Darwin Initiative

Final Report

1. Darwin Project Information

Project Reference No.	162/12/019
Project title	Sustainable management of the Rupununi: linking biodiversity, environment and people
Country	Guyana
UK Contractor	Royal Holloway University of London and The Wildfowl & Wetlands Trust
Partner Organisation (s)	Iwokrama International Centre for Rain Forest Conservation and Development, Georgetown, Guyana
Darwin Grant Value	£132520.05
Start/End date	1st September 2003 to 31st August 2006
Project website	http://www.gg.rhul.ac.uk/Rupununi
Author(s), date	Matthew Simpson and Jayalaxshmi Mistry, 29th April 2006

2. Project Background/Rationale

The Iwokrama Forest and North Rupununi Wetlands and Savannas, SW Guyana are characterized by a unique assemblage of ecosystems. The area represents a significant geographical component of three eco-regions: the Guyana Shield forest, the Rio Branco savannas and the Amazon Basin. The World Bank identifies the region as an ecological 'hot-spot' and the International Union for Conservation of Nature (IUCN) has highlighted this region as being a 'major tropical wilderness area' requiring immediate protection. The area is a mosaic of savanna, wetland, forest and mountain habitats with high biodiversity and is the homeland of the Makushi people who depend on the natural resources for their livelihoods.

The region is becoming internationally recognised for high species richness (88 bat, over 400 fish and 500 bird species) and numbers of endangered species (Black Caiman, Giant Otter, Jaguar, Harpy Eagle, and Giant River Turtles). Unfortunately, the area is also becoming a focus for development through road improvements and national economic pressures to increase extractive activities such as mining and logging.

The project aims to significantly contribute to the effective management of this important sub-region and assist Guyana in fulfilling its commitment to the Convention on Biological Diversity (CBD) by building capacity through training, technology transfer and research. Guyana's response to the CBD's Conference of Parties (1999) identified severe weaknesses in institutional, professional and technical capacity to meet the long-term commitments of its biodiversity management strategy. The same report identified capacity building through partnerships with foreign institutions as a top priority to address these issues.

To assist Guyana in fulfilling its commitments to the CBD in the North Rupununi Region, the Research Department of The Wildfowl & Wetlands Trust, the Geography Department of Royal Holloway, University of London and the Open University have joined together with the following key Guyanese organisations:

- Iwokrama International Centre for Rain Forest Conservation and Development (conservation and sustainable development interests);
- North Rupununi District Development Board (local Amerindian interests);
- Environmental Protection Agency and Fisheries Department (jurisdictional responsibility for natural resource management);
- University of Guyana (education and research interests).

These organisations themselves have identified needs for capacity building in: savanna, wetland and riverine eco-hydrogeomorphic classification; biodiversity monitoring and assessment; GIS and remote sensing interpretation; and monitoring and management planning.

3. Project Summary

- **Project Purpose**
  - To help build capacity for effective biodiversity management in Guyana through training and the development of ecosystem management plans and associated monitoring systems for the North Rupununi Region, Guyana.
- **Project Outputs**
  - Trained local community members and staff within the partner organisations
  - North Rupununi Field Manual (NRFM, Institutional and Communtiy versions)
  - North Rupununi Adaptive Management Plan (NRAMP)
  - Publications and presentations

The major project outputs and proposed operational plan have not been modified over the project period (see Appendix I for logical framework).

The project was successful in meeting the original planned objectives. However, it should be noted that the original proposal had limited opportunities for community consultations and evaluations. Over the course of the project this has changed significantly. As a result, many outputs were delayed until full consultation with communities was achieved. Nevertheless, these processes have enabled a much greater community ownership of the outputs, particularly the Community Monitoring Manual and the NRAMP.

The Convention on Biological Diversity articles that best describe the project are: Identification and Monitoring; and Research and Training. More details are given below in Section 5.

4. Scientific, Training, and Technical Assessment

- **Research**

A key objective of the project was to undertake surveys of habitat quality and key species distribution in selected areas across the Rupununi. The surveys were undertaken to understand the relationship among habitat, species and seasonal variation and the potential impacts human activities were having on these relationships. Surveys commenced in March 2004 and continued for a two year period. Land use type and extent were also monitored over this period and surveys with local communities were undertaken to understand management practices.

Surveys of the following characteristics and species occurred monthly at 30 different wetland sites:

- Site details
- Geomorphic attributes
- Hydrological attributes and water quality
- Waterbody dimensions and features
- Habitat characterisation
- Land use
- Bird survey
- Caiman survey
- Fish survey
- Incidental species observations

11 staff from partner organisations were trained in the monitoring techniques and helped to develop the monitoring protocols and manuals. They formed two teams to undertake the monthly site visits and community consultations. All site data was double verified and then entered into a user-friendly Access database for storage and manipulation of project data.

A key output of the project was to develop a monitoring manual. The development of the manual was based on the assumption that habitat quality is linked to the physical character of individual types of rivers or wetlands. Monitoring of habitat quality, key species and human use can provide baseline information against which future impacts of land uses, such as logging, can be assessed. This approach was seen as a model for monitoring ecosystem health throughout Guyana and provided a key step in national monitoring and environmental information capacity building. During the project it was decided, through consultation, that two manuals were required: one for use by government agencies and one for use by local Amerindian communities. The manuals have gone through a number of iterations and will continue to do so beyond the end of the project as different organisations adapt and improve them.

The technical manual was designed to be used by the following groups:

- **Government Departments and Agencies** involved in water resource management, agriculture, forestry, mining etc. – e.g. EPA, Hydromet, Ministry of Housing and Water, Guyana Forestry Commission etc.

- **Conservation Non Governmental Organisations** – e.g. Iwokrama, Conservation International, Karanambu Trust, World Wildlife Fund etc.
- **Private Companies** involved in forestry, agriculture, mining etc.
- **Community Groups** involved in forestry, agriculture, tourism etc. – e.g. NRDDB etc.
- **Environmental Consultants** undertaking Environmental Impact Assessments, biodiversity monitoring etc. on behalf of government or private companies

The technical manual has developed a more holistic approach to environmental monitoring and is seen as a replacement to simple water quality monitoring, species monitoring in isolation or land use monitoring in isolation. The outputs from the manual provide a clearer and holistic understanding of ecosystem health and the impact human land use activities have on the environment and the people who rely on the natural resources. The following lists some of the specific uses the manual was developed for:

- Long-term monitoring of ecosystem health and natural resources of both protected and non-protected areas to assess local, regional and national goals for biodiversity conservation and resource use
- Monitoring of the impact of a water or land use change, such as forest to intensive agriculture, to assess the impact on ecosystem health and natural resources
- Environmental Impact Assessment of a proposed development, industrial activity or water use change such as abstraction or damming to assist in planning decisions
- Post incident monitoring, such as an industrial pollution incident, to assess full impact on ecosystem health and human natural resource use to help develop mitigation measures and to aid any potential prosecutions

The results, conclusions, reports and manuals developed as part of the monitoring programme are yet to be published as they are still being reviewed by the Amerindian communities. Participation in the reporting and development of the manuals is key and we are reluctant to issue the final versions without all the communities' involvement. This is particularly important as some of the information is sensitive, within the context of regional and national politics, as it describes community resource use and ownership. Full reporting of the project results and publication of these will occur in November 2006.

- **Training and capacity building activities**

Training within the project was given under the following topic areas: (a) habitat and species survey techniques; (b) land-use type and impact survey techniques; (c) GPS mapping and GIS analysis; (d) database construction; (e) stakeholder engagement and analysis; (f) environmental decision-making; and (g) data analysis and management plan development. Additionally, and in recognition of the multidisciplinary implications of the project, an online Masters programme in Global Development Management from the Open University was available to a candidate from the University of Guyana.

The training programme built on WWT's, Royal Holloway's and the Open University's expertise in ecological sampling and surveying techniques, geographical information systems, participatory techniques, environmental decision-making, development policy and practice, management planning, and distance adult education.

Trainees were selected through interview by the partner organisations under the following criteria: knowledge of biodiversity issues and their conservation in Guyana,

knowledge of species and habitat characteristics within the North Rupununi region and ability to learn techniques and teach those techniques to others.

Two were appointed from Iwokrama International Centre.

One trainee was appointed from EPA

One trainee was appointed from University of Guyana and registered as a Masters Student on the Open University's Global Development Management on-line Masters course.

Six trainees were appointed from the NRDDB

All trainees were expected to attend the following formal training programme and to then undertake the monitoring, database management and community outreach components of the project:

Module	**Date and duration**
Habitat and species survey techniques	2 week (Feb 2004)
Land-use type and impact survey techniques and GPS mapping	1 week (Feb 2004)
Data analysis and GIS analysis	1 week (Jan 2005)
Stakeholder engagement and analysis	1 week (Jan 2005)
Environmental decision-making and management plan development	1 week (Jan 2005)
Adaptive management planning	1 week (Jan 2006)

The effectiveness of the training was evaluated through training attendance records and evaluation questionnaires completed by the trainees to assess the knowledge and techniques they have learnt through the training. The trainees were also encouraged to give feedback on the training sessions at the end of each day. These were reviewed each evening and if possible comments were addressed in the next day's activities.

All training sessions were fully attended. Examples of course content and feedback are included in Appendix II.

Calvin Bernard completed his MSc in Global Development Management in November 2005. His masters' dissertation focused on stakeholder participation in natural resource management of the North Rupununi. The dissertation can be downloaded from the project website.

5. Project Impacts

The project purpose was '*to build capacity for effective management of the Iwokrama Forest and Rupununi Wetlands and Savannas of Guyana, through training and the development of sustainable ecosystem management plans'*. This purpose has been achieved through the following planned outputs:

- 10 individuals trained in monitoring, data analysis and management planning
- 1 graduate masters student in Global Development Management

- Development of Technical and Community Monitoring Manuals
- Development of the North Rupununi Adaptive Management Plan
- Regular presentations and press releases

In addition to the planned and achieved outputs, the project has had a wider impact through the following:

- 10 staff from Conservation International, Karanambo Trust and additional Iwokrama and community staff trained in monitoring techniques
- Training material and practical experience gained through the project by trainees is being taken into the local communities to help train local community groups and school children
- Conservation International and Karanambo Trust interested in adopting the monitoring programme within their areas of jurisdiction
- ESRC funded ECOSENSUS project developed by the project partnership to produce open content capacity building on-line training which will be available to a range of Guyanese institutions. The ECOSENSUS project is also funding the construction of a computer infrastructure within Guyana (networked servers, desktops and laptops), so as to minimise the reliance of external facilities for hosting the open content material and associated software. The project will be used to help develop and implement the North Rupununi Adaptive Management Plan
- Requests from the University of Guyana to develop a masters course, from the Ministry of Education to develop modules for the school curriculum and from partner and stakeholder organizations to further develop ranger training programmes, resulted in the development of a proposal for post project funding that has been funded and due to commence in October 2006
- Darwin project outputs have been included within the Open University postgraduate course in Environmental Decision Making. Monitoring data is used to show the causal linkages within food webs and the usefulness of predictive modelling for informing management. Darwin project material is also used by Royal Holloway and WWT in their educational programme. This will add to the resources available to Guyanese partners for their own training activities
- The profile of the project has remained very high within Guyana as national newspaper, radio and television items have featured the project on a regular basis. This includes a bulletin specifically dedicated to the communities of the Rupununi. The key partner within Guyana has been particularly active in promoting the project using internal and external communication systems.
- During the stakeholder fora, stakeholders agreed that the local communities should play the key role in the management of the Rupununi wetlands. As a result communities have increasingly engaged with the project, aided by the sustained community visits by the project staff. Project staff have been invited to village meetings to discuss the management plan, and villages have assigned volunteer task groups to deal with the collaborative process of developing and implementing the management plan beyond the end of the project.
- 2 members of the project team have now gone on to postgraduate studies at MSc level (Msc in Tourism and Conservation at the University of Kent, & MSc in Research at the University of Warwick)

- Calvin Bernard (the project master's graduate) has been awarded an International Fellowship at the Open University. This fellowship programme is aimed at facilitating the interchange and exploration among the global community that will influence the direction of open education during the next decade.
- Drs Jayalaxshmi Mistry and Andrea Berardi will be visiting lecturers at the University of Guyana from January 07 to April 07. They will be working with the project team members in developing peer reviewed publications and course material and furthering fieldwork studies and community engagement. A major focus of their activities will be the development of a wetland community knowledge centre within the Rupununi.
- The project team has been awarded funding to work with the communities in the Rupununi on understanding, documenting and monitoring populations of freshwater turtles. This will complement the existing monitoring practices and will also feed into the data management and analysis infrastructure developed within the Darwin Project. Funding was awarded by the Cleveland Zoo, USA.

In terms of the project's aim to facilitate Guyana meeting its obligations under the CBD the Guyanese EPA's First National Report (1999) to the CoP of the CBD identified itself, Iwokrama International Centre and the University of Guyana as key institutions responsible for developing the capacity of Guyana to fulfill it's commitments to the CBD. The EPA was identified as the key national focal point concerning the CBD with specific responsibilities to biodiversity protection and environmental regulation and monitoring. Iwokrama International Centre and University of Guyana were highlighted as having institutional responsibility for identification and monitoring, research and training, access to and transfer of technology, scientific and technical co-operation and sustainable use. As key partners within the project the outputs have directly contributed to these three organizations fulfilling their institutional responsibility with respect to the NBAP and therefore ensure that the people and government of Guyana are more effective at implementing the Biodiversity Convention.

Specific activities that the project has directly contributed to are as follows:

Article 7

- Monitoring of important biodiversity components by Iwokrama International Centre. This includes the development of monitoring protocols for river and road corridor management in a tropical forest as well as forest impact monitoring protocols to assess any impact associated with reduced impact logging in the forest.
- Improved monitoring of activities likely to have adverse effects on biodiversity by the EPA
- User-friendly database for biodiversity monitoring data

Article 8

- Development of an adaptive management plan to manage biological resources for conservation and sustainable use to be implemented by local communities, Iwokrama International Centre and EPA. This will contribute directly to resource management instigated by the Ministry of Amerindian Affairs
- The project has aided Iwokrama International Centre and the North Rupununi District Development Board to promote the protection of ecosystems and

natural habitats and to promote environmentally sound and sustainable development

Article 12

- The project has established scientific and technical training material to be used by staff of all key organizations to train further staff internal and external to their organizations

Article 13

- The project has established important links and communication networks among university, government and non-governmental organizations from both Guyana and the United Kingdom

Article 17

- The project partnership is now active in exchanging new developments and technology in relation to biodiversity conservation. Established networks are now used to transfer this information. The newly funded ECOSENSUS project is a good example of how this is working

Appendix III shows the contribution made by different components of the project to the measures for biodiversity conservation defined in the CBD articles.

Trained staff within the project are now actively using their skills within their roles at their respective organizations. Of particular note are the following: two members of Iwokrama International Centre will now go on to undertake Masters degrees to further their skills and further increase capacity within Guyana; one member of Iwokrama International Centre has been promoted to manage biodiversity monitoring projects; Calvin Bernard, from the University of Guyana, has taken the skills learned within his Masters degree and the project training programme to develop new course curriculum for the university; and one community field assistant has been elected to the North Rupununi District Development Board and will have a direct impact on biodiversity conservation and sustainable resource management within the North Rupununi.

The project partnership has been very strong throughout the project. The three UK organisations have established a good relationship with Iwokrama International Centre and have handed over key decision making to them. This has improved ownership of the project. This strong linkage among partner organizations, as a result of the project, has led to improved communication between government agencies and local conservation and Amerindian groups. The stakeholder fora have been particularly important for identifying areas of cooperation and for determining responsibility for natural resource management.

In terms of social impact the project has had a positive impact by employing local community members. These people have an increased awareness of biodiversity monitoring issues and management of natural resources. As these individuals are from the communities, they have produced a wider impact by taking their new knowledge back to their communities. Delano Davis, a key community project member, has recently between elected as the Secretary and Youth Representative of the North Rupununi District Development Board. He will now be in a position to put into place his newly acquired knowledge in natural resource management across the regions. The project has assisted local communities in management of natural resources in the area and in communicating natural resource management and biodiversity conservation issues to government. For example, the NRDDB will propose the Rupununi Wetlands as a Community Conservation Area to the government so that natural resource management decisions will be made in the local area. The management plan of the project

provides a structure for natural resource management and identifies activities that could have detrimental impacts on biodiversity. This will assist the local community to undertake sustainable development activities, such as eco-tourism, without causing negative impacts.

6. Project Outputs

- Appendix IV quantifies the project outputs. It also identifies additional measures beyond those in the original proposal. These include:
    - Development of an additional monitoring manual
    - The production of a report for the communities identifying the state of the Rupununi in terms of the monitoring undertaken
    - Additional television and radio appearances by in-country staff
    - 10 additional staff trained
    - Presentation of project at Intecol conference, Utrecht in 2004
    - Presentation of project at Royal Geographical Society Conference, London in August 2006
    - Presentation of project at Hydrological Workshop, organised by Conservation International, in Brazil, April 2006
    - Community seasonal fish calendars for the communities to understand fish use and for the communities to use this as a management tool, February 2006
    - Presentation of project at the Second International Conference of E-Social Science, Manchester, June, 2006
    - Presentation of project at University of Guyana, Centre for the Study of Biological Diversity, Biodiversity Seminar Series, February 2006
    - Presentation of project at Open University: Environment Ecology and Evolution Seminar Series, March 2005, Open Systems Research Group Seminar Series, June 2006
    - Presentation of project at Iwokrama International Centre Seminar Series, May 2005
    - Presentation of project at International Workshop on Amazon Biosphere Reserves: an integrated trans-boundary initiative, April 2006
    - New dedicated Wetland Bulletin for the community and Iwokrama

- Outputs that were not achieved were 2 national television and 1 national radio appearance by UK staff. Although press releases were sent out unfortunately they were not picked up by national media networks. Other outputs that have not been achieved to date are the publication of 2 journal papers and the North Rupununi Adaptive Management Plan. These are due to be completed by February 2007 and January 2007 respectively. The Technical Manual, Community Manual and State of the Rupununi reports are yet to be published as they are being reviewed by the Amerindian communities. It is important to the project partnership to have full consultation with the communities and until they feel completely satisfied with the project outputs they will not be published. We have agreed a new date with the

communities and will publish the report and manuals in November 2006. When this is done they will be sent to the Darwin Initiative for review.

- Appendix V provides full details of all publications and material that can be publicly accessed from the project.
- The project outputs will be disseminated through the following:
    - Trained staff will continue to train staff within and external to partner organizations. This cost will be borne by the partner organizations and form part of their internal training programmes
    - The North Rupununi Monitoring Manuals will be widely distributed throughout Guyana to key organizations. This will be achieved through established partner networks
    - The North Rupununi Adaptive Management Plan will be implemented by the North Rupununi District Development Board and individual village communities. This will be achieved through assistance from the EPA and Iwokrama International Centre
    - The State of the Rupununi report will be distributed to all village communities, partner organizations and key organizations within Guyana
    - Papers will be published internationally to promote the project and to disseminate the approach adopted within the project
    - The post Darwin project funding will be used to assess the implementation of the North Rupununi Adaptive Management Plan; to spread the training to a wider audience within Guyana and to raise awareness more generally within the Guyanese population through school activities
    - The new Wetland Bulletin will update communities on a bi-monthly basis. This will be run by Iwokrama and will continue after the project finishes
    - Posters will be developed by Iwokrama staff to disseminate fish information to the communities

7. Project Expenditure

The table below describes the agreed grant expenditure from the original application.

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The budget has not been changed from the original budget and all expenditure has kept to the agreed timetable.

8. Project Operation and Partnerships

There were five main local partners that contributed to project activities. These include:

- The Iwokrama International Centre for Rain Forest Conservation and Development (Iwokrama International Centre)
- Environmental Protection Agency (EPA)
- North Rupununi District Development Board (NRDDB)
- University of Guyana
- NRDDB Executive Fisheries Committee

Iwokrama International Centre had the lead role in project organization and management within Guyana. Iwokrama International Centre co-ordinated the monitoring and training logistics of the project. In terms of biodiversity conservation Iwokrama International Centre have institutional responsibility for identification and monitoring, research and training, access to and transfer of technology, scientific and technical co-operation and sustainable use of natural resources.

Project planning was undertaken within the project team, with representatives from all partner organizations. As the project progressed, key decision making regarding the project was handed over to the Guyanese project staff. Initially the project had limited consultation with the communities within the Rupununi, but as a result of input from the partners this changed significantly. Regular consultation on all aspects of the project and particularly the development of the North Rupununi Adaptive Management Plan has occurred with the communities and they are helping to steer project development and delivery of outputs beyond the end of the project. A key finding from the project stakeholder fora was the decision that the communities themselves should manage their natural resources. The project has seen to assist the communities in this aim so key decisions regarding the direction of the management plan are now reached through active consultation with all the communities.

In addition to the original partnership, Karanambo Trust and Conservation International have received training and contribute to the monitoring programme of the project. These organizations, along with WWF, Ministry for Amerindian Affairs and Ministry for Education now form part of the project partnership and regularly receive information about the project and contribute to it.

During the lifetime of the project there was opportunity to collaborate with Conservation International and WWF monitoring programmes by providing project monitoring protocols and data to assist initiatives by these organizations. The Ministry of Amerindian affairs has initiated workshops in natural resource use to develop legislation for natural resource management. The project has been able to contribute to this process through staff representation and project findings.

The EPA is the key organization for developing the Biodiversity Strategy for the country. As a partner of the project and contributing body to the North Rupununi Adaptive Development Plan, the EPA can take information from the project to inform future strategies related to biodiversity.

Three international partners participated in the project. These include:

- Royal Holloway, University of London
- The Wildlife & Wetlands Trust
- The Open University

It is anticipated that the local partnership will continue beyond the end of the project. Through the EPA, direct input into the biodiversity strategy will continue. Community participation is key to all natural resource

management within the region and community consultation will be an important aspect of the ongoing partnership. Each community has regular meetings to identify issues. These are fed into the NRDDB meetings which are held every three months. These can then be further discussed with the project partnership.

9. Monitoring and Evaluation, Lesson learning

Our aim was not to make evaluation a 'final judgement' about the success or otherwise of the project or its partners, but to promote an on-going series of monitoring and planning steps through reflective practice as we moved through the project implementation timetable. Evaluation should be a learning process so as to do things better and also includes the improvement of working relationships between project partners. We used a 'Participative Action Research' approach to improve our working practices. This involved:

a) feedback from project stakeholders on project measurable indicators achievement

b) assessment of resulting problems and opportunities

c) development of a model for improving collaborative work between project partners and with project stakeholders

d) implementing the model in project activities

These steps had three communication media: ongoing informal communication between Guyanese project partners and project stakeholders; an ongoing informal process using on-line facilities between all project partners; formal face-to-face discussions involving all project partners and project stakeholders during the start-up workshop (exploring the context of measurable indicator achievement, assessment of potential problems and opportunities, development of a model), mid-term workshop and final workshop (implementation will be continued by Guyanese partners and stakeholders). The iterations of the above framework were based on the schedule for achievement of key milestones and output measures. This allowed us to assess the impact our achievements were having on attaining the measurable indicators. The six-month and annual reports presented a regular account of developments in working practices and steps towards attaining measurable indicators with each iterative cycle.

The results of this monitoring and evaluation demonstrated that the project achieved all of its important milestones and outputs. The strategy that was adopted was fundamental to allow us to respond to changing circumstances such as providing more community consultation.

Key milestones that were achieved include the following:

- Start-up workshop completed
- Stakeholder forum held
- 3 weeks of formal training completed
- Eco-hydrogeomorphic classification of habitats
- Identification of land-use types
- Mapping of habitat types and land uses using remote sensed data completed
- Identification of reference sites for habitat and species survey
- Commencement of habitat, species and land-use surveys
- Mid-term workshop
- 2 weeks of formal training completed
- Stakeholder forum held
- Final workshop completed
- Habitat, species and land-use surveys completed

- Spatial database completed
- Collation and analysis of data completed
- Draft North Rupununi Adaptive Management Plan completed

The baseline information collected by the project is as follows and is held in the project database:

- Site details
- Geomorphic attributes
- Hydrological attributes and water quality
- Waterbody dimensions and features
- Habitat characterisation
- Land use
- Bird survey
- Caiman survey
- Fish survey
- Incidental species observations
- Socio-economic data on wetland natural resource use

The indicators that relate to the project purpose and goal are:

- Management plans for key habitats and species in the form of the North Rupununi Adaptive Management Plan being used
- Records of implementation from Government and NRDDB meetings
- Field survey reports and publications by partner organizations

Currently only the field survey reports and publications by partner organizations have been completed. The use of the NRAMP and records of implementation will be the ultimate indicators after January 2007 when the plan is published. However, monitoring programmes by Iwokrama and NRDDB are already commencing.

There were no significant problems during the execution of the project so all milestones were achieved. The only issue that has delayed publication of reports is the request for further community consultation. The project partnership views this as an important opportunity rather than a problem, so the ongoing success of the projects aims are more likely to succeed.

During the project there has been continual evaluation of the work programme and the plans for the project. This has occurred on a monthly basis via internal project reporting and during the annual project workshops. All issues have been responded to and this has led to a strengthening of the partnership and the project outputs.

The key lesson drawn from this project is that initial consultation with all sectors of the community as opposed to key representatives is essential. This needs to be right at the start of the project and continue throughout if the project is to be a success. Another issue is to avoid overestimating the infrastructure and logistical situation of countries such as Guyana. For example, the true costs of transport, changing fuel prices, breakdown in vehicles etc. need to be estimated correctly at the time of proposal submission.

10. Actions taken in response to annual report reviews (if applicable)

The following are issues raised after the 2005 annual report which were discussed with our collaborators and are summarised below in four sections: Communication, Evaluation, Training and Dissemination.

Communication

In the review, it was indicated that copies of our e-mail newsletter should be attached with the annual reports and included as a project output. Our project 'Bulletins' were used to provide our partners with project news, updates and information. There was also more informal project correspondence via e-mail that allowed members of the team in the UK to keep up to date with progress in Guyana and vice a versa. Our website was also improved and contains useful information related to the project and its progress for both our partners and others. The website is located at http://www.gg.rhul.ac.uk/Rupununi

Evaluation

Comments from the reviewer indicated that detailed descriptions of the on-going project evaluation should be included.

This project faced two key challenges: the implementation of a scientifically stringent biophysical monitoring plan, while at the same time encouraging the participation of a wide range of stakeholders, from the local Amerindian community to national agencies, in the eventual implementation of the monitoring and management strategy. Our primary concern in the first year of the project was to train community members to carry out the biophysical monitoring. Thus, the first year's evaluation was specifically concerned with making sure that the trained individuals were able to collect biophysical data to a scientifically acceptable standard. This was done by following their data collection over a 10 day period. Several problems were identified and resolved with one-to-one sessions with the community members. In particular the monitoring documentation and methodologies were amended to make them more user friendly for the community members. Prior to the 2005 training period, the biophysical data collected over the first six months of the project was analysed to identify inconsistencies and errors. Consequently, feedback and further training on data collection, data input and data management was undertaken during the January 2005 training.

While the training programme was undertaken in January 2004, one of the training team members, Dr Jay Mistry, held a series of one-to-one interviews with a wide range of stakeholders to establish the appropriate participatory process for the implementation of a monitoring and management plan for the Rupununi. Part of the stakeholder consultation process was the identification of an appropriate participatory evaluation methodology. As we moved towards the second-half of the project, we gradually decreased our "expert-led" approach to project management and implementation, and increased the participatory component, including an open and transparent evaluation process.

Training

The reviewer indicated that it would be useful to see the training material used for training in the earlier part of the project. They were also interested in how the trainees for the courses were chosen. The Iwokrama International Centre for Rain Forest Conservation and Development, the Environmental Protection Agency and the University of Guyana staff were appointed to the project through job application. The specifications for all the jobs were written by the project partnership. The Amerindian Community members were proposed by their villages to the North Rupununi District Development Board who chose the final candidates for the training. Additional persons trained were staff from Iwokrama International Centre for Rain Forest Conservation and Development. Since the initial training, trained staff have continued training others from organizations such as Conservation International and the Karanambo Trust.

The 'habitat and species survey techniques' and 'land-use type and impact survey techniques and GPS mapping' training was undertaken in January and February 2004. The following materials related to this training were included in the annual report: Training and Monitoring Programme; Training Day 1 material; Training Day 2 material and Site Selection Outputs.

Dissemination

The reviewer indicated that more detail be provided regarding the target audiences and the dissemination activities of the project.

As indicated in 2004 Annual Report, the project partnership has strong links with the local community, non-governmental and government organisations both within and external to Guyana. Regular press releases, TV appearances, newspaper articles and radio appearances sought to spread awareness of the project and what its objectives were. The project website and e-mailed 'Bulletins' also provided project updates and information for both project partners and external organizations.

Trained staff engaged with other organizations, such as Conservation International and the Karanambo Trust, and trained their staff in monitoring techniques. The first draft of the North Rupununi Methods Manual was widely distributed to project partners and external organizations. Comments received allowed further development of the manual. It was seen as essential to make the manual a useable and useful document so that as many organizations as possible adopt the practice of monitoring and managing biodiversity within the region. The target organizations for the manual and on-going training were: government departments concerned with land management, conservation and water management; NGOs such as Conservation International that are directly related to conservation management and local community groups that undertake land management within their area. Engagement with these organizations commenced and efforts were being made to train staff, to secure resources to help support the monitoring and to ensure the monitoring becomes part of the work plan of the organizations. The project team were also working with the partners to promote the importance of the area for biodiversity conservation by assisting efforts to apply for international designations.

The review of the 2005 annual report indicated that action needed to be taken to fully engage senior staff members of local partners to ensure the long term future and impact of the work. Communication improved within the reporting period and in-country project staff had individual, and collective, responsibilities to engage with all senior staff. Regular reporting helped communication greatly. An additional trip, by UK partner staff, was undertaken in January 2006 to further engage with the partners and the successful completion of the post-project proposal, with significant contributions from all partners, is testament to that.

It was suggested by the reviewer that the regular project bulletin become a newsletter and be the responsibility of our in-country partners. These suggestions were adopted.

We constantly reviewed activities within the project and the training evaluation process ensured that we improved the training for project staff. The reviewer asked for an example of this process. In the 2005 training it was requested that more time and practice be given to elements such as statistics. During the 2006 training there were a number of sessions used as a refresher and to assist staff in practicing different techniques.

The reviewer was interested in the project manual development. The two forms of the manual are being edited and continually tested by the project partners to ensure that they fulfil the requirements of the different stakeholders. These will be finalised by November 2006.

In the 2005 report it was noted by the reviewer that training had expanded beyond the project partners to include organizations such as Conservation International and the Karanambo Trust. This continued throughout the reporting period and will continue beyond the end of the project. Requests from the University of Guyana to develop a Masters course, from the Ministry of Education to develop modules for the school curriculum and from partner and stakeholder organizations to further develop ranger training programmes resulted in the development of a proposal for post project funding.

One of the queries from the 2006 annual report was regarding the change in name from the North Rupununi Ecosystems Management Plan to the North Rupununi Adaptive Management Plan. We reassured the Darwin Secretariat that the original aim of the management plan, to address biodiversity management, was still very much central to the plan. The reason we changed the name was because through consultation with the stakeholders of the project it was decided that the plan should better reflect the more participatory nature of the approach to management that was adopted within the project. The management plan would still be primarily focused on biodiversity management but this cannot be achieved without understanding livelihood activities and decision making within the local and national context. In addition, the reviewer

commented on the need to peer review the documents being produced from the project. Our response was that since these documents are aimed primarily at the stakeholders in Guyana, through extensive consultation with these stakeholders, we have gone through a form of peer review.

11. Darwin Identity

The Darwin Initiative logo has been used on all project bulletins, reports, manuals, presentations, press releases and communications. In addition to the use of the logo it was always made clear in project correspondence and meetings that the funding for the project came from the Darwin Initiative programme.

All partners to the project, community members within the Rupununi and the public who have seen TV items or read newspaper articles will be familiar with the Darwin Initiative and the project. Evidence exists in the form of applications to the Darwin Initiative from partner organizations separate from this project's UK team. The project was invited to have a stand at the forthcoming (September 2006) Rupununi Heritage Fair indicating that the profile of the project is high within the Rupununi. The project was only one of two projects invited, demonstrating the importance the project now has within the region. Organizations such as Conservation International are now focusing their resources on the Rupununi Wetlands and adopting the project monitoring protocols as a direct result of this Darwin Initiative project.

The project has a distinct identity within the host country and is acting as a focal point for subsequent projects and funding. As a result of the project, additional projects and initiatives such as ECOSENSUS, Turtle Conservation Project, Conservation International Wetland Programme and the Ministry of Amerindian Affairs Natural Resource Management legislation, has identified wetland biodiversity management as key elements. The project, although distinct, has also fed into the EPA's biodiversity strategies and monitoring initiatives, for example, the EPA's National Water Quality Monitoring Plan published in June 2006.

12. Leverage

During the lifetime of the project two substantial grants were secured. The project partners, led by the Open University, secured £45,000 from the ESRC E-Science grant for a one-year pilot project for spatial decision-making for natural resource management in distributed environments. This project is directly linked to the Darwin project and aims to develop more effective natural resource management for the Rupununi, as well as Guyana and beyond.

The project partners have been awarded £106,000 from the Darwin Initiative, DEFRA, as a follow up grant to their current project. Starting on the 1st October, this Post-Darwin project aims to build the capacity of Guyanese stakeholders at both the local and national level in implementing the North Rupununi Adaptive Management Plan (NRAMP) in ways that are ecologically, socially and financially sustainable.

To strengthen the capacity of partners to undertake funding applications the project partnership had regular meetings to identify funding opportunities and project ideas, encouraged partner organizations to apply directly for funding, where appropriate, and gave training and technical assistance to the funding application process. As a result Iwokrama International Centre has secured US$3000 from Cleveland Zoo, USA for a complimentary turtle conservation project and have also applied to WWF for a further US$7000 to support the project.

13. Sustainability and Legacy

Partners will continue to keep in touch and regularly communicate because there is now a well established network that is involved in natural resource management within the Rupununi. A number of initiatives such as Conservation International's monitoring programme, Iwokrama International Centre's post logging monitoring programme, the Ministry of Amerindian Affairs natural resource management legislation and EPA EIA work are on-going programmes which will ensure that the project achievements will endure. These include the use of

both the technical and community manuals in biodiversity and resource monitoring within Guyana and the adaptive management plan implemented by project partners and the communities within the North Rupununi.

Two project members are going on to take masters courses. All other project staff will continue the work within their respective organizations.

To date the project's conclusions and outputs have not been widely applied as the North Rupununi Adaptive Management Plan is due to be published in January 2007. However, the monitoring protocols have been adopted and implemented by Iwokrama International Centre, Conservation International and the communities. Management plan recommendations will be implemented by partner organizations in 2007.

Additional funds have been sought to continue the project and are detailed in Section 12 above.

14. Value for money

The project has been great value for money because it has had a huge impact across Guyana and in particular within the North Rupununi. For a relatively small amount of money, the benefits in terms of putting biodiversity conservation, natural resource management and participatory adaptive management on the agendas of partner organizations, government bodies and communities have been great. As a direct result of the project the importance of wetland ecosystems and their management is now understood within the region and is central to decision making related to land use and natural resources.

All key organizations and individuals related to biodiversity conservation and natural resource management within Guyana, are aware of the project, and many are now actively using the project outputs and will be involved in implementing the North Rupununi Adaptive Management Plan. The key decision makers, including government ministers, are aware of the project and its outputs and project findings will help inform their decision making.

The project has increased capacity within all the key conservation bodies and government agencies related to biodiversity conservation in Guyana. Guyana has limited resources to train staff, to undertake monitoring programmes and to actively manage natural resources, so the project has been essential in assisting in these activities. The project has also empowered local communities and created a communication network with government to assist in natural resource management.

Unlike many countries, a relatively small amount of money can go a long way in supporting biodiversity conservation within Guyana, as this project has demonstrated. It is rare that a project can impact government ministries, key conservation organizations and local communities but this project has managed to achieve that.

15. Appendix I: Project Logframe

Project summary	*Measurable indicators*	*Means of verification*	*Important assumptions*
Goal: 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 • the conservation of biological diversity, • the sustainable use of its components, and • the fair and equitable sharing of the benefits arising out of the utilisation of genetic resources			
Purpose To build capacity for effective management of the Iwokrama Forest and Rupununi Wetlands and Savannas of Guyana, through training and the development of sustainable ecosystem management plans	New understanding of the relationships between environmental determinants, key species distributions and impacts of land-use change that will inform management plans Long-term monitoring and management strategies resulting in effective conservation of key habitats and species Evidence of sustainable development and key habitat and species conservation	Management plans for key habitats and species in use Records of implementation from Government and North Rupununi District Development Board meetings Field survey reports and publications by partner organisations	Partner organisations are successful in incorporating knowledge and implementing management strategies within the region The project partnership is successful in attracting additional support to continue monitoring and implementation of management plans beyond the period of the project
Outputs 1) Trained local community members and staff within the partner organisations 2) North Rupununi Field Manual (NRFM) 3) North Rupununi Ecosystems Management Plan (NREMP) 4) Publications and presentations	1) 10 staff trained in monitoring, data analysis & management and 1 graduate Masters student 2) Monitoring protocols and data recording sheets produced and peer reviewed, publication and distribution arranged 3) GIS spatial database of ecosystem and species characteristics, stakeholder fora reports, NREMP peer reviewed, publication and distribution arranged 4) 6 radio and TV items, 3 news	1) Masters degree certificate, field survey reports, trainee evaluation questionaire and training attendance records 2) 2 copies of NRFM sent to Darwin Initiative 3) Interactive spatial database held in Iwokrama and UK and published on web, 2 copies of NREMP sent to Darwin Initative + published reviews and publications 4) All transcripts and papers sent to Darwin Initative	1) A high % of participants attend and pass the training 2)Publishers and distribution method identified successfully 3) Co-operation between Makushi, government and NGOs maintained, access to remote areas for ground truthing of remote sensed images is possible, publishers and distribution method identified successfully
Activities	**Activity Milestones (Summary of Project Implementation Timetable)**		

Workshops and Stakeholder Fora	Yr1: Start-up workshop - project team to plan work programme, identify key tasks and develop training programme and materials (1 wk Aug 03), Stakeholder forum (1 wk Aug 03); Habitat and species survey training (2 wks Sep 03); Land-use survey training (1 wk Sep 03). Yr 2: Mid-term workshop - data analysis and management plan development training (2 wks Sep 04), Stakeholder forum (1 wk Sep 04). Yr 3: Final workshop - management plan development (2 wks Nov 05).
Field research programme	Eco-hydrogeomorphic classification of habitats Jul 03: Identification of land-use types Jul 03: Mapping of habitat types and land uses using remote sensed data Oct 03: Identification of reference sites for habitat and species survey Oct 03: Habitat and species surveys Oct03-Oct05: Land-use surveys Oct03-Oct05:Database of habitat, species and land-uses Nov05.
Management plan development	Collation and analysis of data Jan 06: Draft management plan Mar 06: Published Aug 06.
Publicity material	2 radio or TV items (each yr); 1 newspaper article (each yr); 2 papers (by Sep 06); progress reports

16. Appendix II – Training Course Material

Training planning form		Date: Day 1	Attendees:						
Time	Topic and objective	Method						Responsibility	Logistical needs
			1	2	3	4	5		
9:00	Introduction to Adaptive Resource Management and review of project so far Characteristics of Natural Resource Management Plan (Multidisciplinarity and ethics) Types of Management Plan, goal setting vs goal seeking North Rupununi Adaptive Management Plan Structure	Seminar Brainstorming to complete natural resource management diagram and ethical principles Seminar and exercise to critically evaluate management plan examples Seminar						Andrea	Flip charts, pens A4 paper, pencils Computers, LCD projector
10:30	BREAK								
11:00	Reflective stage of management plan cycle Surfacing conflicts, concerns, values and beliefs Negotiation	Seminar. Brainstorming. Negotiation role play						Andrea and Jay	Flip charts, pens A4 paper, pencils Computers, LCD projector
12:30	LUNCH								
1:30	Goal setting using the CATWOE	Seminar and group exercise						Andrea and Jay	Flip charts, pens A4 paper, pencils Computers, LCD projector
3:00	BREAK								
3:30	Introduction to stakeholder participation in goal setting Process of goal and purpose setting, visioning	Seminar Discussion exercise						Andrea	Flip charts, pens A4 paper, pencils Computers, LCD projector
5:00	DEBRIEFING & EVALUATION ON GRAFFITI BOARD								

Training planning form		Date: Day 2	Attendees:						
Time	Topic and objective	Method						Responsibility	Logistical needs
			1	2	3	4	5		
9:00	System map development Implications for Management	Introduction to North Rupununi food web and brainstorming to identify additional linkages						Matt and Jay	Flip charts, pens A4 paper, pencils Computers, LCD projector
10:30	BREAK								
11:00	State levels and variables within the system	Seminar Example of seasonal changes within the system. Brainstorming to identify state levels and variables for components within the system						Matt and Jay	Flip charts, pens A4 paper, pencils Computers, LCD projector
12:30	LUNCH								
1:30	Indicators and thresholds	Seminar Examples of indicators and thresholds, brainstorming on indicators for objectives						Matt and Jay	Flip charts, pens A4 paper, pencils Computers, LCD projector
3:00	BREAK								
3:30	Log frames Goals, purposes, outputs and activities Project summary, measurable indicators, means of verification, important assumptions Monitoring to achieve objectives Conclusion	Seminar Log frame structure and examples Seminar and eco-tourism log frame example Seminar and group hug						Andrea and Jay Matt	Flip charts, pens A4 paper, pencils Computers, LCD projector
5:00	DEBRIEFING & EVALUATION ON GRAFFITII BOARD								

Introduction, Information, Values and Resources, Stakeholder Analysis	Learning the transect walks can also be a very valuable tool for collecting social data and was also very insightful. After all, what is science and conservation and sustainable development, its all about PEOPLE.
	Definitely interesting, training sessions can sometimes be too much, but the day's activities were all very interesting, with regards to applications to the Darwin Project. Even though we should've asked the questions before designing the project, we're now doing it. Better late than never!
	I think the session was very good. All information were clearly understood, I can now be able to share much more information with the people in my community and most of all I am happy to be learning how to monitor and manage our project better.

Data management and statistical techniques	Statistical analysis can be a bit too much, and taxing, but it helps to put the pieces of data together that so much time has been spent collecting. Today's exercise was very helpful in that regard. Also trying to think of possible relationships that have been noticed so far, and discussing them allows for persons to add to the way the project should go, and would be the best indicators for the proposed adaptive management plan.
	Everyone should be involved in data analysis so that we can have a better knowledge about using computer and providing accurate information.
	The days session was very interesting but I think there is too much scientific terms and lots of information to grasp in one day. Definitely I need some one to go over the statistical analysis. May you try to break it down a little. I hope by the end of the training I can be able to understand and explain stats clearly.
	Sorry my eyes wanted to close. I believe there should be some exercises at intervals to have everyone active. Maybe because of the room temperature in the afternoon.
	The day went well until statistical technique came on board. Perhaps doing it on the computer would have been better. Practising would save me. Looking forward to the rest of the days.
	Statistical techniques was very complicated to understand, need more to get through with it. Good teaching.
Introduction to GIS	Every single thing which is being taught are so much interesting but one thing though. TIME is too limited to think about and grasp. However, it would be best to practice and learn slowly…..I'd wish to be an expert on GIS.
	Great, its all coming together. There is lots more to be done, decided and changed, but we have the right approach. GIS was also very good, cause I've been doing it, but never fully understood the terms.
General comments	Working with you all for the past three days has taught me a lot, even though some of the things spoke was very strange to me. I personally feel they are very valuable information for me and for the people of the North Rupununi in order for them to develop and management plan so as to keep our wetlands preserved.
	It was great to be learning some more. Teachers you have all done a great job. Personally I feel it was a step forward for me in terms of knowledge. Looking forward to learning some more interesting stuff.
	I love being taught but my brain is 11 days young in the year. I am having a fantastic time, I wish I could be a student of you guys.
	The training was fun and very interesting but one thing, there was too much information to learn in three days.
	It was fantastic!!! Thanks for your time Jay, Andrea and Matt.
	I must say the three days of training taught be a lot. I can now go back and explain better to my community what exactly we are doing and what would be doing in the future. Good information and I'm definitely looking forward to seeing you back with more information next year. All the best to you.
	This is great but needs more time to figure out the problems that we encountered over the monitoring period. At least we are going somewhere. Lets go for it!!!!!
	What we are doing now definitely would be very useful to more effectively do the monitoring. Especially when it comes to community level. I'm enjoying the course besides sleepiness.

Second training group in Field Station

Introduction, Information, Values and Resources, Stakeholder Analysis	First session was good, but for one thing. I was or does not have much knowledge of the object of the project.
	More explanation is needed for 'technical' words. However, everything is going smooth.
	The session was not boring even though we are tired.
	Could someone turn the air-conditioning on? Please. P.S. Just kidding.
	The day was a bit hard especially the project evaluation. Other than that everything else went well. I think sessions should be more in detail.

	It was very interesting and was bit difficult in some areas. Need to explain more in detail for student. Had an idea about evaluation of the sustainable management of Rupununi.
	I'm sure as it goes by I will gather enough info….about it….
	Management plan of evaluation chart was good. It will help me in better planning.
	Evaluating the course time is a bit short. Instructor kind and clear. The project is now to be on the trainees. The important resource.
	The few hours of today's session is interesting and new to me. Its learning and exciting to know about the Darwin Initiative project in the North Rupununi. The Questions are challenging. Did not answer all the question but at least I answered a few. It is just a start for I. Enjoyable. Good.
	Looking forward to the bit on dealing with stakeholders.
	Very interesting sessions. Hope the Project evaluations would be discussed in a group setting.
	From first glance of the handouts they seem complicated. Too much 'big' words.
	Andrea – like the passion with which you explain things Jay – it was a nice ice breaker, getting to know each others names. Matt – good overview of session Don't worry it can't be good all the time. It's the first day and people always try to make a good impression. It was nice today guys.
	Jay you were great. Very enjoyable in all the practical presentation. Thank you.
	Good show! Enjoyed it.
	Today was nice. Very interesting. It cause lots of question for a young mind which will be settled with practice but with proper preparation
	It was a good day but still unsure about some of the topics dealt with today.
	Today's session was quite informative and nice. Good that we have practice. There was a lot of work, it would have been good to have more days. Need more practice and critical analysis of us doing interviews.
	A wonderful day! Jay you are a wonderful 'teacher'! A lot have been learnt today.
	Very, very interesting sessions. Well planned and presented.
	The day's result was good and the exercises did help me in various areas of interviewing. Session was not boring!
	OK! Today's session was very good. Let me tell you of some of the things I learn during today's session. Stakeholders of the project Questions e.g. closed, leading etc. Interview practice etc. Transect walk interview Developing a seasonal calendar through interview. Also the session was not boring. Doing practical or having doing little games make the course of the day successful.
	Today was great. I learnt a lot about what was taught. Especially with the seasonal calendar, using two units of measurement. The interview part was also a great part in the training.
Data management and statistical	Session was great. I was getting sleepy but wash the face and it was back to business. Information was good but just need more time to process and analysis.
	Stats…..well never did that until yesterday, it was good…..

	Today was very interesting. Sparked interest in stats once again. I liked how you tried to make it very simple for me and the others. With none interesting topics use physical activities so people don't fall asleep or lose interest.
	It was better than I thought it would have been.
	The day was quite good especially when Matt and Andrea was around trying to have everyone's attention.
	On the part of statistical analysis was quite interesting, still a bit confused about this unit of the training. Learnt most and understood what was taught today especially with the measurement scale. Need more time to practice the analysis.
	Today's session was simpler than expected for me. You made an effort to make the mathematics simple. Hopefully everyone else understood since all may not have been exposed to stats.
	Comments on data stats session. 1. Not fully under stand the frequency of observation of a value in system around the means. 2. Learnt most about graphing in different ways, e.g. column charts, line charts. 3. Few are not full understand.
	Today' session is brilliant instructor very helpful – good. I did not learn every single thing that was taught – bad. Need to spend more time studying the whole concept of the project (trying!)
	A very good and enjoyable day! A lot of fun! Learnt a lot and more is expected.
Introduction to GIS	The GIS session was a bit difficult for me to understand. I have a little understanding of GIS but the details Andrea explained was a bit complicated and may need more time and visual practice session
	The 3D modelling was good. While the actual constructing would need more time than we have.
	Happy Day. Teaching materials very helpful/useful. 3-D modelling – very interesting. Instructors willing to assist when call upon. Thank you so much.
	GIS session. Maps: understanding map is not difficult because I have done it before. Source of data. Analysing data through maps – understanding the GIS exercise is very complicated for me to understand. This particular exercise need more time.
	The sessions on GIS was so complex, a lot to learn about the concept. Due to time space not much was grasped but have an idea about the lesson. The lesion could have been more effective if we had some breathing space. E.g. info were quick and no time to think about, lesson goes on for hrs, class got tired and start to lose concentration. (but great day).
	I learn a lot from the GIS course and wish to share that knowledge with someone else in the future. It also help me to better understand data collection, storage and error.
	At first I was lost, I had no idea that GIS could be so difficult but as the day goes by it got a little clearer as to what we were doing. But it was great.
	Never really considered the politics in maps so that was pretty useful. Needed more time for some activities. Might be useful to give everyone a chance to see GIS work more on computers. And to do a bit for themselves.
	Mr GIS. Really interesting to know the GIS information in a good tool to do outreach programmes in community (e.g. map of resources).
	The morning section is nice but was not 'interest' to many so it was tedious. It was nice that the physical activity. The afternoon session was much more active and fun for people because of the hands on activity. The attribute table section/session could use a bit more explaining as hands on activity.
	My training was good. I wish you gal and guys all the best.
General comments	Hi! The few days of training was really, really interesting and the instructors are kind enough and very patient. I gain a lot from the training. I will certainly practice the things I learnt.
	Really nice week.

	Really interesting week. I ate a lot of chicken and cows and a garden of fresh vegetables.
	In order to understand scope of the exercises it would have been nice to do hands on, on the computer.
	Great week, hope I can remember some things what was taught during the week. And looking forward to practice some of what was taught. Practice can make perfect with determination.
	We are in a sense doing the same thing you pointed out about the training done during the resource mapping activities by give the locals the capacity to do GIS without the facilities to do it in the communities.
	Hey! Guys. Jay, Andrea and Matthew. Very good work. I am really proud of myself to know more interesting stuff like these wetland monitoring. It has a lot to do with conservation of species, GIS and other stuff. P.S. Keep up the hard work. Hoping to sit in more on your class in the future. Good luck. Thank you.

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

Please complete the table below to show the extent of project contribution to the different measures for biodiversity conservation defined in the CBD Articles. This will enable us to tie Darwin projects more directly into CBD areas and to see if the underlying objective of the Darwin Initiative has been met. We have focused on CBD Articles that are most relevant to biodiversity conservation initiatives by small projects in developing countries. However, certain Articles have been omitted where they apply across the board. Where there is overlap between measures described by two different Articles, allocate the % to the most appropriate one.

Project Contribution to Articles under the Convention on Biological Diversity		
Article No./Title	**Project %**	**Article Description**
6. General Measures for Conservation & Sustainable Use		Develop national strategies that integrate conservation and sustainable use.
7. Identification and Monitoring	30	Identify and monitor components of biological diversity, particularly those requiring urgent conservation; identify processes and activities that 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		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	30	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	10	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**

18. Appendix IV Outputs

Please quantify and briefly describe all project outputs using the coding and format of the Darwin Initiative Standard Output Measures.

Code	Total to date (reduce box)	Detail (←expand box)
Training Outputs		
1a	Number of people to submit PhD thesis	
1b	Number of PhD qualifications obtained	
2	Number of Masters qualifications obtained	Calvin Bernard obtained Masters in Global Development Management in Nov 2005
3	Number of other qualifications obtained	
4a	Number of undergraduate students receiving training	
4b	Number of training weeks provided to undergraduate students	
4c	Number of postgraduate students receiving training (not 1-3 above)	
4d	Number of training weeks for postgraduate students	
5	Number of people receiving other forms of **long-term** (>1yr) training not leading to formal qualification(i.e not categories 1-4 above)	10 people undertaking long-term monitoring programme
6a	Number of people receiving other forms of **short-term** education/training (i.e not categories 1-5 above)	10 original staff members and 10 additional staff members of internal and external organizations
6b	Number of training weeks not leading to formal qualification	6 weeks
7	Number of types of training materials produced for use by host country(s)	5 presentations of training course material and reference packs
Research Outputs		
8	Number of weeks spent by UK project staff on project work in host country(s)	36 weeks (Dr. Matthew Simpson, Dr. Jay Mistry and Dr. Andrea Berardi spent 3 four week trips in Guyana)
9	Number of species/habitat management plans (or action plans) produced for Governments, public authorities or other implementing agencies in the host country (s)	1 - North Rupununi Adaptive Management Plan
10	Number of formal documents produced to assist work related to species identification, classification and recording.	3 – Technical Manual, Community Manual and State of the Rupununi Report
11a	Number of papers published or accepted for publication in peer reviewed journals	2 are still proposed for submission in Feb 07
11b	Number of papers published or accepted for publication elsewhere	
12a	Number of computer-based databases established (containing species/generic information) and handed over to host country	1 – User-friendly Access database produced and handed over to partners

Code	Total to date (reduce box)	Detail (←expand box)
12b	Number of computer-based databases enhanced (containing species/genetic information) and handed over to host country	
13a	Number of species reference collections established and handed over to host country(s)	
13b	Number of species reference collections enhanced and handed over to host country(s)	

Dissemination Outputs		
14a	Number of conferences/seminars/workshops organised to present/disseminate findings from Darwin project work	4 – 2 Stakeholder fora and 2 workshops
14b	Number of conferences/seminars/ workshops **attended** at which findings from Darwin project work will be presented/ disseminated.	8 – presentations at various conferences and seminars (see above sections)
15a	Number of national press releases or publicity articles in host country(s)	4 press releases
15b	Number of local press releases or publicity articles in host country(s)	
15c	Number of national press releases or publicity articles in UK	4 press releases
15d	Number of local press releases or publicity articles in UK	
16a	Number of issues of newsletters produced in the host country(s)	4 issues of the project bulletin
16b	Estimated circulation of each newsletter in the host country(s)	150
16c	Estimated circulation of each newsletter in the UK	3 organizations
17a	Number of dissemination networks established	1 e-mail discussion group among partners
17b	Number of dissemination networks enhanced or extended	
18a	Number of national TV programmes/features in host country(s)	5 appearances on national TV by Iwokrama staff
18b	Number of national TV programme/features in the UK	
18c	Number of local TV programme/features in host country	
18d	Number of local TV programme features in the UK	1 appearance on BBC Points West by Dr. Matthew Simpson to promote the project
19a	Number of national radio interviews/features in host country(s)	3 appearances on national TV by Iwokrama staff
19b	Number of national radio interviews/features in the UK	1 appearance on Radio 4's Home Planet programme by Dr. Jay Mistry
19c	Number of local radio interviews/features in host country (s)	16 appearances on local radio by project staff
19d	Number of local radio interviews/features in the UK	

Physical Outputs		
20	Estimated value (£s) of physical assets handed over to host country(s)	£8,400 in terms of water quality equipment, GPS, GIS software, laptop etc.
21	Number of permanent educational/training/research facilities or organisation established	
22	Number of permanent field plots established	30 monitoring sites established
23	Value of additional resources raised for project	In-kind contributions - £43,519.49 year 1, £42, 888.16 year 2 and £44,745.27 year 3.

19. Appendix V: Publications

Provide full details of all publications and material that can be publicly accessed, e.g. title, name of publisher, contact details, cost. Details will be recorded on the Darwin Monitoring Website Publications Database that is currently being compiled.

Mark (*) all publications and other material that you have included with this report

Type * (e.g. journals, manual, CDs)	**Detail** (title, author, year)	**Publishers** (name, city)	**Available from** (e.g. contact address, website)	**Cost £**
Journal	Exploring the links between natural resource use and biophysical status in the waterways of the North Rupununi, Guyana. Mistry, J., Simpson, M., Berardi, A. and Sandy, Y. 2004	Journal of Environmental Management, 72: 117-131	Jay Mistry (j.mistry@rhul.ac.uk)	Free
Journal	Berardi A., Bachler M., Bernard C., Buckingham-Shum S., Ganapathy S., Mistry J., Reynolds, M., and Ulrich W (2006). The ECOSENSUS Project: Co-Evolving Tools, Practices and Open Content for Participatory Natural Resource Management. Second International Conference on e-Social Science. 28-30 June 2006, Manchester, UK.	e-Social Science, ESRC. Due to be published early 2007	http://www.ecosensus.info/publications/index.html	Free
Manual	North Rupununi Technical Manual, 2006	Due to be published in November 2006		Free
Manual	North Rupununi Community Manual, 2006	Due to be published in November 2006		Free
Report	State of the Rupununi Report	Due to be published in November 2006		Free
Management Plan	North Rupununi Adaptive Management Plan	Due to be published in January 2007		Free

20. Appendix V: Darwin Contacts

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

Project Title	Sustainable management of the Rupununi: linking biodiversity, environment and people
Ref. No.	162/12/019
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