



162/13/029 - Conserving Giant Clams Through A Community Reserve In The Lakshadweep Islands

Darwin Initiative

Annual Report

Conserving Giant Clams Through A Community Reserve In The Lakshadweep Islands

Reference # 162-13-029

Year 2

18 May 2007



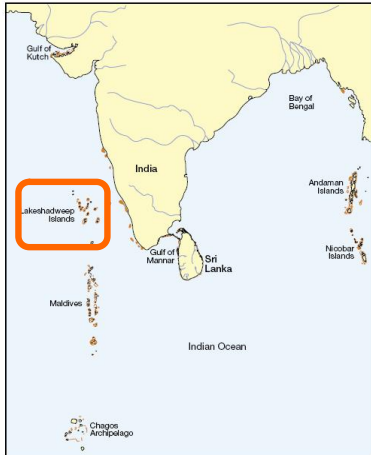
162/13/029 - Conserving Giant Clams Through A Community Reserve In The Lakshadweep Islands

Darwin Project Information

Project Ref Number	162_13_029
Project Title	Conserving Giant Clams Through a Community Reserve in the Lakshadweep Islands, India
Country	India
UK Contract Holder Institution	LEAD International (LEAD Intl.)
UK Partner Institution	LEAD International
Host country Partner Institution(s)	Bombay Natural History Society (BNHS)
Darwin Grant Value	£150,000 (£149,961)
Start/End dates of Project	1 April 2005 – 31 March 2008
Reporting period	1 Apr 2006 to 31 Mar 2007; Annual Report 2
Project Leader Name	Simon Lyster
Project website	http://www.lead.org/page/89
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1. Project Background

Figure 1 Map: Lakshadweep Islands, India¹



The project is based in Lakshadweep Islands, the smallest Union Territory of India, 32 km² of land spread over 36 islands (10 inhabited), population: 60,000, 12 atolls and 5 submerged sand banks, surrounded by 4,200 km² of lagoon rich in marine wildlife. **Figure 1.-2.**

Tuna fishing and tourism are the main economic activities in Lakshadweep. Tuna fishing however, has been under threat over the last decade when the baitfish population in the reef lagoons began to decline.

Our project team works closely with local island communities to establish management regimes to increase the biodiversity of the reefs and thus restore the baitfish populations which are closely linked with the islands' overall economy and livelihood.

To sustain these management practices a marine conservation reserve - the first of its kind in India – has been initiated in the lagoon of Agatti island in close collaboration with the local community and the Indian government.

Figure 2 Agatti, the site of the proposed marine protected area, is the West most atoll of Lakshadweep



The traditionally strong local communities and the unique cultural characteristics of these islands – following matrilineal Muslim traditions where women have significant status in the community – provide a supportive social environment for a community-based natural resource management.

Giant clams symbolise the health of coral reef. Due to their very selective ecological requirements they are good indicators of changes in reef health. Thus monitoring giant clams is an essential tool to quantify changes in the integrity of reef habitats. Giant clams are globally significant species: protected under Schedule I of the Indian Wildlife (Protection) Act, 1972; included in the IUCN Invertebrate Red Data Book as conservation dependent species; and listed by CITES and the Indian EXIM Policy.



2. Project Partnerships

The partnership between LEAD International and BNHS continues to be an excellent and mutually inspiring collaboration. The partnership has further developed in Year 2 by regular communication and joint activities e.g. presentation at the Darwin Workshop in October 2006 in London, the Indian team's visit to the UK to help them prepare for setting up the proposed marine protected area in Agatti and widen their professional networks, and the UK partner's 40 day fieldwork in India.

The UK partner provides leadership for sustainable development and capacity development expertise through a series of training of trainers programmes. The collaboration of the UK and host country partners jointly develops the capacities of local communities to prepare and implement the first marine protected area (MPA) in India.

The partnership has supported the host country institution to build their capacity to meet CBD commitments with particular emphasis on CBD themes of marine and coastal biodiversity, biodiversity and tourism, sustainable use and biodiversity, and indicators, with special reference to the following CBD articles:

Article 7: Identification & Monitoring:

The project has identified, monitored (following the Year1 baseline survey) and extended data bases of components of Lakshadweep's biological diversity – with particular attention to giant clams and corals - important for their conservation and sustainable use. See Annex 3-4.

Article 8/a: In-situ Conservation

The project has made significant progress towards establishing a new protected area, the proposed 'Agatti Marine Conservation Reserve' in Lakshadweep, the first co-managed marine conservation area in India. The project has received 100% support to date from community and government representatives.

Article 8/b: In-site Conservation

The project has developed a management plan for the proposed 'Agatti Marine Conservation Reserve'

Article 8/e: In-site Conservation

The project has developed guidelines for 'Eco-Tourism Management Plan' to promote sustainable development in the adjacent areas to the proposed protected area.

Article 10/c: Sustainable Use of Components of Biological Diversity

The project has made significant progress towards protecting and encouraging the customary use of biological resources in accordance with traditional cultural practices that are compatible with conservation or sustainable use requirements in Agatti, Lakshadweep by organising widespread community consultations

Article 10/e: Sustainable Use of Components of Biological Diversity

The project has encouraged cooperation between community members and governmental authorities for setting up the proposed marine protected area and the for the sustainable use of biological resources in Agatti.

Article 12/a: Training and Research

The project had delivered trainings on measures for the identification, conservation and sustainable use of biological diversity and its components in Agatti through training community facilitators to engage stakeholders in setting up the proposed new marine conservation reserve, as well as through training volunteers for field research to assess the population and status of giant clams and corals in Lakshadweep.



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Article 12/b: Training and Research

The project has continued research on giant clams and corals, as well as the socio-economic aspects (including tourism) of setting up a new protected area. The research activities contribute to the conservation and sustainable use of biological diversity.

Setting up a new MPA helps India to meet her CBD commitments regarding the establishment of global network of representative and effectively managed MPA systems by 2012ⁱⁱ.

The project team has created a productive relationship with the following national, regional and international organisations committed to biodiversity and sustainable livelihood:

- Biroba Film, Pune, India (new)
- Centre for Marine and Fishery Studies, Syiah Kuala University, Indonesia (new)
- CORDIO (Coral Reef Degradation in the Indian Ocean) (new)
- Darwin Centre Live, Natural History Museum, London, UK (continued)
- Department of Fisheries and Aquatic Research, Sri Lanka (new)
- Duke University, USA (new)
- EarthCare Films, New Delhi, India (continued)
- Field Studies Council, with their Darwin Initiative Project, Shrewsbury, UK (continued)
- Global Footprint Network, Canada (continued)
- Global Islands Network, UNEP (continued)
- Harriot Watt University, with their Darwin Initiative Project, Edinburgh, UK (Yr1)
- IUCN, Gland, Switzerland (continued)
- LEAD-India, New Delhi, India (continued)
- LEAD-Indonesia, with their Darwin Initiative Project, Jakarta, Indonesia (continued)
- Lund University, Helsingborg, Sweden (Yr1)
- Marine Research Assessment Group / DFID Fisheries Management Science Programme, London, UK (continued)
- Ministry of Fisheries, Agriculture and Marine Resources, Maldives (new)
- National Biodiversity Authority, Government of India (new)
- National Institute of Oceanography, Goa, India (continued)
- Nature Seychelles, Mahe, Seychelles (new)
- Oracle, Reading, UK (new)
- Phuket Marine Biological Centre, Thailand (new)
- Regional Environmental Centre, Szentendre, Hungary (new)
- Regional Programme for the Sustainable Management of the Coastal Zone of the Countries of the Indian Ocean, Quatre Bornes, Mauritius (ReCoMaP) (new)
- Royal Society for the Protection of Birds, Sandy, UK (new)
- Smithsonian Institute, Washington DC, USA
- Suganthi Deavadason Marine Research Institute (new)
- University of Kochi, Kochi, India (Yr1)
- University of Delhi, New Delhi, India (continued)
- University of Sarragoza, Sarragoza, Spain (continued)
- University of Alberta, Camrose, Canada (continued)
- TARU Consulting, New Delhi, India (continued)
- The Nature Conservancy (new)
- TUNZA for Youth, UNEP (Yr1)
- Tyndall Centre, University of East Anglia, UK (Yr1)
- WWF-UK (new)



3. Project progress

Project purpose

The overall purpose of the project is set up a marine community-based protected area in Lakshadweep, the first co-managed marine protected area (MPA) in India.

It is expected that the MPA will enable local people to design and adopt management practices effective for both conservation and sustainable use of biodiversity. The proposed MPA will

- Conserve globally threatened populations of giant clams
- Assist with the recovery of depleted fish stocks (especially live bait species)
- Enhance the livelihood prospects, in a sustainable way, of traditional fishing communities currently living below the poverty line.

Name of the proposed MPA: 'Agatti Marine Conservation Reserve'

The name of the proposed MPA appears as 'marine community reserve' in the project proposal to the Darwin Secretariat. A revision is needed, however, to comply with the legal requirements related to conservation areas in India. According to the Indian Wildlife (Protection) Act a protected area which is owned by the Government of India and co-managed by the government and the local community should be treated and called as a 'conservation' reserve. 'Community' reserve can only be designated where the local community owns the land and takes full responsibility for the management as well. In Lakshadweep local residents may own land but all waters are under the jurisdiction of the Government of India (as all territorial waters).

The proposed protected area in Lakshadweep is therefore entitled as a 'conservation reserve' for the following reasons: (i) the boundaries encircle 10km² sea which makes it a government territory; (ii) the local community is interested and has the capacity to co-manage the area with the local government.

3.1 Progress in carrying out project activities

3.1.1. Key activities of Year2

3.1.1.1. Selection of proposed MPA site

Year2 activities focussed on the preparation of the marine protected area in Agatti. Based on Year1's thorough baseline survey of 21 islands (versus 8 planned), Agatti was selected as the site of the proposed MPA for three main reasons below.

- **Biodiversity** - Agatti has the most significant giant clam population of all surveyed reefs in Lakshadweep. As giant clams are considered indicators of reef health, a significant giant clam population signifies an overall high ecological integrity.
- **Development** - Agatti features a socio-economic development pattern which is representative of many other islands of Lakshadweep including intensive live bait fishery for

pole and line tuna fishing; developing tourism industry; diversifying economy. Agatti has the second largest tuna landing and thus is an ideal candidate for the proposed MPA.

- **Access** - Agatti has better access than any other islands due to its airport, the only one to-date in Lakshadweep. Agatti is served by two airlines (as of March 2007). They provide almost daily transportation between mainland India and Agatti. Mobile and landline phone coverage is adequate, and access to high speed internet is possible in the local schools in Agatti (since mid 2006).

Selecting an island with high biodiversity increases the chances of success, the probability that the proposed conservation measures fulfil the expectations. It is easier to conserve a high integrity reef than to restore a damaged one. The representative socio-economic pattern helps developing strategies that could be replicated in and easily adapted to other islands as well. We suggest that a whole network of MPAs should be created in Lakshadweep by 2012 based on Agatti's successful experience. Access is critical as without reliable access and communication co-management may be compromised. Access can not be taken for granted in Lakshadweep.

3.1.II. Four areas of activity

Activities related to the main project areas – giant clam research, fisheries, capacity development, tourism - supported the local community's preparation for setting up the MPA in Agatti as follows:

3.1.II.1. Research

A second survey was completed in Agatti and other islands to monitor giant clam (*Tridacna maxima*) populations and collect data on other conservation / natural resources. The re-count reveals that

- Agatti remains the most important island for giant clam (*T. maxima*) population which confirms Agatti's selection as potential site for the proposed MPA.
- All islands showed higher mortality compared to recruitment in the previous year.
- Herbivore fish plays an important role in the maintenance of *T. maxima* habitat. Herbivores' frequent browsing of algae on table tops of massive corals (*Porites. lutea* and *P. solida*) is a critical especially for giant clam recruits.
- Threats to giant clams include a range of local and global factors: (i) consumption; (ii) diseases of massive corals that provide giant clam with substrate (*Porites. lutea* and *P. solida*); (iii) bleaching of giant clams; (iv) increased sea surface temperature; (iv) habitat loss through dredging, coral mining, pollution.

The results of the two surveys formed the basis of the consultations with local community members about the MPA boundaries. Expert advice from the South-Asia Reef Resilience Workshop, January 2007, Sri Lanka (attended by two of our project team members) confirmed the proposed boundaries.

3.1.II.2. Fisheries

Research on fisheries, with special focus on live bait has continued. Year1 activities included data collection on fishing methods, gears, seasonality, trends in stock changes, stock management, and traditional governance. Year2 mapped fishing grounds, collected further data on the complexity of the declining bait fish stock, and prioritised resource management issues. Findings exposed the following:

- The entire Agatti lagoon is used for live bait collection.
- Fishermen collect live bait in other lagoons as well when the stock declines in Agatti.

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- Delicate round herring (*Spratelloides delicatulus*) and Japanese anchovy (*Spratelloides japonicus*) are the most often used bait fish species for catching skipjack tuna (*Katsuwonus pelamis*).
- The live bait / tuna ratio is currently higher than optimal. Local experts suggest that only 4kg live bait would suffice for catching a boatful of skipjack tuna.
- The proposed MPA area includes live bait hatcheries.

3.1.II.3. Capacity development

Year2's intensive and extensive capacity development activities focussed on Agatti, the proposed MPA site, and took place at three tiers, all supporting project sustainability:

Local project team

The capacity development of the core project team is strategic for the project's sustainability. Trainings addressed a wide range of technical and project management issues, i.e. sustainable development, conservation ecology, survey techniques, setting up and managing marine protected areas, project management, capacity development, cooperative training methods. Learning took place in both on-the-job / on-demand as well as in structured informal and formal training events, i.e. fieldwork, community engagement, interaction with partner organisations and consultants, UK visit of two team members; series of 22 training of trainer events and ongoing mentoring by the UK partner. The ten-day documentary film shooting provided a hands-on learning opportunity on participatory film making. The regular communication among team members serves as an important and conscious peer-learning and tutoring mechanism, supported also by the UK partner via e-mails, phone calls.

Project Team: <http://www.lead.org/page/277> Community Facilitators: <http://www.lead.org/page/271>

Adult community members

Over 20 island-wide consultations engaged more than 550 adult community members (~ 8% island population) in discussing the issues about setting up the proposed MPA. The consultations were facilitated by core project team members, community facilitators and a consultant. Over 300 women shared their views in these meetings. A ten-day documentary film shooting elevated the profile and significance of setting up the MPA. The giant clam and coral surveys on various islands always had an education component as well: after fieldwork project team and volunteers interacted with local community - adults and children - through a range of environmental education activities (e.g. film shows & discussions), disseminated project results and engaged locals in discussion about the goals and expected results of proposed MPA network in Lakshadweep.

Community: <http://www.lead.org/page/203>

Children community members

A series of informal learning events and the annual World Environmental Day painting competition engaged Agatti's children. Our emphasis on informal learning is a choice for higher effectiveness. Island children learn better through interactive, hands-on activities in the context of their daily activities such as playing in the beach, helping family members etc.

Education <http://www.lead.org/page/199>

3.1.II.4. Tourism

Data collection, discussion with stakeholders continued in Year2, with a focus on Agatti and Bangaram, key stakeholders of tourism of the proposed MPA. Discussions with stakeholders were often combined with awareness raising and capacity development activities, such as formal



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presentations, structured formal and informal training events. Extensive research was conducted on good practices of eco-tourism for the Tourism Management Plan.

3.1. III. Timely implementation

Most activities have been carried out as planned in scheduled timeline, see Table 1. and Annex 1 log frame.

Given the hierarchy of decisions stipulated by the Indian Wildlife (Protection) Act for setting up a 'conservation reserve', some of the activities listed below need to be slightly rescheduled until the Agatti Village Dweep Panchayat submits the Lakshadweep Administration a formal recommendations to establish the proposed 'Agatti Conservation Reserve'. We expect this to happen by December 2007.

- Conservation Reserve Local Governing Council members identified
- Conservation Reserve Local Governing Council established
- Honorary reef warden and fish warden identified, appointed and trained
- Bi monthly Local Governing Council meetings

The submission of Tourism Management Plan to Tourism Authority has been rescheduled with the consent of the Darwin Secretariat. The submission is slightly behind schedule as the Tourism Management Plan was revised to augment the MPA Management Plan. As a result, the 'Implementation of Tourism Management Plan' is expected to happen at a later date when the authorities decide to endorse the plan and allocate the necessary resources for the implementation. The rescheduling does not effect the project budget.

For details of the full selection and preparation process see Annex 3-4, MPA Management Plan and Annexes.

Table 1 Project implementation timetable – Year 2

Project implementation timetable – Year 2		
Date	Financial year: April 2006 - March 2007	Activities & Key milestones
01.04.2006 - 31.07.2006	2006/7	<p>Established a project office in Agatti. Main office is in Kavaratti.</p> <p>Further training workshops for local communities</p> <p>Reserve area mapping and identifying marine protected area (MPA) boundaries</p> <p>Design and develop Agatti Conservation Reserve Management Plan (in progress)</p> <p>Design and develop Island Tourism Management Plan (in progress)</p> <p>Project website further developed</p>
01.08.2006 - 30.11.2006	2006/7	<p>Initiate process of establishment of Marine Conservation Reserve</p> <p>Interact with Ministry of Environment and Forests and local government offices</p> <p>Continue education programmes for the local community ⁱⁱⁱ</p> <p>Six monthly progress report (Oct 2006)</p>
01.12.2006 - 31.03.2007	2006/7	<p>Training of trainers – 2nd phase (30 days)^{iv}</p> <p>Continue giant clam and live coral mapping on reefs, populations studies, ecological and biological studies and data collection, associate species identification</p> <p>Project video documentary initiated in Agatti, the selected island for the Marine Conservation Reserve</p> <p>Continue interaction with Ministry of Environment and Forests and local government offices for the Community Reserve establishment</p> <p>Project website further developed</p> <p>Design and develop Agatti Conservation Reserve Management Plan</p> <p>Design and develop Island Tourism Management Plan</p> <p>Raising additional resources: INR 30,00,000- (~£37,000) for creating a documentary film was secured by ONGC (Oil and Natural Gas Corporation Ltd., India)</p> <p>Year 2 Annual report</p>

3.2 Progress towards Project Outputs

Overall, the project has made significant progress towards achieving output targets. All inputs – research data, increased local capacities, management plans - are in place for establishing the new, proposed marine protected area in Agatti, Lakshadweep.

All projected outputs were achieved and documented in details in Annex 2. A few outputs – mentioned in 3.1. - such as appointment of reef warden, governing council etc. will be delivered in Year 3 as soon as the Agatti Village Dweep Panchayat submits the Lakshadweep Administration a formal recommendations to establish the proposed 'Agatti Conservation Reserve'. We expect this to happen by December 2007. All other aspects of the logical framework have been met in the scheduled timeline.

The MPA designation process follows the Indian Wildlife (Protection) Act 1972. The gazetting may go beyond the life of the project. However, local conservation activities may begin earlier, depending on the approval of the Department of Forest and Environment, Union Territory of Lakshadweep and commitment of the Conservation Reserve Management Committee.

3.3 Standard Output Measures

Table 2 Project Standard Output Measures

Code No.	Description of Year 2 Outputs	Year 1 Total	Year 2 Total	Year 3 Total	TOTAL
1A	Indian staff to submit thesis for PhD on fisheries and environmental economics	2	1		3
3	Indian project staff received PADI diver qualification	2	4		6
4A	Undergraduate students (Indian, USA) received training on biodiversity	2			2
4B	Training weeks	1			1
5	Indian volunteers (islanders) received training for fieldwork (giant clam and coral survey)		40		40
6A	Indian staff received training on community-based conservation, environmental education and eco-tourism	3			3
6B	Training weeks provided	4			4
6A	Indian staff received training on co-management, community-based conservation and facilitating community engagement		4		4
6B	Training weeks provided		5		5
6A	Indian youths received training on eco-tourism	35			35
6B	Training weeks provided	4			4
6A	Indian students received awareness raising trainings on various environmental - including biodiversity – and conservation issues, and the role of reefs in their livelihood	1,000	500		1,000

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6B	Training days	9		9
6A	Indian youths (both women and men) received training on co-management, community-based conservation and community facilitation		8	8
6B	Training weeks provided		3	3
6A	Indian tour-guides received training on eco-tourism		15	15
6B	Training days provided		2	1
6A	Indian community members from 10 islands participated in awareness raising trainings on co-management including biodiversity – and conservation issues, and the role of reefs in their livelihood		2,000	2,000
6B	Training days		150	150
	Number of islands and their communities engaged (New project specific measures)		11	
7	Training Manual for Tour-guides on Eco-tourism	1		1
7	Training manual for Community Facilitators on Co-management		1	1
7	Audio-visual 5' promotional film (2006) 12' film, editing in progress (2007)	1	1	2
7	Guided Reef Trail: Lagoon, Beech	2		2
7	Brochure	1	1	2
7	Posters	1	3	4
7	Stickers	1		1
7	Slide-sets	1	5	6
7	Coral colouring book (in progress)		1	1
7	Postcards on reef animals		10	10
8	Week spent by UK staff in host country	4	5	9
9	Number of species/habitat management plans MPA Management Plan, Eco-Tourism Management Plan		2	2
10	Number of individual field guides/manuals to be produced to assist work related to species identification, classification and recording		1	1
11A	Number of papers to be published in peer reviewed journals			
11B	Number of papers to be submitted to peer reviewed journals			
12A	Number of computer based databases established by host country partners		7	7
13A	Number of species reference collections established by host country partner		7	7
14B	Project presented at Marine Park Congress in Australia by two Indian project staff members	1		1
14B	Project presented at Darwin		1	1

	Workshop in October 2006 in London by the UK and Indian project leaders			
14B	Project presented at IUCN Resilience Workshop in Sri Lanka by two Indian project staff members		2	2
14B	Project presented at Indian Ministry of Environment and Forestry by host country principal scientist		2	2
15A	Articles, news releases in 'Green Governance' and 'Hornbill'	3	5	8
22	Giant clam transects recounted	250	250	250
22	Coral transects established		75	
23	Total amount raised:	£26,200 In-kind: £22,00	£37,000 In-kind: £	

Table 3 Publications

Type * (eg journals, manual, CDs)	Detail (title, author, year)	Publishers (name, city)	Available from (eg contact address, website)	Cost £

3.4 Progress towards the project purpose and outcomes

100%, unanimous support has been committed from both government representatives and community members engaged to date to establish the proposed MPA. The documentary film features the testimonies (expected release: July 2007).

3.5 Progress towards impact on biodiversity, sustainable use or equitable sharing of biodiversity benefits

Progress at the final goal level is referred to as 'impact' and usually refers to a positive change in the object of the project. In DI projects the final goal is the generic DI which refers to a) a change in state of biodiversity; species, population or habitat loss reduced, etc. b) Unsustainable use moving to sustainable use, or c) a human community living with biodiversity has the costs reduced or benefits increased stemming from the conservation or use of that biodiversity. N.B As current projects have not been asked to develop a project specific final goal statement or to measure indicators of biodiversity impact, it may be difficult to report on progress towards these. In many cases positive biodiversity impacts may take a number of years to be seen, occurring beyond the life of a project, and usually there are other actions needed that also contribute towards positive impacts on biodiversity. Where possible, however, an idea of the project's impact on biodiversity should be given.

Sustainable management of biodiversity requires a sense of ownership and responsibility. The project team has managed to work in a way over the last two years that the local community has developed a strong sense of ownership of the project idea, i.e. setting up a marine protected area. The unanimous support for the establishment of the MPA is primarily due to this reason – c.f. 3.4.

Islanders' understanding of reef conservation issues has definitely increased due to the involvement of large number of locals in the project as volunteers, inviting participants of training programmes as community facilitators, and engaging a significant (>8%) segment of the island society in discussions about the MPA.



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Although only a few at present, fishermen have stopped killing sea turtles due to our education activities.

4. Monitoring, evaluation and lessons learned

Monitoring and evaluation

Monitoring and evaluation have taken place in structured informal discussions, un/solicited testimonials and formal evaluations of events such as training programmes. The regular contact between the UK and Indian partners – from daily to weekly phone calls, e-mail correspondence – make sure that the project is on track, and all changes are dealt with in time.

All evaluation approaches resulted in a very positive impact on the life of all who has got involved in our project activities. Those staff members who moved on to a permanent position or a new assignment in their life continue to volunteer to our project or stay willing to contribute when needed. People appreciate the opportunity to get involved in our project, the learning experience, their freedom to explore issues, many volunteers appreciated their first diving and scientific fieldwork experience, the transparency of our project, the way we share research data, the way we engage our team members and volunteers in both data collection and interpreting results, and the way we encourage them for using their newly acquired skills.

The following example highlights the significance of our project in participants' life. One of the activities of the Community Facilitators' training encouraged participants to list the five most significant events of their life. Seven out of the eight participants mentioned our project as one of the most significant event in their life. This is a clear indication and typical response of how islanders who are engaged in our project evaluate their experience. When participants asked to think about the next 50 years of their life, many of them listed the Agatti MPA as an important part of their life. The evaluation of the Community Facilitators' training programme is available upon request.

Lessons learned

- **Engagement** and true attention have created genuine partnerships.
- **Hands-on, co-operative learning methods** were new to most people. Participants appreciated the opportunity of experiencing new learning methods such as fieldwork, using and creating visuals, computer assisted decision making simulation, scenario development, discussing controversial issues, thinking about the past and future, etc.
- **Film** has proved to be a powerful way of engaging people in Agatti: either responding to a screened film or engaging in making a film.
- **Climate change**, and the islanders' vulnerability to climate change – especially sea level rise – need to be addressed as soon as possible. The level of awareness of climate change and its immanent threats to Lakshadweep is very low.
- **Replication** of the project within Lakshadweep is desirable. Based on the encouraging results and unanimous support to date the project has developed a strategy which could work in other islands in Lakshadweep or beyond in similar context.

All five aspects of lessons learned will be incorporated in Year 3 activities.



5. Actions taken in response to previous reviews (if applicable)

The first year review was congratulatory and no specific queries or concerns were made at that stage.

6. Other comments on progress not covered elsewhere

While reviewing the scientific field data, we identified some missing links. E.g. giant clam's microhabitat and reef integrity. In the second year, we made detailed data collection for these two areas, specifically the role of herbivore in habitat maintenance for giant clam and reef integrity of Acropora and massive corals. We also arranged a three day training programme for the staff to understand sea grass ecosystem and its role in overall lagoon ecology. In Year 3 we will be collecting data to incorporate in the species management plan for *T. maxima*.

We did not encounter any significant difficulty during Year2.

No risk has been identified as yet. The project schedule is exactly as per the road map. In fact project has achieved far more than what had been expected (see various manuals and Annexes.)

7. Sustainability

The project has a focussed and mindful strategy to develop local capacities to sustain biodiversity conservation and sustainable livelihood activities beyond the life of this three year grant. A critical element of the strategy is the capacity and leadership development of local team members. See 3.1./ II.3. Capacity Development

The project is well known in Agatti and in other islands of Lakshadweep. Network development (see 2. Partnership) and active participation in international events - such as listed below - have elevated the project's profile:

- Darwin Workshop presentation in London, UK in October 2006
- Trip of Indian partners to the UK in October 2006
- IUCN Workshop on Coral Reef Resilience, January 2007, Sri Lanka

Encouraged by the project's achievements both at species conservation level (i.e. giant clam, corals, bait fish etc) and at community development level, the management of the Bombay Natural History Society has decided to establish a permanent field station in Lakshadweep. BNHS' presence and expertise will be most vital for follow-up and monitoring activities beyond the first three years of the project. The staff of the field station is expected to make further effort to replicate the process to other islands. The field station is also intended to establish coral reef monitoring protocols in the light of climate change. BNHS is currently designing a five year road map for the field station with clearly defined roles and expected outcomes.



8. Dissemination

BNHS will generate the necessary financial resources to support the proposed permanent field station in Lakshadweep (see 7.). BNHS has already raised £37,000 for producing two documentary films: (i) Climate change and coral reef; (ii) Documenting the whole process of setting up an MPA by our current project. The said fund will also generate three small documentaries for school students. This will further help us making the project findings and other critical reef conservation issues visible to the locals on various other islands and mainland community.

9. Project Expenditure

Table 4 Project expenditure during the reporting period (Defra Financial Year 01 April to 31 March)

Item	Budget	Expenditure	Balance
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10. OPTIONAL: Outstanding achievements of your project during the reporting period (300-400 words maximum). This section may be used for publicity purposes

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

Short stories of outstanding achievements and local leaders are featured on the project website from mid-May 2007: <http://www.lead.org/page/89>

The most outstanding achievement in Year2 is the unanimous support of the local community for the establishment to the proposed Agatti Conservation Reserve. Of the 560 people engaged in community consultations, 300 were women. Their organised networks of self- help groups leveraged resources and disseminated project ideas. Testimonials featured in our documentary film about setting up the marine protected area are moving examples of islanders' passionate commitment to managing resources and eco-system services in a sustainable way.

Sandy Beach Cultural and Ecotourism Society in Kavaratti have expanded their activities after their participation in our project's eco-tourism training in Year1. One of their numerous new initiatives is to purchase a glass bottom boat and offer women – who would not be able to have this experience – environmental education activities out in the lagoon. Beyond their ecotourism activities Sandy Beach Cultural and Ecotourism Society have also undertaken several environmental education activities and got involved in sea turtle protection. BNHS has recently helped them to develop an open air information centre on sea turtle conservation..

Annex1: Report of progress and achievements against Logical Framework for Financial Year: 2006/07

Project summary	Measurable Indicators	Progress and Achievements April 2006 - March 2007	Actions required/planned for next period
<p>Goal: <i>To draw on expertise relevant to biodiversity from within the United Kingdom to work with local partners in countries rich in biodiversity but constrained in resources to achieve</i></p> <p><i>The conservation of biological diversity,</i></p> <p><i>The sustainable use of its components, and</i></p> <p><i>The fair and equitable sharing of the benefits arising out of the utilisation of genetic resources</i></p>		<p>Unanimous support of the local community and government representatives for setting up the proposed co-managed marine protected area – ‘Agatti Conservation Reserve’ - , the first of its kind in India.</p>	<p><i>(do not fill not applicable)</i></p>
<p>Purpose Conservation of globally threatened Giant Clams and other marine biodiversity, through a participatory approach in the establishment of a Community Reserve in the Lakshadweep Islands, India.</p>	<p>1. Community Reserve designated for certification by yr 3 2. Evidence of recovery of giant clams (measurable 5 yrs after Reserve designation) recovery of fish stocks within Reserve and lagoon (measurable 5 yrs after Reserve designation)</p>	<p>1. Unanimous support from government officials and community members to date. MPA Management Plan is ready for discussion. Community Facilitators have capacity to engage the whole island’s community. Training Manual is available.</p> <p>2. a) Baseline survey report (yr 1) and Year2 survey report are available b) Optimum bait fish / tuna catch ratio is under testing</p>	<p>1. Agatti Village Dweep Panchayat submits the Lakshadweep Administration a formal recommendations to establish the proposed ‘Agatti Conservation Reserve’. Lakshadweep Administration recommends the Ministry of Environment and Forest the designation of Agatti Conservation Reserve. 2.a) Surveys continue in Agatti and Kavaratti 2.b) Bait fish stock assessment</p>
<p>Output 1. Research: Ecological & biological data on clams gathered & analysed</p>	<p>Baseline data by yr 1, Annual monitoring data in subsequent years</p>	<p>In progress. See Annex 3 Management Plan, Annexes Giant Clam recovery plan produced in Year3.</p>	
<p>Activity 1.1 Mapping of reserve area, identifying boundaries</p>		<p>Completed. Boundaries of proposed MPA are identified. Survey continues in Year3 in selected islands, including Agatti (MPA site), Kavaratti (reference site).</p>	
<p>Output 2. Local community capacity developed for management of Community Reserve</p>	<p>125 local people trained in management of Community Reserve by yr 3</p>	<p>In progress. See attached Annex 3 Training Manual for Community Facilitators (Chapter 1-2). The complete Manual is under editing, will be sent to Darwin Initiative by 10th May. 10 Community Facilitators (Trainers) were trained in Year2. They have started raising awareness of community members and engaging them in discussions</p>	

		about the proposed Agatti Conservation Reserve. A 'training of trainers' approach is used instead of direct training. Over 550 community members have been engaged in Year2. Engaging further community members in Year3 continues.
Activity 2.1. 10 Community Facilitators were trained in a 22 session series of training of trainers programme.		Completed. 3 rd Phase of Training of Trainer is planned in Year3. Follow-up and further training programmes on MPA management and Education for Sustainable Development is planned in Year3.
Output 3. Management Plan for Reserve being implemented	a) Management Plan for the Reserve by yr 2 b) Appointment of reef & fish wardens & task force by yr 3	In progress. See Annex 3 Management Plan and Annexes
Activity 3.1. Develop Management Plan in a collaborative way, i.e. engaging community members and government officials		Completed. Over 550 community members were engaged in developing the MPA Management Plan. Further consultations are planned in Year3 with fine-tuning, finalising the MPA Management Plan before it is submitted to the Department of Forest and Environment, Union Territory of Lakshadweep and to the Administrator of Lakshadweep
Activity 3.2. Appointment of reef & fish wardens & task force		Will be completed in Year3.
Output 4. Tourism plans for Reserve developed	<i>Island carrying capacity mapped and tourism plan produced by yr 2</i>	Completed. Island carrying capacity is mapped and Tourism Management Plan is produced, under editing. The final version of the Tourism Management Plan will be submitted to Darwin Initiative by 10 th May 2007.
Activity 4.1. Data collection, and development of tourism management plan		Completed.
Activity 4.2. Implementation of tourism management plan		The Tourism Management Plan will be submitted to the Lakshadweep Administration in Year3. The implementation depends on their willingness to support the plan and allocate resources.
Output 5. Dissemination of project results and lessons learned		In progress – See Project Websites, list of national and international events where the project is presented. Planned in Year 3: Project findings disseminated to the LEAD Network of 1400 environment & development practitioners in 80+ countries Paper on research findings to be published peer reviewed journals including The Journal of Malacology, The Journal of Bombay Natural History Society, and The Veliger

		Project findings will be presented at a seminar hosted by BNHS, as well as in at least three national seminars in India in 2005-2007
Activity 5.1. Project documentary film is developed		The first part of a documentary film was shot in Year2 and will be produced 1 st -2 nd quarter of Year3. The full documentary will be completed in Year3.
Activity 5.2.Documentary film is disseminated in Lakshadweep, in other islands, sent to project's partners, and screened in national (Indian) and international fora.		Will be completed in Year3.
Activity 5.3.		

Annex 2: Project's full current logframe

Project summary	Measurable indicators	Means of verification	Important assumptions
<p>Goal:</p> <p><i>To draw on expertise relevant to biodiversity from within the United Kingdom to work with local partners in countries rich in biodiversity but poor in resources to achieve</i></p> <p><i>the conservation of biological diversity,</i></p> <p><i>the sustainable use of its components, and</i></p> <p><i>the fair and equitable sharing of the benefits arising out of the utilisation of genetic resources</i></p>			
<p>Purpose</p> <p>Conservation of globally threatened Giant Clams and other marine biodiversity, through a participatory approach in the establishment of a Community Reserve in the Lakshadweep Islands, India</p>	<p>1. Community Reserve designated for certification by yr 3</p> <p>2. Evidence of recovery of giant clams (measurable 5 yrs after Reserve designation)</p> <p>recovery of fish stocks within Reserve and lagoon (measurable 5 yrs after Reserve designation)</p>	<p>1. Official notification by Indian Government of intention to designate area as a Community Reserve under the Wildlife (Protection) Act 1972</p> <p>2. a) Baseline survey report (yr 1) and subsequent annual survey reports</p> <p>b) Fish catch data</p>	<p>1. Government is willing to declare the area a Community Reserve</p> <p>2. External environmental conditions (hurricanes, floods)</p>

<p>Outputs</p> <ol style="list-style-type: none"> 1. Research: Ecological & biological data on clams gathered & analysed 2. Local community capacity developed for management of Community Reserve 3. Management Plan for Reserve being implemented 4. Tourism plans for Reserve developed 5. Dissemination of project results and lessons learned 	<ol style="list-style-type: none"> 1. Baseline data by yr 1, Annual monitoring data in subsequent years 2. 125 local people trained in management of Community Reserve by yr 3 3. a) Management Plan for the Reserve by yr 2 b) Appointment of reef & fish wardens & task force by yr 3 4. Island carrying capacity mapped and tourism plan produced by yr 2 5. Project Report produced, findings presented at international conferences, video documentary screened, website developed 	<ol style="list-style-type: none"> 1. Copies of baseline surveys & subsequent annual survey reports sent to Darwin Initiative 2. Ongoing and post-project training monitoring & evaluation reports, and training materials 3. Community Reserve Management Plan published, and copy sent to Darwin Initiative 4. Tourism Plan and copies of all other publications sent to Darwin Initiative 	<ol style="list-style-type: none"> 1. Authorization of research by appropriate authorities 2. Community actively participates 3. Community willing to implement the Management Plan 4. Tourism sector & local community respond positively
<p>Activities</p> <ol style="list-style-type: none"> 1. MoU signed & field station established 2. Training project staff 3. Gathering baseline information on clams & Annual monitoring 4. Identifying & designating Reserve 5. Community capacity building 6. Preparing & implementing Community Reserve Management Plan 7. Measuring the Islands' carrying capacity to support tourism 8. Local Governing 	<p>Activity Milestones (Summary of Project Implementation Timetable)</p> <ol style="list-style-type: none"> 1.4.2005 - 31.8.2005 1.9.2005 – 31.10.2005; 1.4.2005 - 31.7.2005; 1.4.2006 - 30.6.2006 1.11.2005-31.3.2006; 1.12.2006-31.3.2007; 1.11.2007-31.12.2007 1.4.2006-31.7.2006; 1.11.2007 – 31.12.2007 1.11.2005- 31.3.2006; 1.4.2006-31.7.2007; 1.4.2007-31.3.2008 1.4.2006-31.7.2006; 1.4.2007-30.6.2007; 1.7.2007-31.10.2007 		

Council and Assessment
Task Force established

1.9.2005-31.10.2005; 1.11.2005-31.3.2006

1.8.2006-30.11.2006; 1.4.2007-30.6.2007; 1.11.2007-31.3.2008

- Annex 3** Agatti MPA Management Plan (CD-ROM)
- Annex 4** Agatti MPA Management Plan Annexes (CD-ROM)
- Annex 5** Training Manual for Community Facilitators Training (CD-ROM)
- Annex 6** Indian Wildlife (Protection) Act, 1972, Schedule I. Mollusca Poster (hard copy)
- Annex 7** Giant Clam Poster (hard copy)

Checklist for submission

	Check
Is the report less than 5MB? If so, please email to Darwin-Projects@ectf-ed.org.uk putting the project number in the Subject line.	
Is your report more than 5MB? If so, please advise Darwin-Projects@ectf-ed.org.uk that the report will be send by post on CD, putting the project number in the Subject line.	✓
Do you have hard copies of material you want to submit with the report? If so, please make this clear in the covering email and ensure all material is marked with the project number.	✓
Have you completed the Project Expenditure table?	✓
Do not include claim forms or communications for Defra with this report.	

ⁱ Souter, D., Linden, O. 2005. Coral Reef Degradation in the Indian Ocean. Status Report 2005. CORDIO. IUCN. CIDA. Finland. Pages 68 <http://www.cordio.org/>

ⁱⁱ CBD COP7, Decision VII/28 Protected Areas Articles 8 ((a) to (e))
<http://www.biodiv.org/decisions/default.aspx?m=COP-07&id=7765&lg=0>

ⁱⁱⁱ Based on local needs assessment and changed priorities, the project focussed on raising awareness of local community members while keeping good relationship with local schools and training college students as volunteers for project activities (research, community development).

^{iv} Moved from April-June to February – March with the approval of the Darwin Secretariat.