

Darwin Initiative Annual Report (Updated Aug 2008)

Darwin Project Information

Project Ref Number	15/041
Project Title	Waria Valley Community Conservation and Alternative Livelihoods Programme (WVCP)
Country(ies)	Papua New Guinea
UK Contract Holder Institution	Coral Cay Conservation
UK Partner Institution(s)	Jaquelin Fisher Associates Ltd
Host country Partner Institution(s)	Forest Research Institute, University of Technology, Bris Kanda, Village Development Trust.
Darwin Grant Value	£130,000
Start/End dates of Project	May 2006 – April 2009
Reporting period (1 Apr 200x to 31 Mar 200y) and annual report number (1,2,3..)	May 2007 – April 2008 (annual report 2)
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Project website	www.coralcay.org
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1. Project Background

The Darwin Initiative Programme is a collaborative project between Coral Cay Conservation (CCC) (the principle grant recipient) and Jaquelin Fisher Associates Ltd (JFA Ltd) (sub-contracted to CCC; see Annex 3), working in partnership with the people of the Waria Valley (Papua New Guinea) through their development arm organisation, Bris Kanda (BK Inc) and additional partners including the Forestry Research Institute (FRI), Village development Trust and The University of Technology (Unitech), Lae.

The programme aims to initiate the development of community-based sustainable forest management options within the locally owned forest areas of the Waria Valley. This is coupled with enhanced environmental education and training programmes, focused on contributing to the conservation and sustainable use of the forest resources.

The aims and scope of the Darwin Initiative Programme include biodiversity assessments of the forest resources of the Waria Valley; development of a GIS-based decision support system; coupled with environmental education, training and local capacity building programmes within the target communities. A secondary focus is the initiation of alternative livelihood schemes (including eco-tourism [via a community eco-lodge] with some small scale eco-forestry initiatives [via a cooperative run portable sawmilling operation]). The aim is to achieve local sustainable development based on benefits derived for local landowners from local forest biodiversity.

The project is based in the Morobe province of Papua New Guinea in the Waria Valley. This project location is accessible by boat from the provincial capital of Lae (journey time approx seven hours) and is working with several communities within the valley.

The overriding objective of this project is to produce integrated community-driven management plans and programmes for the conservation, restoration and sustainable use of biodiversity in the Waria Valley watershed. This is a unique programme that aims to balance the environmental, social and economic needs of the Waria Valley.



2. Project Partnerships

CCC/JFA have continued to develop close ties with its existing project partners, both within the UK and in PNG.

The people from the Waria Valley are the core beneficiaries of this programme and as such are the main stakeholders. Their enthusiasm and drive has been key to the foundation of the programme. Support from the community within the Waria Valley has continued and a strong committed local staff team has been established to work with both international and national (PNG) scientists and project managers.

Bris Kanda Inc has continued their support and have specifically defined their role within the programme. Lukis Romaso, Director Bris Kanda, has focused Bris Kanda's efforts on training and development of the alternative livelihoods programmes. Development of alternative livelihoods programmes, especially developing an inland fisheries programme, has proven popular within the local communities. The strong ties that BK has established over the last few years with the Waria Project and their staff has meant that all BK initiatives within the valley have been supported by Waria Valley project staff.

The unique opportunity that has been developed through the collaborations of the WVCP scientists and project managers and BK has provided a firm basis for alternative livelihoods development within the valley community members can acquire new skills and be mentored providing a real opportunity for long term sustainable economic growth. Additional training opportunities for management and accounting skills have been initiated in tandem with the alternative livelihoods development scheme.

The Village Development Trust (VDT) has undergone a downsizing operation and has continued to tighten its belt due to lack of significant funding. They are however, keen to use their expertise and knowledge of alternative livelihoods development, especially those of ecotourism, to support the project. Bris Kanda has however, taken over VDT role within community development. BK has hired VDT expertise to help on certain programmes within the valley.

The reduced input from VDT has meant that in-country CCC field staff have engaged additional personnel at BK to assist with eco-tourism activities, but have also brought in the expertise of personnel from the Eco-forestry Forum (in PNG) and Forcert, to compensate for the reduced input from VDT. This focuses particularly on the Eco-forestry elements of the programme. Forcert's mission statement is to promote environmentally responsible, socially beneficial and economically viable forest management by providing a certification service network to small and medium scale forest product producers, using the FSC certification schemes.

Unitech have been very active over the last year within the Waria Valley programme. One of the programmes staff was a Masters graduate from the Forestry Department of Unitech. Unitech have conducted a field course, directed by the WVCP scientists, for their undergraduates in the Waria Valley. The undergraduates were trained in all aspects of biodiversity surveying, methodologies and hands on work, as well as receiving lectures on ecology, biodiversity and conservation. A further 2 students carried out a 2 month placement at the Waria Valley, under the direction of WVCP scientists during their holiday period. It is hoped that more Unitech teams of undergraduate's and postgraduates will be able to join the team in Waria over the next year.

FRI's Director, Roy Banka, has also shown his and FRI's continual support for the project. Whilst in Lae, WVCP scientists and project teams use FRI offices and resources, including the herbarium and FRI specialist knowledge. FRI wish to be further involved in surveying and fieldwork. FRI is also very keen to see the technical (GIS) outputs.

Under the terms of a Memorandum of Agreement signed between CCC and JFA Ltd (see Annex 3), in return for agreed fixed annual remuneration and remuneration as per requirement, JFA Ltd is responsible for management oversight of technical components of the project: primarily scientific research, data management and analysis, and preparation of technical reports and other outputs. JFA Ltd is also responsible for the educational and training project components.

In fulfilment of JFA Ltd's obligations, to date JFA Ltd has developed training materials for the scholars' programmes and educational materials for schools (educational work books, teachers' aids, posters) within the Waria Valley. JFA has established and overseen implementation by CCC project staff of the biodiversity surveying programme; community nursery and associated restoration programme; and eco-forestry and eco-tourism components. JFA is currently liaising with third-parties on behalf of CCC for the sub-contraction of the project GIS. Under CCC's direction, JFA staff have been deployed to the project site bi-annually for short missions, in line with the planned activities.

CCC's primary responsibilities to the project are: financial accounting, distribution of funds and reporting; deployment and financing of full-time project staff in April 2007 (delayed due to visa processing) and to retain these positions till April 2009; management of project logistics; project liaison (with and through JFA); equipment and infrastructural procurements; promotion of project through bi-annual newsletter, monthly mail-outs and website.

The project is in the process of developing links with other institutions and organisations, to assess the potential for expanding the scope of the project further. The project has also developed additional links with the University of PNG to support further GIS work.

The WVCP, alongside the collaboration with BK, their projects and other project supporters, ensure that within the Waria Valley the environmental, social and economic issues of the Waria are being considered as part of a holistic approach to land use and conservation. This permits a balanced approach to the achievement of the aims of the CBD, the UN Development Goals as well as the NBSAP (2007), and ultimately addressing the needs of the Waria Valley communities.

3 Project progress

Progress in carrying out project activities

Forest biodiversity resource assessment programme.

- 12 survey sites are currently being researched by the WVCP science team. These sites consist of a variety of habitats; primary rainforest, primary patch; secondary rainforest and forest gardens (slash and burn areas). Each of these areas has surveyed using mist nets (bats and birds), Mackinnon lists (birds), bucket lines and visual encounter surveys (herpetiles), mammal trap lines, butterfly sweep netting and vegetation transects. Additional surveys including recording of frog calls (using play back method), recording of bird calls and the use of bat detectors (recording) have also been initiated.
- The baseline faunal surveys will focus on major taxonomic groups and utilise standard rapid biodiversity assessment techniques (Stork & Davies 1996). Faunal surveys will be completed using observation and live capture techniques (Bibby *et al*, 1998; Sutherland 1996) focusing on avian, mammalian, amphibian and reptilian groups. The avian fauna will initially be surveyed by observation using Mackinnon lists (Mackinnon & Phillips 1993). This survey method is ideal for rough terrain and dense vegetation where conditions make walking along a transect and short timed counts very difficult. Such an approach collects data that then permits the calculation of species discovery curves and an index of relative abundance (Bibby *et al*, 1998). Relative abundance data can then be used in multi-variate analysis to assess spatial distribution patterns and relationships with other environmental factors. Standard mist netting techniques will also be employed (Bibby *et al*, 1998) to survey the less conspicuous species that may not have been detected using the Mackinnon list method. This is useful for assessing bird (and bat) diversity in areas such as tropical forest, when used in combination with observational techniques (Stork & Davies 1996). All surveys will be completed in the different habitat types identified during the habitat mapping process.
- The small mammal fauna will be sampled (live trapped) in order to determine a species inventory, and this will broadly follow methods previously used (trap lines) in forested habitat in the Philippines (Heaney *et al*, 1989; Heideman *et al*, 1987; Turner *et al*, 2001). Mist netting techniques will also be employed to assess the bat fauna and will follow the methods used by Turner *et al* (2002).
- Terrestrial herpetiles (reptiles and amphibians) will be provisionally assessed using drift net fences complemented with visual encounter surveys (O'Shea 1992).
- Terrestrial invertebrate communities will be sub-sampled using appropriate indicator groups (e.g. Lepidopterans) and will be surveyed using baited traps (Ausden 1997) and Visual Encounter Transects [VET] (Slade 2001).

All methods have effectively been employed in similar environments with results published in various technical reports and peer-review papers (see attached publication lists)

- Additional survey sites have been identified for further work within the wider watershed. These survey areas also include primary, secondary and agricultural habitats.
- The current survey plan is currently a few months behind the original planned scheduled (due to staff deployment delays in year1). This time will be made up in year 3.
- All surveys include an assessment of timber species of economic value.
- The GIS works has to be completed and will be initiated this year. CCC/JFA are collaborating with UPNG, in order to deliver the GIS. It is envisaged that the first phase of this work will be completed by September 2008. Integration of field level data will commence in October, with a view to completion by December 2008. Completion of ground-truthing (based on a spot sampling protocol – see Turner 2004 unpublished PhD) will be completed by April 2009.
- GPS work and the mapping of survey locations have been started, and will be completed by October 2008.

Community nursery and associated restoration programme implemented with associated community conservation agreements

- Several areas (6+) have been identified for reforestation programmes with full support of land owners involved
- Several landowners are currently developing their nursery on their agricultural land. Wildlings have been collected and planted in poly bags, these are currently being nurtured before planting.

- The women's group have developed a 'women's cooperative nursery' and have been supported by WVCP through the provision of poly bags and training. The women aim to continue to grow and nurture wildlings and seeds collected from the primary rainforest (by WVCP scientists). The saplings will then be sold to local landowners who wish to reforest as well as being used by the women to plant on their land.

Eco-forestry Component continued

- Areas have been identified for the development of the eco forestry component of the programme. Specialised FRI staff and trainers have been employed to ensure the agro-forestry projects and some alternative farming practise (such as mushroom farming, rattan plantations)
- Clans and community members have become organised and have already made significant inroads into developing and establishing the proposed alternative livelihoods programmes. The local communities are also mobilised and established in terms of identifying the requirements for the long-term success of these initiatives.
- The portable sawmill has yet to be purchased, so the milling operation is yet to be established and functioning. This is to be initiated this year. Under spending in years 1 and 2 will be carried forward to support this component of the programme.
- After further consultation with the community a coconut press has been purchased as part of the eco-forestry component. This press is currently run under WVCP management but will be handed over to the community this year. The press produces coconut oil that can be used as an alternative to cooking oil which cannot be purchased locally (imported from Lae at high cost). The coconut oil can also be refined (a process that is currently being developed) to be made in to soap (again which cannot be purchased locally) and potentially to be used in kerosene lamps (instead of kerosene which has to be purchased form Lae).
- Forcert and the Eco-forestry forum have been engaged with regard to undertaking risk assessment, formulating implementation and operational plans. Forcert are very well experienced in delivering such enterprises, thus reducing risk and ensuring a quality output. Forcert along side the WVCP scientists, will help develop training of community members, develop management plans based on biodiversity surveying and other eco-forestry components.

Education/Training programme continued

- The schools programme within the valley has been initiated with education material being provided to the schools including workbooks and teachers aids.
- Posters and other educational materials have been provided by JFA to assist in environmental education (ecology, rainforest and coral reef posters). Additionally students have also asked for further educational tools for other scientific subjects such as space and the solar system and human biology. Posters have been created by JFA to help support the students and teachers.
- Environmental awareness plays have been conducted in several schools and villages within the Waria Valley watershed. These have been developed by national staff (WVCP staff) and supported by our scientists. These have proven to be a great success.
- The staff of WVCP have been involved with teaching at the main school in Waria. Lessons on forestry, ecology and other specific environmental issues have been taught. WVCP staff have also been voted on the school board ensuring that WVCP can support teachers and students in all aspects of science education.
- The 'scholars' programme has also been initiated. Biodiversity training manuals and an in depth lecture series to accompany this manual has been developed by JFA in consultation with FRI and Unitech. These have been successfully accepted.
- A total of 10 students and 2 staff members of Unitech have undertaken a field course based in Waria under the direction of WVCP. Lectures and field surveys were conducted over a period of a week with all staff and students taking part. Further field courses are to be established.
- Two Unitech students undertook a 2 month work experience course with the WVCP. They were trained in biodiversity assessment techniques and survey methodologies. The students took part in the surveying teams as well as helping with other community aspects of the programme.
- These programmes broadly follow the principles successfully applied by CCC over the past fifteen years. Examples of training and educational materials have been attached.

Eco-tourism centre established (using local materials).

- The community has constructed an eco-lodge for the development of the ecotourism component of the programme. The eco-lodge has been expanded over the year to allow for a greater number of people.
- The centre has housed project visitor and trainees, however requires refinements in order to be of a standard suitable for paying eco-tourists. This will be achieved in year 3.
- BK are currently assisting with local and national promotion of the centre
- A committee has been established to ensure that the funds derived from the ecotourism ventures benefit the community. WVCP project staff will help the committee develop their roles.

Local community conservation model disseminated.

- Media outputs have been completed in PNG, with a website developed in the UK and newsletter outputs produced by CCC and JFA. Progress towards Project Outputs
- WVCP project manager holds meetings with various stakeholder groups, including clan representatives and local government representatives every month. In doing so the local community are made aware of the programmes development, the surveys conducted, the species found, the need for future development and workshops to support ventures (such as fisheries, piggeries and poultry programmes instigated by WVCP as part of alternative livelihoods programmes). These meetings and more informal clan meetings allow for community members to ask questions and advice, become more involved and raise any issues that may arise from alternative livelihoods schemes, eco forestry schemes and conservation programmes.
- The WVCP also produces newsletters (see accompanying documents) which are put up in community houses, men's and women's houses throughout the Waria Valley. These are produced in the local dialect and in pigin to ensure that all community members can have access to the project.

Project Management:

- Monthly progress reports are submitted internally by CCC in-country staff, and these are reviewed by CCC and JFA, in line with the planned activities as outline in the original proposal. These are also cross-checked against annual workplans derived from the original proposal.
- JFA personnel have conducted 6 monthly field visits to assess progress and quality of outputs. Clearly, some outputs can only be assessed in the field. The last visit was in April 2008. The next visit, undertaken by Dr Turner, will be undertaken in October/November 2008.
- Principle constraints which have impeded delivery of outputs have been the issuance of visas for project staff.

3.2 Progress towards Project Outputs

The project activities of biodiversity research and surveying, the educational component and empowerment of PNG nationals and the development of alternative livelihoods programme, feed into the long term objective of this programme. The development of each of these components in unison, results in an inclusive project whole. As this programme is integrated it is expected that the impact will be cumulative.

In the first year report for Darwin it was stated that the project had undergone delays due to problems in acquiring visas for our project staff. This has resulted in several of the project outputs being delayed. Each of the outputs achieved is discussed below:

Forest biodiversity resource assessment programme:

- 12 survey sites are currently being researched by the WVCP science team. Biodiversity surveys have been completed within the 12 survey sites within the 4 main habitat types found within the valley. The surveying is progressing well. Dues to personnel not being in the field for the first months of the initial start date there are associated delays. However additional volunteer staff and Unitech master's students have provided extra help and leg work.
- The GIS system has yet to be developed, funding carried over from years 1 and 2 will support this component of the programme. GPSing is being conducted in the Valley currently to mark survey locations, villages, major features and habitat types.
- CCC/JFA are currently working with UPNG in order to deliver the project GIS. This will enable the project to take advantage of a wide range of recently published data sets, onto which the WVCP field data can be superimposed and the GIS further refined. This has been re-planned to be completed this year, now we have the agreed support of UPNG.

Community nursery and associated restoration programme:

- Areas identified for reforestation have had tree nurseries developed on the land (using polypots). These nurseries are currently being nurtured to plant the seedlings this season. The land has been prepared in order to support reforestation programmes.
- The women's group have developed a 'women's cooperative nursery' and have been supported by WVCP through the provision of poly bags and training. The women aim to continue to grow and nurture wildlings and seeds collected from the primary rainforest (by WVCP scientists). The saplings will then be sold to local landowners who wish to reforest as well as being used by the women to plant on their land.
- More areas of land need to be identified for reforestation programmes. The WVCP will push the reforestation schemes further this year.
- The reforestation methodology is being informed by a combination of field surveys, existing knowledge from FRI and consultation with the department of forestry in Uni-Tech.
- Principal aims include restoration of 'garden areas', partly which species that may be viable as part of a long –term cropping regime under the eco-forestry component. Nursery and replanted areas are currently being monitored for viability.

Eco-forestry Component:

- Areas have been identified for the use of a portable saw mill and milling operations.
- The sawmill has yet to be purchased, however this is to be initiated this year. This aspect of the outputs has been delayed. However support for this is still key in the community.
- After further consultation with the community a coconut press has been purchased as part of the eco-forestry component. Although this was not considered to be an official output, it has been provided to kick start the development of a cooperative, to ensure the community is still supported in their aspirations of eco-forestry, and to provide a locally made product (coconut cooking oil) which is more sustainable than other options. The opportunity to develop the coconut press further is currently being looking into.
- All plans are currently been drawn up in consultation with relevant project partners and Forcert. Forcert personnel are conducting a field visit to the project site in August 2008, to undertake a full assessment of all plans (risk, operational, impact, benefit etc). This will be reported to the ECTF.

Education/Training programme continued

- Posters and other educational materials have been provided by JFA to assist in environmental education. The local schools have been very happy to receive continual support from the WVCP.
- Zare-Aingse primary school (the main school within the Waria Valley) has been the main focus of the environmental education programme. The two other schools in Sui and Zare are both elementary level and lessons are taught in the local dialect. All project staff have been involved in teaching varying from forestry to frog behaviour to conservation and ecology. The local environmental education is on target.
- Environmental awareness plays have been conducted in several schools and villages within the Waria Valley watershed. These have been developed by national staff (WVCP staff) and supported by our scientists. These have proven to be a great success. These plays were never part of the original educational outputs – but have been developed in response of the involvement of PNG nationals with the WVCP staff and project. These will be encouraged and they are not only wonderful creations, they are also educational!
- The ‘scholars’ programme has been a success last year with Unitech students and staff receiving training. Additional Unitech students have worked with WVCP team for work experience. This was an unforeseen output, but again one that was developed due to the interest in the project, especially after the field experience. It is hoped that Unitech students will take part throughout of the year.
- Overall objectives include enhancing local knowledge, and building capacity (via training) to implement the core elements of the project on an ongoing basis, and spread the geographical outreach.

Eco-tourism centre established (using local materials).

- The community has constructed an eco-lodge for the development of the ecotourism component of the programme. The eco-lodge has been expanded over the year to allow for a greater number of people.
- Whilst the outer structure is present aspects of water supply and toilets need to be resolved. This will be completed in several months.
- The ecotourism lodge has, however, received visitors. Workshops conducted by BK in the valley have been held here and several international volunteers have visited and stayed on the site.
- CCC advertised volunteer positions on their website to help attract additional funding and interest to the project as well as additional manpower to assist in biodiversity surveys. However, volunteer recruitment to date has been lower than expected. Volunteers will be housed along with the rest of the WVCP staff at the main project site building so the eco-lodge will be kept free for visitors.

3.3 Standard Measures

Table 1 Project Standard Output Measures

Code No.	Description	Year 1 Total	Year 2 Total	Year 3 Total	Year 4 Total	Total to date	Total planned from application
Established codes							
17A	Email forum developed and maintained	1	1				
15a	National press releases within PNG	1	1				
15b	local press releases within PNG	1	1				
15c	press releases within UK	1	1				
14a	Stakeholder forums completed in 2006 and 2007 and 2008	2	2				
8	Two international staff and four local staff recruited	4	4				
8	International staff have visited PNG for training, forum and marketing.	3	2				
5	Scholar programme and guide training has been initiated.	4	1				
5	Biodiversity monitoring continued		1				
7	One survey manual and three education manuals have been developed	4	2				
9	Marketing plan preparation with VDT and BK						
19c	Radio coverage in Lae	1	1				
6a	School workshops and education days have been completed	2	4				
16a	Newsletters have been completed by CCC and JFA	4	4				
16b	Newsletters disseminated to PNG	1	4				
16c	Newsletters disseminated to PNG	1	4				
21	Marketing plan developed with VDT/BK. Nursery area identified.	2					
23	In kind contributions completed	1	1				
New Project specific measures							

In Table 2, provide full details of all publications and material produced over the last year that can be publicly accessed, eg title, name of publisher, contact details, cost. Mark (*) all publications and other material that you have included with this report.

Table 2 Publications

Type * (eg journals, manual, CDs)	Detail (title, author, year)	Publishers (name, city)	Available from (eg contact address, website)	Cost £
WVCP Newsletter	June 08 Community newsletter. Farmer, A Dawson, J	CCC, JFA Lae		
WVCP Newsletter	July 08 Community newsletter. Farmer, A Dawson, J	CCC, JFA Lae		
WVCP Newsletter	August 08 Community newsletter. Farmer, A Dawson, J	CCC, JFA Lae		
WVCP Newsletter	September 08 Community newsletter. Farmer, A Dawson, J	CCC, JFA Lae		
WVCP Newsletter	October 08 Community newsletter. Farmer, A Dawson, J	CCC, JFA Lae		
JFA Newsletter	JFA 2007	JFA, London		
JFA Newsletter	JFA 2008	JFA, London		
CCC Bi-Annual Newsletter	Reef and Leaf March 2008 Timms, L	CCC, London		

3.4 Progress towards the project purpose and outcomes

It is too early to identify the true impacts of the project, however, all elements of the project completed to date, contribute to all of the core results identified in the original proposal, i.e. that of sustainable land use within the Waria Valley, through conservation and the development of alternative livelihoods.

The outcomes of this programme would be the creation of a land management system which involves the conservation of primary rainforest, the reforestation of areas of degraded land, the use of a small scale milling operation to provide income and the development of alternative livelihood schemes alongside the WVCP project partners.

The development of a much stronger collaboration between the WVCP and BK has driven the alternative livelihoods schemes and has produced real results in the field. The constant 'on the ground' support of WVCP, their mentoring and nurturing of BK programmes, which link in so well with the original outputs have proven to be very effective.

Sustainable Livelihood generation working alongside BK has included:

- The development of the coconut oil press (part of the eco-forestry programme)
- Inland fisheries training. BK identified several key individuals to train to become trainers. These individuals have now provided local workshops within the valley. Fish ponds have been built on a large scale and fish are currently being bred locally to supply the ponds.
- The training of community member in accounting and good business skills. This has been conducted to support the eco-forestry component of the programme and to lay the foundations of small scale enterprise development. These skills (bookkeeping and accounting) are required for all aspects of the WVCP programme (eco-forestry and eco-tourism) as well as other alternative livelihood programmes (fish keeping).

Additionally the activities completed thus far will contribute to the following:

Stakeholder Training:

- Guides for ecotourism projects, staff which would support the ecotourism (such as cooks and porters etc) projects has been developed through the employment of members of the village working alongside the WVCP staff team.
- Schools education programmes: lessons/lectures, educational posters and work books have been provided in the main primary school within the community. Additional schools have received work books and educational posters.
- Scholars programme: Unitech students have received training in all aspects of biodiversity surveying, conservation and ecology as part of their forestry course.
- Work experience: due to the above, students joined the WVCP as part of their work experience. This was to further their understanding of community conservation programmes and biodiversity assessment techniques.
- Environmental education plays: has contributed to schools education as well as the wider community. The plays are free for all to attend.
- Eco-forestry training is yet to occur. It is currently being organised.

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

The people of the Waria Valley Watershed receive little or no direct benefits to their local communities where large-scale conventional logging has taken place. The people from these communities have voiced their concerns about the long-term environmental effects of these logging concessions. The development of the WVCP is a direct result of this.

The communities of the Waria Valley aspire to develop their local communities through sustainable methods (such as eco-forestry and eco-tourism) with the help and capacity of outside organisations such as the WVCP and BK and other development NGOs. To do so, this requires alternative forms of development and an increase in environmental education and awareness that would ensure the sustainability of forest resources through conservation with the aim of reducing poverty and improving the livelihoods of the local communities.

This project adopts an ecosystem approach, addressing issues which would affect the functionality of the Waria Valley. The ecosystem approach is a strategy for the integrated management of land, water and living resources that promotes conservation and sustainable use in an equitable way. It is based on the application of appropriate scientific methodologies focused on levels of biological organisation which encompass the essential processes, functions and interactions among organisms and their environment. It recognizes that humans, with their cultural diversity, are an integral component of ecosystems.

This project will ultimately combine remote sensing/GIS work with 'on the ground' biodiversity surveys and local knowledge that will provide a base-line in understanding the biodiversity of the area. This in turn provides valuable information from which long-term sustainable management plans can be developed. Only after areas can be characterised and understood can they be managed sustainably. The decision support tools provided will guide appropriate land management, protecting more ecologically sensitive areas, whilst permitting sustainable use of others, for example through eco-forestry.

Deforestation has recently increased due to the encroachment of 'slash and burn' agriculture. The holistic nature of this project also provides a means to reduce this impact, through appropriate restoration and the development of alternatives through eco-tourism and eco-forestry. Such a strategy provides a means to conserve and enhance biodiversity, develop a more sustainable approach to land management and increase the benefits from the conservation of local biodiversity.

This programme recognises the need for fundamental environmental education, not just at the professional level, but at the community level. It is at the community level that providing appropriate education present the most challenges as this is where conservation needs must be reconciled with the needs of the human population.

This programme looks at the reality of natural resource use and the requirements of a population that rely on their natural surroundings to support them. It aims to develop educated and skilled personnel to work effectively within their environmental constraints, to develop long term watershed management

plans based on biodiversity assessments and finally to provide an effective programme that can be used as blueprint model for other areas in PNG.

4 Monitoring, evaluation and lessons

The project will be monitored via monthly reporting from staff operating in the field and six-monthly and annual progress reports will be provided to JFA/CCC.

Additionally JFA scientists – Dr Craig Turner (Managing Director, JFA Ltd) and Alexia Tamblyn (Director of Ecology, JFA Ltd) – conduct field visits. These visits assess the project outputs and the work plan against those outputs as written in the original Darwin bid. During these field visits stakeholder consultations are conducted so the community can address any outstanding issues and discuss future developments.

Additionally BK have conducted several workshops in the community and have followed up workshops with further consultation processes. These have been conducted with the help and support of WVCP staff. These processes allow evaluation and monitoring of the alternative livelihoods programmes.

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

Last year's report highlight the problems with visas and getting the project staff in the country. This has lead to an approximate delay in the programme of about 6 months. To combat the visa problem we have expanded and develop new avenues especially with the National Research Institute based in Port Moresby.

To help with the work programme several volunteer scientists have been based at our site in Waria which has helped the work plan and the biodiversity assessment.

We are currently revising the workplan so that budgetary savings from years 1 and 2 can be used to provide sufficient resource in year 3, to ensure all outputs are achieved by the end of the project term.

6 Other comments on progress not covered elsewhere

As stated in the previous year 1 report, due to visa issues, the programme started approximately 6 months later then initially wished/proposed. This has caused delays in aspects of the programme. Biodiversity surveying and evaluation is proceeding at a fair pace (but still behind the proposed schedule), the environmental education component (local communities, schools and capacity building) has also proven to be effective.

However other aspects of the project have been more delayed:

- Purchase of the saw mill – this has been due to the delay in gaining matching funding. However this is mostly resolved and it is expected to be purchased in several months. Under spending in years 1 and 2 will ensure that the Darwin project funding will commit some funding towards the purchase of this component.
- GIS database – gaining the satellite images for the Waria Valley has been more difficult than originally thought. However, these have been identified and discussions in developing the GIS database are currently underway. Data is expected to be obtained in the next 2-3 months.

7 Sustainability

The development of eco-forestry practises, small scale milling, conservation, reforestation and regeneration of degraded land will provide opportunities to develop a more sustainable long term land management strategy.

The work will also deliver a conservation approach applicable to the local customary land tenure system, providing a new skill base and economic stream which also preserves an important forest ecosystem whilst permitting sustainable community forestry for local stakeholders.

The project will allow the target communities of the Waria Valley to derive a sustainable benefit from their forest resources, via exploring eco-forestry and other alternative livelihoods projects (e.g. BK fish farming project supported by WVCP staff). This will also ensure the long-term conservation of their resources whilst benefits are shared in an equitable way. Small scale milling operations will ensure that projects that are much needed by the community are viable including; maintenance of the main primary school, re

building the elementary school, building teachers houses, toilet blocks and residential housing. Additionally timber can be sold locally, developing small scale business enterprises, it brings skills and increased capacity to community members and causes a trickle down effect throughout the whole community. Working within the WVCP and the alternative livelihoods programmes developed through BK community members can acquire new skills and be mentored providing a real opportunity for long term sustainable economic growth.

The project will increase local expertise and experience of eco-forestry for long-term management of local forest areas, whilst achieving a local economic contribution, sustaining and developing local livelihoods. Thus, the conservation and sustainable use components will ensure continued benefit to local stakeholders, thus broadly achieving the stated aims of the CBD at a local level and support the PNG NBSAP (2007). The long-term commitment developed through the education, awareness and capacity building work will also ensure legacy and sustainability. It is also intended that the project will be used as a 'demonstration project' by BK illustrating a community forestry model that would be applicable in other areas of PNG, thus achieving a wider legacy.

8 Dissemination

At the Valley level:

- newsletters have been written in the local dialect, pidgin and English to ensure that all members of the community are able to read about the project outputs
- Environmental education plays have also been important in supporting the WVCP message
- Stakeholder meetings (and more formalised meetings when JFA visit) ensure that updates are disseminated verbally

National Level:

- WVCP staff have been interviewed on the radio
- WVCP has appeared in several national newspapers
- Newsletters from the valley have been distributed to project partners in Lae including Unitech, FRI and BK
- BK appear on the local radio station to inform local communities of up coming projects and programmes that BK will be running. They aim to conduct this radio interview/advertising once a week in the future and to develop this in to a forum

9 Project Expenditure

Table 3 Project expenditure during the reporting period (Defra Financial Year 01 April to 31 March)

Item	Budget (please indicate which document you refer to if other than your project schedule)	Expenditure	Balance
Rent, rates, heating, overheads etc			
Office costs (eg postage, telephone, stationery)			
Travel and subsistence			
Printing			
Conferences, seminars, etc			
Capital items/equipment			
Others			
Salaries (specify)			
Team leader			
Research Leader			
Education			
Field Scientist			
Field Scientist			
Field Manager			
FRI Staff			
Eco Tourism Staff			
Guides			
TOTAL			

There was an under spend in this Year 2. This was mainly due to funds not spent on GIS development for reason mentioned in section 6 above.

This together with the under spend from Year 1 has been rolled forward into Year 3 to ensure that all projects outputs will be achieved by the close of the project.

The purchase of the portable sawmill will be covered by part of the funds that have been rolled forward. The sawmill is not an additional item but has always been part of the original project proposal.

Reconciliation of Salaries:

Name	Position	Salary	Notes
James Sawyer/Kai Schiefelbein	Logistics		James Sawyer left at 30th June 07 and Kai Schiefelbein replaced him
Craig Turner	Researcher Leader		JFA invoices
Alexia Tamblyn	Education & Training		JFA invoices
Andrew Farmer	Field Manager		Incountry UK field staff
Jeff Dawson	Field Scientist 1		Incountry UK field staff
Oscar	Field Scientist 2		Local staff
Cosi Yosi	FRI Staff		Local staff
Eco Tourism centre staff			Local staff
Guides, Cooks, security			Local staff
Total			

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

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

In this section you have the chance to let us know about outstanding achievements of your project over the year that you consider worth highlighting to ECTF and the Darwin Secretariat. This could relate to achievements already mentioned in this report, on which you would like to expand further, or achievements that were in addition to the ones planned and deserve particular attention eg in terms of best practice. We may use material from this section for various promotion and dissemination purposes, including e.g. publication in the Defra Annual Report, Darwin promotion material, or on the Darwin website. As we will not always be able to ask projects on an individual basis for their consent to publish the content of this section, please note the above agreement clause.

Annex 1 Report of progress and achievements against Logical Framework for Financial Year: 2007/08

Project summary	Measurable Indicators	Progress and Achievements April 2007 - March 2008	Actions required/planned for next period
<p>Goal: <i>To draw on expertise relevant to biodiversity from within the United Kingdom to work with local partners in countries rich in biodiversity but constrained in resources to achieve</i></p> <p><i>The conservation of biological diversity,</i></p> <p><i>The sustainable use of its components, and</i></p> <p><i>The fair and equitable sharing of the benefits arising out of the utilisation of genetic resources</i></p>		<p><i>(report on any contribution towards positive impact on biodiversity or positive changes in the conditions of human communities associated with biodiversity eg steps towards sustainable use or equitable sharing of costs or benefits)</i></p>	<p><i>(do not fill not applicable)</i></p>
<p>Purpose Threatened forest resources of the Waria Valley are effectively conserved and sustainably used through enhancing the capacity of local researchers and stakeholders, whilst effecting alternative livelihoods for local land managers/owners</p>	<p>New knowledge of local forest biodiversity. Biodiversity monitoring and community management system by Yr3. Evidence of regeneration by Yr 3. Self-sustaining forestry and eco-tourism enterprises by Yr 3.</p>	<p>The project has developed and consolidated capacity to enable ongoing conservation activities. Biodiversity surveys are ongoing, but currently 6 months behind planned schedule. Restorations areas have been identified. livelihood schemes (eco-forestry and eco-tourism) have experienced some delays, but we are currently re-planning to complete all outputs but the end of the project.</p>	<p>Activities are planned according to the outcomes of year2 and proposed outputs and milestones for year 3. A revised work plan has been drafted to ensure the project catches up delays (dues to visa administration) to the GIS-based research and livelihood schemes (eco-forestry and eco-tourism)</p>
<p>Output 1. Forest biodiversity resource assessment programme.</p>	<p>GIS-mapped forest data for Waria Valley, with 10 local counterparts trained in Yr2 & Yr3.</p>	<p>Forest data has yet to be GIS-mapped (see below). Training course(s) were implemented in collaboration with Uni-Tech and ensure 10 local counterparts trained in Yr2.</p>	
<p>Activity 1.1 Field Surveys Yr 2: Continued biodiversity surveys and GIS development. Yr 3: GIS completion and ongoing monitoring led by locally trained personnel.</p>		<p>A range of standard faunal and floral surveys have been carried out, across replicates of a range of representative habitat types. These will continue in the third year. Surveys currently 6 months behind. Field data (e.g. GPS locations of project work) continues to be collected for integration in to the GIS. GIS database has yet to be developed. It is proposed that this will be done via a new partnership with the University of PNG in Port Moresby. Project is waiting on the processing of latest satellite imagery. We still plan to complete this work and will transfer unspent budget to yr3 work plan</p>	
<p>Activity 1.2 Education/Training Yr 1 & Yr 2:training programme for scholar students.</p>		<p>Training course(s) were implemented in collaboration with Uni-Tech and ensure 10 local counterparts trained in Yr2.</p>	

Yrs 1-3: Education programmes implemented in schools and teachers trained by Yr 2		Ongoing education programmes carried out
Output 2. Community nursery and associated restoration programme implemented with associated community conservation agreements.	Strategy development facilitated by village council representatives in consultation with MBK/VDT by Yr1, enacted & monitored by Yr2 & Yr3.	Restoration areas identified and agreed upon. Reforestation activities are just beginning. Small nurseries established. Conservation agreements are yet to draw up and signed off. To be completed in yr3.
Activity 2.1. Restoration		See above
Output 3. Small scale forestry and milling co-operative operational.	Co-operative mill with plan established Yr1. Operational Yr2 & Yr3.	Milling operation is still in planning phase. Will be implemented when matching funds are made available (this is expected soon). Unspent budget from yrs 1 and 2 will be transferred to year3 to complete this work.
Activity 3.1 Forestry Initiative Yr 1: small-scale forestry plan developed, agreed and implemented. Yr 2-3: Alternative incomes generated.		Coconut press scheme implemented. Press bought and producing oil for local villagers. Small-scale forestry plan has yet to be finalised, agreed or implemented. Will be done in year 3 No alternative incomes generated as yet (planned for yr3).
Stakeholder workshops Yr1: Project planning workshops. Yr 1&2: Biodiversity training courses. Annual reviews (Yr 1-3)		Completed for Yr 2. Planning completed to re-phase uncompleted work into year 3
Output 4. Education/Training programme completed	10 students/yr trained (UniTech). Local schools adopt education programme.	Training complete for year 2 Education program adopted by schools
Activity 4.1 Education/Training Yr 1 & Yr 2: training programme for scholar students. Yrs 1-3: Education programmes implemented in schools and teachers trained by Yr 2.		Completed for yr 2
Activity 4.2 Stakeholder workshops Yr 1&2: Biodiversity training courses. Yr 1 – 3: Annual reviews		Completed for Yr 2
Output 5. Eco-tourism centre established (using local materials).	Conversion of centre completed by Yr 2.	Building has been established but yet to be fully functional. Needs to be finished in yr3
Activity 5.1 Stakeholder workshops Yr1: Project planning workshops. Yr 1&2: Biodiversity training courses. Annual reviews (Yr 1-3)		Completed for Yr 2.
Activity 5.2 Eco-tourism Local construction of centre and staff training (Yr 1). Yr 2-3: start operating and income generation		Centre is not fully operational. Needs to be completed to accept eco-tourists. Management board has been formed and some staff employed and trained on short-term basis. Only small income generated through two week activity.

Output 6. Local community conservation model disseminated.	Bi-annual radio broadcasts, newspaper features & newsletters	Completed for Yr 2.
Activity 6.1 Media Outputs Yrs 1-3: Bi-annual radio broadcasts, newsletters and newspaper out. NGO newsletters (various dates).		Completed for Yr 2.

Annex 2 Project's full current 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 <ul style="list-style-type: none"> • the conservation of biological diversity, • the sustainable use of its components, and • the fair and equitable sharing of benefits arising out of the utilisation of genetic resources 			
Purpose Threatened forest resources of the Waria Valley are effectively conserved and sustainably used through enhancing the capacity of local researchers and stakeholders, whilst effecting alternative livelihoods for local land managers/owners.	New knowledge of local forest biodiversity. Biodiversity monitoring and community management system by Yr3. Evidence of regeneration by Yr 3. Self-sustaining forestry and eco-tourism enterprises by Yr 3.	Progress reporting by CCC/MBK/VDT. Field survey reports and associated papers published. Livelihood generation reports submitted with photographic record to Darwin.	Partner NGOs, community leaders and stakeholders continue to co-operate and remain committed to the project. Experienced counterpart staff and trained stakeholders continue their participation for duration of the project.
Outputs Forest biodiversity resource assessment programme. Community nursery and associated restoration programme implemented with associated community conservation agreements. Small scale forestry and milling co-operative operational. Education/Training programme completed. Eco-tourism centre established (using local materials). Local community conservation model disseminated.	GIS-mapped forest data for Waria Valley, with 10 local counterparts trained in Yr2 & Yr3. Strategy development facilitated by village council representatives in consultation with MBK/VDT by Yr1, enacted & monitored by Yr2 & Yr3. Co-operative mill with plan established Yr1. Operational Yr2 & Yr3. 10 students/yr trained (UniTech). Local schools adopt education programme. Conversion of centre completed by Yr 2. Bi-annual radio broadcasts, newspaper features & newsletters.	GIS output submitted to partners (FRI), technical reports/papers & management plan published. Conservation agreements endorsed and signed. Physical presence of nursery areas, with photo documentation of these and regenerated areas. Co-op agreement signed. Financial & product reports. Photo documentation. One teacher/school trained. Education & training outputs published. Copies of certificates of students. Report on facilities and programmes at centre, with feedback from customers by Yr 3. Copies of media outputs sent to Darwin.	Trained counterparts remain committed to the project. Plans/reports are used locally. Active and continued local participation by stakeholders. Sustainable management principles adopted, and sufficient market for products. Trained teachers remain at schools, education materials still used. Students remain committed. Effective business plan & marketing of eco-tourism facilities to sustain custom and income. Media outputs reach and influence intended audience.

Activities	Activity Milestones	Assumptions
Stakeholder workshops	Yr1: Project planning workshops. Yr 1&2: Biodiversity training courses. Annual reviews (Yr 1-3)	Stakeholders remain committed.
Field Surveys	Yr 1: complete initial surveys and define monitoring protocol. Yr 2: continued surveys and GIS development. Yr 3: GIS completion and ongoing monitoring led by locally trained personnel.	Logistics, weather and stakeholder support permits surveys as planned.
Restoration	Agreed community restoration plan (Yr 1). Nurseries developed & regeneration started Yr 2, continued Yr3.	Stakeholder agreement.
Education/Training	Yr 1 & Yr 2:training programme for scholar students. Yrs 1-3: Education programmes implemented in schools and teachers trained by Yr 2.	Local teachers remain committed to programme and students are receptive
Forestry Initiative	Yr 1: small-scale forestry plan developed, agreed and implemented. Yr 2-3: Alternative incomes generated.	Stakeholder agreement, and marketing support from VDT & MBK.
Eco-tourism	Local construction of centre and staff training (Yr 1). Yr 2-3: start operating and income generation.	As above.
Media Outputs	Yrs 1-3: Bi-annual radio broadcasts, newsletters and newspaper out. NGO newsletters (various dates).	Target audience reached and influenced.

Annex 3 onwards – supplementary material (optional)

MEMORANDUM OF AGREEMENT

Checklist for submission

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

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