

Darwin Initiative – Final Report

1. Darwin project information

Project Reference	SB001701 (164/14/020)
Project Title	Network of Locally Managed Marine Protected Areas in Solomon Islands.
Host country(ies)	Solomon Islands
UK Contract Holder Institution	WWF UK
UK Partner Institution(s)	DEFRA
Host Country Partner Institution(s)	WWF Solomon Islands
Darwin Grant Value	£ 154,246
Start/End dates of Project	July 1, 2005 – September 30, 2008
Project Leader Name	Louise Heaps
Project Website	N/A
Report Author(s) and date	Bruno Manele & Jackie Thomas

2. Project Background

The **Western Province of the Solomon Islands** is characterised by remote islands, globally renowned levels of marine biodiversity and communities dependent on marine resources for their food supply and livelihoods. Population growth, limited alternative sources of income and growing aspirations of communities have led to unsustainable levels of exploitation. Communities are approaching WWF to seek ways to address the problem. The project aimed to “empower communities to promote sustainable management of marine resources”, by establishing and implementing Locally Managed Marine Areas (LMMAs) in four communities on the islands of *Vella la Vella (Karaka)*, *Ranongga (Kekoro)*, *Kohinggo Island (Boboe)* and *Kolobangara (Nusatuva)*, contributing to an enlarged network of LMMAs. Key achievements include :

1. The establishment of networks of 14 LMMAs covering 1027.08 Ha.
2. Building the capacity of 414 people in sustainable resource management and development.
3. The establishment of 4 income generating projects.

3. Project support to the Convention on Biological Diversity (CBD)

This project has assisted the Solomon Islands government in the implementation of CBD commitments through the following actions :

At the site level :

1. Undertaking biological research and baseline biological surveys in the sites.
2. Development of a database housing key site data.
3. Provision of facilitation, technical leadership and capacity building opportunities with communities on:
 - a. the usefulness of LMMAs and MPAs as tools for fisheries and biodiversity conservation;
 - b. the process of identifying and establishing LMMAs and MPAs.
 - c. the establishment and implementation of long-term community-led monitoring programmes for LMMAs and MPAs, specifically to monitor the biological status of the inshore areas and key indicator species;
 - d. adaptive management plans;
 - e. alternative sustainable income generating enterprises.

At the national level :

4. WWF-SI is an active participant of the Solomon Islands National Biodiversity Strategic Action Plan (NBSAP) Steering Group and has provided significant information and technical data, including biological (corals, fin-fish, invertebrates, macroalgae, seagrass and mangroves), social and economic data to the Solomon Islands national Government and the CBD focal point. This has been included in the draft version of the NBSAP. The NBSAP is currently being further strengthened with technical inputs from WWF-SI, WWF-UK through Louise Heaps, and other partners and will be finalised over the coming months. In particular, Louise Heaps was one of the resource facilitators at the recent CDB capacity

building workshops, “*Capacity Development Workshop for the Pacific region on National Biodiversity Strategies and Action Plans, mainstreaming of biodiversity and the integration of climate change*”, undertaken in Nadi, Fiji.

5. Raising awareness within communities and the wider public through radio and drama on the importance of sustainable resource management.
6. Fostering and maintaining partnerships between local communities and institutions and Civil Society Organizations – such as Kastom Garden Association, Gizo Rotary Club, WorldFish Center and Aid Donors such as European Commission.
7. Government and partner capacity built, through the Western Provincial Government Workshop, to incorporate sustainable use of biodiversity into national decision-making.
8. This project will assist WWF-SI and the Regional Nature Conservation Action Strategy through the Secretariat for the Pacific Regional Environment Programme (SPREP) in achieving the long term aim of mainstreaming outcomes of marine biodiversity conservation and sustainable development activities into provincial and national systems and practices.

4. Project Partnerships

The lead UK institution is **WWF-UK**. An outposted member of staff from WWF-UK, Louise Heaps, the Programme Leader, and has been based in the regional South Pacific Programme Office (SPPO) in Suva. The role and mandate of Louise Heaps in the region has been to oversee and provide capacity and technical support to country programmes and projects. As lead on the *Darwin Initiative* project in the Solomon Islands, Louise Heaps provided capacity support in programme development and was further seconded to the Solomon Islands programme at the start of the project in part to support the start up phase. This included initial site visits, significant support with work plan and budget development, recruitment of *Darwin Initiative* staff including project and field officers and overall initial direction. **WWF-Solomon Islands** (WWF-SI) has been responsible for project management in country, with Bruno Manele being the in-country lead, including the overall project implementation and the preparation of the technical & donor reports. WWF-SI have also been responsible for the overall implementation of activities outlined in the logframe and in supporting key field officer positions in the focal communities.

WWF-SI has been working in the field of community-based management for over a decade and has built credible and long-term partnerships with local communities over this time. Magnifying these efforts through the *Darwin Initiative* project was seen as a particular need. Not least, there has been an increasing number of communities requesting support from WWF to address the loss of fishing opportunities and overall habitat degradation. WWF-SI initiated the action to source funds through WWF-UK in order to support their conservation efforts.

Critical partners have also been **local coastal communities** and relevant **SI Government Departments**. Partnership Agreements (MoUs) have been established and formally signed between WWF-SI and each of the four communities. While all the communities understood what was expected of the project and its proposed activities, other non-project based activities were also of interest. These included scholarship and educational opportunities, infrastructural development opportunities, employment opportunities and income generating opportunities. Whilst these outcomes are not directly part of *Darwin Initiative* activities, links were made between community expectations and the relevant government departments and Non-State Agencies.

During the course of the project phase, other partners have been involved including **local community-based institutions** such as **Sausama Farmers Training Institute**, **local business operators** such as **Adventure Sports (Dive Gizo)** who have provided biological monitoring support, **aid organizations** such as the European Commission, and **local NGOs** collectively through the Solomon Islands Locally Managed Marine Area (SILMMA) network.

The focal **communities** participated in all of the proposed activities such as workshops, development of their management plans, undertaking training in marine resource monitoring techniques, sustainable livelihood options. As a result of significant capacity building achievements, 5 out of the 15 proposed LMMAs have been established and effectively monitored.

The **Ministry of Environment, Conservation and Meteorology** and the **Ministry of Fisheries and Marine Resources** provided legal advice on the establishment, management, enforcement and monitoring of LMMAs, as well as input into the actions on sustainable livelihood options. The **Ministry of Agriculture and Livestock** and **Ministry of Tourism and Culture** also provided important advice on relevant land-based sustainable livelihoods. The **Western Provincial Government** has also been instrumental in giving legal

advice and endorsement of appropriate livelihood options.

Other partners involved in trainings included: **Sausama Farmers Training Institute, Volbros Honey Producers, Australia Business Volunteers, Kastom Garden.** Advice on practical experiences from establishing sustainable management practices was provided by **Tetepare Descendants' Association.** Support in marine biological surveys was provided by **Adventure Sports (Dive Gizo) and the WorldFish Center.** **WorldFish** and the **European Commission** also provided technical support on complementary sustainable livelihood options. Sharing of lessons learnt among conservation practitioners in the country and the Pacific region was made possible through the **SILMMA Network.**

5. Project Achievements

5.1 Impact: achievement of positive impact on biodiversity, sustainable use or equitable sharing of biodiversity benefits

GOAL : To draw on expertise relevant to biodiversity from within the UK to work with 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 benefits arising out of the utilisation of genetic resources.

Several key impacts have been achieved as a result of the study :

1. An increase in fish stocks within LMMA sites has been reported by communities. Already, community monitors have reported that stocks of *trochus*, a commercially important commodity in the Solomon Islands, have increased dramatically within one of the LMMA sites in *Karaka*. Community monitors in *Nusatuva* also noted increases in the number of fish stocks within their designated LMMA sites.

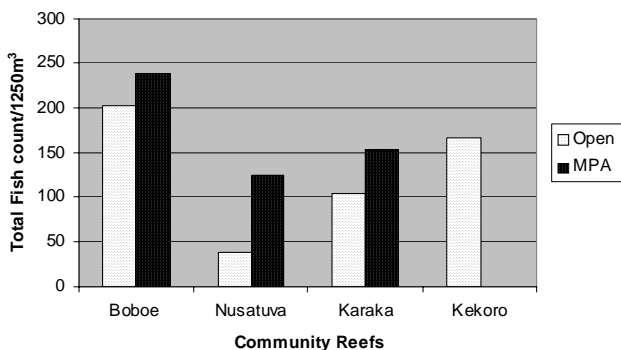


Chart 1 : Fish count for the month of September, 2008

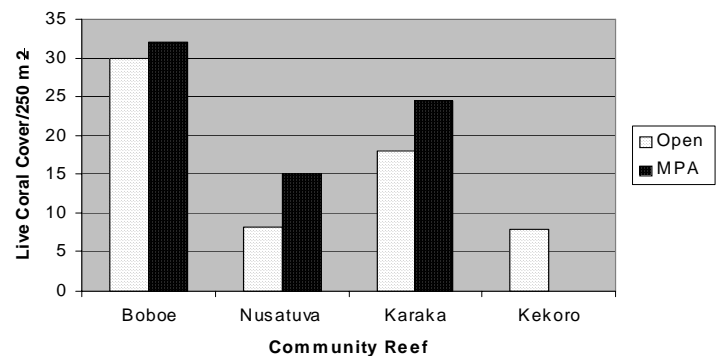


Chart 2 : Coral Coverage for the month of September, 2008

2. The capacity of communities to monitor their own reefs has been built in line with international standards. Trained community monitors have received refresher training on shallow water monitoring using *Reef Check Methodology* and have begun to monitor their own shallow water marine resources utilizing the survey equipment provided by the project.
3. Gender equity has been addressed in the communities of Nusatuva and Boboe through dedicated training of women on fisheries. Women from *Nusatuva* and *Boboe* participated in the *Women in Fisheries Workshop* conducted by WWF-SI together with a number of partners. In addition to the acquired knowledge of the local importance of marine resources and the need to manage their uses, women participants learned new skills from the Kastom Garden Association trainer for producing greater yields from their gardens. Additional training included in the Workshop included flower arranging, food processing techniques (banana, cassava and taro chips), leadership and simple book keeping skills. Women are major users of inshore marine resources, exploiting both finfish and shellfish primarily for subsistence purposes and for income. The workshop has helped local women to better understand the reproductive cycle of targeted resources leading to them adopting more sustainable harvesting practices. Additionally, the workshop also provided information and training on other land-based

activities that could assist in generating income and food. The introduction of new and sustainable income generating and food production options on land has meant that harvesting activities on immediate near-shore resources have been reduced, allowing some of the target species to be recover. Kekoro women have seen an increase in the abundance of a turban shell, a common source of protein, after diverting to subsistence and commercial activities on land. *Boboe* women recently reported an increase in growth rate and spread of the green seaweed (*Caulerpa* species), one of the main sources of food and income for *Boboe* women. This has been linked to the diversion to sustainable land-based resources and activities. Women sell more chips from the cassava and bananas from their gardens to get money rather than from inshore marine resources.

- 4 Additional income of SBD 2000 (~GBP 300) has been generated for the *Karaka* community from the initial harvest of the honey bee enterprise. The estimated number of beneficiaries (direct and indirectly) from these pilot enterprises is 200 people in *Karaka* and *Kekoro* and 80 people in *Nusatuva* and *Boboe* communities. The honey-bee project in *Karaka* has resulted in a shift in the mindset of almost all community members. Generating income from trees (pollens) with them remaining intact has been an insight for this community, formally reliant on income from cutting them down for timber. With the recent evidence of the rate of honey production in *Karaka*, community members have stopped felling trees. As commented by a very excited community member, "Whilst our neighbours are disputing over...logging operations, our bees quietly go in and "steal" the pollen from their trees to produce our honey". So now we are sitting back and watching our little helpers work to help support our family economy". As a result, more coastal (including mangroves) and hill forests are remaining intact.

4.2 Outcomes: achievement of the project purpose and outcomes

Overall, local people are becoming more aware of the financial, social, economic and environmental benefits of implementing LMMAs and temporal fishery closures as tools for regenerating fish stocks. *Kekoro* and *Karaka* resource management plans have one seasonal closure devoted to the management of trochus stocks. The guidelines state that trochus will be given an 11 month (January to November) reproduction period with no harvesting. Harvesting is only permitted in December and quota restrictions are imposed. Monetary benefits from this management system has allowed community members to raise optimal income to help support them with school fees, the main expense for families in *Kekoro* and *Karaka*. All four communities have designed and compiled their resource management plans after gauging community-member consensus and agreement, and with technical inputs from WWF based on targeted research. Only two communities have, however, fully and effectively implemented, managed and monitored their designated LMMAs. *Kekoro* LMMAs had to be re-demarcated and reassessed as their designated sites were uplifted following the 2007 earthquake/tsunami event. *Boboe* Community resource management plan is currently undergoing amendments due to the unclear legal implications of using the local resource safeguarding ordinance, Resource Management Ordinance (RMO), due to customary disputes, poaching activities and reef use of non-tribal members. Currently, the RMO does not fully address this issue.

Other related activities, especially the establishment of sustainable income enterprises, have led community members to take more interest in maintaining the health and integrity of their forest and coastal marine environments. The links between the resource management and environmentally friendly enterprises have become evident, particularly important in a region where generating income to meet short-term needs is the highest priority. Integrating income generation alongside resource management programmes has provided immediate income needs whilst safeguarding food security and biodiversity. The cash benefits derived from these programmes has further prompted communities to more effectively monitor their marine resources and designated protected areas to continually undertake adaptive management.

Data collected during the marine biological, seagrass, macro-algal, and mangrove surveys have been fed into the NBSAP. This has increased the known spatial distribution limits for certain species, particularly marine plants. The data was only available for these four communities and it is clear that extending these surveys to additional communities would provide a more comprehensive understanding of the distribution of marine flora in the Solomon Islands.

The Western Provincial workshop, "*Balancing Economic Development and Environmental Management for Sustainability in the Western Province*", held in 2006 recommended, amongst other items, that WWF publications are given to the provincial government for strategic planning purposes and relevant departments for development purposes. It was recognised during the workshop that the WorldFish Center and WWF were the only two operating institutions in the Province that conduct research and ongoing monitoring. The Western Provincial Government considered itself privileged to have these two institutions within its boundary

of jurisdiction to bring to the public's attention the status and economic value of its natural resources.

Overall, it is felt that the *Darwin Initiative* Project fully achieved its purpose and goals, not least through demonstrating and showcasing the importance of maintaining ecosystem health and integrity to support food supply and livelihoods in the long-term. The social, economic and environmental benefits of sustainable resource management and alternative livelihood options have been fully accepted by the focal communities and embedded into the way that they are managing their resources and finances on a daily basis. Including women and youth in the overall capacity building exercise has been particularly important in this regard, as has employing local community-based field officers.

For many Solomon Islanders, there is little connection between sustainability and long-term food supply and income. Traditional and more sustainable harvests have been replaced with maximising profits. Conserving biodiversity is generally not considered to be a priority. WWF through the *Darwin Initiative* project has been instrumental in changing this attitude within focal communities. Several key outcomes were achieved :

- The establishment of networks of 14 MPAs covering 1027.08 Ha in the Western Province.
 - *Karaka* established 2 seasonal closures (MPAs) covering an area of 18.52 Ha and a permanent closure (MPA) covering an area of 44.30 Ha.
 - *Kekoro* has set aside a total of four small seasonal closures with 0.66 Ha and another 4 permanent closures covering an area of 2.27 Ha. *Kekoro* closed areas are very limited due to the fringing nature of the reefs that do not extend outwards but drop immediately into the basin between *Ranogga* Island and *Ghizo* Island. The uplifting effect of the earthquake in April 2007, has however left all the submerged reefs, including all MPA-designated sites to be uplifted, which is why no data can be collected after the impact (see section 4). The *Kekoro* management committee agreed to extend the MPA to the remaining submerged reefs, not surveyed during our recent marine biological surveys as they are located outside the permanent monitoring sites.
 - *Boboe* proposed the biggest MPA sites with a total coverage of 941.35 Ha with the permanent site covering 796.37 Ha and seasonal MPA with 114.98 Ha. Due to the current ownership issues (customary in nature) with neighbouring communities and commercial harvest by non-customary users, the *Boboe* resource management committee is currently seeking legal advice over the most appropriate legal tool to use, other than the RMO, to cater for both customary rights and 'outside' commercial users from *Ghizo* and *Ringgi*, the two nearest commercial centres.
 - *Nusatuva*, like *Karaka* has successfully established their two MPAs with a total area of 19.98 Ha, which have to date been effectively managed and monitored.
- Capacity building of 414 people (31% of the total population for all four communities) in sustainable natural resource management and sustainable financing options was achieved.
 - Resource management training through the following workshops:
 - Biological (corals, fish & invertebrates) Community monitoring – 60
 - Seagrass monitoring – 48
 - MPA management & Monitoring – 48 and livelihood options
 - Sustainable development training workshops included:
 - Honey bee Keeping – 20
 - Ecotourism – 52
 - Aquaculture (Conducted by another project) – 6
 - Women In Fisheries/Kastom Garden (organic farming / food processing) – 88
 - Business Training - 52
 - Leadership Training - 40

Almost 80% of the trained community members have been youths and young adults from the age of 16 to 30. In addition, there was a fair representation of males and females in each workshop. Leadership training was mostly attended by the village elders.

- The establishment of four alternative income generating projects in each of the project sites, Honey Bee Keeping in *Karaka* & Eco-Tourism in *Nusatuva*, *Kekoro* and *Boboe* communities, as well as three indirect income generating opportunities, Clam and coral farming in *Nusatuva* and *Boboe* & Coconut Oil Press in *Kekoro*.
- Involvement of these community project sites in the Darwin Initiative project also attained indirect benefits from WWF partners and other development agencies. Two of the project communities (*Karaka* and *Kekoro*) had previously been involved in the WWF since 1998 and had not fully accomplished some

of the planned activities. While the *Darwin Initiative* project focussed on its planned activities, it has re-opened opportunities for networking between major donors in the country to assist in accomplishing the incomplete activities from the previous engagement. *Karaka* was able to submit and receive funding and technical assistance for their long-awaited water supply issue. Construction and handover of the water supply project from the EU/ADRA joint project came into effect in July, 2008. *Kekoro* community was also able to successfully receive funding from EU for their coconut oil press which is currently under construction.

- *Nusatuva* and *Boboe* community also received indirect assistance from *WorldFish Center* for a sustainable livelihood project as a major WWF-SI partner as a result of their engagement in this project. Members of both communities were among those whose environment and accessibility to the market through the proximity to air transport services guaranteed them to become eligible to be trained in clam and coral farming techniques.

4.3 Outputs (and activities)

Overall, all the project outputs were achieved with positive spin off benefits. Specific outputs included :

Revised Output 1. Management plans established and community based monitoring programmes implemented & draft Resource Management Ordinances (RMOs) produced for community managed MPAs with associated plan for sustainable management of the resource.

1. Development and implementation of long-term MPA management plans in all 4 communities, empowering communities to take further action in regard to monitoring, enforcement and establishing resource ownership rights. A monitoring programme for established MPAs has become an ongoing activity for *Karaka* and *Nusatuva* communities. Legal insights are currently being pursued by *Boboe* community as, whilst the reefs are currently regarded as owned by the communities under customary tenureship, licensed dive operators and employees of a nearby forest plantation company continue to use these reefs for diving and commercial purposes.
2. Preparation of draft RMOs or other legal documents. Only the *Nusatuva* and *Boboe* communities agreed to use an RMO or other relevant legal tool for reporting, arresting and prosecuting intruders. These communities anticipate poaching from the workforce of the Kolobangara Forest Plantation Limited (KFPL), a local forest plantation company. The employees are from nearby islands and are believed not to be adhering to the customary rights of the Kolobangara people. Nevertheless, after reviewing the provisions of the RMO, both communities fear that, whilst there are provisions for rangers to report poachers to the Police, arrests are likely to be constrained by limited police budgets for travelling to *Nusatuva* and *Ringgi*. Both communities are currently seeking legal advice from the provincial administration and public solicitor on what other legal provisions there are to support ranger reporting and arresting poachers.

Revised Output 2. Community members and their external supports have the information and skills required for ongoing management of the pilot MPAs.

3. Eight community members have been selected from the communities as rangers to regularly monitor the MPAs. This is undertaken each month on a rotational basis - 4 rangers per month. A total of 60 community monitors, 15 from each community, have been trained in biological monitoring and will monitor the corals, finfish and invertebrates on a 6 monthly basis. Another 48 people, 12 from each community, have been trained in seagrass watch to monitor the status of seagrass and associated fauna within the MPAs.
1. Three biological monitoring surveys were undertaken in each project site on an annual basis from 2006 to 2008. The monitoring programme in 2007 was regarded as a post-tsunami assessment, carried out three months after the impact. With the damage incurred, it has been difficult to assess project impacts in terms of biodiversity. However, data collected in 2008 showed that increases in fish and invertebrate stocks within MPAs were greater than those in open areas (refer to Charts 1 & 2).

Percentage Loss of Live Corals

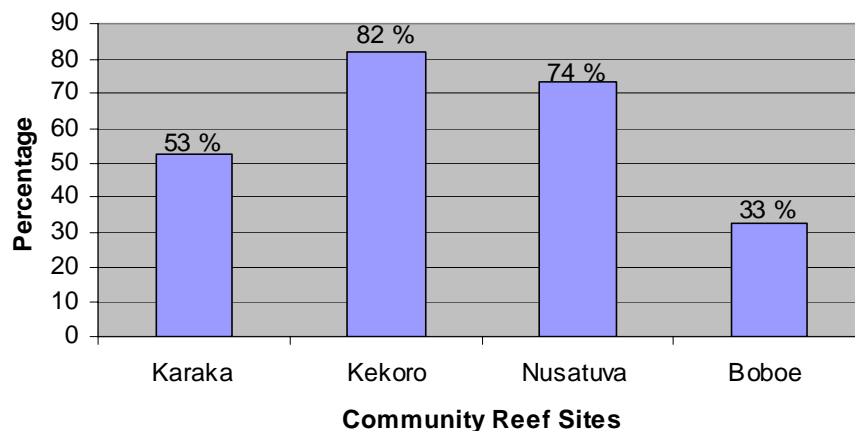


Chart 3 : Loss of live corals resulting from the 2007 earthquake/tsunami event

2. Community monitoring surveys (Reef Check) have been undertaken and data collected in all four community sites. Only the *Kekoro trochus* monitoring surveys have been fully documented and published to date and have given a clear indication that the *trochus* stocks have increased and under an imposed quota system.
4. Staff training on basic marine science (biology, physics and chemistry of the seawater) and conservation practices was provided to all four community-based field assistants and two additional members of staff employed under this project. Each field assistant was from the target community in which they were based as part of a longer-term exit strategy.
5. A simplified version of the basic marine science training was provided to the 15 members of each resource management committee, represented by the village elders (chiefs and spokesperson), church leaders, women and youth groups.
6. Training in leadership skills (30 community members), Kastom garden training skills (organic farming and food processing) (66) and business skills (39) was provided to honey farmers in Kekoro, Nusatuva and Boboe communities. Karaka community had already been trained in these series of training at the beginning of this project.
7. Pilot sustainable livelihood initiatives for honey bees and ecotourism were successfully initiated in all four communities and in the case of the honey bee enterprise has started to show economic yield. After gaining relevant skills and knowledge on appropriate income generating options, all four communities immediately embarked on planning and implementation their pilot projects. The *Karaka* community ventured into honey bee keeping. The resource management committee formed four groups of apiarists with 10 hives each, each supported by trained people. Four brood boxes were purchased from a local honey producer (*Volbros Honey Producers*) who was contracted to set up the honey brood boxes and to provide general supervision during the start-up phase. From these four brood boxes (each one for each of the group), bees were divided ('split') into the main 10 hive boxes (one by one). Honey production of honey was tested a month later and was found to be significant, with one brood box alone producing 15 litres of honey. As a result, a honey bee training workshop for 50 community members was conducted in a neighbouring village by the Department of Agriculture of the Western Provincial Government in July 2008, using the *Karaka Honey Bee Keeping Programme* as their 'Look and Learn' site. They were overwhelmed over the rate of honey production concluding that the abundance of fruit, nut and mangrove trees was the underlying factor.

Eco-tourism activities were only suitable for *Nusatuva*, *Boboe* and *Kekoro* Communities. Construction of eco-lodges is nearing completion. The Resource Management Committees are also identifying related activities for guests. In addition to the local traditional lifestyle of each community and the vibrant nature of each MPA, each community has proposed other environmental-related adventures and tours that guests can engage in. For example: *Nusatuva* eco-tourism activities include tours into the crater of the *Kolobangara's* dormant volcano. Here tourists can participate in bird watching (with 3 endemic sub-species), see ancient settlements and the various geological composition of the rising crater wall where

a strip of “the mother of gold” can be clearly sighted stretching from the top of the crater and snaking its way down into a cave and sinking into the river bed. Climbing up *Kolobangara* crater is another option where one can experience a tropical mountain environment where rare orchids and ancient plants like endemic ferns, mosses, lichens, liverworts and fungi can be seen. An additional *World War II* relic tour is also available. *Boboe* eco-tourism activities may include coastal mangrove tours where the 15 known species of mangroves and their traditional local uses can be seen and explained, swimming and diving with manta rays at the manta ray cleaning and grazing station and the diving of a WWII bomber-plane wreckage. *Kekoro* eco-tourism activities would include climbing up the *Ranongga* mountain for bird watching (1 endemic sub-species) and a rare plant with leaves that have colourful designs on which can only be seen (the designs on the leaves) on the mountain but not on the lowland, coastal areas.

- 8 Darwin Initiative project site GIS maps were revised and redesigned by a contracted GIS expert. The consultant was employed initially for 35 working days in total and used both *Arc View* and *MapInfo* mapping software to create all the map for :
- Darwin project sites,
 - Habitat maps,
 - Post and pre-tsunami status of coral reefs,
 - MPA sites,
 - Monitoring site maps,
 - General WWF project sites map.

These maps will be used in reports, publications, posters as well as in promotional brochures to market the established enterprises. Some of these maps have already been utilized by stakeholders including the provincial government and government departments.

Revised Output 3. Comparative review of lessons learnt from the four pilot communities and from other models for MPAs in the Solomon Islands and the south Pacific region designed to inform the extension of MPAs to new communities and the long term sustainability of the pilot sites.

- 9 MPA planning has been completed for all four communities. While only two communities have been able to successfully establish, launch and implement their resource management strategies, all four communities have designed their Resource Management Plans. Successes and challenges facing the implementation of all four community MPAs have been documented and are included in the *Darwin Initiative* project report on lessons learnt.
- 10 A Darwin Initiative lessons learnt report is currently being developed which primarily outlines the lessons and challenges faced during the funding period. It takes into consideration the current economic status of the Solomon Islands and the factors that may have contributed to shaping of the current perceptions and outlook of community members.
- 11 Documentation and printing of management plans and regulations for the four (4) proposed MPAs are outlined in Section 4.2.
- 12 A total of 4 press releases have been compiled and published in two of the local newspapers (Solomon Star and Island Sun) in the Solomon Islands. These stories include the overall participation of the four communities in resource management programmes, the launching of two LMMAs, the impact of an earthquake and tsunami on the properties and lives of the people and coral reef biodiversity within the focal sites (all of which are part of the *Darwin Initiative* Project) and the alternative livelihood options being established in each of the communities. Radio interviews were also conducted with *Radio New Zealand* and *Pacific Beat*, an Australian Broadcasting Cooperation (ABC) radio programme covering the issues of the Pacific, on the impact of the 2007 disaster on the marine environment and designated MPAs.
- 13 Two posters showing the benefits provided by the marine environment, particularly the coral reefs, have been designed and printed for use in the communities, schools and provincial government offices. A total of 20 posters were printed (10 each). Four posters showing the species number, the distributional patterns and the ecological and economic values of mangroves, seagrass and macro-algae were also designed and printed in both English and Pidgin English versions. A total of 20 posters were printed and circulated to each participating village and surrounding villages. Brochures outlining the guidelines, rules, boundaries and penalties for breaching established MPAs were also compiled and printed for the local and neighbouring communities for general awareness. The field manual, although already prepared was never printed. A total of 100 copies of community fact sheets (which include all four community profiles) were designed, printed and circulated to each of the villages, the provincial government and to partners such as local donors.

- 14 A photographic library has been established within WWF-SI containing photographs taken by project staff and acclaimed photographers. The photographs specifically highlight activities such as the key workshops, drama performances, launching of MPAs and Eco-lodges. Pictures depicting the natural environment and resources of each community have been compiled into a photographic software – Picasa - where desired images can be gathered, sorted, stored, shared, manipulated and produced upon request.

Serious problems encountered during the project :

The impacts of the earthquakes and tsunami of April 2007 have had long-term effects, but there is evidence that reefs are beginning to recover. Marine biological data were collected and showed relative improvement in the regeneration of the coral reef benthic (seafloor) community. New survey sites have been selected for *Ranongga* reefs as 95% of the pre-disaster surveying reef sites were uplifted. Data for these once deeper sites also recorded satisfactory rate of coral regrowth. Fish and invertebrate stocks also showed signs of recovery except at *Ranongga* sites. It was further noted that sizes of rejuvenated corals were greater and fish and invertebrate stocks were higher in MPA sites. All of *Kekoro's* MPA sites have been uplifted. Consequently the launching of all their MPA sites has been on hold, awaiting the regrowth of the remaining reef areas that were once at deeper levels. The major seagrass meadow within the embayment of *Kekoro* region was also uplifted, leaving virtually no seagrass.

Regarding the impact on settlements and the lives of the people, three of the four communities were badly affected by the earthquake, *Kekoro*, *Nusatuva* and *Boboe*, while all four felt the effect of the tsunami. *Kekoro* and *Nusatuva* communities experienced the most devastating impact. *Kekoro* and *Boboe* were mostly affected by the earthquake, with some houses were shaken to the ground. *Nusatuva* on the other hand was affected by both the earthquake and the tsunami. A socio-economic survey conducted with all of the four communities soon after the impact showed a huge loss/damage in household properties and reef resources, their primary mode of income generation. Data collected from these communities prompted WWF and WorldFish Center to seek extra funds to help relieve post-tsunami shelter, food and household economy. With this project's enterprise activities and these extra funds, *Darwin Initiative* project communities were given greater opportunities to regain their livelihoods and hope after the impact than other surrounding communities.

4.4 Project standard measures and publications

Please refer to Annex 4

4.5 Technical and scientific achievements and co-operation

Data obtained from all of the biological surveys have been compiled into scientific technical reports. Several biological parameters were collected using Global Coral Monitoring Network (GCRMN) methodology, including substrates (benthic community), fin-fish, invertebrates, macroalgae, seagrass and mangroves. *Dive Gizo*, one of two dive operators in Gizo, was the main partner involved in the collection of these data.

GCRMN METHODOLOGY :

At each site and depth, substrate and fish data was collected along four 50 m transects deployed along two depth profiles, 1-5m and 6-10m. Two divers recorded substrate and invertebrates and two recorded fish size and abundance. The fish divers proceeded the substrate and invertebrate divers to record fish to ensure that the fish were not scared away.

SUBSTRATE SURVEY :

Substrate data was collected using a cross (X) with 35cm long arms at 90 degree angles placed at every 1m interval along with the 50m length of the transect. Substrate readings were taken at each point of the X (4 points) and directly beneath the centre of the X (1 point). A total of 5 points were, therefore, collected every metre on each 50m transect. Four transects were undertaken, thus totalling 1000 points per depth profile or 2000 points per site. Substrate composition along the transects were recorded according to the Australian Institute of Marine Studies (AIMS) life form categories, which have been adopted by the GCRMN as a standardised form of substrate data collection.

2006 baseline data recorded an average live coral cover of 37.5%, as the dominant substrate followed by macro-algal cover of 34.1% for all *Darwin Initiative* sites. 2007 data sets recorded a dramatic change in the substrate coverage, with non-living (abiotic) substrate covering an average area of 68.7%, while live corals only covered 16.1%. 2008 data showed a slow recovery with a live coral coverage of 17%.

In general, live coral cover in the MPAs were relatively higher than in open areas as indicated in the following graphs (2008 Survey).

Chart 4 : Kekoro Reef Sites

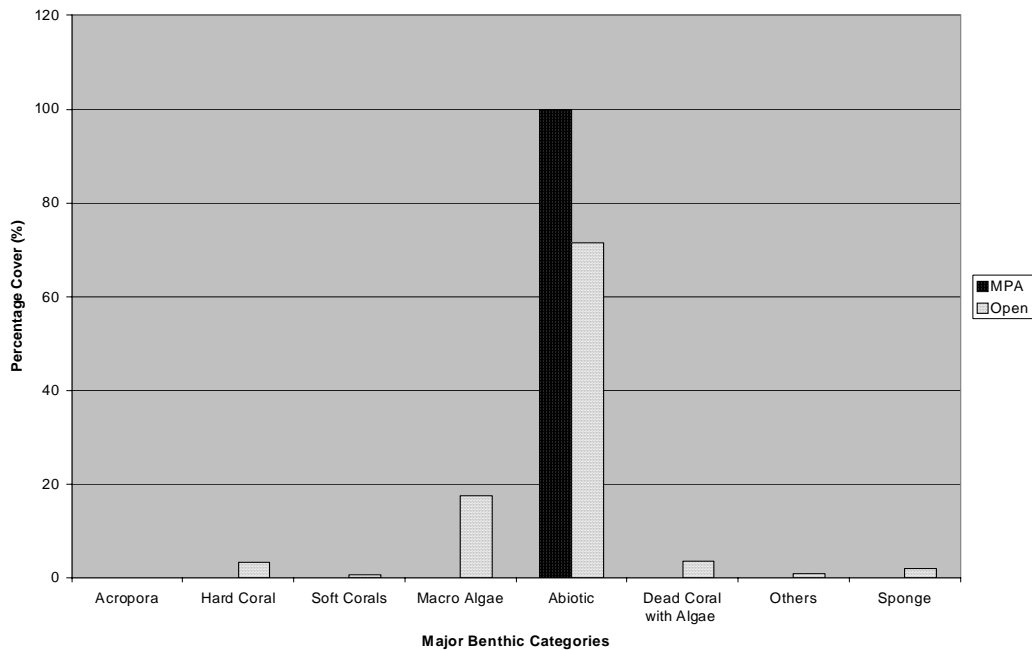


Chart 5 : Karaka Reef site

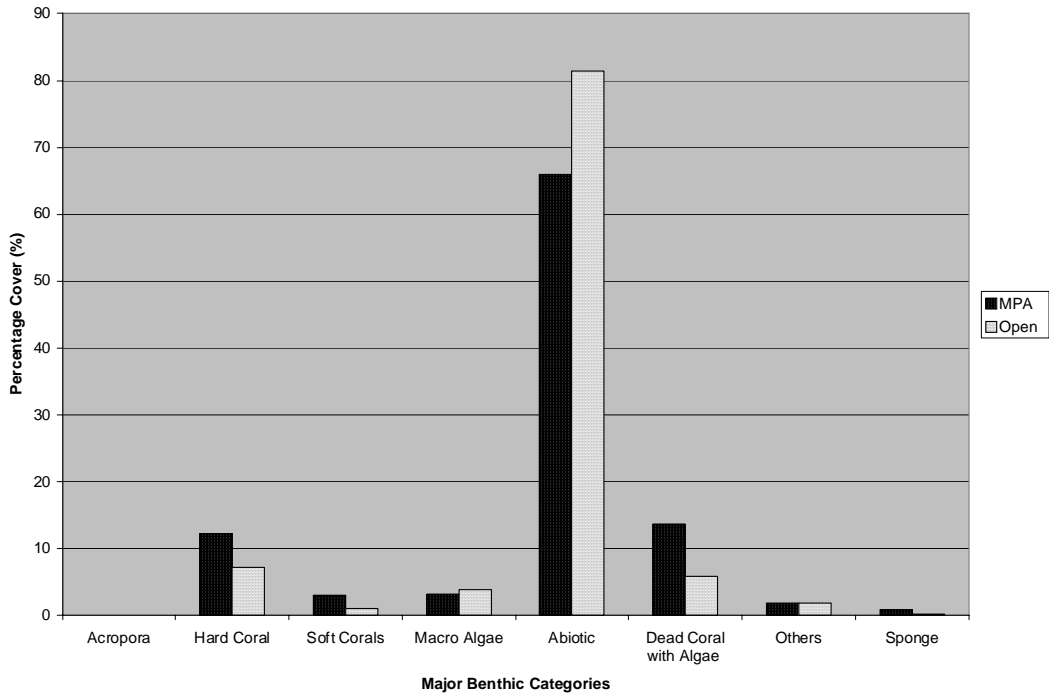


Chart 6 : Nusatuva Reef Sites

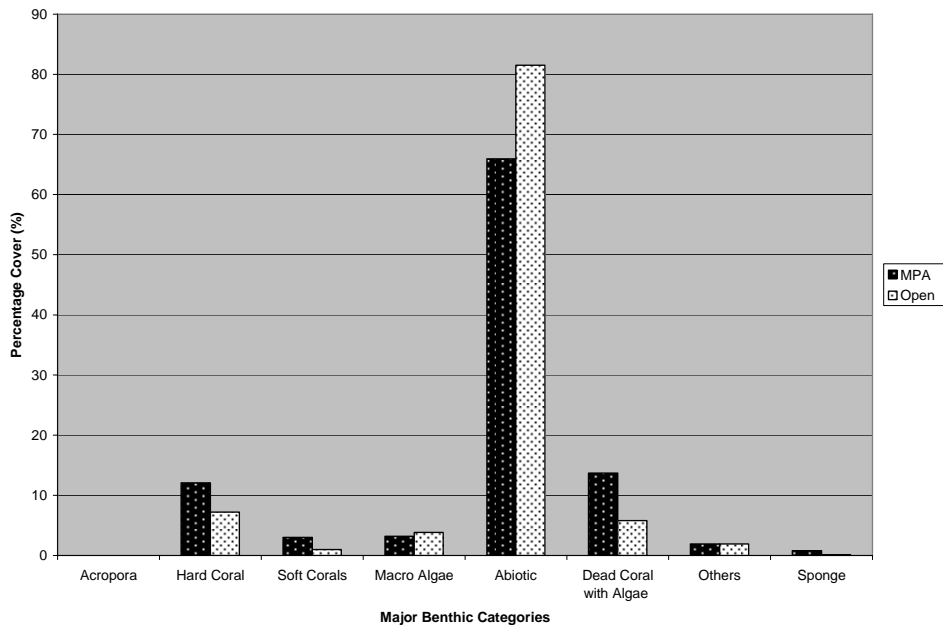
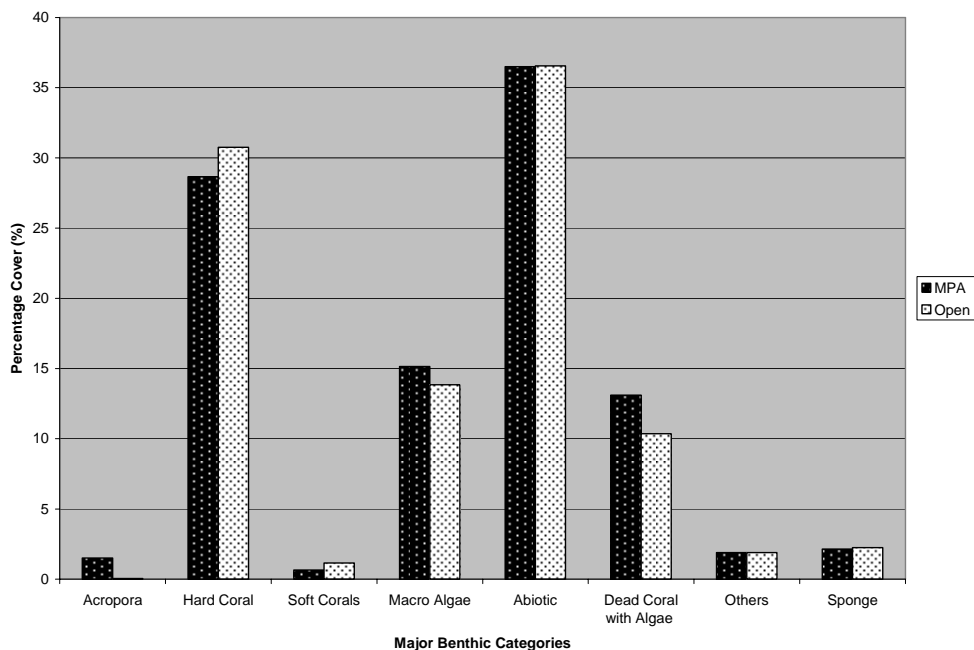


Chart 7 : Boboe Reef Sites



FISH SURVEY:

Fish data (size and number) were obtained using the Underwater Visual Censors (UVC) technique. Using scuba gear and aided with underwater writing pads and a tape measure divers swam 50 m in a horizontal line at 10 and 5 m depth. At the end of the 10 m transect the divers ascended to 5 m and carried out a further 50 m transect. Fish were recorded 2.5 m on either side of the 50 m transect and 5 m above. If the visibility was poor then the width of the transects were reduced. Fish size was only recorded for commercially important species within the *Haemulidae*, *Labridae*, *Lethrinidae*, *Lutjanidae*, *Mullidae*, *Scaridae* and *Serranidae* genera.

Data on fish population collected in 2006 showed that total average fish for all reef sites per 1250m³ was 772 fish, with *Karaka* reef sites registering the highest total fish count of 1001 fish. 2007 average fish counts showed a declined abundance of 150 fish per 1250 m³, with *Boboe* reefs supporting fish counts of 220 fish per 1250 m³. 2008 fish data showed a relative increased average fish number to 450 fish with *Nusatuva* now leading the total fish count per 1250 m³ of 610 fishes, a slight increase from their 2006 baseline count of 508 fish per 1250 m³. Like, corals, fish stocks within LMMAs generally showed much higher abundance except for *Kekoro* where the LMMAs were uplifted from the ocean by 3 metres, as evident by the charts below (2007 Survey).

Chart 8

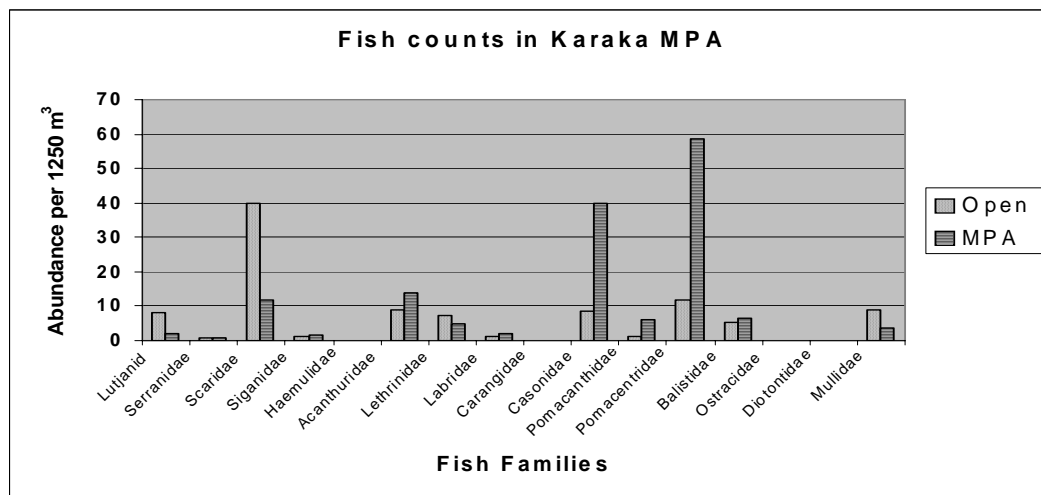


Chart 9

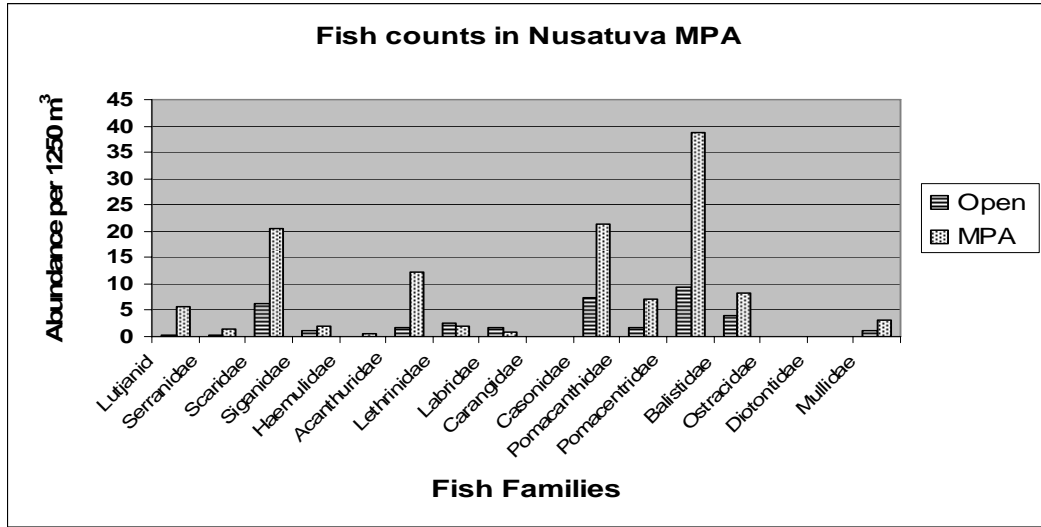


Chart 10

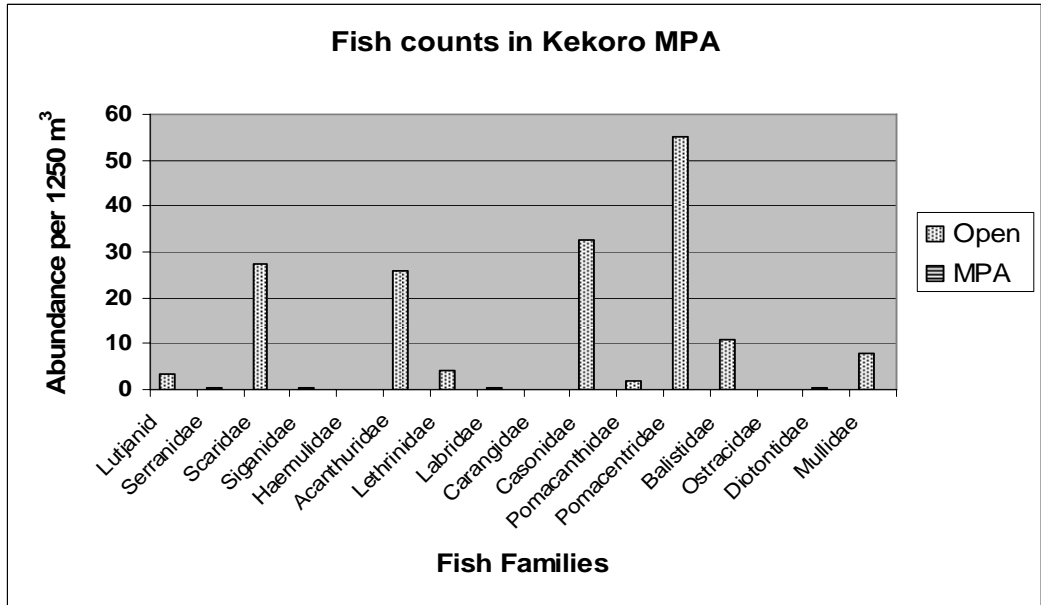
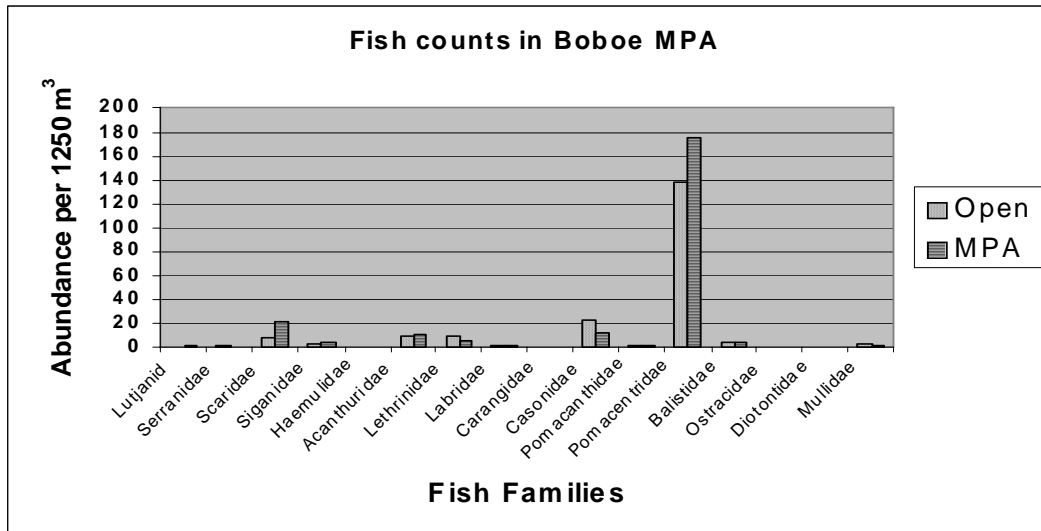


Chart 11



WorldFish Center led the research on macroalgae, seagrass and mangroves in all project sites. The University of Queensland (UQ) also provided technical assistance in identifying various mangrove species. Community members were also instrumental in identifying mangroves using local knowledge as related to their traditional uses. A joint Technical Report was compiled by WorldFish Center and WWF-SI.

MANGROVE SURVEY:

At each location, while GPS positions were collected, three sites, were chosen representing different mangrove types. As much as possible, areas where there was evidence of recent harvesting of trees were avoided. Within each site, three 10 m x 10 m blocks were marked using a transect tape, immediately behind the shoreward boundary. Within each block all trees were counted and identified to species level where possible. Counts were carried out separately for mature trees and for seedlings and density was expressed per square metre (m⁻²). To obtain as complete a species list as possible, every new mangrove species seen during the collection of GPS positions, whether inside the 10 m x 10 m block or not, was recorded and photographed. The primary identification key was used by Professor Norm Duke (UQ) and where there was any doubt, photographs and descriptions were forwarded to him at the UQ for identification.

The mangroves recorded within the *Darwin Initiative* sites included all 12 species that have previously been reported in Western Province. The survey reported an additional six species of mangrove, representing 11 of the 13 families reported by Pillai & Sirikolo (2001) for the whole of the Solomon Islands. *Rhizophora* and *Bruguiera* were the most common genus at the assessed sites within the seaward fringe. Although a comprehensive picture of diversity and distribution remains to be completed for Solomon Islands, the mangrove diversity at the Darwin sites collectively was considered to be high.

SEAGRASS SURVEY :

Seagrasses were assessed at two scales. The first was a broad scale exercise where the outer margins of seagrass beds were noted from a boat and a GPS position recorded. The second set of recording included the identification of seagrass at selected seagrass meadow sites. At each site, three 50 metre transects were laid perpendicular to the shoreline. Along each 50m transect snorkel divers recorded water depth, substrate-type, average plant height, total percent cover of each component seagrass species within a 0.5m x 0.5m quadrat at 2 m intervals.

Seven seagrass species were recorded amongst the Darwin sites. They represent 70% of the 10 species currently listed for Solomon Islands (McKenzie *et al.*, 2006).

MACRO-ALGAE :

The three main groups of marine macro-algae, red, brown and green algae formed the basis of the study. The primary method for assessing macro-algae was through transects within seagrass beds and on coral reefs. The start of each transect was recorded by GPS. For seagrass beds the same transects were used as were surveyed for seagrass species composition. For the reef site a graduated tape was strung along the 50 m of reef, parallel to the shore, starting at a haphazardly selected point. At 2m horizontal intervals along each transect, snorkel divers estimated the percent cover of each macro-algal species within an imaginary 0.5m x 0.5m quadrat. Estimations of dimension was aided by markings on the transect tape. Where identification was difficult in the field, samples were taken for later examination. The primary reference used for identification of macro-algae was Littler and Littler (2003).

A total of 51 taxa of macro-algae were identified during the assessment, of which 22 were common to both seagrass and reef habitats, 17 were confined to reefs and 12 were found only in seagrass.

SOCIAL-ECONOMIC :

Socioeconomic information were collected during the PRA workshop and compiled into a section in the Community Profile Report. Three out of four community profile reports have been compiled and printed.

The level and sources of income generation, provision and availability of social services and associated infrastructure varies between the communities. General household expenditures are relatively the same, except in some cases where religious obligations determine what community members can or suppose not to purchase. Level of income generated is primarily controlled by the availability of markets: *Kekoro*, *Nusatuva* and *Boboe* have more access to commercial centres (*Gizo* and *Ringgi*) where as *Karaka* community only has a logging camp nearby where fish and fresh produces can be sold. As a result, *Kekoro*, *Boboe*, and *Nusatuva* community members earn a much higher income than *Karaka* community members.

Religious obligations have been noted to be the primary factor in the type and amount of household spending in each of the community. Majority of *Karaka* and *Kekoro* community members are members of the Uniting Church, where there are limited restrictions on what to buy. Therefore while food, fuel, transport fares, and education are the major sources of expenditures for all four Darwin sites, other expenditures

which Kekoro and Karaka community spend on, though little but on a regular basis, includes the local seductive drug-betel nut, tobacco and alcohol. On the other hand, *Boboe* and *Nusatuva* communities belong to the Seventh Day Adventist Church, implying that majority of community members are restricted in their purchase and consummation of betel nut, tobacco and alcohol.

This household spending pattern therefore has an impact on the general status of family shelter and other assets. Community members of *Boboe* and *Nusatuva* generally own assets which the majority of Karaka and *Kekoro* do not have such as *motorized boats, water tanks, permanent housing, household furniture and other basic household items*. The literacy level of *Boboe* and *Nusatuva* also shows that they have invested more money on education than *Kekoro* and *Karaka* community members. While *Boboe* and *Nusatuva* community members possess a much greater number of household assets, and higher literacy percentages, such high investments have also caused them to require a greater amount of income to support their families. This has led to *Boboe* and *Nusatuva* communities having great expectations from this project to provide more income opportunities.

Other information of interest from each community was also compiled by each respective field officer. The collated and compiled information or stories included: Local Tenure System, Custom Stories, Medicinal Plants, Local Art and Artefacts, Tabu Sites and Historical Events, Role of Women in the Community, Local knowledge on spawning aggregation sites and seasons. No peer reviews were conducted.

5.6 Capacity building

FOCAL COMMUNITIES

Awareness raising is part of the process WWF-SI has been using when working with the communities. This component comes immediately after all baseline surveys (biological and socioeconomic) have been done and analysed. Findings have become an integral part of the general and standard awareness programs, so as to put the communities' environmental issues into perspective. General awareness programme topics include the connectivity of terrestrial and marine habitats, biology and productivity of corals and targeted marine resources, spawning aggregation seasons and areas, importance of conservation and resource management, climate change, pollution and waste management and other resource management issues of local, regional and international scale. Dissemination of this information is through public speaking (village hall, soccer pitch, church hall, classroom, etc) using visual aids such as posters and media (DVD), radio programs and drama (WWooFer's theatre group).

FIELD OFFICERS & COMMUNITY MONITORS – I.E. INDIVIDUAL COMMUNITY MEMBERS

Individual community members were also trained in resource management and resource development practices. Field officers who were also employed members of each community were first of all trained in marine sciences and management issues, before they began their work in each of their respective communities. Four members of the established resource management committees in each village were taken on a "look and learn" trip to Tetepare Marine Conservation Area to learn about how resource management programs can be established and managed. Other capacity building included training in leadership, business skills, honey bee farming, eco-tourism, food processing and floral art. Community monitors, comprising mostly of young people were also trained in gathering shallow water data on substrate, fish and invertebrates. All four field officers were trained in open water SCUBA diving and in biological monitoring techniques.

WOMEN IN COMMUNITIES

The Women in Fisheries workshop allowed the women to have a better understanding of the biology of the resources which they use and how they can also manage their use for the short term to long term. In addition to the environmental topics, training in other areas of interest was also provided. This included 'kastom garden' skills where the women are trained on how to produce higher yields from their same plot of garden area by using new gardening techniques. Women were trained in simple household food processing such as the preparation, packaging and marketing of cassava, banana and taro chips. Floral art techniques were also acquired by local women in each of the community.

PROVINCIAL GOVERNMENT & OTHER NGO AND PARTNER STAFF

A Western Provincial government workshop titled "*Balancing Economic Development and Environmental Management for Sustainability in the Western Province*" was conducted in 2006. While this workshop was aimed at all the 26 members of the provincial government, funding wasn't able to cater for all of them as many live in other parts of the province. Therefore, only the executive members of the Western Province were able to be catered for. This workshop included relevant stakeholders (donors, NGOs and civil society

groups). The theme of the workshop provided the opportunity for all the NGOs and the provincial government executive members to understand what each organization has been doing to contribute to the development of the province and the country as a whole. At the beginning of the workshop, environmental issues of the Solomon Islands were outlined and thereafter strategies for mitigation were designed from both governmental and technical point of view. In addition to the workshop WWF-SI committed to handing over all technical reports and community profile reports to the Western Provincial Government for development strategic planning.

NATIONAL GOVERNMENT

Technical reports of most of the surveys done by this project were also disseminated to relevant government ministries and departments. The *Darwin Initiative* Community Fact Sheet has captured huge interests as it outlined almost all of the aspect of community livelihoods, giving relevant government department and aid organizations areas that would need addressing.

LOCAL WWF STAFF

Three WWF-SI staff participated in the Field Officers training sessions..

5.7 Sustainability and Legacy

The complimentary linkage between the resource management initiative (LMMAs) and resource development initiative (Eco-Enterprise) within this project is anticipated to leave a lasting legacy within each project site. As experienced with past projects where only resource management programmes were initiated, soon after the project funding period ends, the programme also ends. Hence, with the positive outlook of community members with regard to the operation of the pilot livelihood enterprises, it will also encourage the ongoing management of their resources, as the advancement of their enterprise will be determined by the health and maintenance of resources and biodiversity as a whole. For example, the eco-tourism enterprise will not be operating well if it's surrounding environment (marine and terrestrial) are in a bad condition.

Additionally, exit strategies or more appropriately termed sustainable strategies have been laid out by both WWF-SI and each community resource management committee. These strategies include formalizing and legalizing the operation of each community management committee as a registered body, which would gain recognition from government departments and Non-State Agencies (Aid Donors). Development concept papers have been compiled for each community which will be provided to relevant agencies for further assistances.

Field staff gained significant knowledge and skills during the project. In three cases, the field officers live in the communities in which they worked and are expected to continue to provide ongoing support and input to the management of the marine resources. The fourth field officer has relocated to *Gizo* for personal reasons. WWF staff engaged in the *Darwin Initiative* project continue to be employed by WWF-SI.

In terms of partners' ongoing engagement with the communities, WWF has included the four communities as part of its ongoing *Bismarck Solomon Seas Ecoregion* (BSSE) programme and will maintain an ongoing relationship of providing advice and technical support where required and conducting future monitoring of the pilot livelihood projects to determine their success.

6 Lessons learned, dissemination and communication

Lessons learned are being compiled into a document, as much valuable experience has been gained during the course of the project timeframe. However, these lessons have become fundamentally important in allowing WWF-SI to make appropriate and sound actions to achieve the goals of the project while at the same time tie in with the aspirations of the communities. In summary these are the major lessons this project encountered:

- 1) Higher expectation for income generation activities.
- 2) Status of local infrastructure, availability of services and opportunities for income generation determines the reception towards the type of resource management proposed.
- 3) Community volunteer work no longer exists in the rural Solomon Islands. Everything is based on "Cash-before-work".
- 4) While some of their major sources (natural resources) of livelihoods are reaching a total depletion status, rehabilitating stock sizes through conservation activities is not the communities' priority concern; generating optimal income is their first and foremost priority.
- 5) Community members need to be fully educated about their natural resources and how important it is

to conserve biodiversity, as technical knowledge of their local environment is what is lacking.

- 6) The status of the local economy affects the status of the local environment and natural resources: more opportunities for generating income and sources of food varieties, relies on less extractive activities occurring in their forests and on the coral reefs.

One hundred copies of the final draft of the *Darwin Initiative* Community fact file (all four community fact files a “two-fold” fact sheet) and report has been printed and are currently been distributed among relevant partners and stakeholders. It has captured great and positive responses from people within each of the project sites, the provincial government and more so by neighbouring communities. The fact sheet is a 2-page version of the data and reports collected during the Participatory Rural Appraisal (PRA) workshops and compiled into a PRA report and Community Profile book. Information on the fact sheet includes history, settlement, people, local governance and tenure system, local environment and resources, marine resource management programmes, sustainable development options and opportunities, socioeconomics, services, infrastructure and human resource development and outstanding cultural, physiological and biological features.

5.1 Darwin identity

Promotion of *Darwin Initiative* has been done in writing and by the use of the logo in the publications provided in Annex 5. Darwin Initiative was mentioned in all press releases either at the beginning or the end of the articles. It is the principal donor of this achieved activity. For other publications such as posters and brochures, only the Darwin Initiative logo was incorporated. In all technical reports, both the logo and the mentioning of Darwin Initiative as the funding agency were included. So the total amount of publications where both the logo and Darwin Initiative promotion notes were inserted as follows:

Press Releases :

- Community leaders taking the lead in their natural resources.
- Launching of Karaka MPA.
- Biodiversity of marine plants in *Darwin Initiative* Project sites.
- Post tsunami status of coral reefs reef fish and socioeconomic.

Posters:

- General Awareness of the importance of coral reefs – 10 copies.
- Impact of mining corals – 10 copies.
- Marine Plants of Karaka – 4 copies.
- Marine Plants of Nusatuva – 4 copies.
- Marine Plants of Kekoro – 4 copies.

Fact Sheets: Darwin Community Fact Sheets (100 Copies).

Scientific Technical Reports :

- Karaka Biological Survey Report – 2006.
- Kekoro Marine Monitoring Report – 2007.
- Biological Survey Report for *Darwin Initiative* Project Sites – 2006.
- Preliminary Mangrove and seagrass Report for Darwin Initiative Project Sites – 2006.
- Mangrove, seagrass and macroalgae resources on reefs in *Darwin Initiative* Project Sites, Solomon Islands, 2007.
- Post Tsunami Biological Survey Report for Darwin Initiative Project Sites – 2007.
- Karaka Community Profile – 2007.
- Kekoro Community Profile – 2007.
- Nusatuva Community Profile – 2007.
- Western Provincial Government Workshop Report -2006
- Biological Survey Report for *Darwin Initiative* Project Sites – 2008

Management Plans & Development Concepts:

- Boboe Resource Management Plan.
- Nusatuva Resource Management Plan.
- Karaka Resource Management Plan.
- Kekoro Resource Management Plan.

- Boboe Socioeconomic & Infrastructure Development Plan.
- Boboe Environmental and Resource Use Policy.
- Karaka Socioeconomic & Infrastructure Development Plan.
- Karaka Environmental and Resource Use Policy.
- Nusatuva Socioeconomic & Infrastructure Development Plan.
- Nusatuva Environmental and Resource Use Policy.
- Kekoro Socioeconomic & Infrastructure Development Plan.
- Kekoro Environmental and Resource Use Policy

6 Monitoring and evaluation

Following the mid-term review conducted in late March, 2007 and the aftermath of the April 2007 earthquake/tsunami event, a number of changes were made to the initial project design. WWF-SI also conduct monitoring and evaluation (M&E) exercises every June before the end of WWF's fiscal year. Stakeholders, particularly the target communities also voiced their recommendations for some changes to be made especially as a result of the 2007 natural disaster.

While a number of changes have been to the outputs, these changes still maintained the goals and purpose of the project. Biological surveying continued, implementation of two community resource management plans continued by way of ongoing monitoring of the community MPA sites, pursuing of an alternative and appropriate legislative tool also continued for the other two community MPAs and establishment of community alternative livelihood pilots through appropriate training and then implementation.

6.1 Actions taken in response to annual report reviews

While it is noted in the review that very little explanation has been made in the previous annual reports, Darwin Initiative Project team has put allot of effort on the ground in achieving all the activities being outlined. Political schemes, economic aspirations and natural disasters have been the major factors that have prevented a number of achievements as planned as they are beyond the capacity of the project and the project team. WWF is a learning organization and therefore has made considerable changes to approach local socio-political settings, in the light of achieving environmental goals. WWF also uses standardized tools and indicators for measuring changes in any established management schemes. However, local knowledge, aspirations and priorities have also become contradictory rather complementary, as some of the community attitudes have changed over time due to the stated factors. As a result, changes also have to be made to the initial log frame, to suit the changing environment and mindset. As a result partnership agreements have to be amended twice as to accommodate the changes that have taken place.

The biggest challenge has been the economic aspiration of the communities, which stems out as the biggest community expectation of the project. While the communities understood the overall intention of the project, before reaching the final stage of the project phase, the project team realized that while resource management regimes were important for subsistence utilization and the safeguarding of food security, economic wellbeing of individual family members matters the most. Again this is not the sole responsibility of WWF's or the project to provide income or services facilitating income generation. However the provision of income generation assets, capital, complementary services and associated infrastructure is also lacking within some of the communities, therefore as community members saw that the investment into resource management programs for future use exceeds that of short term economic needs which is regarded as the priority need, community involvement in the project slowly phased out. However, it was also clear that in communities where elements for income generation (markets), social services and infrastructure were available, conservation programme tends to go on as planned (e.g. *Nusatuva*).

As a result of these emerging issues, the project team had to seek alternative assistance where responsible government departments, local enterprises and in-country aid donors were involved by providing them with these rising socioeconomic issues. This therefore demanded the project extra time and effort to gauge extra support from other supporting agencies to cater for these non-environmental issues. So while the project team focused on environmental aspect of each of the community, relevant information regarding other aspects of the community remain unknown to other relevant agencies (since WWF used to be the only organization that makes regular visit to these communities, unlike other NGOs or government departments). Allot of community issues that require outside assistant are rarely publicised. Further elaboration and in-depth analysis of the challenges faced by the project will be clearly outlined in the Final *Darwin Initiative*

Project Report Document, which is currently in progress.

The Final *Darwin Initiative* Project Report document will clearly outline the current economic and ecological status of the country and the overall outcome of the project. It will also outline factors pertaining to the challenges faced in establishing MPAs in these communities and will link how the status of the economy of the country play a major role in the people's attitude towards resource management programs. Project photographs showing the various activities done will also be included. It is hoped that this document will be treated as a lesson learnt document, while at the same time a model which other resource management practitioners in the country may utilize.

7 Finance and administration

7.1 Project expenditure

ITEM	Budget	Actual expenditure	Difference between budget and actual expenditure
<i>Rents, rates, heating, cleaning, overheads</i>			
<i>Office Costs</i>			
<i>Travel and subsistence (for M&E)</i>			
<i>Printing</i>			
<i>Conferences/Seminars</i>			
PRA			
Drama			
Fisher Workshop(2)			
Western Province Workshop **			
<i>Capital items/equipment</i>			
Computer			
Digital Camera			
Snorkelling Gearx 4 Field Officer			
Snorkelling Gearx 20(Community Representative)			
HF Radio x 4 (Field Officer)			
Boat Safety Equipment			
Tape Measures			
GPS x 4			
Monitoring Equipment			
Equipment for 4 pilot enterprises			
<i>Other costs</i>			
External Financial Audit(paid in UK)			
Recruitment of staff			
Lessons Learnt documentation			
Graphic designer			
Training Service (Scuba Diving)			
GIS Mapping			
Multi Media presentations			
Photography			
Radio Broadcasts			
Feasibility Study			
Legal Fees (RMO) development			
Reef Check/seagrass watch training			
Alternative livelihood training			
Look & Learn training			
Business skills training			
Capacity Building (staff)			

Biological and marine surveys			
Mangrove survey			
Seagrass/algal community surveys			
Management plan Development			
Community Monitoring programme development			
Management plan Implementation			
Monitoring programme implementation			
Partnership development			
RMO Development and gazettal			
Alternative livelihood project implementation			
Review of pilot projects			
M & E			
Salaries			
Programme Leader / Expert (WWF-UK)			
Project Administrator (WWF-UK)			
WWF Solomons Project Manager (100%)			
WWF Project Officer (20%)			
WWF Capacity Building/Sus.Livelihood off(20%)			
WWF Marine Officer(20%)			
WWF Conservation Assistant(20%)			
WWF Field Officer 1 (100%)			
WWF Field Officer 2 (100%)			
WWF Field Officer 3 (100%)			
WWF Field Officer 4 (100%)			
WWF Finance & Admin Manager (10%)			
WWF Admin Officer (10%)			
WWF Conservation Manager/BSSE Coordinator (10%)			
TOTAL EXPENDITURE			
NET SURPLUS (DEFICIT)			

Changes to budget were made during the project for two key reasons :

1. Recommendations of the mid-term review indicated that (1) the logical framework of the Project 14-020 should be revised to enhance impact and sustainability of the outcomes for the remainder of the implementation period and (2) the revised logical framework (and project design) should include a new output which presents a comparative analysis of the experience of establishing MPAs with four DI communities.

2. The tsunami and earthquakes of April 2007, immediately after the mid-term evaluation, meant that it was necessary for a significant re-evaluation of the project design. Not least, there was a need to review the impacts of these significant events and the next steps for restoration.

These recommendations and the changes required following the tsunami and earthquake were adopted and a new logframe and budget were submitted on request from DEFRA in August 2008.

7.2 Additional funds or in-kind contributions secured

Following the 2007 earthquake and tsunami WWF-SI received a support grant from WWF International. Part of this funding (SBD 149,000) was used to purchase four HF radios for the four *Darwin Initiative* communities and an HF Solar Powered base station was established in the WWF-SI office in Gizo. All four communities provided varying levels of in-kind contribution to the project through their engagement in the establishment of the managed areas and establishing the pilot livelihood projects.

7.3 Value of Darwin Initiative funding

The *Darwin Initiative* and UK partner funding enabled WWF-SI to dedicate three years towards establishing relationships with four remote communities who had requested support to better manage marine resources. This provided the field staff and WWF management staff time, plus the resources to train community representatives in marine monitoring techniques, raise awareness of community members to the value of their marine resources and the importance of sustainable management and it helped establish pilot livelihood projects in each community.

One of the major challenges facing both economic developers and conservationists is the lack of scientific data and information on the status of natural resources and biodiversity of the Solomon Islands, as highlighted during the BSSE planning meeting in 2003. As a result a country-wide Rapid Ecological Assessment (REA) was conducted in mid-2004 headed by The Nature Conservancy and assisted by the Government and WWF-SI. While comprehensive and new findings were gathered during the assessment, status of specific biodiversity features for a given area surrounded by the use and manipulation of natural processes by local human population – impact of human settlement on biodiversity is still unknown. This is where some of this project's activities were able to be unravelled.

The link – use and management of natural resources and impact by humans is inevitable. The environment, its resources will be utilized and biodiversity and natural processes will always be 'interfered' by human actions in the Solomon Islands. The *Darwin Initiative* project enabled WWF and four local communities to understand the pattern of use and the threat that this degree of use has on the environment and resources in four marine areas. In this way, simple models for use and management of natural resources in the islands can be visualized which can help both the local communities to forecast status of food security and government for sustainable economic development in the near future with what is currently being practiced.

The PRA exercises where almost every aspect of community living was explored, the socioeconomic status and the biological (environment (habitats) and natural resources) status have been the tools used in designing the resource use models for each individual community for both subsistence and economic well being.

The provision of carefully selected income generating projects has also facilitated the continuous care over the use of the natural resources as a whole. Income generated from these projects can not be viable if natural resources are not managed, and natural resources will continue to thrive if optimal income is generated. There is this direct link between the success of the income generating project and intactness of the environment, which the *Darwin Initiative* Project was able to provide.

Annex 1 Report of progress and achievements against final project logframe for the life of the project

Project summary	Measurable Indicators	Progress and Achievements April 2007 - March 2008	Actions required/planned for next period
<p>Goal : 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</p> <ul style="list-style-type: none"> • 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 		<ul style="list-style-type: none"> • Reported increases in fish stocks in LMMA sites. • Increased capacity of communities to monitor their own resources. • Increased capacity of female resource owners and users to manage fisheries and seek alternative sources of income. • Consequent increases in turban shell stocks following implementation of the management plan. • Increased income from new livelihood opportunities. 	N/A
<p>Purpose : To empower communities to promote sustainable management of marine resources in the Western Province of the Solomon Islands</p>	<p>Four pilot communities develop management plans and MPAs by June 2008</p> <p>Lessons learnt from the product are documented through a comparative review to inform future monitoring, management and enforcement at the pilot sites and to support the future extension of the process to new communities</p>	<ul style="list-style-type: none"> • Management Plans drafted. • Boundaries identified for each MPA. • MPAs established (2 formally launched). 	<ul style="list-style-type: none"> • Launching of two remaining MPAs upon the completion and launching of their eco-enterprise project – eco-tourism and upon the clear understanding of an appropriate legislative tool to use with subsequent legal application procedures. • Completion, printing and dissemination of the Final Darwin Report. • Lessons learnt document in the form of the final Darwin Project Report is still in progress
<p>Output 1 : Draft Resource Management Orders produced for community managed MPAs with associated plan for sustainable management of the resource</p>	<p>Management plans produced by four pilot communities by June 2008.</p> <p>Draft resource management orders submitted to the Western Province Executive, if these are required by the Management Plans.</p>	<ul style="list-style-type: none"> • Management plans drafted. • Boundaries identified for each MPA. • MPAs established (2 formally launched). 	
1.1 Production of draft management plans		<ul style="list-style-type: none"> • Four management plans drafted and accepted by the community. • 2 MPAs formally formally launched. 	
1.2 Production of Resource Management Orders		<ul style="list-style-type: none"> • No longer regarded as an option for legal backup tool, and therefore other legal avenues are currently being sorted (e.g. designing of a simple community by-law, giving more reporting and arresting powers to community monitors) 	<ul style="list-style-type: none"> • Draft Community By-laws and registering them under the Western Provincial Government Act.
1.3 Community dialogue on management plan and RMOs		<ul style="list-style-type: none"> • Regular community visits, awareness and planning 	
1.4 Submission of RMOs to Western Province Executive		<ul style="list-style-type: none"> • Not done for reasons explained in 1.2 above 	
1.5 Awareness raising (radio and print).		<ul style="list-style-type: none"> • 30 radio programs conducted : - 10 local radio stations – Radio Happy 	

		<p>Lagoon.</p> <ul style="list-style-type: none"> - 20 national radio stations – Radio Happy Isles. • WWooFer's Drama group performance in all four communities and schools. • 20 copies of coral reef posters and 12 posters of mangrove, macro-algae and seagrass. 	
<p>Output 2 : Community members and their external supporters have the information and skills required for ongoing management of the pilot MPAs.</p>	<p>Baseline biological and PRA assessments collated and reports produced by June 2007 Key members of each pilot community provided training for management of the MPA by June 2008 WWF-SI staff provided with training to support ongoing implementation of the MPA programme in the Western Province by June 2008</p>	<ul style="list-style-type: none"> • Biological surveys completed. • PRAs completed, reports prepared and presented back to communities. • Post tsunami rapid biological surveys undertaken. • Post tsunami PRAs completed. • Community members trained in resource monitoring techniques. • Women in Fisheries workshops held in all four (4) target communities. • Seagrass monitoring workshop completed for all four communities based management committees established. • Livelihood training provided. • Pilot livelihood projects established 	
2.1 Participatory Rural Appraisals in four communities		<ul style="list-style-type: none"> • PRA workshop conducted in all four target communities 	<ul style="list-style-type: none"> • Dissemination of final copies of each community "Community Profile Report".
2.2 Biological surveys in four communities		<ul style="list-style-type: none"> • 3 series of biological surveys completed for 2006, 2007 and 2008 	<ul style="list-style-type: none"> • Printing, publicising and dissemination of scientific reports to partners.
2.3 Database establishment and maintenance		<ul style="list-style-type: none"> • Database established 	
2.4 Community members trained in survey and monitoring methods		<ul style="list-style-type: none"> • Total of 60 community members trained in shallow water biological monitoring surveys 	
2.5 Community members trained in alternative livelihood activities		<ul style="list-style-type: none"> • Total of 78 community members in all four (4) target communities were trained in Honey Bee Keeping, Eco-Tourism operation, clam and coral farming and business skills training. • Additional 88 women were trained local gardening techniques, floral art and food processing (Participants of Women in Fisheries Workshop) 	
2.6 Awareness raising (drama and radio)		<ul style="list-style-type: none"> • 30 radio programs conducted: • 10-local radio station – Radio Happy Lagoon; and • 20-National radio station – Radio Happy Isles • WWooFer's Drama group performance in all four communities and schools. • 20 copies of coral reef posters and 12 posters of mangrove, macro-algae and seagrass. 	
2.7 WWF staff trained in community engagement, monitoring, analysis etc.		<ul style="list-style-type: none"> • Staff training completed in basic marine sciences, resource management, biological and socioeconomic surveys and analysis. 	

<p>Output 3 : Comparative review of lessons learnt from the four pilot communities and from other models of MPAs in the Solomon Islands and the South Pacific region designed to inform the extension of MPAs to new communities and the long term sustainability of the pilot sites.</p>	<p>Planning process from the four pilot communities and similar initiatives documented and analysed by June 2008 Draft guidelines for resource management planning and MPA establishment produced by June 2008 Long term needs of the pilot communities identified and a proposal for support developed.</p>	<ul style="list-style-type: none"> • Lessons learnt document in progress. • Long term needs assessed and documents into Community Development Plans 	<ul style="list-style-type: none"> • Lessons Learnt document to be finalised and distributed through the SILMMA network.
<p>3.1 Compile reports from project activities over four sites and similar initiatives</p>		<ul style="list-style-type: none"> • Biological and socioeconomic (PRA) reports completed 	<ul style="list-style-type: none"> • Printing and dissemination
<p>3.2 Comparative analysis of progress, impediments, and lessons</p>		<ul style="list-style-type: none"> • Final Darwin Report in Progress 	<ul style="list-style-type: none"> • Printing and dissemination
<p>3.3 Production of draft guidelines for MPA establishment</p>		<ul style="list-style-type: none"> • Draft Guidelines for MPA establishment in the Solomon Islands is still in progress 	
<p>3.4 Assessment of pilot community needs and potential sources of support</p>		<ul style="list-style-type: none"> • Assessment conducted and documented into Community Development Plans 	

Annex 2 Project's final logframe, including criteria and indicators

Project summary	Measurable Indicators	Means of verification	Important Assumptions
<p>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 benefits arising out of the utilisation of genetic resources</p>			
<p>Purpose : To empower communities to promote sustainable management of marine resources in the Western Province of the Solomon Islands.</p>	<p>Four pilot communities develop management plans and MPAs by June 2008.</p> <p>Lessons learnt from the product are documented through a comparative review to inform future monitoring, management and enforcement at the pilot sites and to support the future extension of the process to new communities.</p>	<p>Copies of the draft Resource Management Orders and Management Plans collated by WWF-SI and submitted as Annexes to the Final Report</p> <p>Comparative review submitted as Annex to the Final Report.</p> <p>Final Report.</p>	<p>Pilot communities have sufficient financial resources to be able to manage MPAs.</p> <p>Communities continue to support the process.</p> <p>Government capacity is enhanced to support community-based management of natural resources.</p> <p>Draft RMOs are successfully gazetted (low risk).</p> <p>Trained community members and WWF-SI staff remain engaged in the MPA process after completion of project.</p>
<p>Output 1 : Draft Resource Management Orders produced for community managed MPAs with associated plan for sustainable management of the resource.</p>	<p>Management plans produced by four pilot communities by June 2008</p> <p>Draft resource management orders submitted to the Western Province Executive, if these are required by the management plans.</p>	<p>Copies of the draft Resource Management Orders and Management Plans collated by WWF-SI and submitted as Annexes to the Final Report</p>	<p>Pilot communities have sufficient cohesion so that there is broad-based support of the RMO and management plans</p>
<p>Output 2 : Community members and their external supporters have the information and skills required for ongoing management of the pilot MPAs.</p>	<p>Baseline biological and PRA assessments collated and reports produced by June 2007.</p> <p>Key members of each pilot community provided training for management of the MPA by June 2008.</p> <p>WWF-SI staff provided with training to support ongoing implementation of the MPA programme in the Western Province by June 2008.</p>	<p>Annual and Final Reports.</p> <p>Report on capacity building provided as an Annex to the Final Report</p>	<p>Community members are available for training.</p> <p>The availability of external training opportunities is compatible with the project's implementation timetable.</p>
<p>Output 3 : Comparative review of lessons learnt from the four pilot communities and from other models for MPAs in the Solomon Islands and the South Pacific region designed to inform the extension of MPAs to new communities and the long-term sustainability of the pilot sites.</p>	<p>Planning process from the four pilot communities and similar initiatives documented and analysed by June 2008</p> <p>Draft guidelines for resource management planning and MPA establishment produced by June 2008</p> <p>Long-term needs of the pilot communities identified and a proposal for support developed</p>	<p>Report on MPA establishment process and draft guidelines provided as an Annex to the Final Report</p> <p>Potential for ongoing support of pilot communities discussed with Darwin Secretariat</p>	<p>External partners and supporters continue to support the MPA process</p>

Activities :	
Output 1	<ul style="list-style-type: none"> 1.1 Production of draft management plans 1.2 Production of Resource Management Orders 1.3 Community dialogue on management plan and RMOs 1.4 Submission of RMOs to Western Province Executive 1.5 Awareness raising (radio and print).
Output 2	<ul style="list-style-type: none"> 2.1 Participatory Rural Appraisals in four communities 2.2 Biological surveys in four communities 2.3 Database establishment and maintenance 2.4 Community members trained in survey and monitoring methods 2.5 Community members trained in alternative livelihood activities 2.6 Awareness raising (drama and radio) 2.7 WWF staff trained in community engagement, monitoring, analysis etc.
Output 3	<ul style="list-style-type: none"> 3.1 Compile reports from project activities over four sites and similar initiatives 3.2 Comparative analysis of progress, impediments, and lessons 3.3 Production of draft guidelines for MPA establishment 3.4 Assessment of pilot community needs and potential sources of support

Annex 3 Project Contribution to Articles under the Convention on Biological Diversity

Article No./Title	Project %	Article Description
6. General Measures for Conservation & Sustainable Use	5%	Develop national strategies that integrate conservation and sustainable use.
7. Identification and Monitoring	15%	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	25%	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	0	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	25%	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	10%	Establish economically and socially sound incentives to conserve and promote sustainable use of biological diversity.
12. Research and Training	0	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	20%	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	0	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	0	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	0	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 access and joint development of technologies.
17. Exchange of Information	0	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	0	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.
Other Contribution		Smaller contributions (eg of 5%) or less should be summed and included here.
Total %	100%	Check % = total 100

Annex 4 Standard Measures

Code	Description	Totals (plus additional detail as required)
Training Measures		
1a	Number of people to submit PhD thesis	0
1b	Number of PhD qualifications obtained	0
2	Number of Masters qualifications obtained	0
3	Number of other qualifications obtained	0
4a	Number of undergraduate students receiving training	0
4b	Number of training weeks provided to undergraduate students	0
4c	Number of postgraduate students receiving training (not 1-3 above)	0
4d	Number of training weeks for postgraduate students	0
5	Number of people receiving other forms of long-term (>1yr) training not leading to formal qualification(ie not categories 1-4 above)	0
6a	Number of people receiving other forms of short-term education/training (ie not categories 1-5 above)	7
6b	Number of training weeks not leading to formal qualification	2
7	Number of types of training materials produced for use by host country(s)	414 community members 7 staff members
Research Measures		
8	Number of weeks spent by UK project staff on project work in host country(s)	12 weeks over the life of the project
9	Number of species/habitat management plans (or action plans) produced for Governments, public authorities or other implementing agencies in the host country (s)	4 Resource Management Plans 4 Environmental and Resource Use Policies
10	Number of formal documents produced to assist work related to species identification, classification and recording.	6 – refer to section 5.1
11a	Number of papers published or accepted for publication in peer reviewed journals	1 – Privatising Fish – Barriers in establishing MPAs in Melanesia
11b	Number of papers published or accepted for publication elsewhere	1 – Privatising Fish – Barriers in establishing MPAs in Melanesia
12a	Number of computer-based databases established (containing species/generic information) and handed over to host country	1 from Global Coral Reef Monitoring Network (GCRMN) 1 from Reef Base is still in progress
12b	Number of computer-based databases enhanced (containing species/genetic information) and handed over to host country	1 from GCRMN
13a	Number of species reference collections established and handed over to host country(s)	4 – Reef Finfish, mangrove, macro-algae and seagrass
13b	Number of species reference collections enhanced and handed over to host country(s)	0
Dissemination Measures		
14a	Number of conferences/seminars/workshops organised to	3 – SILMMA Workshops, Fisheries

	present/disseminate findings from Darwin project work	Forum, Western Province Workshop
14b	Number of conferences/seminars/ workshops attended at which findings from Darwin project work will be presented/disseminated.	2 – SILMMA Workshops
15a	Number of national press releases or publicity articles in host country(s)	4 – Refer to section 5.1
15b	Number of local press releases or publicity articles in host country(s)	4 – Refer to section 5.1
15c	Number of national press releases or publicity articles in UK	0
15d	Number of local press releases or publicity articles in UK	0
16a	Number of issues of newsletters produced in the host country(s)	0
16b	Estimated circulation of each newsletter in the host country(s)	0
16c	Estimated circulation of each newsletter in the UK	0
17a	Number of dissemination networks established	0
17b	Number of dissemination networks enhanced or extended	1 Solomon Islands SILMMA network enhanced by contribution of information on DI sites.
18a	Number of national TV programmes/features in host country(s)	0
18b	Number of national TV programme/features in the UK	0
18c	Number of local TV programme/features in host country	0
18d	Number of local TV programme features in the UK	0
19a	Number of national radio interviews/features in host country(s)	2
19b	Number of national radio interviews/features in the UK	0
19c	Number of local radio interviews/features in host country (s)	3
19d	Number of local radio interviews/features in the UK	0
Physical Measures		
20	Estimated value (£s) of physical assets handed over to host country(s)	£3,504
21	Number of permanent educational/training/research facilities or organisation established	0
22	Number of permanent field plots established	14
23	Value of additional resources raised for project	149,000 SBD for HF radios

Annex 5

Publications

Type * (eg journals, manual, CDs)	Detail (title, author, year)	Publishers (name, city)	Available from (eg contact address, website)	Cost £
Scientific Report	* Schwarz, A., Hawes,.I., Manele,.B., Makini,.D., Posala, R. & Tauku, M. (2007). <i>Mangrove, seagrass and macroalgae resources on Reefs in Darwin Initiative Project Sites, Solomon Islands</i> . 40 pp	WorlFish Centre, Gizo		£102 for 10 copies
Scientific Report	* Manele, B. (2006). <i>Preliminary Mangrove and seagrass Report for Darwin Initiative Project Sites</i> . 23pp	EN Digital Technology, Honaira		£167 for 20 copies
Scientific Report	* Manele,.B., Kere, N., Leve, T. (2006). <i>Karaka Biological Survey Report</i> .	EN Digital Technology, Honaira		£167 for 20 copies
Scientific Report	* Manele.B, Kere, N. & Leve, T. (2006). <i>Biological baseline Survey Report for Darwin Initiative Project Sites</i> . 29pp	EN Digital Technology, Honaira		£167 for 20 copies
Scientific Report	* Manele,.B., Kere, N. & Leve, T. (2007). <i>Post-Tsunami Biological Survey Report for Darwin Initiative Project Sites</i> .	EN Digital Technology, Honaira		£167 for 20 copies
Handbook	* Lina,.J. & Manele, B. (2007). <i>Karaka Community Profile</i> , WWF SI Program Report, Gizo 94 pp	EN Digital Technology, Honaira		£167 for 20 copies
Handbook	*Tanito, C. & Manele, B. (2007). <i>Kekoro Community Profile</i> . WWF SI Program Report, Gizo 78pp	EN Digital Technology, Honaira		£167 for 20 copies
Journal	Foale, S. & Manele, B. (2006). <i>Privatising Fish – Barriers in establishing MPAs in Melanesia</i> .			
Workshop Report	*Manele, B. (2006). <i>Western Provincial Government Workshop Report</i> . WWF SI Program Report, 101 pp	EN Digital Technology, Honaira		£167 for 20 copies

Annex 6 Darwin Contacts

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