



Managing the Ecosystem and Livelihood Implications of Energy Policies in the Pacific Island States

Project Report



IUCN Oceania Regional Office



Austrian
Development Cooperation

Quality Record Sheet

Project: Pacific Small Islands Developing States Energy, Ecosystems and Sustainable Livelihood Initiative

Description: Quarterly Report – 4 Quarter 2009 (October -December 2009)

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Funding: Governments of Italy (€3 million) and Austria (€1 million)

Implementing Agency: The International Union for Conservation of Nature (IUCN) through its Oceania Regional Office in Suva, Fiji Islands.

Participating Countries: Republic of the Marshall Islands, Palau, Samoa, Tonga, Tuvalu and Vanuatu

Introduction

The report covers the period from October to December 2009. A number of activities and events were planned for the quarter. IUCN continued to liaise closely with Project Managers in the six participating countries. Progress in the implementation of the projects is somewhat mixed. While four countries – Tonga, Tuvalu, Marshall Islands and Palau – are in an advanced stage of implementation, the slow progress in the implementation of the Samoa and Vanuatu projects raises a bit of concern. However, it is noted that these countries had a late start in their implementation: the Samoa project did not start until February 2009 while for Vanuatu, the delay in the appointment of a fulltime Project Manager has an adverse impact on the implementation progress.

Individual Country Progress Report

REPUBLIC OF THE MARSHALL ISLANDS – Street Lights Retrofitting

(Photos by courtesy of MRD, Marshall Is)

The quarter was a lull period as RMI were awaiting the arrival of lighting fixtures from the suppliers. The lighting fixtures were tested thoroughly before the contracts were awarded.



As seen in picture on the right, technicians from the Public Works Department and the Marshall Energy Company are fixing the new lights which were allowed to operate for two months to test their credibility. Further testings were also carried out on the critical components of the lighting fixtures as seen in the picture on the left.

PALAU – Energy Efficiency Home Loan

(Photos provided by courtesy of Ms Clarinda Ziegler)

The global economic downturn is also felt in Palau and as a result, the number of applications for new homes have slowed down during the quarter. This did not dampen the spirit at the National Development Bank of Palau (NDBP) and the



Energy Division as they carried out an extensive outreach campaign through public meetings and workshops. Shown in the picture on the right are a group of stakeholders participating in an outreach campaign and on the left the Programme Manager, Ms Clarinda Ziegler is seen discussing with an interested customer during an outreach campaign. Flyers and brochures were produced and disseminated during these campaigns. It is encouraging to note that most expenses pertaining to the outreach programme were borne by NDBP.



SAMOA – Greenhouse Gas Abatement through Energy Efficiency in the Transport and Electricity Sectors.

The following activities were completed during the fourth quarter:

1. A workshop targeting bus owners and motor mechanics was organised in November 2009 in each of the islands – Savaii and Upolu.
2. A workshop was held in Savaii and Upolu on the benefits and values of non-motorised vehicles.
3. The installation of the biodiesel plant.
4. Vehicle testing using the locally produced biodiesel
5. Appointment of a local consultant to develop the motorised and non-motorised efficiency measures/regulations for the Land Transport Authority.

The above workshops have helped in consolidating the understanding of issues that the project is trying to bring about which include:

1. The links between petroleum fuel use and greenhouse gas emissions
2. The importance of fuel efficient vehicles
3. Greenhouse gas emissions and climate change
4. Links between greenhouse gas emissions and energy efficiency, specifically in the land transport sector; and
5. The benefits of using locally produced biodiesel.



Vehicles running on locally produced biodiesel – Photo courtesy of the SROS, Samoa

TONGA - Solar Home Systems Rehabilitation

(Photo courtesy of Ms Salote Sauturaga, IUCN ORO)

The Tonga Solar Home System rehabilitation project has been completed. Each of the 64 households received a system comprising two Kyocera 85 TS brand, 80W_p solar panels (connected in parallel), one Steca PR 1515 charge controller and one Hoppecke 12V OpzS deep cycle battery with a C10 capacity of 100 AH. The system provides power to four 13 watt (each) Compact Fluorescent lamps (CFLs) and one 0.5 watt LED night-light via a 10 A circuit breaker. The total load is about 418 Wh per day. The management of the project is being entrusted to the Ha'paa Solar Electrification In-cooperated Society (HSEIS) an organisation established under statutory declaration. The office bearers are appointed by a general meeting of all members for a three year term. Each household paid 200T\$ installation fee and pay a monthly 13 T\$ fee for



operational and maintenance (O&M) expenses. The accounts are subject to government audits. The picture on the left shows a church on Mango Island lighted with solar energy.

TUVALU - Tuvalu Photovoltaic Electricity Network Integration Project (TPVENIP)

(Photos courtesy of Peter Libretto, Eco Kinetics)

The project sited at the secondary school in Vaitupu was completed in November. The company, Eco-Kinetics Engineers and technicians from the Tuvalu Electricity Corporation (TEC) carried the installation of the PV system. The involvement of the TEC technicians was part of their training to have a better understanding of



the system as they would be responsible for looking after the system. The picture on the left shows the structure for the solar panels under construction and on the right, the completed structure.



VANUATU – Renewable Energy Projects

There are three components and these include:

- (i) *Talise Hydro* – The feasibility study has been completed with the draft final report now available. One of the recommendations that came out of the feasibility study was the construction of a “V- notched” weir on the river source to facilitate the collection of more accurate stream flow data. The weir is under construction. The picture on the right shows part of the stream (Talise) where the hydro will be constructed. (Photo courtesy of Energy Unit, Vanuatu)



- (ii) *Wind Resources Assessment* - There has been a delay in the tendering of the supply and installation of the wind monitoring equipment as some sites had to be reviewed. Now the technicians from the Energy Unit have completed the identification of sites and documentation for tendering is being prepared.

(iii) *Solar Rehabilitation* – The Energy Unit technicians have completed inspecting and identifying all the solar home systems to be rehabilitated. The solar systems to be rehabilitated are all located in schools and health centres. The slow progress in identifying the appropriate design and specifications for the solar home systems has put the tendering for the supply of the solar equipment on hold. During the quarter meetings and consultations with the officials of the Ministries of Education and Health were carried out in order to put in place an appropriate management structure that will ensure the sustainability of the solar systems. The picture above shows the Senior Energy Officer (in white shirt on the right) discussing the management structure with officials from the Ministries of Education and Health. (Photo courtesy of the Energy Unit, Vanuatu).



A new Project Coordinator has been recruited and he started work at the Energy Unit in October. It is hoped that with a fulltime Project Coordinator in post the progress in the implementation of the Vanuatu project will improve significantly.

Special Energy Initiatives

As reported in the last quarter report there are a number of initiatives being planned and consultation with key stakeholders are continuing to ensure there is a clear understanding of the criteria for qualifying to receive funding from this allocation. The following initiatives are currently planned:

(i) Demonstration Projects

The main project activity under this category is the Pacific Life Cycle Initiative. The purpose of the initiative is to encourage and promote the use of bicycles as a means of transportation in Pacific Island Countries. It is to be noted that the transport sector is the biggest consumer of imported petroleum fuels. Other benefits such reduction in CO² emissions and healthy lifestyles are selling points for the initiative. This initiative is being first targeted at Fiji and Tonga – more for logistical reasons. Consultation had already started with key stakeholders for the establishment of a Task Force for Life Cycle Fiji. The Fiji Department of Energy had been identified as the lead agency and members would be drawn from key government agencies, private sectors and NGOs. IUCN is investing €10K in Life Cycle Fiji and it is envisaged that this amount will generate an additional €30K through contributions from stakeholders such as Velocity Cycling Club, Public Works Department and the Land Transport Authority (all potential members of the TF). Life Cycle Tonga is being coordinated by Tonga Trust (an NGO member of IUCN). IUCN is also investing €10K in Life Cycle Tonga. The budget for this category is €20K.

(ii) Evaluation and Impact Assessment

In a regional training workshop on Environmental Impacts Assessment of Energy Projects organised by IUCN ORO in November, it became apparent that there is a need to develop and disseminate more information and tools to facilitate a better understanding of the impacts of energy projects on the natural ecosystems. Under this initiative, IUCN ORO will organise the development of technical publications and checklists for Environmental Social Impact Assessment (ESIA) tools and processes for energy developments in the Pacific and have these available widely. The technical publications will focus on the following three areas: bio-fuel, wind and hydro developments. The budget for this initiative is about € 100K.

(iii) Innovative Approaches to Sustainable Energy and Environmental Policy

This category focuses on the development of a clear pathway for energy development including policy recommendation to guide energy development in Pacific Island Countries. Due to the potential environmental impact of energy development, it is most likely that there will be merits in aligning the energy policy closely with the environment policy. Currently, the energy policy/action plans for the following countries are being looked at: Tonga, Palau, Tuvalu and Vanuatu. For Tonga, IUCN is part of a Development Partners Energy Working Group (DPEWG) that is working closely with the Tongan Government to put in place a roadmap that will facilitate the attainment of a target of 50% grid connected electricity generated by renewable by 2012. IUCN is committed to funding the environmental impact assessment of selected projects identified in the roadmap. IUCN has already submitted its input into the Palau Energy Policy placing emphasis on the importance of ecosystem and biodiversity conservation when developing energy systems. For Tuvalu, discussions have been carried out with SOPAC/SPC to jointly review their National Energy Policy. It is envisaged that this work will begin once the SOPAC energy programme has been fully transferred to SPC. The transfer is mostly to take place in April (2010). Work on the Vanuatu energy policy is envisaged to be a comprehensive exercise as Vanuatu is building a community based hydro project which IUCN will be using as a case study to bring in ecosystem and biodiversity management and linking this with watershed management. The energy programme plans a collaborative approach, bringing in other programme areas such as water and law in the development of the Vanuatu energy policy. The total budget for this category is € 41K.

(iv) Information Project

There are a number of initiatives under this category that IUCN is targeting. First, in collaboration with SOPAC/SPC, IUCN is keen to incorporate gender issues into its energy programme using the country projects as case studies. A Consultant has already carried out a literature review – using the country project proposals and work plans - to identify potential activities that will facilitate the mainstreaming of gender into the countries' projects. As a result of the study a work plan for each country has been developed and this will be discussed with stakeholders in participating countries. One regional training workshop focusing on mainstreaming gender into energy projects is planned in April and another in May. All country project managers are expected to attend the training workshops. Second, as part of the ongoing monitoring of its project management role, it has allocated about € 5K to cover the expenses for an external consultant to help in undertaking the midterm review of

the Pacific SIDS EESLI programme. Third, in collaboration with the University of the South Pacific and the Fiji Department of Energy, IUCN organised in November 2009 a “Sustainable Energy Resource Workshop” where a wide range of issues were discussed, ranging from energy resource assessment to the economics of production to data collation to policies, etc. While the workshop was targeted at the private sector, public sector and NGOs based in Fiji, two staff of the Tonga Energy Unit also participated. The workshop is a precursor to a planned regional workshop which is planned to be convened in 2010. The total budget for this category is € 20,300.00.

Staffing

There are now three staff members working on the energy programme, the Energy Programme Coordinator (EPC), Senior Project Officer (SPO) and a Project Assistant (PA). The SPO, Ms Arieta Gonelevu started in October and she is now handling the Special Initiatives Programme. Arieta’s area of expertise is in renewable energy and she has worked for both the Fiji Government-Department of Energy and Secretariat of Pacific Islands Applied Geoscience Commission (SOPAC) focusing on the development of renewable energy in Pacific Island countries especially in the area of bio-fuels, solar, wind and hydro technologies. She is also familiar with gender mainstreaming into energy development activities. Arieta has a B-Tech (Electrical Engineering) from USP, Fiji an MSc (Renewable Energy) from Murdoch University, Australia.



Ms Gonelevu – Photo courtesy of Ms Sauturaga, IUCN ORO)

Budget

The total budget supporting the programmes activities is €4 million. Out of this €3 million is provided by the Government of Italy and €1 million by the Government of Austria. For planning purposes a total of USD 1, 177,016 were allocated for the national country projects for the whole year (2009). The actual amount expended was USD 1,701,422. The over expenditure was attributed to fast progress in the implementation of the Tonga, Tuvalu and Marshall Islands projects. In addition, the Samoa project had made an advance request to one component of their project, i.e. bio-diesel plant purchase which was scheduled for the 1st quarter of 2010. A statement of the total expenditure for national projects is shown in the table below.

Table 1 - Country Allocation for 2009

COUNTY ALLOCATION	USD
Consultant - Tuvalu Govt	11,580
Ministry of NREM - Samoa	295,133
Ministry of NREM - Tonga	143,000
Payment to CBS-Tonga	53,003
Vanuatu Govt Advance	13,100
Advance to Tuvalu Develop	447,800
Funds Transfer to Vanuatu	42,186
Funds Transfer to Samoa	121,333
Funds Transfer to Palau	151,249
Marshalls Energy Dept	411,375
Midterm Review Workshop - countries expenses	11,663
TOTAL	1,701,422

Regional Training Workshop on ESIA

IUCN convened a training workshop on environmental management tools for energy practitioners, energy planners and environmental policy makers in the Pacific Islands. The workshop was facilitated by Ms Andrea Athanas, Senior Programme Officer, Energy, Ecosystems and Livelihoods, Business and Biodiversity, IUCN Headquarters in Gland, Switzerland. The two day workshop, held from the 23 – 24 of November 2009, introduced participants to environmental and social impact assessment (ESIA) tools and approaches through an interactive hands-on process. For many participants this was their first exposure to environmental management tools and approaches and many reflected on how the process, case study, and discussions brought home the importance of addressing biodiversity issues and consulting stakeholders.

Midterm Review of Energy Programme

An external mid-term review of the energy programme was carried during the quarter. Two external consultants – Mr Yves Renard of Green Park Consultants, London and Dr Atul Raturi of the University of the South Pacific, Fiji Islands - were selected through an open tender process to conduct the review. The objective of the review was to assess the project's progress and achievements against the agreed project results, including a review of any proposed changes to the project implementation plan, and an assessment of the sustainability of the project. The review team visited three countries, Palau, Samoa and Tonga and held consultations with stakeholders in these countries, including the country project managers. The review team also had the opportunity to meet and hold discussions with project managers from the other three countries, Marshall Island, Tuvalu, and Vanuatu during the Regional Training Workshop on ESIA (mentioned above). The schedule for the review was arranged to coincide with above training workshop. More on the midterm review will be highlighted in the First Quarter Report of 2010.

Sustainable Energy Resource Workshop

As highlighted in the Special Energy Initiatives, IUCN together with the University of the South Pacific and the Fiji Department of Energy organised a workshop on *Sustainable Energy Resources: Towards a Sustainable Future for the Region*, on the first week of December. The interdisciplinary workshop covered all aspects of biomass and biofuel energy resources, including techniques of assessment, data collation, utilisation, economics, policy issues, environmental issues and cross-cutting issues. Key objectives of the workshop include techniques of biomass and biofuel resource assessment, land and site suitability studies for the production of biofuel feedstock, energy and environmental economics of vegetable oils and ethanol, the social and policy issues of the production and utilisation of energy resources, climate change mitigation and carbon-trading. IUCN took the opportunity to highlight links and implications of energy systems on biodiversity highlighting the need to conserve ecosystems to provide for viable energy futures. In addition IUCN highlighted that in planning, designing and implementation of energy projects it is critical to factor in impacts of climate change on the project plan. Too often projects are planned and implemented with emphasis only on their impacts on the environment with little consideration to the impacts of the changing environment on the projects.

Regional Cooperation

The IUCN energy programme continues to strengthen its working relation and building synergies with other energy and environment programmes implemented by regional organisations and development partners working in the Pacific region. It now has established a good working relationship with development partners such as the World Bank, UNEP, UNDP, EU and others. Recently, the Asian Development Bank (ADB) expressed interest to work with IUCN in carrying the financial analysis of the cost of producing coconut bio-fuel on the Samoa project. It is now a member of an oversight group (comprising mainly of the CROP EWG) to review the Regional Energy Policy. It has now established a good working relationship with the Secretariat of the Pacific Community (SPC) now the lead agency for the regional energy programme. These partnerships are envisaged to generate millions of dollars worth of investment in the region. For example, in Tonga alone, the total combined investments from development partners in the implementation of the Tonga Energy Roadmap is likely to be exceed USD 30 million.

Challenges

As highlighted in earlier reports managing the implementation of the country projects will be critical if the timeframe for the programme (three years) is to be met. Already there are some expectations from some countries that the timeframe will be extended beyond 2011. This is especially true for Samoa, Vanuatu and RMI whose projects experienced a delay in starting. Moreover, additional resources will have to be secured soon rather than later to ensure that the two countries' projects can be completed.

The in-country financial management system can also be a hurdle in the timely receipt of project funds. For most countries the funds are channelled through the Ministry of Finance

or another Government entity. Often, through lack of capacity in these organisations, the funds would be received but not regularised in a timely manner, making it difficult for desk officers and project managers to know whether their funds had been received.

The countries at the end of this programme will find themselves with another additional project to manage. This means an additional responsibility for the country and if capacity, in terms of both manpower and finance, is not enhanced the project is likely to be neglected. A related issue is the support from the donors – this is critical especially during the early stage of operation – it is recommended that donor financial support for at least the first year or two is essential. Strengthening the institutional capacity at national level is an area that donors can focus on.

There is little flexibility given to IUCN to modify the country projects or a component of the project and therefore incorporating ecosystem and biodiversity measures is indeed a challenge.

Conclusion

With the midterm review completed, it will be necessary for the IUCN energy programme to build its programme taking into account the findings from the review. As highlighted the findings from the midterm review will be highlighted in the first quarter report of 2010.

The implementation of the country projects has improved significantly during the quarter. Vanuatu now has a Project Manager on board and IUCN is pleased to note the progress in the Vanuatu project. Two countries, Tonga and Tuvalu have completed the first phase of their project and it is highly likely that the Marshall Islands will be completing the street light retrofitting by the second quarter of 2010.

IUCN has now established itself as a key player in the energy sector development in the region. With a number of players operating in the region, it will be important for IUCN to maintain its niche which is based on providing energy systems that are: *ecologically efficient, sustainable, socially equitable that enhance people's livelihoods.*

It is important to again highlight that the partnership between IUCN and the Governments of Italy and Austria through the Pacific SIDS Energy Programme offers opportunities in bridging knowledge, governance and good practices, innovation and technology gaps between developed and industrialised countries on the one hand and developing small island nations on the other. It is a partnership that is worth pursuing and replicating.