoring	25	A significant achievement has been the establishment of standardised monitoring protocols and system for the dolphin and its habitat in the Brahmaputra river system. Baseline information on dolphin population, habitat and scale and impact of threats has been established. There are plans for the monitoring protocols to be adopted by scientists across the dolphin range for a coordinated census to monitor the total population of dolphins in India and in the wider Indian subcontinent in the future.
8. In-situ Conservation	25	The impact of the project has been to gain an understanding of how to improve the conservation of both dolphins and their habitat through the collection of quantitative data on population, habitat status and threats. A dolphin conservation network across 30 priority habitats has been strengthened providing much needed regular dolphin monitoring and surveillance capability. Sustainable alternative livelihoods have been investigated and viable options have been taken forward with local institutions with capacity and financial mechanisms for expansion. Dialogue on community based conservation areas have been initiated with local communities and institutions. Discussions have been held to incorporate sections of the river into existing parks with local communities benefitting from tourism. Mitigation measures on threats have been piloted and appropriate training provided for reducing bycatch and illegal killing of dolphins.
13. Public Education and Awareness	25	The local awareness of the conservation challenges facing river dolphins is much better understood in the communities at all levels following the public engagement and awareness campaign. Novel public engagement tools have been established.
17. Exchange of Information	10	This project has contributed to a better understanding of the limitations and uses of different approaches and also helped to improve knowledge of how acoustic tags maybe deployed to gain accurate abundances of dolphins across multiple river types. Patna University also provided training in the preparation of alternative fish bait. Earthbeat (Nepal) trained local theatre troupe.
Other Contribution	10	There has been significant contribution to the development of research activities and particularly documenting the growing threats to the dolphin populations across the entire stretch of the Brahmaputra river system. Considerable technical and information exchange has taken place and livelihood opportunities have been explored with important lessons for future work.
Total %	100%	Smaller contributions (e.g.of 5%) or less should be summed and included here.

## Annex 4 Standard Measures

Code	Description	Totals (plus additional detail as required)
<b>Training Measures</b>		
1a	Number of people to submit PhD thesis	1(Sunny Deori)
1b	Number of PhD qualifications obtained	Nil
2	Number of Masters qualifications obtained	3 (Sunny Deori, RajlakshmiJha, Gunjan Gupta)
3	Number of other qualifications obtained	4
4a	Number of undergraduate students receiving training	Nil
4b	Number of training weeks provided to undergraduate students	Nil
4c	Number of postgraduate students receiving training (not 1-3 above)	3
4d	Number of training weeks for postgraduate students	21 weeks
5	Number of people receiving other forms of long-term (>1yr) training not leading to formal qualification( i.e. not categories 1-4 above)	
6a	Number of people receiving other forms of short-term education/training (i.e. not categories 1-5 above)	30
6b	Number of training weeks not leading to formal qualification	4 weeks
7	Number of types of training materials produced for use by host country(s)	2 (dolphin survey protocol, DCN training manual)
<b>Research Measures</b>		
8	Number of weeks spent by UK project staff on project work in host country(s)	49
9	Number of species/habitat management plans (or action plans) produced for Governments, public authorities or other implementing agencies in the host country (s)	1 (draft)
10	Number of formal documents produced to assist work related to species identification, classification and recording.	2 (two status reports)
11a	Number of papers published or accepted for publication in peer reviewed journals	4 manuscripts in preparation
11b	Number of papers published or accepted for publication elsewhere	0

<b>Code</b>	<b>Description</b>	<b>Totals (plus additional detail as required)</b>
12a	Number of computer-based databases established (containing species/generic information) and handed over to host country	1 (GIS database)
12b	Number of computer-based databases enhanced (containing species/genetic information) and handed over to host country	0
13a	Number of species reference collections established and handed over to host country(s)	0
13b	Number of species reference collections enhanced and handed over to host country(s)	0
<b>Dissemination Measures</b>		
14a	Number of conferences/seminars/workshops organised to present/disseminate findings from Darwin project work	1
14b	Number of conferences/seminars/ workshops attended at which findings from Darwin project work will be presented/ disseminated.	2
15a	Number of national press releases or publicity articles in host country(s)	2
15b	Number of local press releases or publicity articles in host country(s)	3
15c	Number of national press releases or publicity articles in UK	0
15d	Number of local press releases or publicity articles in UK	1
16a	Number of issues of newsletters produced in the host country(s)	0
16b	Estimated circulation of each newsletter in the host country(s)	0
16c	Estimated circulation of each newsletter in the UK	0
17a	Number of dissemination networks established	0
17b	Number of dissemination networks enhanced or extended	0
18a	Number of national TV programmes/features in host country(s)	0
18b	Number of national TV programme/features in the UK	0
18c	Number of local TV programme/features in host country	0

<b>Code</b>	<b>Description</b>	<b>Totals (plus additional detail as required)</b>
18d	Number of local TV programme features in the UK	0
19a	Number of national radio interviews/features in host country(s)	0
19b	Number of national radio interviews/features in the UK	0
19c	Number of local radio interviews/features in host country (s)	0
19d	Number of local radio interviews/features in the UK	1
<b>Physical Measures</b>		
20	Estimated value (£s) of physical assets handed over to host country(s)	47,300
21	Number of permanent educational/training/research facilities or organisation established	1
22	Number of permanent field plots established	0
23	Value of additional resources raised for project (See Section 8.2 above)	141,450
<b>Other Measures used by the project and not currently including in DI standard measures</b>		

## Annex 5 Publications

Type *	Detail	Publishers	Available from	Cost
(e.g. journals, manual, CDs)	(title, author, year)	(name, city)	(e.g. contact address, website)	£
Manual	Training manual for Dolphin Conservation Network members	Aaranyak/ZSL	Aaranyak	Print and postage
Poster	Dolphin conservation awareness poster	Aaranyak/ZSL	Aaranyak/ZSL	Print and postage
Publication-manuscript	The status and distribution of river dolphins in the Brahmaputra river system	Aaranyak/ZSL	Aaranyak/ZSL	Print and postage
Protocols	Ganges River dolphin monitoring protocol	Aaranyak/ZSL	Aaranyak/ZSL	Print and postage
CD	Community dolphin drama	Earthbeat/Aaranyak/.ZSL	Earthbeat/Aaranyak/.ZSL	Print and postage

## Annex 6 Darwin Contacts

Ref No	18-009
Project Title	Integrated River Dolphin Conservation for Sustainable Ecosystem Services in the Brahmaputra
<b>Project Leader Details</b>	
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