



Darwin Initiative for the Survival of Species

Coral Reef Conservation – Fiji

**Project 162-8-176
Just World Partners (formerly UKFSP)**

Annual Report 2000-2001

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1. Darwin Project Information

Project title	<i>Coral Reef Conservation</i>
Country(ies)	<i>Fiji</i>
Contractor	<i>Just World Partners</i>
Project Reference No.	<i>162-8-89</i>
Grant Value	<i>£77,560</i>
Start/Finishing dates	<i>July 1999 to December 2001</i>
Reporting period	<i>1.4.2000 to 31.3.2001</i>

2. Project Background

The Wai Bulabula/Coral Reef Conservation project is a community-based project working with both a rural community and a tourist resort. The Cuvu district is located on southwestern coast of Viti Levu. It consists of 7 villages namely Cuvu, Tore, Sila, Navuevu, Yadua, Rukurukulevu and Hanahana. The Shangri - La Fijian resort is a major employer in the area. This resort is located on an island separated from the mainland by a causeway.

Coral reefs are amongst the most valuable and diverse ecosystems found in Cuvu district. For decades villagers have depended upon them economically, culturally and socially. In recent years this vital resource has deteriorated and unless action is taken future generations may never enjoy the benefits of healthy reefs. Specific threats include increasing populations, complacency, with a major factor being pollution from communities and hotels.

The Wai Bulabula project aims to empower local communities to conserve their coral reefs and associated biodiversity with particular emphasis on participatory approaches i.e. communities are involved in decision making and take full ownership of the project.

3. Project Objectives

Purpose: To reduce the pollution of coral reefs in Cuvu District by reducing land based sources of pollution

Specific objectives:

- To raise awareness amongst communities of the importance of coral reefs and the implications of water and waste management on the marine environment and encourage community initiated simple waste management innovations,
- To identify and develop ecological waste management technologies for one hotel and one community,
- To train local counterparts in the design, construction and maintenance of appropriate technologies
- To collaborate with the department of environment in the production of specific strategies that could be incorporated under Fiji's National Biodiversity Strategy and Action plan

4. Progress

The Wai Bulabula has made good progress despite having to work through a political coup and also manage the problems which resulted from the contracting of wetlands consultant, Living Waters UK. Due to a failure to carry out the required activities, this consultant has now been replaced in order to complete project activities successfully. Activities advanced in both community work and trials for wetland species.

To date 20 rafts are in the lakes at the Fijian Resort (see photo below). They contain a variety of plants including sedges, rhizomes, ornamental species and many others. Results have been promising. The majority of them have adapted to nutrient rich waters and the plants have had to be trimmed regularly to prevent the rafts from sinking. A major breakthrough was the successful use of a number of beautiful and colourful (leaves and flowers) species which were previously only known to grow in dry areas. These are now thriving in the wetlands. The team plans to extend plant collections and test a wider range of plants.

After evaluating Fiji based engineers, it was decided that an overseas consultant closer to Fiji (e.g. Australia, New Zealand) would be selected to construct the wetlands in place of Living Waters. This change was authorised by Darwin Initiative personnel. The HEAL Group of Companies (Australian Engineering Firm with experience of artificial wetlands in tropical countries) was commissioned to upgrade sewage systems at the Fijian Resort. They are supportive of the Wai Bulabula project and will be constructing the wetlands.

The Fijian resort commissioned a local firm to conduct topographical surveys of the sites surrounding the present lakes (i.e. where the wetlands are likely to be constructed) and also confirmed their commitment to the wetlands project despite the termination of the initial consultants.

Construction of raft, Fiji



The project has gained support from other organisations that have indicated their willingness to participate in the artificial wetlands. The University of the South Pacific Herbarium staff recently informed FSP of plant species which are adapted to wetlands and are also effective consumers of nutrients. A regional body, the South Pacific Applied Geoscience Commission, wrote a letter of support. Other stakeholders include the Sigatoka Rural Local Authority, the Eco-Tourism Association, the Provincial Office, the Public Works Department, Cuvu District Environmental Committee, the Department of the Environment and the Emperor Gold Mining Company (which has constructed a mini-wetlands system to remove metals). Networking is an ongoing process of the project. The artificial wetlands treatment system is the first of its kind in Fiji and demonstrates the need to control land-based sources of pollution in order to conserve the marine environment.

Community aspects of the project have progressed significantly. The initial process of Participatory Learning and Action (PLA) workshops were completed in 2000. The purpose of these PLA workshops was for villagers to consider the state of their environment, discuss problems, determine underlying causes and recommend possible solutions. These all combine to raise environmental awareness in villagers.

The PLA methodology consists of various exercises seeking to gather information. It sought to maximise input from the participants and minimise the dominance of facilitators over the process and project as a whole. Facilitators acted only as guides to ensure all members of groups (exercises were centered around groups e.g. men, women, youth etc.) actively participated and contributed to discussions.

At the end of the sessions the participants reported back on the exercises that they had been involved in, and shared any issues that were raised. The final activity of the day was the bringing together of all the problems that had been raised, looking at possible

solutions and deciding who would be responsible for action. This has formed the basis for the long term planning of the project legacy.

The second series of workshops, Community Resource Management workshops, commenced in March 2001. The purpose of this series was for communities to reconfirm the findings of the PLA workshops. Government departments were also present to answer specific questions from communities and inform them of possible training or assistance available. The first of these workshops were conducted in March and proved to be a success as communities are now more actively participating in workshops and have realised the importance of all stakeholders working together to achieve the goals of the project. Secondly, a highlight of the workshop was communities realising the importance of reducing land based sources of pollution in order to conserve their marine environment.

A strength of the project has been the gradual process of community activities. This has allowed them: (a) to realise that the project is a long term commitment towards empowering the district to better manage their resources (b) to grasp and better understand the purpose of a community based project resulting in their commitment i.e. ownership belongs to the people.

In conjunction with the Land Use Section of the Department of Agriculture, the district officer, the environmental committee and land owners, work has also commenced on a soil conservation demonstration site in one of the communities, Yadua. It involves integrated farming of crops and *vertiver* grass in contours. The use of *vertiver* grass to conserve soil simultaneously supports subsistence as well as commercial farming and has been proven at other sites in Fiji. This farm shall also serve as a demonstration for other villagers in the district.

A difficulty experienced in terms of watershed management was the uncertainty of land tenure. Most farmers in the watersheds of the district actually lease land from locals but with most leases nearing expiry date cane farmers are not as yet willing to commit themselves to improved farming practices. Secondly, most farmers prefer to focus on achieving their contracted quota of cane to the sugar mills. Therefore it was decided to initially commence with a demonstration soil conservation site.

Yadua village commenced mangroves replanting with the OISCA, a Japanese NGO currently engaged in community based mangrove replanting and watershed reforestation. As a result of this, other villages in the district have requested mangrove replanting. Plans are under way to set up a mangrove nursery at Yadua so that other villagers could also be supplied with mangrove seedlings.

By discussion at a village meeting, the people of Yadua selected and declared their marine protected areas (MPA) in late December, 2000. Villagers have noticed certain fish species swimming closer to shore and this has generated more enthusiasm amongst other communities in the district to declare MPA's. In an environmental committee meeting it was unanimously agreed that all villages support the idea of MPA. It was therefore decided to update the high chief of this decision and traditionally endorse this request at the next district meeting.

In conjunction with the Sigatoka Rural Local Authority, water samples randomly collected from household pipes at Yadua were tested for bacteria. Plans are to extend the testing for bacteria and nutrients (river water) to other villages in the district. Due to the high charges of water analysis by the University of the South Pacific FSP has liased with the JWP and Living Waters to purchase a water sampling kit from the UK.

A *crown of thorns starfish* collection was conducted by all villagers. Several of these starfish were dried and taken to the Nacoco Agriculture Research station for further analysis. Preliminary investigations indicate that the starfish is a good source of nutrients and could be used for farming i.e. as a substitute for fertiliser.

The environmental committee comprising village representatives from all villages now meet at least once a month. Networking has been extended to include other government departments such as the Department of the Environment, Agriculture, Fisheries, the local and rural authority, provincial office, the Native Land and Fisheries Commission and non-governmental organisations such as the OISCA.

In conjunction with the University of the South Pacific (Geography Department) FSP have conducted preliminary studies regarding sediment movements and the implications of a causeway (built by resort). A report is being compiled and will soon be made available. Water samples were taken from Cuvu Bay and analysed for faecal coliform while nutrients levels are analysed monthly for Yanuca.

Political instability during the coup also delayed community-based activities for a few months. However communities are aware of the long term benefits of this project and have confirmed their commitment. They realise that they themselves are to benefit as continuing project activities will ensure a healthier environment for future generations.

Plan (until next reporting period)

- Conduct Community Resource Management Workshops in all villages : **April - May 2001**
- Commence specific training in conjunction with government and non-government departments (requests from communities) e.g. demarcation of marine protected areas, fish warden training, replanting of mangroves : **June 2001**
- Selection and confirmation of engineer to supervise construction of wetlands: **June - July 2001**
- Construction of wetlands, conduct training of trainers & promotional workshop): **September - October 2001**
- Build up of plant stock for the wetlands: **ongoing activity.**

5. Partnerships

Collaboration between UK and the host country partner

The project has benefited from the close relationship which exists between FSP Fiji and JWP. This has allowed the project to continue with its objectives despite challenges such as the coup and the failure of the UK-based Living Water consultant to carry out activities. Communication is good, with regular email contact and JWP regularly receives reports from the project partner detailing plans and actual activities.

Collaboration with similar projects

The project has collaborated with government departments, University of the South Pacific and NGO's. These include:

- The South Pacific Applied Geoscience Commission (SOPAC) which is conducting a hygiene and sanitation project
- The OISCA - (Japanese non-governmental organisation). This NGO's focus is mangrove reforestation which was one the major requests from communities. FSP is working with both the OISCA and a village to replant more mangroves and enhance their nursery to be able to supply other villages with seedlings
- FSP is also a member of a recently formed network including the University of the South Pacific and the World Wide Fund for Nature. This network aims to share technical skills, knowledge and experience of community based marine conservation projects.
- The Department of Fisheries which is also on board the environmental committee assists FSP conduct specific training workshops and has agreed to supply Cuvu district with clams (to be left in marine protected areas) from a fisheries reserve and research station, Makogai Island.
- The Department of Agriculture and district office assisted one village to set-up a soil conservation demonstration site and supplied dalo tops. It is also assisting FSP to obtain hybrid coconut seedling for coastal reforestation and stabilisation.
- The Local and Rural Authority has already commenced testing of water samples in one village and has plans to extend this to other villages.
- An environmental committee has been established to oversee project activities. This committee comprises of landowners, Resort, Agriculture, Fisheries, Lands, Local Rural Authority, Native Land and Fisheries Commission, Environment, OISCA and other stakeholders.

6. Impact and Sustainability

Over the last year a range of plants were collected from Viti Levu and planted in floating rafts at the lake (containing waste waters). They have adapted well and multiplied. They will be used in the artificial wetlands. The Shangri La Fijian Resort has also supported the project by offering a proportion of their nursery to house propagates (i.e. build plant stock) and commissioned a topographical survey of the area surrounding the existing lakes. The survey was necessary for designing the wetlands.

Important stakeholders such as the Department of the Environment, the Health Department, SOPAC and others are aware of the Wai Bulabula Project and have been kept updated regarding project progress.

In addition, a series of community-based workshops was conducted. Response has been encouraging and communities have requested specific training workshops. A large number are also interested in the artificial wetlands.

Last year a parliamentary select committee stopped over at the resort during a tour of the western division. The committee fully supports the project and is impressed with the environmental component which includes a range of stakeholders. As a result of this visit they have requested that this project be used as a model for Fiji.

7. Outputs, Outcomes and Dissemination

Table 1. Project Outputs (According to Standard Output Measures)

Code No.	Quantity	Description
6A/B		Community members trained in reef monitoring
7		One manual for participatory public awareness methodologies
		One manual covering waste management technology and system
		One management plan and strategy produced for catchment area
		Counterparts trained in construction of waste management and water conservation technologies
4C/D		1 student training 4 weeks, Environmental engineer training 4 weeks
6A/B3		Community members and hotel staff trained in maintenance of system and monitoring of outflow
14A		One workshop to present project
8		Two British experts spend 27 weeks in Fiji(yr. 1: Jane 12 weeks, Hugh 10 weeks, Yr:2 Jane 3 weeks, Hugh 2 weeks
		Two British volunteers to spend one year each assisting the project
15		Press releases planned for years 1 and 2
		Communities with raised awareness, planning and monitoring skills and self initiated simple systems to manage waste and water
		Training of Fijian Counterparts

The termination of Living Waters UK was a major set back to the project. Therefore several activities outlined for Year 2 will be achieved in the next reporting period.

It was difficult to establish a water management plan for the area. The majority of farmers in the catchment are Indian tenants whose lease terms began expiring in 1997. With the uncertainty of extension of lease, farmers are not willing to commit themselves to watershed management. Secondly, the farmer's main focus, which also demands much of their time, is meeting their quotas (i.e. supply of cane) as agreed with the sugar mill. Therefore it was decided to commence with a soil conservation demonstration site.

All activities relating to training, construction, community waste management systems or promotional workshops of the artificial wetlands were postponed due to the termination of consultants (Living Waters UK). These will be achieved during the

next reporting period. At present construction of the wetlands has commenced and community members as well as hotel staff are being trained.

A British volunteer spent a year with the project. Two others spent three months each. Other volunteers will arrive soon for another year. Their stay will continue until after the project is completed but they will assist with the continuation of the project legacy.

A series of Participatory Learning and Action workshops were conducted for all villages and report compiled. These will form the basis for a manual in participatory public awareness methodologies which is to be prepared in conjunction another project consultant, Dr. Hugh Govan who is expected in the country within the next month. These workshops raised environmental awareness and participants became actively involved in discussions about solutions to their problems. An environmental committee consisting of representatives from the seven villages is working with all villages to develop and implement their plans.

Baseline and end line information on water quality and reef condition was not completely achieved as this an ongoing activity. Community members have not been trained in reef monitoring during this reporting period due to delays arising from the coup.

FSP plans to join a local networking group of organisations that are implementing community based marine restoration projects. From initial discussions it was commonly agreed that all members should assist one another in training communities.

The wetlands system currently being built is not exactly as originally planned. The resort has recently upgraded its regular sewage system and is using the wetlands as a polishing system which is essential in removing nutrients for the health of coral reefs. The maintenance and repairing of the sewage system was carried out outside this project remit but in the same time period.

Table 2: Publications

Type * (e.g. journals, manual, CDs)	Detail (title, author, year)	Publishers (name, city)	Available from (e.g. contact address, website)	Cost £
Newsletter	Govan, Hugh (2000) Building on cultural resources in the Pacific. In <i>CM News, Newsletter of the IUCN Collaborative Management Working Group</i> , No. 4.	IUCN	Hgovan@compuserve.com	free

8. Project Expenditure

Table 3: Project expenditure during the reporting period

Item	Budget	Expenditure
Total	29,000	15,127

- Capital Items/Equipment - this item covers the materials and equipment needed for the construction of the wetlands. The expenses incurred to date have been primarily for the preparation of this task (e.g. collection and propagation of the wetlands plants, site preparation at the Fijian Hotel, etc.). The major construction of this wetland system will begin in August and should be completed by October 2001.
- Others - This item has been under spent to date primarily to the fact that the remaining funds are needed for the support of a national seminar/training to train locals in the construction of the wetlands. This activity will take place in August and September and will coincide with the actual construction of the wetlands.

9. Monitoring, Evaluation and Lessons

The project has the services of a consultant and community specialist, Dr. Hugh Govan who visits annually. Dr. Govan evaluates progress and puts forward recommendations. This is carried out largely with the project team, communities and other stakeholders are also consulted. The project team reports quarterly back to Just World Partners. The quarterly fact sheets are updates on activities which were planned for and reports of what was actually achieved. Thirdly, the district environment committee meets at least once monthly. This acts as a check on community activities and also evaluates progress. Government departments such as agriculture, fisheries together with NGO's such as OISCA are also part of the environmental committee.

The Wai Bulabula team meets regularly with the Coral Gardens project, another Foundation for the South Pacific (of which just World Partners is a member) project working in the same area, to monitor and evaluate progress. The overall objective of both projects is to establish a workable and adaptive community-based marine conservation model.

The following is a list of some main lessons learnt:

- Community-based conservation projects often take much longer to implement compared to time-lines in original proposals. For example, it takes at least a year for rural communities to grasp and commit themselves to such projects. This issue

is encountered by most Pacific nations and it is crucial that donor agencies are sympathetic to the problems faced by those implementing such projects.

- Flexibility and adaptability are essential ingredients. It is difficult to work with set rigid rules or plan of activities. For example, field exercises are sometimes suddenly postponed for social functions such as weddings and funerals. All villages are interrelated. Whenever there is a function in one village most other villagers are involved one way or the other.
- Organising workshops or field activities for the district of 7 villages is challenging. Therefore combined workshops should be conducted for neighbouring villages.
- The importance of setting simple and realistic objectives. Throughout the course of the project it has become obvious that original objectives (proposal) were rather broad and ambitious. The project has managed this by focussing on smaller issues i.e. taking one step at a time.
- Realisation of the need for a conflict management team as conflicts are experienced especially where resources are communally owned. The FSP conflict resolution team are involved in the project.
- Importance of having things physically done in the field i.e. communities are more likely to commit themselves upon seeing things happening. It is essential to work on smaller objectives which finally lead to larger goals and also maintain community enthusiasm.

10. Author(s) / Date

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