Darwin Initiative for the Survival of Species

Final Report

Project No. 162/06/173

Protected Areas Management Planning in the Andaman Islands

Andaman and Nicobar Islands Environmental Team

Indian Institute of Public Administration

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1. Darwin Project Information

Project title	Protected Areas Management Planning in the Andaman Islands
Country	India
Contractor	Fauna & Flora International
Project Reference No.	162/06/173
Grant Value	£145,550
Staring/Finishing dates	April 1997 / October 2002*

* N.b. The initial proposal to Darwin was to cover a three year period from April 1997 - April 2000. An initial (no-cost) extension from April 2000 - April 2001 was negotiated by Mike Appleton (then Project Leader) and agreed by Sylvia Smith. Dr Chris Magin took over as Project Leader in January 2001, by which time it was clear that a further extension would be needed. A six-month (no-cost) extension period until September 2001 was negotiated and approved by Sylvia Smith, provided all expenditure was finished within this period. It was agreed by all project partners that all outputs would be delivered by the end of December 2001. The disbursement of funds deadline was adhered to, but unfortunately production of the final outputs (CD-Rom, book and reports) was delayed by a combination of various technical and logistical problems and unforeseen circumstances. However, all final outputs were eventually received in October 2002, at which point the compilation of this final report began.

2. Project Background / Rationale

The project is located in the Andaman and Nicobar Islands, India. These islands form an archipelago of some 306 islands and 206 rocky outcrops stretching some 700 km from north to south in the Bay of Bengal. The islands have a total land area of 8,249 km^2 and are hilly and undulating, varying from 0-732 m. Annual precipitation is some 3,000 - 3,500 mm and the natural vegetation consists principally of tropical evergreen forest (rain forest). Geographically, faunistically and floristically the islands are closer to Burma and Thailand than the Indian mainland. The islands are internationally recognised as retaining exceptionally rich rain forests, mangroves and coral reefs, which are of global significance due to high diversity and endemism.

Andaman and Nicobar Islands - Biodiversity Snapshot

Plant Diversity
- About 2,500 flowering plants have been described
- 14% (223 spp.) are endemic - found nowhere else in the world - and 40% of non-endemics have only extra-Indian distribution

Animal Diversity

- Around 5,100 animal species have been described (100 freshwater, 2,100 terrestrial and 2,900 marine)

- The coral reefs are the richest in India, with 179 coral species recorded

- There are 52 species of mammals, of which 33 are endemic species or subspecies (63%); 244 species of birds of which 96 are endemic (39%) and 76 species of reptiles of which 24 (32%) are endemic.

Initially the title and scope of the project was confined to the Andamans, as the Nicobar Islands have strategic importance and are considered politically sensitive by the Indian government. Although field work and workshops were confined to the Andamans, the literature collation phase and sustainable management strategy developed eventually encompassed the Nicobars too.

Immigration to this poorly developed part of India has caused the human population to rise by over 1,000% in the last 30 years, with environmental damage increasing at a similarly alarming rate. Over 100 protected areas exist in these islands, yet none had either management plans or complete biodiversity surveys and therefore were at risk. The project aimed to directly address this problem.

At the Rio Earth Summit (1992) Small Island Developing States (SIDS) were identified as a global priority for biodiversity conservation, as they are rich in diversity, but poor in resources. The Andaman & Nicobar Islands have all the features of SIDS due to their remoteness from the Indian mainland. IUCN have identified the coral reefs, mangroves and rainforests of the Andaman & Nicobar Islands as of both national and global importance in terms of their biodiversity (1991). The rainforests are considered to be of equal importance as the other two key Indian rainforest areas in the Western Ghats and Northern Assam, due to their long period of isolation and distinctiveness. The Commonwealth Science Council identified the development of local capacity for surveying and monitoring key species (including invasive species) and habitats as a priority for conservation in Commonwealth SIDS at their conference on "Identification, Monitoring and Utilization of Biodiversity of Small Island Developing States" (Malta, 1995).

This particular project was formulated in discussion with the Andaman & Nicobar Islands Environmental Team (ANET), as a central component of assistance under an existing Memorandum of Understanding. FFI has a long history of collaboration both with ANET (lead contact Harry Andrews) which is based at Wandoor on South Andaman, and the Madras Crocodile Bank Trust (MCBT) based near Madras on the Indian mainland. At the time this project was conceived, the capacity of conservation personnel from the Andaman Islands did not include expertise in management planning or a required range of related skills. The Andaman & Nicobar Environmental Team (ANET) had been urgently requested by the GoI Forestry and Wildlife Department (ANI) to produce protected areas management plans with a view to sustainable development through ecotourism. There was also an urgent need to develop and deliver an environmental education programme for local residents.

3. Project Summary

The original project objectives as outlined in the project proposal were:

1. to produce and begin implementation of management plans for three protected areas in the Andaman Islands in conjunction with the Andaman & Nicobar Islands Environmental Team (ANET) and Wildlife Department;
2. to build a lasting capacity for ANET to plan, implement and evaluate protected areas management plans;
3. to strengthen ANET's existing ability to undertake biodiversity surveys, monitor key species populations, conduct conservation assessments of threatened species, and manage and interpret biodiversity data;
4. to build the capacity for ANET to develop and deliver an environmental interpretation and education action plan;
5. to broadly build upon the existing capacity of ANET through participative institutional training to enable more effective delivery and greater activity in all areas of its biodiversity conservation efforts.

The three selected protected areas (chosen at a participatory workshop in the Andamans in July 1997) were Mount Harriet National Park (South Andaman Island); Saddle Peak National Park (North Andaman Island) and Rani Jhansi Marine National Park (covering the islands of John Lawrence, Henry Lawrence and Outram and surrounding waters in Ritchie's Archipelago).

The original objectives and operational plan were modified in April 2000, to take account of work already completed, delays to scheduled activities and new developments, including the recruitment of the Indian Institute of Public Administration (IIPA) as a new project partner (lead contact Shekhar Singh). The overall goal for the remainder of the project was restated as:

"To support the establishment of effective protected areas management in the Andaman Islands."

The following were specific objectives:

- To enable the collation and publication of available knowledge and information on the biodiversity of the Andamans from diverse sources;
- To support field studies to fill gaps in knowledge;
- To hold a workshop to review and set priorities for the management of terrestrial protected areas in the Andamans;
- To produce a set of recommendations based on the findings of the workshop.

Due to delays in project implementation, a second revised operational plan (with objectives and budget unaltered) was approved by the Darwin Secretariat in April 2001.

The project directly addresses issues relevant to several Articles of the Convention on Biological Diversity (CBD), in particular helping to develop national strategies which integrate conservation and sustainable use (Article 6: General Measures for Conservation and Sustainable Use); identification and monitoring of biodiversity particularly elements requiring urgent conservation (Article 7: Identification and Monitoring); establishing systems of protected areas with guidelines for selection and management (Article 8: *In situ* Conservation); and integrating conservation and sustainable use in national decisions

(Article 10: Sustainable Use of Components of Biological Diversity). Other elements of the project target the promotion of research contributing to the conservation and sustainable use of biodiversity (Article 12: Research and Training) and promotion of the importance of measures to conserve biodiversity (Article 13: Public Education and Awareness).

The project was very successful in meeting its objectives. All of the initial objectives were addressed, some in entirety, others at least partially during the project period. The original first objective, the preparation and implementation of management plans for the three national parks was realized to be too ambitious. It was however partly addressed, through the production of a detailed report "Ecology, Floristics and Socio-economics of three National Parks in the Andamans" prepared by ANET based on fieldwork undertaken as part of this Darwin project. This report included a series of management recommendations. In fact ANET have now been requested by ANI Forest and Wildlife Department to draw up the management plans for these three national parks, as a direct result of the expertise gained during this project, so these objectives will be realised by a project partner after the end of the project.

All of the revised objectives as of April 2000 were fulfilled, and some in an expanded capacity. The workshop to review and set priorities for the management of terrestrial protected areas in the Andamans was enlarged in scope to cover the Nicobar Islands as well and to include marine protected areas and issues.

A significant additional accomplishment has come about through a key project partner's involvement in an Indian Supreme Court process. In November 2001 all logging was temporarily banned in the ANI as a result of a complaint lodged by several NGOs about logging in a Tribal Reserve on Little Andaman. The Supreme Court appointed a one person Commission of Enquiry, consisting of Shekhar Singh, to investigate the state of conservation in the ANI and make management recommendations. In May 2002 the Supreme Court accepted and enacted into law 45 out of 47 of Shekhar's recommendations, which drew heavily on the results of the July 2001 workshop held in Port Blair under this Darwin project and co-organized by IIPA and ANET. These included the closure of the Andaman Trunk Road which cuts through the Jarawa Tribal Reserve, the phased reduction of sand mining from beaches and the cessation of all commercial logging.

4. Scientific, Training, and Technical Assessment

A large number of Indian researchers have undertaken fieldwork through ANET in the course of this Darwin project. These include Harry Andrews (herpetologist), Dr Rauf Ali (ecologist), Dr Indraneil Das (zoologist), Deb Debal (human ecologist), B. Maheswaran (botanist), Aparna Singh (socio-economist), N. Balachandran (botanist), Manish Chandi and Paritosh Biswas (field research assistants).

Field work has included trapping and handling small mammals, reptiles and amphibians, collection of voucher specimens of animals and plants for identification, field observations, and participatory rural appraisal. All periods of Darwin-supported fieldwork have been written up as internal ANET research reports, and specific findings and results have been written up as peer-reviewed scientific papers in the following Indian and international journals: *Hamadryad, Journal of Herpetology; Journal of South Asia Natural History; Tiger Paper, ENVIS-India* and *Kachhapa.* The full list of research

reports / scientific papers follows (peer-reviewed papers are marked with an *).

Research Reports / Scientific Papers

Ali, R. 2000. A socio-economic survey of the villages bordering Saddle Peak National Park, North Andaman. Andaman and Nicobar Environmental Team, Post Bag - 4, Mamallapuram - 603 104, Tamil Nadu, S. India.

*Andrews, H. V. 1999. Status of saltwater crocodile in the Andaman Archipelago. *ENVIS*. Wildlife and Protected areas, Bi-annual Bull. Wildlife Institute of India, Dehra Duun, India. 2(1): 38- 43.

Andrews, H.V. 1999. Impact assessment of the little known Little Andaman Island, Andamans, India. *Women and Environment*. Irula Tribal Women's Welfare Society. Vol. 2(2): 52-83..

***** Andrews, H.V. 2000. Survey and assessment of wetlands in the Rani Jhansi Marine National Park, Andaman Islands, India. *Tigerpaper*, 22 (4): 22-29.

*Andrews, H V. 2000. Current marine turtle situation in the Andaman and Nicobar Islands- An urgent need for conservation action. *Kachhapa*. No. 3: 19-23.

*Andrews, H. V. 2001 Threatened herpetofauna of the Andaman and Nicobar Islands. In: Bambaradeniya, C. N. B. & V. N. Samarasekara (Eds). Pp. 39- 47. *An overview of the threatened herpetofauna of South Asia*. IUCN, Sri Lanka & Asia Regional Biodiversity Programme, Colombo, Sri Lanka.

*Andrews, V. H. 2002. Impact assessment around the Jarawa Reserve, Middle and South Andaman Islands. *Pp*. 97- 111. In: *Jarawa Contact - Ours with Them, Theirs with Us*. K. Mukhapadhyay, R. K. Battacharya & B. N. Sarkar (Eds). Anthropological Survey of India. Dept. of Culture, Government of India, Kolkata - 700016.

*Andrews, H. V. & I. Das. 1999. Addenda to the bibliography of the herpetology of the Andaman and Nicobar Islands. *Hamadryad* 23(10): 84- 85.

Balachandran, N. 1998. Ecology and floristic analysis of the Mount Harriett National Park, South Andaman, India. Andaman and Nicobar Islands Environmental Team, Post Bag - 4, Mamallapuram - 603 104, Tamil Nadu, S. India.

*Chandi, M. 2002. Territory and Landscape around the Jarawa Reserve. *Pp*. 73- 96. *In*. K. Mukhapadhyay, B. K. Battacharya & B. N. Sarkar (Eds). Anthropological Survey of India. Dept. of Culture, Government of India, Kolkata - 700016.

Das, I. 1997. An ecological reconnaissance of Mount Harriet National Park, Andaman Islands, India. Andaman and Nicobar Islands Environmental Team, Post Bag - 4, Mamallapuram - 603 104, Tamil Nadu, S. India.

***** Das, I. 1998 a. A remarkable new species of ranid (Anura: Ranidae), with phytotelmonous larvae, from Mount Harriet, Andaman Islands. *Hamadryad* 23 (1): 41-49.

Das, I. 1998. An ecological reconnaissance of Rani Jhansi Marine National Park, Ritchie's Archipelago, Andaman Islands, India. Andaman and Nicobar Islands Environmental Team, Post Bag - 4, Mamallapuram - 603 104, Tamil Nadu, S. India.

***** Das, I. 1999. A Noteworthy Collection of Mammals from Mount Harriet, Andaman Islands, India. *Journal of South Asia Natural History*, 4 (2): 181-185.

*Das, I. 1999. Biogeography of the amphibians and reptiles of the Andaman and Nicobar Islands., India. In: *Proc. Int. Symp. Diversity of reptiles, amphibians and other terrestrial animals on tropical islands: Origin, current status and conservation.* Ota, H. (ed). Pp. 43-75. 6-7 June 1998, University of Ryukyus, Okinawa, Japan.

Deb, D. 1998. The human ecology of Ritchie's Archipelago: the anthropogenic impacts on Rani Jhansi Marine National Park. Andaman and Nicobar Islands Environmental Team, Post Bag - 4, Mamallapuram - 603 104, Tamil Nadu, S. India.

Maheswaren, B. 1998. Rapid botanical assessment of Rani Jhansi Marine National Park. Andaman and Nicobar Islands Environmental Team, Post Bag - 4, Mamallapuram - 603 104, Tamil Nadu, S. India.

Maheswaren, B. 1999. Rapid botanical assessment of Saddle Peak National Park, North Andaman, Andaman and Nicobar Islands. Andaman and Nicobar Islands Environmental Team, Post Bag - 4, Mamallapuram - 603 104, Tamil Nadu, S. India.

Rao, S. 2000. *Treasured Islands - An environmental handbook for teachers in the Andaman and Nicobar Islands.* (Revised and reprinted) Kalpavriksh / ANET.

Singh, A. 1997. Socio-economic surveys of Mount Harriet National Park, South Andaman Island, India. A rapid assessment report. Andaman and Nicobar Islands Environmental Team, Post Bag - 4, Mamallapuram - 603 104, Tamil Nadu, S. India.

Singh, A. 1998. Environmental Education Programme Andaman and Nicobar Islands. Second phase October - December 1997. Andaman and Nicobar Islands Environmental Team, Post Bag - 4, Mamallapuram - 603 104, Tamil Nadu, S. India.

In addition, an ANET newsletter No. 1, the first newsletter on ANET's activities was produced in February 1998 and circulated to approximately 50 concerned individuals / institutions on the mainland. Finally, in the first quarter of 1998, the ANET team submitted a proposal via the Wildlife Institute of India to ANI Forest Department for a further extension of the Rani Jhansi Marine National Park and the inclusion of six further islands within the National Park zone.

Associated / Related Publications

The following papers utilized data gathered during the Darwin project:

Andrews, H V. 2000. Survey and assessment of wetlands in the Rani Jhansi Marine National Park, Andaman Islands, India. *Tigerpaper*. 27 (40): 22-29.

Gandhi, T. 2000. Prioritising sites for biodiversity conservation in the Andaman and Nicobar Islands with special reference to fauna. Pp 82-93 in: Setting biodiversity conservation priorities for India. S. Singh, A.R.K. Sastry, R. Mehta & V. Uppal (Eds). Vol. 1, WWF-India, New Dehli.

Field Surveys / Research Trips

The following field surveys / research trips were undertaken, listed below by date order.

Aug - Nov 1997: Zoological inventory of Mt Harriet NP by Indraneil Das and P. Biswas.

Aug 1997- Feb 1999: Wetlands, crocodile, marine turtles and associated habitats survey and assessments were carried out by Harry Andrews.

Nov - Dec 1997: Socio-economic survey of 29 villages around Mt Harriet NP done by ANET research team.

Oct-Dec 1997: Environmental education programme carried out in 12 villages around Mt Harriet NP.

Nov 1997: Preliminary survey of Rani Jhansi Marine National Park carried out by Harry Andrews.

Dec 1997 - end Jan 1998: Botanical inventory of Mt Harriet National Park carried out by N. Balachandran.

March - April 1998: Botanical inventory of Rani Jhansi Marine National Park carried out by B. Maheswaran.

Jan - April 1998: Information collection for assessment of tourism impact on Ritchie's archipelago by Paritosh Biswas.

Jan - Mar 1998: Socio-economic assessment of Rani Jhansi Marine National Park carried out by Debal Deb assisted by Manish Chandi and Paritosh Biswas in first quarter of 1998.

March 1998: Wetlands survey and assessment carried out by Harry Andrews.

March - April 1998: Zoological inventory terrestrial fauna and collection of freshwater fauna of Rani Jhansi Marine National Park carried out by Indraneil Das.

Jan - Feb 1999: Socio-economic survey of the villages around Saddle Peak NP undertaken by Dr Rauf Ali.

Capacity Building / Training

Throughout the project the capacity of ANET core staff and contractees in survey design and project planning and development was continuously increased. Large numbers of additional individuals benefited from the project through participation in project activities and through working alongside local experts. Key training and capacity-building activities are listed below in the order in which they were implemented.

July 1997: FFI facilitated a 2-day introductory Protected Areas Management Planning Workshop for 24 participants in South Andaman, the majority from the Andaman and Nicobars Forestry and Wildlife Department, but including staff from the Fisheries Department, Department of Ocean Development, Botanical Survey of India, Zoological Survey of India, Tourism Department, private tour and boat operators and the Central Agriculture Research Institute. FFI facilitators were Mike Appleton and Mark Day. Key topics covered were consideration of assets and threats; "Strategic" versus "Operational" management planning; stakeholder analysis; and selection of the three sites for Darwin management planning.

August 1997: Niall Marriot (a UK specialist from FFI) facilitated a 2-day workshop (30th

and 31st August) to develop an Environmental Education Strategy for the islands.

March 1998: ANET conducted an internal workshop on Marine and Socio-economic Survey techniques.

July 1998: A Project Review workshop was held in India from 16-19 July, with participation of Mike Appleton (a UK specialist from FFI).

September 1998: A 5-day training course / workshop in Rapid Biodiversity Assessment facilitated by FFI was held in Madras Crocodile Bank Trust, Chennai. Topics covered included rapid assessment, assessing species richness; estimating abundance of selected species; field training in rapid forest assessment and data analysis. The UK specialists involved from FFI were Dr Jenny Daltry (zoologist), Mike Appleton (protected areas specialist) and Dr William Milliken (botanist).

5. Project Impacts

The project achievements have directly contributed to the project purpose of supporting the establishment of effective protected areas management in the Andaman (and Nicobar) Islands. The project has also contributed extensively to the knowledge of biodiversity in the Andamans, with the establishment of detailed faunal and floral species inventories for three National Parks, discovery of a new species of frog named after Charles Darwin called *Rana charlesdarwinii* in Mount Harriet NP; and the establishment of the first records for the Andamans of many species and subspecies of mammal and reptiles. Specific project activities have led to threat assessments and management recommendations for three key National Parks in the Andamans, and the development of a coherent overall strategy for the sustainable management of protected areas in the Andaman and Nicobar Islands.

In addition, project activities and workshops have resulted in a marked increase in awareness of conservation issues in the Andaman and Nicobar Islands, both within the general public, the administration and the Forest and Wildlife Department in particular. A remarkable spirit of co-operation and synergy was achieved during the July 2001 Port Blair workshop, with the local MP strongly supporting conservation recommendations (a refreshing change from the more usual political indifference) and the Admiral in charge of the ANI Coastguard / Navy offering the use of his ships / air wing to support the Department of Environment and Forest, and ANET in the course of patrols and surveys.

The table in Appendix I shows the contribution made by different components of the project to biodiversity conservation as defined in the articles of the CBD.

The majority of the workshop participants / recipients of training have continued in their chosen fields of conservation / forestry, either within the ANI or on the mainland following re-posting. Several (e.g. Dr Rauf Ali and Manish Chandi) now work full time for ANET.

The project has further cemented the existing links between MCBT, ANET and FFI, and resulted in the establishment of a new collaboration between IIPA, ANET, Global Coral Reef Monitoring Network (GCRMN), University of Exeter and Survival-UK, the ANI Department of Environment and Forest, and FFI.

Since the project was primarily designed as a technical capacity-building initiative for field researchers, scientists and protected areas managers, the main social impacts have been through the environmental education programme conducted around Mt Harriet

National Park and other public awareness activities, including those carried out by ANET in connection with other projects funded by different donors.

6. Project Outputs

All project outputs have been quantified in the table in Appendix II using the coding and format of the Darwin Initiative Standard Output Measures. The majority of the agreed outputs in the Revised Project Plan 2000-2001 have been successfully achieved (see Appendix II). A list of all publications and material that can be publicly accessed is included in Appendix III. - in addition see the list of research reports / scientific papers.

Within India, IIPA and ANET have been responsible for dissemination of project outputs. The Port Blair Workshop Proceedings were sent to all 95 workshop participants (see address list in rear of Proceedings). The CD-Rom and the book "Sustainable Management of Protected Areas in the Andaman and Nicobar Islands" were distributed as listed below (1 set to each recipient unless otherwise stated).

ANDAMANS BOOK AND CD DISTRIBUTION LIST
India

In Andaman and Nicobar Islands: ANI Forest and Wildlife Dept. - 46 copies of books and CDs; A& N Fisheries Dept.; Agriculture Dept.: Central Agricultural Research Institute (CARI); Anthropological Survey of India; Zoological Survey of India; Botanical Survey of India; Animal Husbandry Dept.; Marine Biology Dept. of the Port Blair College; The Director of Tourism Dept.; The Honorary Wildlife Warden of Great Nicobar Island; The Chief Navel Commander; The Chief Commissioner; and Society for Andaman and Nicobar Ecology (SANE).

In Chennai: The Chief Wildlife Warden of Tamil Nadu, the Deputy Director, Wildlife-Southern Region, Government of India; Foundation for Ecological Research, Advocacy and Learning (FERAL); Madras Crocodile Bank Trust (MCBT).

In Delhi : Min. of Environment & Forests, GoI, Dehli (5 sets); Wildlife Trust of India (WTI); Ashoka Innovators for the Public; WWF-India.

FFI was principally responsible for disseminating the project outputs outside India (see Table below). Recipients marked with an asterisk also received separate hard and electronic copies of the document "Biodiversity of the Andaman and Nicobar Islands: Historical Records from the UK". This document was also incorporated in the CD-Rom. IIPA / ANET will continue to disseminate project outputs within India and FFI within the UK as and when appropriate or requested after project completion.

ANDAMANS BOOK AND CD DISTRIBUTION LIST
Rest of the World

Recipient	Position	Institution	Country
Stephen J. Parr	International Officer	RSPB	UK
James Mayers	Director, Forestry and Land Use programme	International Institute for Environment and Development (IIED)	UK
The Librarian	Indian Reading Room	The British Library	UK
		The British Museum	UK
Dr Paul Bates	Director	The Harrison Institute	UK
Dr Sultana Bashir / Librarian		WWF-UK	UK
Gina Douglas	Librarian	The Linnean Society	UK
* John Jackson	Science Policy Coordinator	The Natural History Museum	UK
Professor Jeff Burley	President	Oxford Forestry Institute	UK
* Professor Simon J. Owens	Keeper of Herbarium	Royal Botanic Gardens, Kew	UK
		The Royal Geographical Society	UK
* Dr. Robert Prys-Jones	Bird Group Department of Zoology	The Natural History Museum, Tring	UK
Mary Cordiner / Dr Adrian Newton / Jerry Harrison / Stuart Chape	Librarian / Head of Forests / Head of Protected Areas	UNEP-WCMC	UK
Alison Stattersfield / Mike Crosby / Janet Chow	Science Officer / Asia Officer / Librarian	BirdLife International	UK
	Innovation Centre	University of Exeter	UK
Dr Andrew Balmford	Lecturer in Conservation (5 sets)	Dept. of Zoology, University of Cambridge	UK
Prof. Bill Adams	Lecturer	Dept. of Geography, University of Cambridge	UK
Dr Phyllis Lee	Lecturer	Dept. of Anthropology, University of Cambridge	UK
		Peoples Trust for Endangered Species (PTES)	UK
Sophie Grig		Survival International	UK
		Global Coral Reef Monitoring Network (GCRMN)	Sri Lanka
		IUCN- Sri Lanka Country Office	Sri Lanka
Alan Rodgers	Sub-Regional Coordinator (E. Africa)	UNDP-GEF East African Cross Borders Biodiversity Project	Tanzania
		UNDP/GEF, New York (2 sets)	USA
		World Bank, Washington (3 sets)	USA

* Pamela C. Rasmussen	Lecturer / Researcher	Michigan State University Museum	USA
		IUCN	Switzerland
Mark Aldrich	Forest Officer, Forests for Life Programme	WWF-International (2 sets)	Switzerland

7. Project Expenditure

ITEM	BUDGETED	EXPENDITURE
Staff costs		
Rent / rates		
Postage etc.		
Travel / subs		
Printing		
Conf / seminar		
Other total		
Consultants		
Field support		
Field equipment		
Admin		
Capital items		
Ref. materials		
Research costs		
TOTAL	**186,250.00**	**175,723.52**

The difference between planned and final expenditure was £10,526.48

The travel and subsistence budget was less than expected because field surveys were shorter in duration than anticipated, and because once on the islands subsistence costs were low. Administration costs rose because the project was delayed, and hence had to be reported on / managed over a longer period. The budget was reallocated to include the organisation of the Port Blair workshop in July 2001.

8. Project Operation and Partnerships

Initially the project was a partnership between FFI and ANET. ANET was responsible for organizing field surveys and socio-economic research and preparation of management plans for protected areas. FFI was responsible for co-ordination and management, and providing technical inputs to training and capacity building. When IIPA became a partner, they co-ordinated production of final project outputs, and co-organised with ANET the final project workshop in Port Blair.

The activities of the project have had a direct contribution to several major conservation activities in the ANI. Harry Andrews and Indraneil Das prepared a map of the reptile biodiversity hotspots of the ANI for WWF-India's Biodiversity Hotspots Programme. ANET staff were engaged to write the section of India's GEF-funded National Biodiversity Strategy and Action Plan (NBSAP) dealing with the Andaman and Nicobar Islands. Tara Gandhi (an ANET / IIPA consultant) wrote the chapter dealing with the ANI in the WWF-India's "Setting Biodiversity Conservation Priorities for India" and drew on field research reports from this Darwin project. Harry Andrews of ANET was short listed for a Whitley Award and visited the UK to attend interviews and ceremonies in February 1999.

9. Monitoring and Evaluation, Lesson Learning

Monitoring and evaluation of project activities were carried out by reviews against measurable objectives and project work plans at six monthly periods. Financial management by FFI was within the FFI financial management procedures, audited initially by Hardcastle Burton (Hoddesdon, Hertfordshire) and latterly since 1999 by Peters, Elworthy and Moore (Cambridge). Value for money is a criterion used in the planning and evaluation of all FFI projects and their management, and is therefore incorporated within the financial and project management structures. Field surveys by ANET personnel collected a great deal of baseline information about the socio-economic situation in the villages around the three selected national parks and provided baseline bio-inventories for them.

Internal project evaluations were held through regular meetings both of the project partners and internally within FFI, and through continual communication (correspondence and telephone calls).

The project experienced some difficulties in achieving its prime objectives within the initial time frame for a number of reasons, many of which were outside the control of the project itself. Although extensive survey, training and education work of a high standard have taken place, the final objective of producing GoI-endorsed management plans for the three protected areas has not yet been achieved.

The main problems encountered were:

- Logistical difficulties on the ground in terms of weather and access to work areas
- Sickness among key project staff in the Andamans
- Personnel changes among key officials in the Andamans and in FFI
- Difficulty of ensuring project partners kept to agreed timetables
- Problems of working in a politically sensitive area

However, the production of an overall Sustainable Management Strategy for the protected areas of the ANI has more than compensated for the lack of site-specific plans - which in any case ANET will be developing later - particularly now that many of the recommendations in the Strategy have been incorporated in the decisions of the Supreme Court. It is widely felt that the 2001 Port Blair workshop was instrumental in allowing the Supreme Court Commission to arrive so quickly at a consensus on required actions, since it gathered all the key stakeholders together and allowed them to voice and discuss their opinions in an official public forum.

10. Darwin Identity

The Darwin Initiative logo and name was used on all publications and reports emanating from the project, and on all invitations issued to participants in workshops and training sessions. During the Port Blair July 2001 workshop to review and set priorities for the management of terrestrial protected areas in the Andamans, the Darwin logo and identity featured prominently on banners hung inside and outside the Conference Hall. A new species of frog discovered during project fieldwork in Mount Harriet NP was named after Charles Darwin and described as *Rana charlesdarwinii*.

It is practically impossible to answer the question of the overall view of the Darwin identity in India. The country has a population of over 1 billion, so even the governmental and NGO sectors are huge. As a result of this project though, key players in the conservation of the ANI, both on the islands themselves and on the mainland, are aware of the Darwin identity. The project has been definitely "branded" as a distinct entity, the Darwin Andamans project, and has achieved recognition as such within the ANI administration and Government of India.

11. Leverage

A contribution of £6,000 from the Rufford Foundation was received by the project in 1999. The Whitley Trust award to the Conservation Department of FFI provided £4,000 towards the institutional strengthening and capacity building elements of the project. British Airways provided one free return flight (value £900) to an FFI UK expert for London - Chennai (Madras). ANET contributed £2,000 per annum of in-kind staff time and office and field facilities and FFI contributed £5,000 of staff time.

Both ANET and IIPA are already well-experienced in applying for and managing grants from national and international donors. For example, ANET received a grant from the Dutch Government to construct an impressively-designed Environmental Education Centre cum office/library which was completed in 1998.

12. Sustainability and Legacy

The project partners are very likely to keep in touch and work on further projects together in the future. Good working relations have been established with IIPA and MCBT / ANET, and the enthusiasm and momentum for conservation generated by the Darwin-funded Port Blair workshop in July 2001, followed by the Supreme Court ruling in 2002 demand follow-up. Following a visit by Shekhar Singh to Cambridge in October 2002, the partners are now in discussion about potential follow-on projects.

The ANI Forest and Wildlife Department (FWD) have taken on board most of the management recommendations specifically made for the three targeted National Parks. ANET is currently helping the FWD to write up management plans for these areas, so that Darwin fieldwork results will feed directly into the final management plans. FWD has also appointed ANET to write a management plan for Great Nicobar Island. Most importantly though, the main conclusions and recommendations of the July 2001 Port Blair workshop were incorporated directly by Shekhar Singh into his recommendations to the Supreme Court, of which 45 out of 47 were incorporated into the final Supreme Court Ruling.

13. Value for money

Any project can potentially be very cost-effective in India, because of the relatively low cost of labour, materials and even skilled technical manpower. Against this must be offset the elevated costs of imported goods such as computer equipment, and the difficulty of working in a remote area such as the ANI (high transport and logistical costs). We consider though that the volume and quality of the tasks accomplished during the lifetime of the project have been extremely high and that the partners should be congratulated on the project's cost-effectiveness at delivering lasting long-term conservation gains to these "Treasured Islands".

Author(s) / Date

Dr Chris Magin, Senior Protected Areas Specialist, Fauna & Flora International
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December 2002

14. Appendix I: Project Contribution to Articles under the Convention on Biological Diversity (CBD)

Project Contribution to Articles under the Convention on Biological Diversity		
Article No./Title	**Project %**	**Article Description**
6. General Measures for Conservation & Sustainable Use	20	Develop national strategies which integrate conservation and sustainable use.
7. Identification and Monitoring	20	Identify and monitor components of biological diversity, particularly those requiring urgent conservation; identify processes and activities which have adverse effects; maintain and organise relevant data.
8. *In-situ* Conservation	20	Establish systems of protected areas with guidelines for selection and management; regulate biological resources, promote protection of habitats; manage areas adjacent to protected areas; restore degraded ecosystems and recovery of threatened species; control risks associated with organisms modified by biotechnology; control spread of alien species; ensure compatibility between sustainable use of resources and their conservation; protect traditional lifestyles and knowledge on biological resources.
9. *Ex-situ* Conservation		Adopt *ex-situ* measures to conserve and research components of biological diversity, preferably in country of origin; facilitate recovery of threatened species; regulate and manage collection of biological resources.
10. Sustainable Use of Components of Biological Diversity	20	Integrate conservation and sustainable use in national decisions; protect sustainable customary uses; support local populations to implement remedial actions; encourage co-operation between governments and the private sector.
11. Incentive Measures		Establish economically and socially sound incentives to conserve and promote sustainable use of biological diversity.
12. Research and Training	10	Establish programmes for scientific and technical education in identification, conservation and sustainable use of biodiversity components; promote research contributing to the conservation and sustainable use of biological diversity, particularly in developing countries (in accordance with SBSTTA recommendations).
13. Public Education and Awareness	10	Promote understanding of the importance of measures to conserve biological diversity and propagate these measures through the media; cooperate with other states and organisations in developing awareness programmes.

14. Impact Assessment and Minimizing Adverse Impacts		Introduce EIAs of appropriate projects and allow public participation; take into account environmental consequences of policies; exchange information on impacts beyond State boundaries and work to reduce hazards; promote emergency responses to hazards; examine mechanisms for re-dress of international damage.
15. Access to Genetic Resources		Whilst governments control access to their genetic resources they should also facilitate access of environmentally sound uses on mutually agreed terms; scientific research based on a country's genetic resources should ensure sharing in a fair and equitable way of results and benefits.
16. Access to and Transfer of Technology		Countries shall ensure access to technologies relevant to conservation and sustainable use of biodiversity under fair and most favourable terms to the source countries (subject to patents and intellectual property rights) and ensure the private sector facilitates such assess and joint development of technologies.
17. Exchange of Information		Countries shall facilitate information exchange and repatriation including technical scientific and socio-economic research, information on training and surveying programmes and local knowledge
19. Bio-safety Protocol		Countries shall take legislative, administrative or policy measures to provide for the effective participation in biotechnological research activities and to ensure all practicable measures to promote and advance priority access on a fair and equitable basis, especially where they provide the genetic resources for such research.
Total %	**100%**	**Check % = total 100**

15. Appendix II Outputs

Code	Total to date (reduce box)	Detail (←expand box)
Training Outputs		
1a	Number of people to submit PhD thesis	0
1b	Number of PhD qualifications obtained	0
2	Number of Masters qualifications obtained	0
3	Number of other qualifications obtained	0
4a	Number of undergraduate students receiving training	0
4b	Number of training weeks provided to undergraduate students	0
4c	Number of postgraduate students receiving training (not 1-3 above)	1
4d	Number of training weeks for postgraduate students	0.5
5	Number of people receiving other forms of **long-term** (>1yr) training not leading to formal qualification(i.e not categories 1-4 above)	2 - on-the-job training for Indian project staff through participation in surveys and other project activities. Beneficiaries were Manish Chandi and Mahesh Maheshawaran
6a	Number of people receiving other forms of **short-term** education/training (i.e not categories 1-5 above) N.b. All participants were Indian	Introduction to Protected Areas Planning workshop, July 1997 - 22 participants Marine and Socio-economic survey techniques w/shop March 1998 - 9 participants Series of one-day environmental education workshops around Mt Harriet, Aug - Dec 1997 - 2,630 participants Project review workshop July 1998 - 5 participants Rapid Biodiversity assessment workshop 1998 - 12 participants Environmental Education workshop 1998 - 10 participants
6b	Number of training weeks not leading to formal qualification	8.25 + 4.5 + 526 + 3 + 12 + 10 = 563.75
7	Number of types of training materials produced for use by host country(s)	1 detailed surveying and monitoring manual (150 pages) 1 environmental education manual (reprint of new edition of *Treasured Islands!*)
Research Outputs		
8	Number of weeks spent by UK project staff on project work in host country(s)	8 + 13.5 + 1 + 4 = 26.5

Code	Total to date (reduce box)	Detail (←expand box)
9	Number of species/habitat management plans (or action plans) produced for Governments, public authorities or other implementing agencies in the host country (s)	5 1 major national action plan - "Sustainable Management of Protected Areas in the ANI "
10	Number of formal documents produced to assist work related to species identification, classification and recording.	1 detailed surveying and monitoring manual (150 pages)
11a	Number of papers published or accepted for publication in peer reviewed journals	4 in 1998 / 1999
11b	Number of papers published or accepted for publication elsewhere	5 in 1998/1999
12a	Number of computer-based databases established (containing species/generic information) and handed over to host country	1 (CD-Rom electronic compilation of documents on biodiversity of the ANI)
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)	4 (small mammals, reptiles, amphibians and fish of Mt Harriet.) These were not full reference collections but were essential for identification of difficult taxa. Collected specimens were deposited to enhance existing collections.
13b	Number of species reference collections enhanced and handed over to host country(s)	0
Dissemination Outputs		
14a	Number of conferences/seminars/workshops organised to present/disseminate findings from Darwin project work	2 in 1998/1999 1 three-day workshop (Port Blair, July 2001) with 95 participants, mainly local government officials and Indian biodiversity specialists = 285 person days 1 Workshop Proceedings compiled and circulated to all 95 participants
14b	Number of conferences/seminars/ workshops **attended** at which findings from Darwin project work will be presented/ disseminated.	4
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)	Numerous e.g. in The Daily Telegrams, Port Blair.
15c	Number of national press releases or publicity articles in UK	?
15d	Number of local press releases or publicity articles in UK	Fauna & Flora News Oct 97 "Conservation in the Andaman islands" Circulation around 3,000.

Code	Total to date (reduce box)	Detail (←expand box)
16a	Number of issues of newsletters produced in the host country(s)	ANET Newsletter Feb 1998
16b	Estimated circulation of each newsletter in the host country(s)	50 copies 10,000
16c	Estimated circulation of each newsletter in the UK	N/A
17a	Number of dissemination networks established	1 network of relevant organisations and government departments for the sharing of information concerning biodiversity conservation in the ANI. These include ANET, Zoological Survey of India, Botanical Survey of India, Central Agricultural Research Institute, Tourism Dept., Andaman Public Works Dept., Save Andaman and Nicobar Ecology; private hotels and tour operators
17b	Number of dissemination networks enhanced or extended	0
18a	Number of national TV programmes/features in host country(s)	Regular broadcasts of ANET video "Treasured Islands" in the ANI, including 7 programmes in the local cable network in ANI
18b	Number of national TV programme/features in the UK	0
18c	Number of local TV programme/features in host country	1 - broadcast on local news of Port Blair w/shop 2001
18d	Number of local TV programme features in the UK	0
19a	Number of national radio interviews/features in host country(s)	2: "The Forest Wealth of the Andamans" broadcast through All India Radio Station, Port Blair on 8/9/97 and 9/9/97. Estimated audience around 50,000 for each broadcast.
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	0
Physical Outputs		
20	Estimated value (£s) of physical assets handed over to host country(s)	£2,000 in 1997/1998 £1,700 Survey and monitoring equipment 1998/1999 £2,208 - scanners and computer in 2001
21	Number of permanent educational/training/research facilities or organisation established	
22	Number of permanent field plots established	2
23	Value of additional resources raised for project	Whitley Trust £4,000 ANET £2,000 BA £900 FFI £5,000 Rufford £6,000

16. Appendix III: Publications

* = publications and other material included with this report

Nb All materials will be provided free, but a contribution for post and packaging may be requested

Type *	Details	Publishers	Available from:
CD*	Ali, R. & Uppal, V. (eds). 2002. Andaman and Nicobar Islands, India. An Electronic Archive of Documents	IIPA, Dehli	shekharsingh@vsnl.com / chris.magin@fauna-flora.org
Book*	Andrews, H.V. & Sankaran, V. (eds). 2002. Sustainable Management of Protected Areas in the Andaman and Nicobar Islands. 159 pp.	IIPA, Dehli	shekharsingh@vsnl.com / chris.magin@fauna-flora.org
Book*	Rao, S. 1999. Treasured Islands! An Environmental Handbook for the Andaman & Nicobar Islands. ANET / CEE	ANET / CEE	mcbtindia@vsnl.net
Printed Report*	Ali, R., Andrews, H.V. & Das, I. 2002. Ecology, Floristics & Socio-economics of three National Parks in the Andaman Islands. ANET Technical Report. Madras Crocodile Bank Trust, Post Bag-4 Mamallapuram - 603 104, Tamil Nadu, S. India.	ANET	mcbtindia@vsnl.net
Printed Report*	Magin, C. and Mickelburgh, S. (Comps.) 2001. Biodiversity of the Andaman and Nicobar Islands, India. Historical records from the UK. Fauna & Flora International, Cambridge, UK. 196 pp.	Fauna & Flora International	chris.magin@fauna-flora.org
Printed Report*	Anon. 2001. Proceedings of the Workshop on the Management of Protected Areas in the Andaman and Nicobar Islands. Port Blair, 9-11 July 2001.	IIPA / ANET / FFI	mcbt@vsnl.com

17. Appendix IV: Darwin Contacts

To assist us with future evaluation work and feedback on your report , please provide contact details below.

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Partner 2 (if relevant)	
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