# NIUE NATIONAL ENERGY ACTION PLAN

Gerhard Zieroth
Project Manager

**PIEPSAP Project Report 38**

December 2005

**~ Participating Pacific Islands Countries ~**

*Cook Islands, Federated States of Micronesia, Fiji, Kiribati, Marshall Islands, Nauru,* ***Niue****, Palau, Papua New Guinea, Samoa, Solomon Islands, Tonga, Tuvalu and Vanuatu*

# NIUE
# NATIONAL ENERGY ACTION PLAN

**THE ENERGY COMMITTEE OF THE NIUE GOVERNMENT WITH THE ASSISTANCE OF**

**The Pacific Island Energy Policy and Strategic Action Planning Project**
**PIEPSAP**
**November 2005**

Contents

# INRODUCTION

Niue has very limited indigenous energy resources and faces a growing dependence on imported petroleum and a range of environmental and public safety issues related to petroleum supply. The country has limited technical expertise and constraint financial resources. Against this background Niue is carefully considering both the future role of the energy sector in the nation's development and, importantly, the approach that Government will take in securing a sustainable supply of energy.

Through the implementation of a National Energy Policy the Government seeks to increase the contribution of the energy sector to the welfare of the nation in an efficient, equitable and sustainable manner. Energy policy, and the agency responsible for its implementation, will function as part of the nation's overall development strategy. In this regard, the Policy recognizes the pivotal role of the current Niue Strategic Development Plan and relevant legislation.

**The *National Energy Policy* and the *National Energy Action Plan NEAP***

The National Energy Policy states briefly and precisely the Government's policies for the planning and management of the nation's energy sector over the next 10-15 years. It provides explicit frameworks within which public and private energy sector participants can make informed planning and investment decisions and manage their operations for the long term. These policies also define the nature and extent of Government's control and management of the energy sector.

The purpose of the NEAP is to restate Niue's energy policies in conjunction with a more detailed action program and guidelines that will provide the blueprint for Government's in planning and management of energy programmes over the life of the policy statement.

While some of the policies may take longer to achieve than others, it is important that Government remain committed to its National Energy Policy as a whole and, most importantly, provide the institutional and administrative resources necessary to achieve its policies.

In many cases, these policies and guidelines will appear self-evident. However, it remains essential for Government to have them committed to paper and adopted at the most senior level if they are to become, and to remain, the focus of Government's longer term planning and management of the national energy sector.

# ACTION PLAN AND GUIDELINES

## 1. Energy Sector Planning, Co-ordination, and Management

In order for the Government to play a more meaningful role in shaping and managing the Niue energy sector, and to reduce the uncertainty in decision making for both the public and

private sectors, Government must establish and maintain the capacity to formulate, implement and monitor national energy policies and programmes in a co-ordinated manner.

This will require an appropriately trained and resourced energy co-coordinator within the Premier's department, supported by advice and direction from energy sector stakeholders.

The Government recognises the national benefits of amalgamating Niue's petroleum and power supply agencies. The Niue Bulk Fuel Supply Authority and the Niue Electrical Power Supply Authority and Niue Water on a more autonomous and commercially orientated footing. Concurrently, the Government will establish the Niue Energy Authority Board to oversee the longer-term direction and management of the utilities and to provide a channel for their public scrutiny and participation.

### Planning Actions

- Appoint an independent energy coordinator.
- Provide necessary budgetary support to implement energy activities.
- Continuously undertake research into energy technology, best practice, and tariff studies demand side management.
- Hold regular public consultation meetings with key stakeholders.
- Ensure that national policies are incorporated into sector plans.

### Co-ordination Actions

- Ensure that all project proposals are harmonized.
- To act as focal point for external liaison.

### Management Actions

- To undertake regular review or this policy and its implementation.
- Ensure capacity building and training in energy related issues.
- To prepare annual reports to government on energy development.

## 2. The Petroleum Sector (Bulk Fuels)

Import of petroleum products accounts for a sizeable share of Niue's national expenditure. However, they are a fundamental input to Niue's socio-economic development, and maintenance of a reliable and cost-effective supply of liquid fuels is essential.

To assist in minimising this cost, it is essential that petroleum product imports be kept to a minimum. Individual consumers must be aware of and required to meet the full cost of their fuel consumption, so that they are able to make wise decisions for their use.

The continuing integrity of the environment is crucial to the economic and social well-being of Niue's people. Unfortunately, the impact of petroleum spillages and emissions on the environment can be highly significant, particularly for the fragile marine environments. Consequently, the proper handling, storage and use of petroleum products are an important issues for Niue.

For these reasons, the Niue Government will put in place a policy and management framework that provides sufficient autonomy and financial incentive to maintain supply of petroleum products in a commercially orientated and cost-effective manner, that sets appropriate price signals to encourage their conservation and efficient use, and that enforces sufficient regulation and control measures to protect the Niue environment.

## Policy

- To establish and maintain an efficient, semi-autonomous and commercially orientated petroleum corporation, the Niue Bulk Fuel Corporation, that is able to provide ongoing, cost-effective and reliable petroleum supply for Niue.

- To ensure that petroleum storage and handling facilities are located to satisfy Government, consumer and supplier requirements in an optimal and safe manner

- To ensure that the facilities have sufficient holding capacity to satisfy ongoing consumer demand under normal re-supply schedules.

- To secure a reliable supply of petroleum products at minimum landed cost and conforming to agreed product quality compliance standards and specifications.

- To minimise dependence on petroleum products by actively encouraging fuel conservation and efficient end-use, and by utilising more environmentally friendly cost-effective alternatives.

- To ensure the safe handling and storage of petroleum products, and to minimise the environmental and health impacts of petroleum handling, storage and waste disposal.

- To regularly review retail price of fuel to reflect landed supply cost fluctuation.

### Pricing Actions

- Ensure that prices to consumers (contract and retail) reflect the full cost of supply, through the removal of price distortions such as subsidies and tax free status
- Institute appropriate Government charges and taxes to encourage conservation and end-use efficiency, and as a means of raising revenue for energy sector activities;
- Where subsidies or tax exemptions are justified on social grounds, ensure that they are made transparently and explicit in Government budgeting; and
- Introduce a levy on petroleum products to assist in financing both the Energy Co-ordinator and the cost of enforcement of petroleum sector safety and environmental standards.

### Supply Contracts Actions

- Ensure appropriate expertise is engaged to negotiate and monitor petroleum supply contracts; and
- Ensure landed petroleum product prices are fair and reasonable in a freely competitive market through the close monitoring of international product prices and local petroleum company cost components.

### Product Supply and Handling Actions

- Ensure maintenance of appropriate delivery schedules and stock holdings so as to minimise internal supply disruption; and
- Establish and maintain a mechanism for the inspection and certification of handling and safety procedures for petroleum storage and distribution facilities.

### Product Specification Actions

- Ensure product specification and quality compliance are appropriate to the specified end-use.

### Safety and the Environment Actions

- Ensure the safety of the community and the protection of the environment through the maintenance of international standards for product quality and the adoption and enforcement of regional standards, guidelines and procedures for product handling and storage;
- Protect the environment through the adoption and enforcement of contingency plans and regulations for oil spill emergency preparedness, to the extent considered appropriate; and
- Ensure that petroleum wastes are disposed of in an environmentally sound manner.

## 3. The Transport Sector

Road transport consumes a significant proportion of the petroleum products imported into Niue. Clearly, the introduction of measures that conserve transport fuels and increase their efficiency of use will have ongoing economic benefit for Niue.

Retail prices for petroleum products in Niue are relatively moderate by world standards, due primarily to low rates of Government duty and tax. Arguments for maintaining lower fuel prices for economic competitiveness are not generally supported by measurable evidence, particularly where petroleum products are not a major input to industry/manufacturing and where transport distances are not excessive. Appropriate pricing remains one of the most effective and administratively efficient means of encouraging industry, Government and private consumers to manage their energy requirements in the most cost-effective manner.

### Policy

- To maximise fuel conservation and efficiency in the transport sector.
- To minimise the detrimental impact of petroleum product consumption in the transport sector on the land, air and marine environment.

### Fuel Pricing Actions

- Price transport fuels, particularly gasoline and ADO, at levels which encourage efficient fuel use by the consumer.

### Conservation *Actions*

- Establish and promote guidelines for the efficient use and maintenance of all vehicles;
- Promote public education and awareness programmes on the benefits of fuel efficient vehicles, vehicle tunning/servicing and fuel efficient driving habits.
- Establish and enforce appropriate import duties and vehicle licensing arrangements to encourage the use of fuel efficient vehicles.
- Promote public awareness of appropriate non-motorised alternatives (e.g., bicycles).

### Waste Oil Actions

- Establish and enforce regulations for the safe disposal of waste oil from the transport sector, both for on-shore and off-shore operations.

## 4. The Electricity Sector

Throughout the region, experience has shown that the traditional model of Government control and/or participation in electricity generation and distribution has not guaranteed a reliable and cost-effective electricity supply. In response, many Governments have chosen to restructure their utilities into commercially orientated and financially independent electricity corporations so as to achieve the efficiencies of the private sector.

The Niue Government recognises the importance of commercially orientated utilities and is pursuing a similar course by establishing and maintaining the Niue Electrical Power Supply Authority (NEPSA) on a commercially responsive and accountable footing.

### Policy

- To establish and maintain an efficient, semi-autonomous and commercially orientated power corporation, the Niue Electrical Power Supply Authority (NEPSA),

that is able to provide an ongoing, cost-effective and reliable electricity supply to meet the developing demand for electricity in its areas of service.

- To ensure that NPC power system expansions are economically and socially justifiable, and are based on a least cost development strategy that incorporates demand side management to reduce peak loads and conserve power.
- To achieve full cost recovery from consumers, Government and private, for the provision of electricity and related services. Where subsidies for electricity consumption are considered appropriate by the Government, such subsidies will be identified in the Government budget as a subsidy to that end-user.
- To minimise the detrimental impact of the power generation and distribution system on the environment and the community.

## Institutional Actions

- Develop and maintain a professional, independent and financially viable Niue Electrical Power Corporation (NPC), necessary to meet Niue's future power requirements in a economically sustainable manner;
- Maintain NPC as the sole distributor of power. Other organisations must have mutual contractual agreement with NPC over alternative system.
- Establish appropriate managerial, financial, and staffing procedures within NPC;
- Ensure that financial reporting procedures provide adequate information to facilitate effective pricing and investment strategies;
- Maintain a high priority on management, financial, administration and technical training of staff, which is adequately supported by a specific training budget including NTDC;
- Ensure that adequate incentives are instituted and maintained so as to retain a sufficient level of trained staff; and
- Utilise expatriate staffing as appropriate, particularly where the lack of skilled manpower acts as a constraint to efficient NPC management and development.

## Tariffs Actions

- Ensure power tariffs to all consumers, both Government and private, reflect the full cost of supply, particularly through the removal of price distortions and the inclusion of an automatic costs adjustment clause;
- The cost of supply will include a component for future capital expenditure requirements and a minimum rate of return on net fixed assets as specified by Government; and
- Where subsidies are justified on social grounds, they are to be made explicit in Government budgeting and not to be financed through NPC operations.

## Operations Actions

- Optimise performance of NEPSA generation and distribution systems, through loss reduction programmes, proper and regular maintenance, proper operational practices, and the maintenance of an appropriate inventory of spare parts;
- Actively pursue demand side management programmes that are shown to be technically and economically viable; and
- Maintain a detailed programme for refurbishment, replacement and expansion of the generating plant and distribution systems to minimise power failure, including a full audit of equipment both in operation and in stock.

### System Expansion Actions

- Future system expansion, including consideration of future rural electrification programmes, will be shown to be either commercially viable or justified on social grounds, and will accord with the priorities of the NPC system at that time.
- Future system expansion planning will adopt the least cost approach, including close consideration of demand side management. Only when, for similar return, the cost of investment in expanding the system is less than the cost of investment in efficiency maximisation or conservation initiatives should the decision to proceed with expansion be approved.
- Ensure consistent power quality to all consumers.

### Conservation and Efficiency Actions

- Provide, for both Government and the public, information about efficient practices and technology, initially targeting areas showing the greatest potential impact.
- Establish a customer service with energy auditing capability to provide this information and advice.
- Promote incentives for power saving mechanisms.
- Promote the purchase of energy efficient electrical appliances

### Safety and the Environment Actions

- NPC to protect the community through the enforcement of appropriate technical, consumer and safety standards and procedures;
- Protect the environment through the implementation and enforcement of appropriate environmental guidelines and regulations.

## 5. New and Renewable Sources of Energy

In the region in recent years, many projects utilising new and renewable sources of energy (NRSE) and technologies have been implemented in the Pacific. For a range of reasons, however, many of these projects have been disappointing or have failed, and, in some cases, scarce investment and donor assistance dollars have been wasted.
Governments and donor agencies, however, appreciate that renewable energy sources remain a potentially significant contributor to meeting longer term energy demand. They recognise the need to take a more business-like approach to evaluating the appropriateness of NRSE projects and to ensuring that the necessary financial, technical, administrative and social/community support is in place.

### Policy

- To promote sustainable energy options for power generation including solar, wind and biomass energy resource.
- Assess and promote the natural resource potential and improve the technical capacity to meet Niue’s energy needs.

### General Actions

- Develop and maintain an awareness of Niue's new and renewable energy resource potential through on-going resource assessments.

- To increase public awareness on renewable energy resources through educational and awareness programmes.
- Maintain a readiness to utilise new and renewable energy technologies provided they:
    - Will assist in leading towards better social and economic conditions;
    - Are economically socially and environmentally sustainable;
    - Are technically and commercially proven;
    - Provide the least cost solution to the demand requirement;
    - Require only low recurrent manpower and financial investment; and
    - The technical capability exists to operate and maintain the technology.

### Biomass

- Monitor the environmental sustainability of demand through on-going demand/supply assessments; and
- Discourage the development of biomass consuming potential dislocation of traditional biomass consumers for biomass for household energy
- Encourage the use of biomass fuel to meet 30% of total fuel consumption by 2015

### Solar Energy

- Promote the use of solar PV as an energy source of 100kW of power available on the national grid, by the year 2010 where economically and technically viable; and
- Promote the use of solar hot water heaters for all.

### Wind Energy

- Facilitate the process of installing wind generators connected to the national grid.
- Assess the national potential for additional sites.

### OTEC / Tidal/Wave Energy

- Monitor and assess Niue's OTEG, tidal, and wave energy resources and international developments in these technologies, to identify whether an economic and technically exploitable resource exists.

## 6. Environmental Aspects

The state of the natural environment and the maintenance of the natural resource base in the Pacific island economies, particularly in the atoll countries, is crucial to the livelihood of its inhabitants. The longer-term sustainability of the island economies will be largely dependent on the size and quality of their natural resource base.
The Niue Government recognises that its natural resource base is both finite and fragile, and that it must be managed in an environmentally sustainable manner and will accord with the Niue National Environmental Management Strategy.

### Policy

- To minimise the impact of energy production, distribution and consumption on the renewable and sustainable energy to the Niue environment, and to ensure that

energy resources are consumed in an equitable and environmentally sustainable manner.

- To ensure and improve the close co-operation and co-ordination of all relevant stakeholders organisations in the energy sector within the framework of the Niue National Environmental Management Strategy.

### General Energy Use Actions

- Assist in the drafting and enforcement of energy sector aspects of national environmental policy, legislation, standards and procedures;
- Minimise the impact of fuel exhaust emissions through the adoption and enforcement of emission standards and regulations;
- Minimise the impact of waste oil and batteries on the community and environment by their recycling or safe and permanent disposal; and
- Promote education and training programmes that will enhance awareness of energy related environmental issues.

### EIA Actions

- Carry out EIA before any major project/undertaking takes place/commences
- Minimise the impact of existing energy operations and programmes through the adoption and enforcement of environmental standards.
- Where necessary, investigate and source possible funding donors to upgrade existing equipment and installations to meet the required standards.

### Institutional Actions

- Environment Department to coordinate all awareness/education programmes on all energy related issues.

### New Projects Actions

- Minimise potential environmental impacts of projects and programmes through the adoption of environmental guidelines and regulations at the project design stage. In the case of major projects, a full Environmental Impact Assessment will be required.
- Integrate projects and programmes within the national environmental management process through close co-operation with the Department of Environment and the National Environmental Management Strategy.

### Sustainability Actions

- Ensure that demand and effective use of local energy resources, particularly biomass, is environmentally sustainable in the long term.
- Strongly oppose the use of nuclear in the region in recognition that it is inappropriate and unacceptable.

## 7. Energy Conservation and Efficiency

Energy conservation and efficiency measures are a cost-effective means of minimising energy use per unit of output, and are often one of the lowest cost means of satisfying

energy demand. For this reason, energy conservation and efficiency of energy use are key components of a national energy policy.

## Policy

- To minimise Niue's energy demand and consumption without adversely affecting Niue's economic and social well being
- To maximise the efficiency with which energy is used.

## Energy Pricing Actions

- To maximise the efficiency with which energy is used.
- Ensure prices to all consumers, both Government and private, fully reflect the cost of supply, particularly through the removal of price distortions such as subsidies and tax free status; and
- Monitor and maintain appropriate Government charges and taxes to encourage energy-efficient use, particularly where social concerns do not impact significantly.
- Direct the Price Control Board to readdress duties or levies imposed on energy generating appliances (importation) and subsidies as a means of incentives.
-

## Technology and Appliances Actions

- Where appropriate, institute minimum efficiency standards for appliances and equipment.
- Ensure that energy-efficient appliances and equipment are not disadvantageously priced under Government taxes and duties so as to act as a disincentive to their use.
- Waive duties on renewable energy equipment and appliances e.g solar panels, windmills etc

## Household Energy Use Actions

- Provide and increase public awareness and dissemination of information through constant and awareness programs, to improve householder awareness of energy-saving house designs, building techniques and household appliances.
- Provide capacity building on effective, efficient and safe use of electric household appliances

## Industry/Government/Commercial Energy Use Actions

- Through public awareness programmes and specific sub-sector programmes, improve awareness of energy saving technologies and measures, and their financial benefits.
- Refer all public awareness programs to the Dept of Environment as a focal coordinating body for a concerted effort.
- Actively encourage and assist major energy consumers to critically examine their energy requirements through energy audits and energy end-use assessments by a qualified and independent auditor.

# GLOSSARY

***ADO***
Automotive diesel oil.

***Biomass (fuels)***
Biomass fuels are organic material that is combustible, commonly firewood, coconut wood and residue, bagasse (sugar cane residue), and residues from agro-industries.

***Demand Side Management (DSM)***
Traditionally, the evaluation of project options has only been concerned with determining the best means of supplying the expected demand. This has meant that little consideration has been given by project planners to demand side management. Demand side management simply means the consumers and the supplier utilising appropriate conservation and efficiency measures to ensure more cost-effective use of the existing energy supply. Often demand side management initiatives will have immediate payback for both the consumer (lower energy bills) and the supplier (reduced in-house consumption and losses, and deferred capital investment).

***Energy Conservation***
Energy conservation generally refers to the application of practices and technologies that reduce energy requirements.

***Energy Efficiency***
Energy efficiency generally refers to the technical performance of an appliance or technology, measured in terms of its output per unit of energy input.

***Energy Intensity***
Energy intensity is the ratio of total energy consumed by an economy divided by its total economic output in that year (measured in constant Gross Domestic Product (GDP». When compared year on year, energy intensity ratios provide an indication of the trend in efficiency of energy consumption in that economy.
The oil and energy intensities of most developed economies have declined over recent years with their adoption of energy conservation programmes, their introduction of more efficient technologies and fuels, and changes in the structure of their economies.

***Least Cost Planning***
In a climate of limited investment funds and many projects competing for those funds, it is sensible to evaluate project options on the basis that they provide the required service while minimising the requirement for investment capital and the level of recurrent costs. Such an approach that is designed to highlight minimum cost project options is termed **least cost planning.**

***NRSE (New and renewable sources* of *energy)***
New and renewable sources of energy refers in general to renewable energy forms and the established and new technologies designed to utilise them.

***OTEC***
Ocean thermal energy conversion.

***PV (Photovoltaic)***
Photovoltaic modules convert solar energy directly into electricity. A technologically proven and economically feasible option in many situations, particularly isolated areas.

***RE (Rural Electrification)***
Rural electrification is the supply of electricity to the lower density and fragmented centres of population outside of the urban areas. Such supply may be achieved by an extension of the urban grids, but, generally, the economics of the situation will dictate stand alone village systems (generally ADO generator) or individual household supply systems (PV systems).

***Renewable Energy***
Renewable energy refers to those energy sources that have the potential to be managed so that their average annual energy output levels can be sustained indefinitely. These include biomass, geothermal, hydro, solar, tidal, wave, and wind.

***Solar Energy***
Solar energy is the sun's radiation that reaches the earth's surface. About half of the energy is in the form of heat (infra-red radiation) and half as visible light; a small amount is x-ray and ultra violet radiation. The amount of solar energy striking the earth's surface at any point is highly variable, depending on the site characteristics, prevailing weather conditions, and season.

***Solar Hot Water Heaters***
Solar hot water heaters transfer solar heat directly into water to heat the water. An economic option in many situations, particularly where electricity tariffs are high.

***Sustainable Development***
To an economist, sustainable development will mean one thing; to a biologist, it will mean something slightly different. However, in general terms, sustainable development means meeting the material and welfare needs of the current generation without jeopardising future generation's access to a similar quality of life.

***Waste Oil***
Waste oil refers to waste petroleum products (primarily lubricating oils with some hydraulic oils and tank washings) that have no further economic usefulness in their current situation. Such waste oils are generally re-refinable to similar products.

***Wave and Tidal Energy***
The movement of the sea in the form of tides and waves holds vast potential energy that can be converted to electrical energy given a suitable site, economics and technology. At this time, the technology is largely at the development and demonstration stage and its economic viability is highly site specific.

***Wind Energy***
The direct conversion of wind into electricity using wind turbines. A technologically proven option, its economic feasibility is highly site specific.

## Job Description for Energy Coordinator

The Energy Co-ordinator will:

- be responsible for the longer term planning and day to day administration and management of the Planning and Development Unit energy activities;
- provide analysis, advice and briefing as required by the Minister;
- co-ordinate and act as Secretary to the Energy Committee;
- formulate, implement and co-ordinate energy policies and programmes, and provide in-depth analysis and advice on energy taxation and pricing issues;
- analyse Niue's power demand/supply situation and tariffs structure, and their implication for future power requirements, and provide advice on power planning proposals including the least cost/demand management options;
- monitor Niue's petroleum demand and supply situation, monitor and advise on oil pricing and contracts, assist in the negotiation of petroleum supply contracts;
- evaluate, promote and implement energy conservation/demand management projects and programmes for both the public and private sectors, including the development of energy audit programmes and the promotion of energy efficient appliances and technology;
- implement/oversee renewable energy resource and demand assessments, assess the implications for resource sustainability and the application of new and renewable technologies, and promote the use of the appropriate technologies;
- work closely with the Environment Officer on integrating the environmental aspects of energy projects and programmes within the National Environmental Management Strategy, particularly concerning new project/programme proposals;
- liaise closely with donor agencies in the development of energy sector assistance proposals and organise and monitor technical and training assistance, in conjunction, where necessary, with consultants and outside technical agencies;
- oversee the maintenance and development of a national energy database, including the development of demand/supply forecasts, and provide advice on trends and their implications for future requirements;
- train support staff as necessary.

### Qualifications and Experience

Tertiary qualifications in economics, science, or engineering is preferable. Previous experience in the energy sector would be desirable.

## List of Participants: Niue National Energy Policy Consultation 23 November 2005

| Name | Organisation | Email-Contact |
|---|---|---|
| Cherie Morris-Tafatu | NTDC & Admin | cherie.ntdc@mail.gov.nu |
| Jamal Talagi | Fisheries | jamal.talagi@yahoo.co.nz |
| Morris Tafatu | Farmer | |
| Ron Paulin | NZ Volunteer in IWP/DAFF | paulin@niue.nu |
| Charlie Tohovaka | Admin - In-Country Training | ctohovakatraining@mail.gov.nu |
| Sauni Tongatule | Environment | tongatules@mail.gov.nu |
| Philip McGill | Niue Power | mcgill@ties.itu.int |
| Logo Seumanu | VC/IWP | logoseumanu@yahoo.co.nz |
| | | niuiwp@niue.nu |
| Berry Sofaea | Bulk Fuel | |
| Hiva Levi | NGO | hivalevi@yahoo.co.uk |
| Lofa Rex | VC/NCOC | island.hopper.niue@niue.nu |
| Ida Talagi-Hekesi | Niue Tourism | niuetourism@mail.gov.nu |
| George Valiana | Bulk Fuel | opsc.bulkfuel@mail.gov.nu |
| Sunlou Liuvaie | EPDS | sonnyliuvaie@yahoo.com |
| Tauhiva Sionesini | Niue Police | copparo9@yahoo.com |
| Gerhard Zieroth | SOPAC | gerhard@sopac.org |
| Frank Sioneholo | EPDS | frank.sioneholo@investniue.com |
| Deve Talagi | PWD | |