

# National assessment of the priority environmental concerns of Niue

By David J. Butler

*IWP-Pacific Technical Report (International  
Waters Project) no. 2*



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SPREP  
P O Box 240, Apia, Samoa  
Ph: (685) 21929 Fax: (685) 20231  
Email: sprep@sprep.org.ws  
Website: www.sprep.org.ws/iwp

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D.J. Butler  
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## ACRONYMS

ABS	Access to Benefit Sharing
AusAID	Australian Agency for International Development
AIDAB	Australian International Development Assistance Bureau
CBD	Convention on Biological Diversity
CBEMP	Capacity Building for Environment Management Program
CITES	Convention on International Trade in Endangered Species
DAFF	Department of Agriculture, Forests and Fisheries
DCA	Department of Community Affairs
EEZ	Exclusive Economic Zone
EIA	Environmental Impact Assessment
FAD	Fish Aggregation Device
FFA	Forum Fisheries Agency
GEF	Global Environment Facility
GIS	Geographic Information System
IWP	International Waters Programme
LMRUPP	Land and Marine Resource Use Planning Project
NBSAP	National Biodiversity Strategic Action Plan
NGO	Non-Governmental Organisation
NIOFA	Niue Island Organic Farming Association
NZODA	New Zealand Overseas Development Agency
PACIFIC-HYCOS	Hydrological Cycle Observing System for Pacific Island Countries
PAC-TAF	Pacific Technical Assistance Facility
PEC	Priority Environmental Concerns
PIE	Pacific Initiative for the Environment
PWD	Public Works Department
SAP	Strategic Action Programme
SPC	Secretariat of the Pacific Community
SPREP	South Pacific Regional Environment Programme
TS	Territorial Sea
UNCED	United Nations Conference on Environment and Development
UNFCCC	United Nations Framework Convention on Climate Change
WHO	World Health Organization
WSSD	World Summit on Sustainable Development

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## EXECUTIVE SUMMARY

This review of Niue's current environmental concerns was undertaken through consultations with government departments, workshops with civil society conducted by the Environment Unit and the Fisheries Division, and a literature review. It was produced for a twofold purpose: the International Waters Programme, which funded the work, and preparations for the World Summit on Sustainable Development. For the latter, there was also some assessment of progress over the past ten years since the Earth Summit in Rio de Janeiro.

After an introduction, the review begins with a brief look at eleven sectors based on the work of different government agencies with key roles in environmental management and sustainable development. Key issues from these sectors are then carried forward into the main section of the report, which identifies environmental concerns within three categories, viz., environmental, social and economic. Environmental issues were identified under eight headings: Marine; Terrestrial Habitats and Species; Agriculture; Forests; Water Supply; Waste Management; Climate Change; and Tourism. Social issues have been grouped under five headings: Institutional Frameworks and Capacity Building; Planning and Environmental Impact Assessment; Legislation; Education and Public Awareness; and Traditional Knowledge and Systems. The Economic section, although not a focus of this review, is considered briefly and contains some outputs of one of the Civil Society workshops.

In the marine sector, many of the concerns related to the inshore area, such as over-exploitation of inshore and reef fisheries, lack of baseline data, and pollution and silting as a result of land-based activities. Developing a sustainable offshore fishery was also an issue with implementing a tuna and billfish management plan a priority.

For terrestrial habitats and species, ongoing support for the Huvalu Conservation Area, which includes a large proportion of the country's remaining primary forests, was a key priority. There is strong evidence that the harvests of three traditional food species, the coconut crab, Pacific pigeon and flying fox, are not sustainable at current levels. Strengthening border controls to prevent the arrival of further invasive species and controlling or eradicating those already present, particularly weeds, was also important.

A key issue in the agriculture sector was to continue to move towards more sustainable systems with better management of soils and reduced input of chemicals. Organic growing is receiving increased emphasis.

High past rates of deforestation and poor growth rates of introduced plantation species were two factors behind the development of a Forest Policy. This promotes the sustainable use of indigenous forests and increased emphasis on community agro-forestry.

Maintaining the quality of the water supply, which depends on a freshwater lens sitting under the island, has long been a concern. There are a number of potential sources of pollution to the supply, from agricultural chemicals and inadequate management of wastes, and a need for a more comprehensive testing programme. Reinstating systems collecting rainwater from roofs has been identified as another priority.

Waste management has received considerable emphasis with the development of a Waste Management Plan and several excellent re-cycling programmes but areas of concern still remain.

Possible threats associated with climate change include increased erosion and storm damage to coastal infrastructure and possible changes in the performance of the freshwater lens. A range of measures to mitigate or to adapt to such threats has been identified.

Tourism on Niue is highly dependent on the natural environment and the industry has thus developed environmental management guidelines within an accreditation scheme.

Considering social factors impacting on the environment, several concerns were identified in terms of Niue's institutional frameworks and capacity building. Firstly, there is disjointed management of environmental issues with responsibilities spread across several government agencies. Secondly, there is a lack of a coordinating body. Thirdly, there is insufficient capacity of trained staff to address all the issues. Planning guidelines and environmental impact assessment procedures have been drawn up and

require full implementation. One issue that holds this back, and also inhibits a coordinated approach to environmental management, is the failure to pass into law two key pieces of environmental legislation: the Environment Bill and the Environment Planning Act. Environmental education has increased in schools but the priority now is to also provide better information to adults so they are in a position to sustainably manage their own resources. This approach recognizes the need to safeguard traditional knowledge and ensure equitable sharing of any benefits derived from it.

Economic concerns can clearly impact on the environment but were largely outside the scope of this review. The most recent Niue Economic and Social Review identified the key roles that tourism and the agricultural, forestry and fisheries sectors play in the nation's economy, the last three contributing particularly as household subsistence production. A key issue has been the declining population, which, though it may reduce some pressures on natural resources, makes it hard to maintain the infrastructure needed to ensure sustainable development.

A key output of this review is a recommendation relating to four focal areas: marine protected areas; sustainable coastal fisheries; protection of freshwater resources; and waste management, which may form the basis of a pilot project for Niue under the International Waters Programme. While the focus could be on sustainable coastal fisheries, the use of marine protected areas could be considered as one method to address this issue. While the other two focal areas are still of concern to Niue, more work has been done to address these and other international or regional programmes remain available to offer further assistance.

## **1.0 Introduction**

This consultancy was funded under the Strategic Action Programme for the International Waters of the Pacific Small Island Developing States (IWP) (SPREP, 1998) whose local lead agency is the Fisheries Division, Department of Agriculture, Forestry and Fisheries, Government of Niue. The objective is to identify Niue's priority environmental concerns, which could be addressed by a community-based pilot project. A similar exercise was required as part of Niue's preparations for the World Summit on Sustainable Development in Johannesburg in September 2002 (WSSD) whose lead agency was the Environment Division, Department of Community Affairs. The needs of the two projects have thus been combined in this consultancy and is a good example of the cross-sector collaboration found in Niue.

The report was produced during a two-week visit to Niue in December 2001 and incorporates the results of civil society consultations conducted by the Environment Division for the WSSD prior to the visit of the author. An IWP Workshop with civil society organizations conducted on 15 March 2002 was also drawn on.

### **1.1 Introduction to the IWP**

The IWP is a five-year (2000-2005) GEF-funded programme with two main elements: *oceanic* – which is concerned with the management and conservation of tuna stocks in the western central Pacific and *coastal* – focused on integrated coastal watershed management. The oceanic element is covered by work with the Forum Fisheries Agency (FFA) and South Pacific Commission (SPC) and not considered in detail here. This report concerns the coastal element which aims to encourage action at the community level to address priority issues in participating countries relating to: marine and freshwater quality, habitat and community modification and degradation, and the unsustainable use of marine resources. The Programme will support pilot projects in each participating country addressing one or more of the following focal areas:

- Marine protected areas
- Sustainable coastal fisheries
- Protection of freshwater resources
- Waste management.

This report covers an initial stage in the Programme in which countries are asked to describe their environmental concerns and identify the main causes for the degradation of coastal resources, using a participatory process involving all levels of the community. The report will then be used by a National

Task Force to agree on the priority focal area or areas to be addressed by a pilot project. A National Coordinator has recently been appointed to take responsibility for the day-to-day management of the pilot project.

## **1.2 Introduction to the WSSD**

It is ten years since the United Nations Conference on Environment and Development (UNCED), or first Earth Summit, held in Rio de Janeiro in 1992. The 2002 Summit is being organised to undertake a comprehensive review and assessment of progress in the implementation of UNCED commitments. Regional and national assessments are being undertaken to facilitate this process. This report contributes to Niue's national assessment by identifying its priority environmental concerns, the key issues and their context, including past work, and by outlining future planned work to address these.

## **1.3 Methodology**

The information presented in the report is drawn from four main sources:

- WSSD Workshops conducted with representatives of the wider community (civil society organizations) by the Environment Unit between 8-12<sup>th</sup> November 2001.
- An IWP workshop with civil society organizations held on 15th March 2002 and conducted by the recently appointed IWP Coordinator
- Consultations with key Government agencies during the week of 3-7 December 2001 and additional comments received from them since.
- A literature review.

### WSSD Workshops with Civil Society

Annex I lists the attendees at these workshops, the procedures followed and the results of the discussions. The basis of the agenda was a questionnaire, worked through by the organisations represented, summarising any activities undertaken to address the issue of sustainable development and the constraints or obstacles perceived. This was divided into three sections- Environment, Social and Economic, and further subdivided as follows:

#### I. Environment

- i. Conservation activities (e.g. marine protected areas, forest protected areas, animal sanctuaries);
- ii. Pollution and waste management
- iii. Climate change;
- iv. Sustainable natural resource management;
- v. Others.

#### II. Social

- i. Promoting participation of various sectors of community in sustainable development;
- ii. Addressing basic needs (e.g. organic food, access to clean water, sanitation);
- iii. Promoting peace, justice, rule of law and human security;
- iv. Others.

#### III. Economic

- i. Poverty alleviation (e.g. income-generating projects, micro-finance);
- ii. Promoting or implementing economic policies that promote sustainable development;
- iii. Others.

Groups were also asked to list five priority issues at the national level to be raised at the Summit along with recommendations of initiatives to address them.

### IWP Workshop with Civil Society

The WSSD Workshops were aimed at identifying all community environmental concerns, including marine ones, so that they could also theoretically be used by the IWP. However the questionnaire used

for them had limited reference to marine and coastal issues (only a mention of marine reserves). It was thus recommended that the IWP team facilitate further consultations to discuss the IWP's four focal areas, particularly the marine ones, to draw out any more concerns in these areas.

Annex II summarises the outcomes of a 1-day workshop held on 15 March 2002.

#### Consultations with Government Agencies

Annex III lists the staff consulted in the different agencies and provides notes on the meetings. In each case, Departments were asked to identify their priority environmental concerns (or identify strategies or plans expressing these) and to document past plans and activities addressing environmental issues.

#### Literature Review

The bibliography lists the literature reviewed during the 3-14 December visit. The Country Report for UNCED provides a baseline for the situation at the time of the first Summit (Government of Niue, 1991). Two key documents then provided more detailed assessments of environmental concerns that were used as the framework for this report: the State of the Environment Report of Niue (Lane, 1994) and the National Environmental Management Strategy of Niue (NEMS) (SPREP, 1994). A review part of the way through the decade since Rio is supplied by the Country Report to the Capacity Building for Environmental Management in the Pacific project (CBEMP) (Pasisi, 1998) which identifies specific sector capacity needs. Finally, the recently completed National Biodiversity Strategy and Action Plan (NBSAP) (Government of Niue 2001) serves as a very recent assessment of issues with a focus on biodiversity conservation. The actions identified within it are current and thus have been directly carried forward into 'work required' under the different environmental concerns (Section 3).

An assessment undertaken by SPREP (Peteru, 1993) in 1992 provides a baseline against which to monitor progress in the provision of legislation affecting the environment and sustainable development. The extent to which environmental concerns have been reflected in new laws or regulations since then is variable.

A list of legislation that has been updated and new regulations/legislation introduced to Niue between 1990 and 2001 is provided as Annex V. Legislation is also covered under each environmental concern in Section 3. Two key pieces of legislation are still to be completed: an Environment Bill and an Environmental Planning Act.

Section 3 summarises the information from the above three sources under different environmental concerns such as Marine, Terrestrial Habitats, Terrestrial Species, etc. Three headings are used for each concern:

- *Issues Identified* - listing all the issues identified from the three sources;
- *Progress since 1992* - listing progress made within different topics such as legislation, planning, field programmes to assess, for reporting to the WSSD, progress since the previous Earth Summit;
- *Work still required* - as identified from the three sources.

There is then a brief discussion of each concern. Finally, for those concerns that fit within its four focal areas, there are recommendations for the IWP of what might be included in a pilot project for Niue.

## **2.0 Sectoral Review**

This section pulls together information on the roles the different departmental agencies play in environmental management and sustainable development and is based on a review of their corporate plans, annual reports and other documents, and from consultations with them. It also briefly summarises the environmental concerns raised in their reports and consultations. Finally it considers the economic sector and the work of the Economic, Planning and Development Unit which underpins the activities of all Government Agencies.



## 2.1 Environment

The Environment Unit's plan for 2001/02 (Annex VI) has a goal of 'effectively managing our natural resources whilst promoting sustainable practices to ensure inter-generational equity.' Its objectives (listed in full in Annex VI) consist mostly of implementing environmental programmes or strategies, largely reacting to different regional and international activities. Among its immediate priorities is maintaining the Huvalu Conservation Area Project, following the end of the South Pacific Biodiversity Conservation Programme that initiated it. Overall, the lack of enacted legislation in the environmental area is seen as a major problem. Some proactive work is taking place in community education but more needs to be done. New concerns that have come to the fore recently are the protection of traditional resources, access to genetic resources and benefit sharing

## 2.2 Fisheries

The DAFF 2001/02 Corporate Plan defines the Department's goal as 'to promote and protect the development of an environmentally sustainable and viable Agriculture, Forestry and Fisheries sector in Niue.' The overall goal of the Fisheries Division is to promote fisheries development on a sustainable and environmentally sound basis for both inshore and offshore marine resources through:

- Appropriate research and management;
- Monitoring, control and surveillance;
- Extension services and,
- Domestic industry support

Key objectives in the fisheries sector include improving the effectiveness and quality of the service to fishermen while promoting the sustainable use of the resource, and exploring the possible use of offshore resources. Its Fisheries Research programme includes the deployment of fish aggregating devices (FADs), monitoring the performance of introduced *trochus* shells, studies of the offshore fishery and monitoring of the marine reserve. Its Fisheries Extension Services programme includes measures to ensure the safety of fishermen, including the enforcement of associated legislation, and surveillance of the Exclusive Economic Zone (EEZ).

The key issue identified in departmental consultations was the unsustainable use of inshore fish resources, coupled with the lack of baseline information on these. Other concerns include possible pollution from land-based sources and also from visiting boats. A more recent issue is that of *Ciguatera* poisoning. Two offshore reefs are poorly known and could provide resources that will need to be protected and managed sustainably. The country's one marine reserve, at Anono, appears to be effective although it is a concern that it is not yet backed by legislation. Protecting further areas, perhaps using traditional methods, is a priority for the Fisheries Division.

## 2.3 Agriculture

The DAFF Corporate Plan identifies the following different agricultural programmes: Crop Research, Extension Services, Agricultural Marketing, Plant Protection, Quarantine Services, and Livestock Production. The first two aim to support growers by developing new crops (e.g. vegetables) and supporting current ones like taro, coconuts and vanilla, seeking sustainability by improving soils, promoting organic farming and providing irrigation. The marketing effort is largely focused on taro, yams and vegetables. Plant protection and quarantine play key roles in environmental protection, controlling invasive species and other pests (including feral pigs), regulating the use of pesticides and providing border control to prevent the arrival of new pests. The focus of the livestock programme is largely on animal health.

Key concerns identified during consultations were that the past focus of many programmes had been on income-generation rather than sustainability. Resources are not used in an optimum way, e.g. more forest having to be cut down because some farming methods did not sustain the soils. Inappropriate crops (such as limes and passion fruits) requiring high inputs of pesticides were also promoted in the past.

## **2.4 Forestry**

The forestry sector has been the subject of a major review resulting in a Forest Policy approved by Government. An NZODA-supported forestry project began in 1992/93 with the aim of planting 100ha of plantation forests a year. However problems leasing land and poor growth rates due to poor soils have led to a shift in focus towards sustainable indigenous forest management and agro-forestry. This is reflected in the objectives of the Forest Policy which include:

- Promoting the sustainable use of Niue's indigenous forest and assisting communities to manage these as a renewable resource;
- Supporting customary conservation practices and community-based conservation areas;
- Promoting integrated land use practices to reduce the need to clear more forest;
- Developing a sustainable local timber industry;
- Promoting plantation forestry within communities with emphasis on indigenous species and agro-forestry.

Previous environment reports have assumed that deforestation is a major environment concern for Niue. While a fair proportion of the original forest cover has been lost, more recent changes are less of a concern. In 1994, the NZODA sponsored a Forestry Project, which undertook to try to validate this assumption by conducting a forest cover inventory using satellite-mapping imagery. At that time, the Moui Faka Niue taro export scheme was quite active and a considerable amount of land area was cleared for taro plantations. Mapping was repeated in 2001 and a preliminary assessment of the data suggests that the key problem may be the over-cropping of existing agricultural areas, leading to shorter a rotation period and thereby affecting the fertility of these areas.

There have also been no guidelines to assist people to manage forest resources and wildlife such as the pigeons or flying foxes. While some measures are provided by legislation seeking to control shooting these are considered largely ineffective.

## **2.5 Health**

The Department of Health's Corporate Plan (2001-03) includes an outcome statement to ensure that 'the environment is healthy and the underground water is clean and safe'. The Health Improvement Division, formed with NZODA-assistance from a re-established Moui Olaola, assumes current responsibility for implementation of the plan following three years of support, up to 1999, from AUSAID under its 'Healthy Islands' initiative. Nevertheless, a larger Public Health division is proposed, bringing several activities under one umbrella, including implementing waste management programmes and monitoring the quality of underground water (Department of Health 2001). It also aims to promote the concept and usage of traditional medicine, which should assist the conservation of native plants. A budget of NZ\$5,000 for 'Healthy settings and environment' is programmed for 2002-03.

## **2.6 Justice, Lands & Survey**

The Department's corporate plan for 1999-2002 (DJLS, 1999) includes several key objectives of relevance to the environment and sustainable development:

- Provide the Government of Niue with the institutional capacity for the planning and management of all uses of natural and cultural resources;
- Formulate land and resource use policies, strategies and guidelines for coordinating sustainable development;
- Ensure integrated decisions relating to planning, land management, resource use and conservation;
- Provide reliable land and environment related information.

Among its key outcomes is the effective and efficient use of Niue's resources within a sensitive environment.

The Department's Resource Use Planning Unit has the following among its objectives:

- Provide a legal framework with an emphasis on cooperative mechanisms to achieve optimal environmental outcomes, supported by strong enforcement measures if required;

- Incorporate environmental accountability into the formulation and approval of resource development;
- Facilitate community awareness towards the sustainable management and use of natural resources;
- Assist with the enhancement and integration of multi-disciplinary and multi-faceted environmental information;
- Assist with ongoing training in use of tools for environmental assessment, management and planning.

During consultation (Annex III) emphasis was placed on the importance of integration, both of information and of the country's efforts towards sustainable development. Proposals are being developed for a larger server-based computer set-up with a geographically-based database of all information relating to land that will be networked both internally and externally.

## **2.7 Education**

There is no specific reference to environmental matters in the Department of Education's Corporate or Departmental Plans sighted (1993-94, 1996-97, 1999-2000, 2001-02) or Annual Reports (1993, 1994, 1999). One consistent goal has been to develop respect for the diverse ethnic and cultural heritage of the Niuean people, which could include their environment. However it is clear from consultation with the Director (Annex III) that environmental issues, particularly waste management and re-cycling, have become more prominent in recent years.

## **2.8 Public Works**

The Water Supply Division is the key unit with some environmental focus, through its goal of providing 'good quality, adequate, continuous and sustainable supply of water to the public'. Its 1999-2000 report expresses concerns that water quality tests were only being done quarterly by the Health Department and only for biological contamination. Funds are thus being sought for a test kit including chemical analyses. Having two departments involved in the water resource created challenges of communication and budgetary control. The Division looked forward to assisting Health in its waste management programme where it affected the water supply. Its Corporate Plan includes the promotion of water conservation and ensuring the sustainable use of water resources among its objectives. The Civil Construction Division manages the bulldozers for land clearance and works closely with the Moui Faka Niue scheme and the Growers association, but it does not record any environmental objectives.

Consultation with staff (Annex III) revealed a number of environmental concerns, particularly in relation to maintaining a clean water supply and the risks to this from sewage, pesticides and fertilisers, and dump leachates. Septic tanks can be a particular problem and some new designs are expected from a recent US-funded Disaster Management project.

Other concerns involved land clearance including the use of larger bulldozers and excessive new roading for plantations whose produce sometimes finds no market.

## **2.9 Meteorology**

The Meteorological Service's Corporate Plan 1999-2000 identifies safeguarding the environment and contributing to sustainable development as two of its key objectives. Weather forecasting and, in particular, the early warning of cyclones can assist in the short-term management of natural resources. Past weather data can aid medium-term planning, e.g. in determining possible future, sustainable crops. Monitoring of climate change (see below) can assist long-term planning allowing prediction and identification of new threats to sustaining the environment.

The Climate Change report (Government of Niue 2000) identifies a range of potential impacts of climate change on the natural environment, economy, human health and social activity. These include:

- Damage to reefs and coastal processes associated with any increased frequency and severity of cyclones;
- Greater contamination of the freshwater lens with sea water associated with any sea level rise and with pollutants associated with any increased rainfall;
- Impacts on crops and livestock from any increased frequencies of climate extremes, e.g. cyclones, drought, prolonged rainfall, including increases in diseases and insect pests;

- Environmental conditions becoming less suitable for some native animals and plants and increased losses associated with any increased frequency of cyclones;
- Possible reductions in the freshwater supply available in the lens if droughts become more frequent than periods of heavier rainfall;
- Risks to human health from any increase in mosquito-borne diseases;
- Changes in fish stocks associated with any changes of current patterns and increased risks of *ciguatera* poisoning which has been thought to be caused by disturbance to the reefs

During consultation, an additional environmental issue was identified- the disposal of instruments containing the acute toxin mercury.

The World Meteorological Organization (WMO) (WMO, 2000) is developing a new project aimed at meeting the hydrological needs of small island states in the Pacific. This was initially to include provisions for the monitoring and assessment of groundwater resources (component 5) and water quality (component 6), which would have addressed Niue's main concerns in this area, but this is now less certain.

## **2.10 Tourism**

The Niue tourism industry is coordinated by the Niue Tourism Office, which was re-established under the Niue Tourist Authority Act of 1995. The country is marketed to the global tourism industry as a "soft adventure destination", concentrating on niche markets such as diving, fishing, sports, people and culture, and eco-tourism, primarily for visitors from New Zealand and Australia. Many of the scenic sites and sea tracks are in private hands and their use for tourism depends on the goodwill of owners.

The role of the Niue Tourism Office is to ensure that promotion and marketing of Niue does not conflict with the national goals and strategic plans of the country. Recognition of the importance of the environment to tourism led to the drafting of an Accreditation Scheme for the tourism industry, incorporating Environment Management Guidelines to be followed by those participating in the Scheme. These Guidelines are reproduced in Annex IV. Two objectives in the Niue Tourism Charter specifically relate to environmental responsibility. These are:

- To adopt environmentally friendly practices to minimize exploitation of natural resources and to reduce adverse effects on the environment.
- To maintain and enhance the natural beauty of Niue.

Key concerns identified within the guidelines are waste management (including hazardous substances and discharges), freshwater resources, energy, and impacts on natural ecosystems.

## **2.11 Economic Sector**

The Economic, Planning and Development Unit was re-established within the Premier's Department in 1994. At the same time the Government developed a set of goals and related strategic development strategies within a National Development Strategy. The goals within the Niue Integrated Strategic Plan (1999-2003) are as follows: -

- Fully develop sovereignty-based assets and/or opportunities within a framework consistent with international guidelines;
- Develop and maintain an infrastructure sufficient to support private sector development;
- Develop or hire appropriate human resources to support private sector development;
- Develop opportunities for economic assistance ensuing from Niue's growing international personality;
- Attract sufficient capital to finance the growth and operation of the private sector;
- Develop a streamlined, efficient government sector that fulfills an efficient support role for both the public and private sectors;
- Attract sufficient numbers of residents and visitors to guarantee a viable population on Niue;
- Preserve the environment and biological diversity so that they may continue to support both the resident population and the private sector in the long term;

- Conserve and respect the unique culture and social values of Niue;
- Establish a Trust Fund.

The most recent Niue Economic and Social Review (revised in February 2002) summarises the contribution of different sectors to GDP. The Government Sector (public service and government trading enterprises) accounts for the largest proportion at approximately 47.9%, wholesale and retail trade accounts for 9.3%, while other services, including hotels and restaurants, transport and communications, and community and personal services accounts for approximately 11%, up from 8% in 1990 (driven by moderate growth in trade and tourism related services). The construction industry contributed 4.2 % to GDP in 2000 and the financial services sector contributed approximately 7%.

In terms of developing the service sector, tourism and offshore financial services offer the best potential for further (private enterprise) development – although both are currently experiencing problems. The tourism sector was a focus of NZODA support with funds for marketing and promotion but this work has been suspended due to the absence of sufficient air-services to the island. At present, the industry is served by only one airline (Royal Tongan airlines) that provides two scheduled flights a week to Niue – involving a one night ‘stop-over’ in Tonga. New Zealand has funded an airline consultant in a bid to acquire a dedicated service between Auckland and Niue – but so far all attempts have proved futile. A prolongation of the disruption of air-services to Niue could, in all likelihood, lead to the complete collapse of the tourism industry.

The agricultural, hunting, fisheries and forestry sector accounts for approximately 35 percent of national output and income – although the vast bulk of this output is household subsistence production (more than 97%). The limited amount of fertile or cultivatable land, lack of surface water and susceptibility to drought conditions hinder the development of agriculture. Cyclones are also a major problem. The export market of perishables is also hampered by the lack of adequate shipping facilities. The country is serviced by a single monthly shipping service from Auckland.

A recent report on the fisheries sector indicates that the estimated cash value of Niue’s total fisheries production of 115 tonnes/year is in the region of NZ\$1.1 million equivalent to approximately 7 percent of Niue’s GDP. Notwithstanding this, 80 percent of this production is the product of subsistence fishing that is domestically consumed and does not enter the cash economy. The current focus of the Fisheries Department is to safeguard the inshore resources from over-exploitation given the level of subsistence fisheries activities. Offshore fisheries have some potential and there is some local interest in developing tuna fisheries for export markets. Nevertheless, the absence of adequate transportation presents problems for the proposed industry. The potential of offshore (tuna) fisheries remains to be fully defined and/or exploited.

The industrial sector is poorly developed with manufacturing accounting for only 1% of GDP – mainly the production of handicrafts (items weaved from pandanus and coconut palm leaves) and small-scale industries including coconut products, honey extraction and bottling, saw milling, joinery, and furniture. Some investment has been made in the vanilla and forestry industries with support from NZODA. The industry has limited potential to expand given the small size of the workforce and constraints on available skills.

The Economic and Social Review identified a range of environmental issues affecting sustainable development on Niue from climate and sea level variability, soil degradation and pollution to resource management. More specific challenges include coastal erosion, water quality, water availability and sanitation. Niue is heavily reliant on diesel fuel to generate energy. The unloading and storage of diesel oil and the storage of waste oil from the power plant also pose potential risks for the local environment. Moreover, the burning of diesel oil has negative national and global consequences because of the emission of carbon dioxide (CO<sub>2</sub>) and other greenhouse gases into the atmosphere.

## **2.12 Office of External Affairs**

The Office for External Affairs is the designated official contact point for Niue with other governments, as well as regional and international organisations. The function of the office is to keep government informed of all developments, which may affect Niue economically, socially, and environmentally.

The Office of External Affairs advises government on any human resource development issues. The

Constitution of Niue provides that the Office of External Affairs may request assistance from the New Zealand Government in matters concerning defense, security and international law.

The Office of External Affairs is also responsible for Niue becoming a signatory, by accession or ratification, to international legal instruments. An external affairs officer is stationed with the Ministry of Foreign Affairs (MFAT) in New Zealand to collate a list of all legal instruments, which NZ has signed on Niue's behalf. Niue would thereby be informed of all requirements for compliance to individual Agreements.

### **3.0 Environmental Concerns**

The concerns are listed under the three headings, environment, social and economic as used in the civil society consultation (Annex I). The format is similar in the case of the first two with less information presented in the third. Sections begin with a listing of concerns from the literature (from UNCED Report in 1991 to the NBSAP in 2001) and from a review of consultations with Civil Society and meetings with Government departments. A summary of progress made since 1992 follows under a range of headings. Thirdly a list of work still required is identified stemming from consultations and the NBSAP. This is followed by a discussion and finally, in the case of concerns directly related to the IWP focal areas, with brief recommendations outlined.

The Economic section identifies a few issues raised during the civil society consultations and discusses the importance of a healthy economy for sustainable management of the environment.

#### **3.1 Environment**

##### **3.1.1 Marine - Oceans/Coastal Waters/Reefs**

###### **1. CONCERNS IDENTIFIED**

###### UNCED REPORT 1991

- Coral reef depletion due to easy accessibility;
- Silting of reefs especially in the Alofi area;
- Oil spill, especially around the harbour;
- Pollution of harbour from visiting vessels;
- Illegal exporting of coral.

###### SOE 1993

- Fish poisoning (*ciguatera*) due to disturbances to reef environment;
- Over-exploitation of inshore fisheries;
- Destructive fishing practices.

###### NEMS 1994

- Lack of knowledge of inshore marine resources;
- Land-based activities causing pollution in coastal waters;
- Lack of information about the resources of Niue's three distant reefs;
- Probable over-harvesting of marine resources;
- Destructive fishing practices.

###### CBEMP 1998

- Lack of baseline data defining diversity, structure, sensitivities and threats to inshore reef ecology;
- Lack of deep sea (ocean bottom) fisheries baseline data and research;
- Development of Marine Reserves Policy and implementation strategy.

###### NBSAP 2001

- Lack of sustainable management of marine resources

## THIS REVIEW 2001

### Consultation with Civil Society

- Marine Reserve:
- Poorly marked boundaries;
- Inadequate enforcement of prohibited fishing practices;
- Insufficient support for the reserve.
- Over fishing;
- New methods threatening some fishing grounds.

### Government Department Consultations

- Unsustainable use of inshore fish resources - no guidelines for their use;
- Limited baseline data on inshore fish resources;
- Difficulties of enforcing regulations (e.g. size restrictions);
- Pollution from land-based sources and oil spills;
- Inadequate identification of potential resources of offshore reefs (Beveridge and Antioch) and ensuring their protection;
- Risk of invasive species arriving through ballast water;
- Management of offshore fishery.

## 2. PROGRESS SINCE 1992

### International Agreements:

- Convention on the Prevention of Marine Pollution by Dumping of Wastes and other Matters 1972;  
(Controlling sources of pollution of the marine environment and preventing dumping of waste and other matters).
- Waigani Convention;  
(Regional convention signed by all Forum countries except Marshall Islands prohibiting the shipment of hazardous wastes from outside Pacific Islands into Pacific Islands. Three countries have ratified the Convention to date, but it would need 10 parties before it could enter into force).
- Agreement for the Implementation of the Provisions of the United Nations Convention of the Law of the Sea relating to the Conservation and Management of Straddling Fish Stocks and Highly Migratory Fish Stocks 1995;  
(Adopted in 1995 but requires further countries to ratify or accede before it enters into force. The Agreement introduces a number of innovative measures obligating States to adopt a precautionary approach to fisheries exploitation and gives expanded powers to port States to enforce safeguards for the proper management of fisheries resources).
- Convention for the conservation and management of highly migratory fish stocks within the Western and Central Pacific.  
(This convention brings the last part of the world into the global system, establishing a Commission).

### Legislation:

- Domestic Fishing Act 1995 and Domestic Fishing Regulations 1996;  
(Addresses destructive practices and over-harvesting, to some extent, through size restrictions, export restrictions. Protects certain species such as banded sea snake, turtles and marine mammals).

- Territorial Sea and EEZ Act 1997  
(Affirms rights of Niue to make provision for conservation and management of resources of its EEZ).
- Marine Pollution Act 1975  
(Including measures to prevent pollution and deal with oil spills).

#### Planning:

- Land & Marine Resources Planning Project
- Tuna and Billfish Mgmt. Plan (within EEZ)

#### Protected Areas:

- Anono (Namoui) Marine Reserve – 27.7ha registered in 1998

#### Programmes:

- Fish Aggregating Devices programme to stimulate offshore fishery and take pressure off the inshore one;
- Trochus aquaculture programme;
- Inshore Fisheries Management Plan DAFF and SPC.

#### Information:

- Fisheries Resources Survey - (Dalzell et. al., 1993);
- Surveys of Anono Marine Reserve – SPC and DAFF 1998 (Labrosse et al. 1999);
- Niue's Reef Flat Invertebrate Fishery (Lambeth and Fay-Sauni, 2001);
- Assessment of role of women in fisheries (Tuara, 2000)

#### Advocacy & Education:

- Participation in regional projects awareness and education campaigns such as 'Year of the Sea Turtle in the South Pacific' and 'Year of the Coral Reef' through SPREP and the International Coral Reef Initiative, using poster and song competitions, fact sheets, etc.;
- Signage and other material in preparation for the Anono Marine Reserve;
- Niue Fish book (in preparation);
- Extension and public awareness campaign;
- Vocational Youth Training Programme;
- Women in Fisheries Programme.

### **3. WORK STILL REQUIRED:**

#### **Recommendations from consultations:**

##### Civil Society Consultation:

One of the ten priority 'environment' recommendations from the civil society workshops was:

'THAT new protected areas be established for marine and land based natural resources.'

##### Marine Reserves

- Have yearly or two-yearly surveys of Anono reserve to report to communities on progress of reserve and improve awareness of it;
- Establish more marine reserves.

##### Fishing Practices

- Encourage traditional fishing practices while introducing new environmentally-friendly methods.



## Regulations

- Reinforce village bylaws regarding fishing;
- Leave under-sized fish;
- Re-invigorate public awareness programmes and policing of fisheries regulations.

## Departmental Consultation:

- Develop guidelines for the management of inshore fisheries;
- Obtain baseline data on inshore fisheries;
- Undertake research on biology of key inshore species to define sustainable catch;
- Monitor possible land-based sources of pollution and discharges from boats;
- Survey offshore Beveridge and Antioch Reefs to determine their potential and protect them;
- Develop programmes for the community to monitor the resources of the Anono Marine Reserve;
- Encourage the application of traditional conservation measures (*fono* and *tapu*) to inshore resources.

## NBSAP:

The NBSAP had one theme (Theme 3) devoted to marine issues, but relevant actions were also included under Waste Management (Theme 5), Pests & Invasive Species (Theme 6), and Public Awareness and Education (Theme 7).

### Theme 3: Coastal & Marine Biodiversity

#### Objective 1: Conservation of Biodiversity Of Inshore Coral Reefs

Action 1.1: Ensure that the Fisheries Division continues to strengthen the management of inshore marine resources and enforce Legislation and Regulations.

Action 1.2: Consider further regulations to conserve the inshore fishery including:

- To regulate the size of fishing nets used for inshore fishing;
- Discourage the use of fish nets on the reef;
- Eliminate the use of fish poisons.

Action 1.3: Integrate appropriate traditional fishing and management practices with modern management methods as a means of effectively managing stocks, and educate people in their use.

Action 1.4: Put in place legislation to protect recognized traditional fishing grounds;

Action 1.5: Develop a programme to increase the number of Marine Protected Areas in Niue.

Action 1.6: Maintain monitoring at Anono Marine Reserve, the Hakupu Heritage Marine Area and other sites;

Action 1.7: Undertake research to identify and document all marine organisms and resources, including assessment of the status of stocks, particularly those of commercial, nutritional, and environmental indicator value.

Action 1.8: Develop and implement a comprehensive inshore fisheries management plan, including assessment and monitoring of offshore reefs (e.g. Beveridge Atoll).

Action 1.9: Develop and improve data collection, survey and monitoring of fisheries resources.

Action 1.10: Continue to promote and develop programs aimed at reducing fishing pressure on inshore fisheries resources e.g. Fish Aggregation Device (FAD) program.

## Objective 2: Conservation and Sustainable Management of Off-Shore Fisheries

Action 2.1: Identify and secure funding to support the development and implementation of the tuna and billfish management plan.

Action 2.2: Encourage the Government to carry out a survey and/or feasibility study to assess the value of fisheries for comparison of benefits from foreign vessels fishing in Niue's Exclusive Economic Zone.

Action 2.3: Enforce the appropriate prosecution of all fishing vessels that fish illegally in Niue Waters.

Action 2.4: Amend the legislation (TS and EEZ Act 1997 and/or Domestic Fishing Act 1995) as identified in the draft management plan, and develop new legislation for the management of offshore reefs.

Action 2.5: Enact the Prevention of Marine Pollution Bill.

Action 2.6: Develop appropriate data collection programs to assist in the effective management of pelagic/offshore marine resources.

Action 2.7: Mobilize resources to increase capacity in the area of fisheries management to ensure effective management of fisheries resources on a national, regional and international level.

Action 2.8: Develop guidelines and policies for the development of a commercial offshore fishery to ensure sustainable utilization of resources and to ensure the use of proper and environmentally safe fishing practices.

## Theme 5: Objective 5: Minimise Marine Pollution

Action 1: Undertake surveillance of ships to ensure there is no discharge of waste or ballast and fine polluters in Niuean waters.

Action 2: Maintain an active Oil Spill Contingency Plan with appropriate well-maintained equipment held in Niue.

## Theme 6: Alien & Invasive Species

Action 3.1: Produce publicity material for shipping companies and arriving air passengers, identifying the range of potential invasive species in the region and the risks they could pose to Niue's environment and its agricultural, fisheries and tourism sectors.

## Theme 7: Education and Public Awareness

Action 1: Provide more information for tourists and Niueans returning overseas on the species that are fully protected under CITES and which may not be imported into signatory countries (e.g. coral, clam shells, turtle products).

## 4. DISCUSSION

Issues regarding the offshore fisheries will not be discussed further here except to note that the SPC have prepared a National Fisheries assessment with options for developing the resources further (SPC 2000). Currently there is a bilateral agreement with Taiwan covering fishing in the 320,000 sq. km. of Niue's EEZ although no boats have currently obtained licenses under this agreement. There should be enough information provided above from the NBSAP for the national assessment for the WSSD, including a list of necessary actions.

It is clear from the consultations and a literature review that the sustainable management of reef and inshore fisheries, and addressing likely over-harvesting within these, is the priority marine issue as has been identified from the UNCED report onwards. Some progress has been made, such as the regulations covering quotas and minimum size classes for certain species, but these were based on overseas provisions and their appropriateness to the Niuean situation still has to be assessed (B.Pasisi, pers. comm.). The sustainable management of these fisheries assumes particular priority because of the importance to

the subsistence economy of food harvested from reefs or caught inshore.

The use of marine reserves as one means to address this issue has also come up frequently in discussions. Again some progress can be seen with the formation of the Anono Marine Reserve, which appears to have gained general acceptance even though it is not yet formally backed by any legislation. However there may be more scope for reinforcing traditional conservation measures such as the imposition of *fono* or *tapu* rather than a overseas-style gazetted reserve.

Other issues raised, to be addressed in later sections, include land-based pollutants and invasive species. However these appear to pose a minor or more localised threat to fisheries resources than over-harvesting.

## **RECOMMENDATIONS FOR IWP**

1. The priority marine issue is the conservation and sustainable management of reef and inshore biodiversity, particularly the species targeted in fisheries.

**It is thus recommended that the IWP pilot project include an emphasis on the focal area specified as ‘Sustainable Coastal Fisheries’.**

2. Providing a legislative basis for the Anono Marine Reserve, strengthening its management and monitoring and developing further such reserves, appears a secondary priority.

Signage and boundary marking of Anono is underway and legislation needs to continue to be worked on. **It is recommended that the wider issue beyond Anono is addressed by considering marine reserves as part of the management approach within that part of a pilot project covering Sustainable Coastal Fisheries.** However this should not be a central part of the project and the use of traditional *fono* and *tapu* measures is likely to be more useful. Monitoring at Anono could be included in the pilot project as a way of demonstrating to local communities the value of removing fishing pressure from an area (either permanently or temporarily).

3. The oceanic fishery is another priority and the key task is working with FFA and SPC using the draft Tuna and Billfish Management Plan to create a sustainable industry capable of providing significant income for the people of Niue. It needs identification as a key concern from a WSSD point of view but is not relevant to discussion of a pilot project under the IWP.

### **3.1.2 Terrestrial – Habitats & Species**

#### **3.1.2.1 Terrestrial Habitats**

##### **1. CONCERNS IDENTIFIED**

UNCED REPORT 1991

- Lack of legislation for the utilisation and conservation of natural resources;
- Deforestation.

SOE 1993

- Substantial forest clearance;
- Need to establish protected areas;
- Lack of current information on location of plant and animal habitats;
- Over-exploitation of forests;
- Need to protect and conserve environmental resources to support subsistence economy.

#### NEMS 1994

- Insufficient information on the natural resources of the island;
- High rate of decline in areas of merchantable forest;
- No legislation allowing for establishment of protected areas;
- Few incentives for local people to establish protected areas;
- Lack of information to identify areas of ecological and cultural significance;
- Lack of local model for conservation area system;
- Lack of up-to-date information for local communities to make resource management decisions, e.g. logging;
- Lack of knowledge about the use and value of forests.

#### CBEMP 1998

- Lack of reconnaissance and detailed investigation of the ecological characteristics of the vegetation cover of Niue (with the exception of the Huvalu CA);
- Incomplete land cover base mapping and community/habitat mapping.

#### NBSAP 2001

- High rate of deforestation;
- Reduced forest patch size;
- Non-sustainable land management;
- Lack of comprehensive mapping and land information.

#### THIS REVIEW 2001

##### Consultation with Civil Society

- Land disputes;
- Overuse of land.

##### Government Department Consultations

- Excessive forest clearance;
- Need for baseline data;
- Increased development of access roads into forested areas for plantations.

## **2. PROGRESS SINCE 1992:**

##### Planning:

- Forest Policy

##### Protected Areas:

- Huvalu Forest Conservation Area
- Hakupu Heritage & Cultural Park

##### Information:

- Forest surveys of Huvalu CA through the SPBCP

## **3. WORK STILL REQUIRED**

#### NBSAP

##### Theme I. Objective 1.

Action 1.2: Investigate the provision of legislation to retain primary (merchantable) forest, using only secondary forest and fern lands for cropping.

Action 1.4: Support in principle the implementation of the management plan for the Huvalu Conservation Area Project.

Action 1.5: Encourage the establishment of further community-based conservation areas in consultation with landowners and village councils, for other potential sites using the approach of the Huvalu Conservation Project, Local Area Plans or other appropriate methodologies.

Action 1.6: Support and facilitate the implementation of the activities of the Hakupu Heritage and Cultural Park.

Action 1.8: Investigate ways to ensure that designated protected areas for biodiversity, heritage or traditional restrictions are excluded from timber harvest, hunting and farming practices.

#### UNFCCC National Communication

- Preservation and conservation of forest areas, other than the Huvalu Conservation Area;
- Initiation of an indigenous tree planting programme;
- Government legislation for a National Forest Policy for Niue, based on the 1998 National Forest Policy Statement.

#### Departmental Consultations

- Local Area Plans to be finalised to allow communities to better manage their resources;
- Network the GIS;
- More awareness programmes for communities on principles of sustainability.

#### Civil Society

- That new protected areas be established for land-based natural resources

### 4. DISCUSSION

The management of terrestrial habitats is closely linked to the issues of agriculture and forestry, which are covered in later sections. A clear priority is to support the Huvalu Conservation Area project, which would protect around 20% of the country's land area. An income-generating scheme using coconut oil (Parr, 1998) is working well, but there is also a need to demonstrate benefits from protecting the resources of the native forests themselves, such as the *peka* (flying fox) and *lupe* (Pacific pigeon), perhaps through ecotourism. There then needs to be programmes to encourage other communities to protect areas of primary forest using traditional methods and Local Area Plans should be finalised as a means to balance this with land in agricultural production.

More ecological surveys are needed beyond the Hakupu Conservation Area to identify sites or habitats requiring some measure of protection, whether because they are representative or special in supporting certain rare species.

#### 3.1.2.2 Terrestrial Species

##### 1. CONCERNS IDENTIFIED

###### UNCED REPORT 1991

- Number and types of birds present are declining;
- Export of *uga* (coconut crab) (legislation is in preparation);
- Uncertainty of impacts of feral cats, dogs and pigs on wildlife;
- Uncertainty of impacts use of pesticides have on wildlife;
- Need for thorough cataloguing and monitoring of flora and fauna;
- Noxious weeds such as Honolulu rose, *lantana* and *mimosa* spreading to agricultural land;

- Possible introduction of goats may present an environmental hazard.

#### SOE 1993

- Concern about *lupe* population levels;
- Considerable concern about *peka* population levels;
- Concern about *uga* population levels;
- Impacts of feral livestock, particularly pigs and goats.

#### NEMS 1994

- Lack of systematic botanical surveys and, in particular, ecological surveys and those cataloging wildlife and other natural resources;
- Lack of knowledge of distribution of most fauna species.

#### NBSAP 2001

- Over-harvesting of *uga*, *peka* and *lupe*;
- Alien invasive species, particularly plants;
- Lack of detailed knowledge of some groups;
- Impacts of rats on birds;
- Decline of *hega* (blue-crowned lory) and *moho* (spotless crane).

#### THIS REVIEW 2001

##### Consultation with Civil Society

- Illegal (out of season) hunting of *lupe* and *peka*;
- Over-harvesting of *uga*;
- More feral animals - cats, dogs, pigs.

##### Government Department Consultations

- No guidelines for the use of natural resources such as *peka* and *lupe*.

## 2. PROGRESS SINCE 1992:

##### International Agreements:

- **Convention on Biological Diversity (CBD) 1992**

##### Legislation:

- Animal Trespass Act 1997 – addresses increasing feral pig problem;
- Domestic Fishing Regulations 1996 – includes provisions for conservation of *uga* (export controls, size restrictions, etc.).

##### Planning:

- Invasive Species in the Pacific - SPREP Regional Strategy (Sherley, 2001);
- NBSAP;
- Review of Quarantine Services (Plummer).

##### Information:

- Surveys of *peka* (Brooke, 1998);
- Population survey of *uga* (Bereteh, 1999);
- Bird surveys (Powlesland et al., 2000);
- Surveys of extinct birds (Worthy et al., 1998);
- Survey of invasive plant species of environmental concern (Space & Flynn, 2000).

##### Advocacy & Education:

- Book on trees of Niue in production

### 3. WORK STILL REQUIRED

#### Species Conservation

##### NBSAP

##### Theme 2 .Objective 1:

Action 1.1: Undertake further systematic botanical, wildlife and natural resource surveys.

Action 1.2: Produce a bibliography of the biological diversity of Niue;.

##### Theme 2. Objective 2:

Action 2.1: Ensure the conservation of the *lupe* in sufficient numbers to sustain a harvest for traditional purposes through the following:

- Review the hunting season and ensure that this lasts no more than two months. Undertake research to determine the breeding season and adjust the timing of the hunting season to avoid this period;
- Gather information on population size, trend and breeding rate to determine a sustainable harvest level;
- Maintain and expand the *lupe*-monitoring programme.

Action 2.2 Strictly enforce the firearms management system and the hunting season.

Action 2.3: Develop and implement a plan for the conservation of the endangered *hega* (blue-crowned lory), including consideration of localized rat control, nest protection through tree banding and captive breeding.

Action 2.4: Enact and enforce legislation to give partial protection to the *lupe* (allowing for regulated hunting) and full protection to all other bird species.

Action 2.5: Undertake surveys and monitoring to establish the status of all Niue's bird species.

##### Objective3:

Action 3.1: develop a Management Plan for the Conservation of the *Peka*, to include the following:

- Consideration of restrictions on hunting to allow population to recover to the c8000 level;
- Temporary hunting bans after any cyclones, until numbers increase to the same level;
- Monitoring of the numbers of *peka* shot each season (either by random survey of hunters at the end of the season, or by requiring a report of the number shot in the 1st month before purchasing ammunition for the 2nd month) to determine if population increased enough for hunting to resume;
- Legislating for the determination of the hunting season (if any) annually based on the results of the monitoring;
- Closing Huvalu Forest to *peka* hunting and protection from cutting the primary forest including that alongside the Alofi-Lakepa road (key roosting and foraging areas);
- Eliminating shooting of *peka* at roosts, allowing these to become tourist attractions;
- Enforcing the ban on *peka* hunting outside the shooting season and carry out research to confirm that the shooting and breeding seasons do not overlap.

Action 4.1: Ensure the conservation of the *uga* through the following:

- Enforce the current legislation on minimum sizes, etc.;
- Actively discourage the harvesting of breeding females;
- Investigate means to reduce the export of *uga*;

- Close all areas to hunting during the breeding season (December-January);
- Ensure dogs are not used for hunting;
- Protect crab sanctuaries using Hakupu Heritage Park as an example;
- Undertake monitoring to ensure numbers do not decline further;
- Develop a public awareness programme to promote the conservation of the *uga* and explain the regulations;
- Encourage further research into the biology of the *uga*.

#### Civil Society

- Reduce to one shooting season;
- Stop shooting for a five-year period;
- More strongly enforce shooting regulations;
- Raise price of ammunition;
- Develop a monitoring system to record harvesting rate of *uga* and report results back to people;
- Implement conservation practices for *uga* equivalent to the ‘no shooting’ seasons for birds;
- Need more animal and bird sanctuaries.

### **Invasive Species management**

#### NBSAP

##### Theme 6. Objective 1:

Action 1.1: Strengthen border control and quarantine systems to detect and destroy alien invasive species entering the country;

Action 1.2: Monitor ships in port to ensure they do not discharge ballast water (a potential source of serious marine pests) or other wastes;

Action 1.3: Establish procedures to assess the environmental risks before introducing any new species for agricultural, aquaculture or garden use (Pest Risk Analysis);

Action 1.4: Establish procedures to detect the arrival of any alien invasive species through the port or airport and to organise their immediate eradication;

Action 1.5: Strengthen Agriculture Quarantine Regulations to ensure that they include adequate fines for anyone involved in the introduction of an invasive species.

Responsibility: DAFF, Premier’s Department

Action 1.6: Ensure that an Environment Impact Assessment (EIA) study is conducted before all live animal imports to the Quarantine Farm (such as the introduction of *alpacas* from Peru to New Zealand through quarantine in Niue).

##### Objective 2:

Action 2.1: Control the numbers of feral pigs and encourage their eradication through the bounty system.

Action 2.2: Provide information on and enforce regulations to ensure that all pigs are confined to pens and prosecute those who allow them to wander.

Action 2.3: Control the numbers of feral dogs through enforcement of the Niue Dog Ordinance and Niue Impounding Ordinances.

Action 2.4: Investigate the feasibility of control or eradication of rats on Niue.

Action 2.5: Educate the public in ways to eliminate feral cats and encourage owners to prevent cats from turning feral.

Action 2.6: Provide guidelines for the management and eradication of invasive weed species.



Action 2.7: Establish legislation requiring people to control or eradicate certain identified invasive weeds on their land.

Action 2.8: Maintain a program to monitor and carry out surveillance of fruit flies.

Action 2.9: Provide a facility for the safe disposal of unwanted domestic animals.

Objective3:

Action 3.1: Produce publicity for shipping companies and arriving air passengers, identifying the range of potential invasive species in the region and the risks they could pose to Niue's environment and its agricultural, fisheries and tourism sectors.

Objective 4:

Action 4.1: Link closely into the current regional programme to receive updated information on potential new pests in the region - particularly in countries with which Niue has air and sea links - and new eradication and control measures.

Action 4.2: Develop an early response plan for the eradication of newly introduced alien invasive species.

Action 4.3: Provide necessary equipment and facilities to deal with any intrusion and introduction of alien species.

Civil Society

- Establish a 3-year task force to eliminate feral animals

#### **4. DISCUSSION**

Regarding the conservation of native species, concerns are frequently voiced about the likely over-harvesting of *peka*, *lupe* and *uga*. For the first two, measures such as enforcing the regulations more strongly, reducing the amount of ammunition available, or instigating a 3-year shooting ban, seem sensible. However they are unlikely to work unless people see the need for them, so the priority must be to provide communities with good information showing current population trends, potential productivity etc. Similarly for the *uga*, all the information about the biology of the species needs to be available in Niuean. While conservation of these three species is a priority because of the roles they play in Niuean customs, the apparent threat of extinction of the blue-crowned lory needs addressing with management and research.

Management of current animal pests needs reinforcement, particularly addressing feral pigs and cats. Control of rats should also be investigated. While good information is now available on all weeds, further programmes, like the *wedelia* initiative, are needed.

Preventing the establishment of further invasive species largely means strengthening border control. A review has taken place through NZODA (Plummer) with training initiatives in place and discussions ongoing with SPC regarding funding. Niue is also one of three countries undertaking pilot projects through a SPREP regional project.

### **3.1.3 Agriculture**

#### **1. CONCERNS IDENTIFIED**

UNCED REPORT 1991

- Changing patterns in agriculture
- Use of heavy machinery;
- Over-use of weedicides;
- Abandonment of traditional practices;
- Loss of soils.

SOE 1993

- Over-exploitation of soils;

- Environmentally unfriendly agricultural methods – overuse of chemicals;
- Over-development of bush roads;
- Lack of land use planning;
- Chemical and hazardous waste – agricultural chemicals.

#### NEMS 1994

- Widespread use of pesticides with little assessment of environmental impacts;
- Poor management of agricultural production, harvesting, inspection, packaging, storage, transportation and marketing (inhibiting export market development);
- Shortening fallow periods.

#### CBEMP 1998

- Soils – increasing pressure on less depleted areas;
- Need for review of opportunities and constraints for livestock production.

#### NBSAP 2001

- Decline in soil fertility and structure;
- Loss of agricultural biodiversity.

#### THIS REVIEW 2001

##### Consultation with Civil Society

- Use of pesticides that kill native plants;
- Bulldozing for plantation clearance.

##### Government Department Consultations

- Agricultural policy is concerned largely with income-generation rather than sustainability (e.g. Moui Faka Niue Scheme) and programmes to develop new crops such as limes and passion fruit which required intensive cultivation;
- High levels of deforestation associated with unsustainable land clearance;
- The use of pesticides (e.g. with lime/passion fruit programmes);
- Unsustainable resource use in general.

## **2. PROGRESS SINCE 1992:**

### **International Agreements:**

Legislation:

Planning:

- Forest Policy (DAFF 1998).

Programmes:

- Plant Protection Programme (NZODA-SPC) (Salter, 2000).

Information:

- Survey of invasive plants of conservation concern (Space & Flynn, 2000);
- Niue Pest Survey (McKenzie et al., 2000);
- Review of constraints to vegetable production (Roberts, 1999).

Advocacy & Education:

## **3. WORK STILL REQUIRED**

### NBSAP

Theme 1. Objective 2.

Action 2.1: Develop a Code of Practice and provide necessary training for land clearance using best practice, including the following:

- Restricting D9 bulldozers to public infrastructure work or land clearance in previously fallow areas. This would serve to protect areas of primary forest, which D6s are not capable of clearing;
- Ensure that operators keep their bulldozers away from reserve land, burial grounds, historical sites, and traditional forts;
- Ensure that bulldozer operators are made aware of which trees are useful food sources for wildlife and which are used as boundary markers between landowners;
- Ensure that bulldozer operators leave a litter layer and do not disturb the soil;
- Discourage or ban the use of fire to clear land;

Action 2.2: Continue and encourage research into alternatives to chemical fertilizers – e.g. bio-fertilizers, green manure with legumes, increased composting.

Action 2.3: Promote organic farming and develop markets for organic products.

Action 2.4: Undertake research to identify new crops suitable for Niue that will make sustainable use of cleared land.

Action 2.5: Develop monitoring programmes for key environmental indicators, e.g. forest cover. Maintain and develop Niue's GIS and land mapping capability.

Action 2.6: Identify, develop and implement the conservation of the genetic resources of Niue, particularly agricultural crops.

#### CBEMP

- Coordinated work on depleted soils (aim of rejuvenating areas to reduce pressure for clearance of primary forest);
- Training in soil assessment;
- Research and feasibility analyses of other indigenous species and alternative high value crops;
- Education and training on quarantine and intensive livestock management.

#### Civil Society

- Research on marketable alternative crops

### 4. DISCUSSION

The history of agricultural developments on Niue shows that there was little regard paid to environmental sustainability. For example in the 1960s disc-ploughing programmes caused long-lasting damage to some soils. Then in the early 1990's, before UNCED, there was the development of the Moui Faka Niue scheme, which has continued. This was focused on producing crops for export (primarily taro, coconuts, yams and cassava but also vegetables) in an effort to return the country to being economically self-supporting. The scheme received funding from AIDAB, NZ, UNDP and FFA in 1991 (Panama et al., 1991). Long term (1994-2000) production targets were significant: taro –200 bags, cassava – 100 bags, yams – 50 boxes, dry coconuts – 30 bags, green coconuts – 30 bags. No environmental protection provisions were evident and the programme is considered by some to have significant environmental impacts through incentives for land clearance.

Since UNCED there is evidence of increased environmental awareness and planning now is concentrating on sustainability and making maximum use of cleared lands. Control over the use of pesticides is one area where clear progress has been made including the Pesticides Act 1991 and the establishment of a Pesticides Committee to oversee their management.

There is a continuing shift in the crops grown, away from those such as limes and passionfruits, which required major chemical inputs, to vanilla, vegetables and organic

farming methods. A review of vegetable growing (Roberts 1999) identified the challenge of combining careful management of soil organic matter and modern fertiliser practices. The replacement of some shifting agriculture with permanent market gardens with established water supplies should benefit the environment by reducing clearance of forests or allowing more to regenerate. The same study provided advice on the regenerating of soils in areas where years of extractive agriculture have left them supporting only ferns and low scrub. Again this could shift agricultural pressures away from areas of more biodiversity value as these damaged sites could be used again.

Research is proposed to improve the efficiency of taro production and to investigate mulching and composting as weed control and soil enhancement options. There is also now a good information base on disease and insect pests.

There is a need for careful attention to be paid to the use of agricultural incentives. Past incentives, such as borrowing provisions for land clearance and assistance with the construction of plantation roads, can lead to unsustainable practices that ultimately damage the environment.

### **3.1.4 Forestry**

#### **1. CONCERNS IDENTIFIED**

UNCED REPORT 1991

- Need for traditional *tapu* conservation approach for forests to be extended into legislation.

SOE 1993

- Substantial forest clearance;
- Over-exploitation of forests.

NEMS 1994

- Adhoc planning in forestry sector;
- Lack of knowledge about use and value of forests;
- Insufficient replanting to replace cleared forest.

NBSAP 2001

- High rate of forest clearance;
- Reduction of sizes in forest patches decreasing their resilience.

THIS REVIEW 2001

Consultation with Civil Society

- Plantation forestry not economical

Government Department Consultations

- Too much forest clearance
- Lack of guidelines for the management of natural resources

#### **2. PROGRESS SINCE 1992:**

International Agreements:

- **Party to UNCED and first national report being completed for submission**

Legislation:

-

Planning:

- Forest Policy (DAFF, 1998);
- Review of Forestry Project (NZODA, 1998).

Programmes:

- Agroforestry programme – collaboration between NZODA and GTZ (2001-04) (Nakalevu, 2001);
- Project Mahogany - a programme to plant mahogany and other exotic species, reviewed in 1999 and discontinued with the focus changed to native species.

Information:

- Satellite mapping surveys of forest cover

Advocacy & Education:

- Sustainable Indigenous Forest Management

### **3. WORK STILL REQUIRED**

CBEMP

- Research and training in use of indigenous tree species

NBSAP

Theme 1. Objective 1.

Action 1.1: Implement the Niue National Forest Policy.

Action 1.3: Integrate results of Forest Policy consultation and its recommendations into the Integrated Environment Planning and Management Bill and the Environment Bill.

Action 1.7: Research the development of a sustainable logging industry. Approve the Code of Logging for the logging industry (limiting the cut per year and technology to be used).

Action 1.9: Investigate the use of native trees for any future timber plantations as they provide food for wildlife, while most introduced species do not.

Action 1.10: Encourage and promote agro-forestry systems.

Action 1.11: Promote forest-based eco-tourism and ensure coordination of efforts with conservation initiatives to avoid land-use conflicts or duplication of effort.

Action 1.12: Facilitate the development of income-generating activities making sustainable use of non-timber forest products (e.g. handicrafts, medicinal and health products) and wildlife.

### **4. DISCUSSION**

The forestry sector has shifted during the period, from an emphasis on planting exotic trees in plantations for an export timber industry to one of promoting the sustainable use of Niue's indigenous forest and assisting communities to manage these as a renewable resource. Recent initiatives include a planned agro-forestry programme with the goal of bringing back large tracts of abandoned lands in the north and south ends of the island into active production so that rapid reduction of forests to large commercial taro production is reduced (Nakalevu, 2001). There is an opportunity to develop a sustainable local timber industry. The emphasis for native forests has shifted to their conservation so that communities can make sustainable use of their resources, such as the *lupe* and *peka*.

The single main activity required in the sector is the implementation of the Forest Policy and possibly giving this some legislative mandate. Increasing community awareness of the issues will be needed so that they can make their own informed decisions about the management of their forests.

### 3.1.5 Water Supply & Quality

#### 1. CONCERNS IDENTIFIED

##### UNCED REPORT 1991

- Abandonment of water catchment system leading to dependence on freshwater lens;
- Presence of faecal coliforms in some boreholes – from septic tanks and piggeries;
- Possible contamination by weedicide (paraquat);
- Risk of saltwater contamination through over-pumping;
- Uncertainty of safe extraction rates;
- Local high levels of radioactivity.

##### UNDESD (1992) – (A draft 5-year Water Development Plan)

- Inadequate pressure for end users;
- Inadequate supply for agriculture, industry and tourism;
- Existing bore holes too close to dwellings and hence contaminated by coliform bacteria;
- Inefficient water reticulation system due to lack of trained personnel to plan, design, operate and maintain the system;
- Excessive loss of water due to leakage and wastage.

##### SOE 1993

- Possible over-pumping of groundwater resource leading to salt water intrusion;
- Pollution of water resource – faecal coliforms, weedicides, fertilizer.

##### NEMS 1994

- Waste and sewage disposal systems inadequate.

##### CBEMP 1998

- Waste and sewage disposal systems inadequate.

##### NBSAP 2001

- Vulnerability of freshwater lens to pollution from agricultural and industrial chemicals and domestic waste and sewage.

##### THIS REVIEW 2001

##### Consultation with Civil Society

##### Government Department Consultations

- Lack of model for groundwater lens;
- Lack of testing of chemical residues;
- Disuse of home roof-water catchments;
- Pollution from septic tank outflows.

#### 2. PROGRESS SINCE 1992:

##### Legislation:

- Water Supply Act 1996.

##### Planning:

- Water Resources Assessment 1992 - UNDP-funded project.

##### Programmes:

- Water bores and meters projects - 1992/93 FFA-funded;
- Rainwater Catchment project - 1995 - AIDAB-funded;

- PACTAF Water Supply Project (Green, 2000) - AUSAID-funded;

#### Advocacy & Education:

- Ongoing community awareness programme under Water Supply Project (Green, 2000).

### **3. WORK STILL REQUIRED**

#### CMEMP:

- Training in water quality management;
- Water resource protection policy;
- Water quality monitoring;
- Modeling for sustainable catchment yields;
- Integrating water quality management into resource development.

#### NBSAP

##### Theme 4:

Action 1.5: Draft the required regulations to complement and ensure maximum protection of the water supply, as a matter of urgency.

##### Theme 5. Objective3:

Action 3.1: The Water Supply Division of PWD and Health Department continue to work together to increase public awareness of ways of conserving and maintaining water quality.

Action 3.2: Set up a rigorous programme of water monitoring to test for chemical or bacteriological contamination or radioactivity, as required by the law and current WHO standards.

Action 3.3: Re-establish the village rainwater tanks as a back-up water supply and as a precautionary measure in case of pollution of the ground water lens.

Action 3.4: Undertake research to determine possible impacts on the underground water from sea level rise due to global warming and other causes.

Action 3.5: Raise people's awareness of the appropriate legislation governing water supply systems.

Action 3.6: Consider impacts on the underground water supply of any planned industrial developments, both the amount to be used and possible pollution effects.

#### UNFCCC National Communication

- Encourage use of village rain catchment systems and household back-up water tanks;
- Encourage use of 'grey water' for secondary household uses.

#### Civil Society

- That due to lack of accurate data on the safety of the water lens, a survey be conducted to identify effects of development, and to address, if necessary, ways of improving the quality of freshwater;
- Carry out water quality tests.

#### Departmental Consultations

- Equipment be obtained to test for chemical residues;
- Model of groundwater lens be completed;
- Roof-water catchments on houses be reinstated.

### **4. DISCUSSION**

Maintaining a sufficient, high quality water supply has been a key concern for Niue since

1992. However there has been significant progress made. The first bores were drilled in the 1950s/60s and in the past decade further improvements have included the construction of steel tanks for village water supplies (1992/96) and institutional strengthening through the AusAid-funded Water Supply Project since 1997 (Green, 2000). The last project has focused on improving the efficiency of supply through improving piping and pumping systems, addressing leakages and increasing maintenance, resulting in water use half of what it was in 1997 (ibid). Draft Water Regulations were prepared in late 1997 including measures to register plumbers and ensure that only approved plumbers worked on the water supply system, and to introduce small charges.

The issue of quality testing and chemical analysis of underground water is yet to be addressed satisfactorily. Underground water is prone to contamination from land-based activities such as the use of chemicals (pesticides, fertilisers, herbicides), animal waste (primarily piggery waste), household waste, solid waste, rusted car bodies and other waste. During initial consultations for the preparation of this report it seemed that the monitoring of water quality was going to be fully addressed by two current initiatives, a request to SOPAC for assistance from the Public Works Department, which includes new testing equipment, and the regional project being developed by the World Meteorological Organization (WMO, 2000). However by the time the draft of the report was re-visited by Government Departments there was some doubt about whether Niue would be able to obtain the specific assistance needed.

Reducing the possibilities of contamination of the supply is part of many different initiatives. The Public Works Director referred to recommendations expected from a visit of US Engineers to alter the designs of septic tanks to reduce risks of contamination from this source (Annex II). DAFF are working to reduce pesticide use. The Waste Management Plan aims to improve the management of solid wastes. The planning guidelines from the Land and Marine Resources Use Planning Project address a wide range of associated issues.

There has been some discussion about the need to improve water storage facilities in case the supply is disrupted by natural disasters such as cyclones. The AusAid Water Supply Project does include provisions for maintenance of village supply tanks. Re-use of house roofs as catchments may also prove worthwhile.

## **RECOMMENDATIONS FOR IWP**

Protection of freshwater resources is listed as one of the possible focal areas to be included within the IWP pilot project. This review initially suggested that this area was being well covered by current programmes and funding discussions with different agencies. Although this is now less certain, it is the case that the provision of reliable freshwater supplies is likely to remain the focus of a number of regional and international agencies and programmes. While every opportunity should be taken to educate the communities who become involved in the IWP pilot project about the threat that land-based pollutants pose to the inshore zone and its fishery, such education thus contributing to maintaining the quality of freshwater resources, it is not recommended that the wider issue be a focus of this project. The conservation management of inshore fisheries has been a priority for many years but no appropriate programmes have been available to fund this until the IWP.

### **3.1.6 Waste Management**

#### **1. CONCERNS IDENTIFIED**

##### UNCED REPORT 1991

- Waste & sewage disposal;
- Oil spills, especially around the harbour.



#### SOE 1993

- Management of domestic waste - recycling - location of dumps – managing dumps – large solid waste (e.g. cars);
- Recycling;
- Disposal of hospital waste;
- Chemical and hazardous waste – agricultural chemicals, batteries, waste oil;
- Oil spills;
- Sanitation;
- Need to deal comprehensively with land, groundwater, air and noise pollution;
- Control importation and production of hazardous substances.

#### NEMS 1994

- Waste and sewage disposal systems inadequate;
- Inadequate dispersal of solid waste and lack of suitable landfill sites for garbage disposal.

#### CBEMP 1998

- Some importing laws and policies hinder proper waste management;
- Need to improve waste storage and management with emphasis on household sanitation.

#### THIS REVIEW

##### Consultation with Civil Society

- Septic wastes not treated;
- Not all asbestos removed from buildings.

##### Government Department Consultations

- Coastal-sited rubbish dump may leach into sea.

## **2. PROGRESS SINCE 1992:**

##### International Agreements:

-

##### Legislation:

-

##### Planning:

- Waste Management Plan.

##### Advocacy & Education:

- Many primary school programmes (can recycling, use of tyres, recycling other rubbish).

## **3. WORK STILL REQUIRED**

#### NBSAP

##### Theme 5. Objective 1:

Action 1.1: Adopt and implement the draft Waste Management Plan.

Action 1.2: Ensure that the Government works very closely with the Chamber of Commerce and in consultation with the South Pacific Regional Environment Programme (SPREP) to introduce appropriate new technology and systems for managing waste on Niue.

Action 1.3: Investigate the feasibility of a treatment plant to treat human waste.

Action 1.4: Make more use of a centralised rubbish dumping site and continue improvements in its management.

Action 1.5: Establish a system to ensure proper disposal of rubbish in village sites.

Action 1.6: Obtain an appropriate incinerator for the disposal of hospital and other toxic wastes.

Action 1.7: Continue a programme to replace asbestos in roofs, declaring houses with asbestos roofing as a health hazard, consider the safe removal and disposal of all asbestos roofed houses that are unoccupied, and ban any further imports or use of asbestos. Dispose of the asbestos in a way that minimises impacts on environment and human health.

Action 1.8: Research means to reduce use of pesticides, change to less toxic products or replace them with integrated agricultural management techniques.

Action 1.9: Continue and support public awareness to prevent littering.

Objective 2:

Action 2.1: Continue to support the existing recycling programme for aluminium cans.

Action 2.2: Support the recycling programme for batteries sent overseas.

Action 2.3: Investigate re-cycling options for all other non-biodegradable materials, e.g. plastics and used vehicles and tyres.

Action 2.4: Government and retailers to agree and implement a systematic and suitable method of separating the different types of waste, for example – food, waste meat, plastic wrappings, tin cans and empty bottles.

Action 2.5: Encourage separation and composting of organic waste.

Action 2.6: Investigate new technologies that reduce waste and contribute to ecologically sustainable development.

CMEBP

- Conduct feasibility study on recycling/mulching/composting of organic waste;
- Review current laws/policies that hinder ‘minimal waste’ targets;
- Investigate feasibility of more recycling schemes and refuse transfer stations in villages;
- Investigate use of waste products to reclaim mining sites, *maketea* pits.

UNFCCC National Communication

- Implement a ‘waste recycling’ mind-frame rather than a ‘waste management’ approach;
- Promote public awareness of recycling, composting and other alternatives to reduce amount of solid waste.

Civil Society

- That all dwelling houses and work places with asbestos roofing be replaced (largely a health issue but with waste management implications).

#### **4. DISCUSSION**

Waste management has received much attention in the past ten years culminating in the production of the Waste Management Plan and the implementation of some of its provisions during a 1-year placement by an overseas expert in the Health Department (e.g. a collection of batteries programme). The nation’s aluminium can recycling programme run by the Catholic Church is held up as an example to the whole region of a successful initiative.

There is still work to do, particular to change the emphasis from disposing of waste to recycling and to minimising it in the first place through controlling the import of certain goods. The management of sewage and organic wastes are two areas where recycling is being advocated. There are also some problems obtaining the funding needed to fully implement the Waste Management Plan.

## RECOMMENDATIONS FOR IWP

Waste management is listed as one of the possible focal areas to be included within the IWP pilot project. The situation is very similar to that of the previous issue, freshwater resources. Significant work has been already done to address waste management, and while there is not currently the funding available to do all that is required, there are a number of regional programmes that focus on this issue from time to time. Again it will be possible to incorporate ideas of improved waste management in discussions of managing the inshore zone, but it is suggested that greater emphasis within the pilot project is not appropriate.

### 3.1.7 Climate Change

#### 1. ISSUES IDENTIFIED

UNCED REPORT 1991

-

SOE 1993

- Increased frequency and severity of tropical storms;
- Changes in performance of freshwater lens;
- Increased coastal erosion and storm damage to infrastructure.

NBSAP 2001

- Possible effects on freshwater lens of any sea level rise.

UNFCCC National Communication (Government of Niue (2000))

- Predicted sea level rise threatens fresh water lens;
- Climate change within natural ecosystems (e.g. reefs, rainforests) could change species composition;
- Increased incidence and severity of tropical cyclones and associated damage to infrastructure and the environment;
- Possible changes in infectious disease status.

#### 2. PROGRESS SINCE 1992:

International Agreements:

- **United Nations Framework Convention on Climate Change (UNFCCC, 1992). An international convention established to protect the climate from the increasing atmospheric concentrations of greenhouse gases that is adding to the warming of the Earth's surface and atmosphere.**

Legislation:

-

Planning:

- UNFCCC National Communication;
- Government Energy Policy (Not seen).

Information:

- National Inventory of Greenhouse Gases.

Advocacy & Education:

- Campaign using print, radio and TV media within UNFCCC project including 'Climate Awareness Day'.

#### 3. WORK STILL REQUIRED

The UNFCCC National Communication contains a long list of suggested adaptation measures for the coastal zone, agriculture, forestry and land use, biodiversity, health and

socio-economic resources to “mitigate and adapt to impacts of climate change on Niue”. Work required to address the key driver of climate change by reducing emissions of greenhouse gases are as follows:

#### Energy & Industry:

- Increased efficiency and maintenance of diesel generators;
- Encourage use of solar heating and other renewable energy options;
- Encourage use of low energy rate appliances;
- Encourage use of energy saving light bulbs.

#### Transport:

- Encourage car pooling to and from work;
- Enforce maximum speed limits;
- Implement and improve standards of warrant of fitness for vehicles;
- Promotion of bicycle use and walking;
- Importation of more fuel-efficient vehicles.

#### Forestry:

- Preservation and conservation of forest areas, other than the Huvalu Conservation Area;
- Initiation of an indigenous tree planting programme;
- Government legislation for a National Forest Policy for Niue, based on 1998 National Forest Policy Statement.

#### Waste Management:

- Implement a ‘waste recycling’ mind-frame rather than ‘waste management’ approach;
- Promote public awareness of recycling, composting and other alternatives to reduce amount of solid waste.

#### Water Resources

- Encourage use of village rain catchment systems and household back-up water tanks;
- Encourage use of ‘grey water’ for secondary household uses.

#### Infrastructure

- Protection measures for the Bulk Fuel Storage Tanks from storm surge;
- Protection measures for the Hospital and Huanaki Cultural Centre from storm surge;
- Protection measures for Hotel Niue and the Public Works Department;
- Protection measures for residents residing along the western coastline who are most vulnerable to the effects of storm wave damage;
- Protection measures for canoe and boat landings on the western coastline and the only port landing in Alofi.

#### Agriculture

- Better protection methods for crops vulnerable to strong wind damage;
- Cultivation of better drought resistant crops or find new ways that existing crops can adapt to extreme events;
- Use of appropriate technology to promote new initiatives like organic farming and hydroponics systems.

Work required to allow Niue to prepare appropriately for climate change include addressing several capacity needs, further education and awareness-raising work, and attention to policy development.

#### **4. DISCUSSION**

Niue is a very minor producer of greenhouse gas emissions per capita. However the actions required, as listed above, all contribute significantly to sustainable development. They should be included within programmes addressing the different areas, e.g. forestry. The work needed to assist Niue's preparedness should be included in Niue's ongoing UNFCCC project.

### **3.1.8 Tourism**

#### **1. CONCERNS IDENTIFIED**

UNCED REPORT 1991

- Graffiti on rock faces at cultural sites e.g. caves.

SOE 1993

- Need to ensure natural beauty and natural resources are protected.

NEMS 1994

- Lack of a tourism plan.

NBSAP 2001

THIS REVIEW

Consultation with Civil Society

- Improvement of scenic sites is needed.

Government Department Consultations

#### **2. PROGRESS SINCE 1992:**

Legislation:

- Niue Tourist Authority Act 1995 (Ammended 1997).

Planning, Programmes:

- Niue Tourism Accreditation Scheme.

#### **3. WORK STILL REQUIRED**

Civil Society workshops identified the need for more funds to upgrade tourist sites and more consultations with families regarding their management. Local caretakers should be employed to look after sites.

#### **4. DISCUSSION**

The tourism sector has developed comprehensive environmental management guidelines within its accreditation scheme. The participation of as many tourism operators as possible in this voluntary scheme and close adherence to the guidelines will ensure that tourism development is sustainable. It is highly dependent on the natural environment and thus cannot be sustained unless this is conserved.

## **3.2 Social**

### **3.2.1 Institutional Frameworks and Capacity Building**

#### **1. CONCERNS IDENTIFIED**

SOE 1993

- Need to resource new Environment Administration.

NEMS 1994

- Environment Unit has limited mandate, single position and no clear budget of its own – reactive not proactive – little ability to coordinate environment management concerns with economic development decision-making process

#### CBEMP 1998

- The CBEMP project was focused on capacity building. It did not specifically identify concerns with the way that the environment was being managed at that time, however its list of areas and activities required, presented in the 'Work Still Required' section, suggest what some of these were known.

#### NBSAP 2001

- Fragmented approach to environmental management.

#### THIS REVIEW 2001

##### Consultation with Civil Society

- Lack of coordinated decision-making;
- Lack of integration by Government with other stakeholders and NGO's.

##### Government Department Consultations

- Environment Unit reactive not proactive;
- Lack of continuity of effort;
- Lack of a coordinating body, e.g. Sustainable Development Commission;
- Insufficient monitoring of national performance;
- Disjointed administration of the country's environmental mandate;
- Lack of coordination of the management of sustainable development.

## **2. PROGRESS SINCE 1992:**

##### Government Structure:

- Two-person Environment Unit within Department of Community Affairs

##### Planning:

- 

## **3. WORK STILL REQUIRED**

#### NBSAP

##### Theme 4. Objective 3

Action 3.1: Maintain the NBSAP Steering Committee, reviewing its membership, to plan and organize a programme for the implementation of the NBSAP.

Action 3.2: Build capacity in the Environment Unit, DCA, as the key implementing agency for the NBSAP to ensure the full realization of that strategy.

#### CBEMP

- Strengthening in-country coordination to ensure the involvement of the right players, to minimise duplication and confusion, to enable integration of different programmes, to monitor gaps and shortfalls and to ensure the involvement of local people;
- Coordinating administrative procedures for project development locally;
- Improving internal and external communication links;
- Improve the human resources of the Environment Unit (extra manpower and training);
- Review Environment Unit structure and possible departmentalisation as a long term strategy;
- Increase training of staff (of several departments) in resource management;
- Coordinate resource use planning and management - need for a central unit to coordinate sustainable development decision-making.

##### Civil Society

- More initiatives for capacity building in all Government Departments.

##### Departmental Consultation

- Consider consolidating environmental activities within a Land & Resources

- Department;
- Develop a coordinating body;
- Amalgamate Environment Unit, Environment Planning Unit, waste management and water monitoring under one umbrella;

#### **4. DISCUSSION**

The issue of institutional frameworks is considered a key one. While there have been many regional and international programmes established since UNCED, these have not been matched by a consistent, appropriate government framework for managing the environment and sustainable development. Some strengthening of individual agencies has occurred during the delivery of these programmes as coordinating officers are appointed for limited contracts, but the ongoing capacity has increased little.

Three concerns are clear. The first is the disjointed management of the environment with an Environment Unit housed in the Department of Community Affairs, an Environment Planning Unit located in the Department of Justice, Lands and Survey, and other responsibilities located in DAFF and the Health Department. The amalgamation of the two Units has been identified as a priority for some time but there is discussion about which Department is appropriate. A stand-alone Department could be considered, particularly if the WSSD leads to new initiatives, e.g. one to resource implementation of the NBSAP.

The second concern is the lack of a coordinating body within Government, particularly to address the issues identified above in the CMEBP (Pasisi 1998). There have been a number of committees set up at different times such as the NEMS Task Force and the NBSAP Steering Committee. Task Forces are also proposed under both the IWP and WSSD projects. An Environment Council is proposed under the draft Environment Bill. It is suggested that a single entity be established that can fulfill all such future roles, made up of representatives of key Government Departments and the private sector with links to the environment and sustainable development. It could establish sub-committees to oversee the different programmes.

The final concern is simply one of capacity. The Environment Unit has two staff and is almost fully employed meeting obligations to international and regional programmes giving it no opportunity to sustain any proactive initiatives. There is only a single Environment Planning Officer, hence no back-up and thus no GIS capacity while the officer is absent. Other units such as Fisheries & Quarantine are largely dependent on a single, experienced officer. The means need to be found to create more permanent positions if the challenges sustainable development are to be met.

### **3.2.2 Planning And Environmental Impact Assessment (EIA)**

#### **1. CONCERNS IDENTIFIED**

SOE 1993

- Lack of monitoring and reporting on environment.

NEMS 1994

- Principles of physical planning not yet applied to the bulk of land and sea resources in Niue;
- Need to use newer models of economic planning that take into account the depletion of natural resources and the decline in the support services of the environment;
- Development proposals need to be subject equally to environmental as economic appraisal;
- Need for an EIA on all projects that could have an environmental impact.

#### CBEMP 1998

- The CBEMP lists a number of activities needed to address concerns in this area which are listed in 'Work Still Required' below.

#### THIS REVIEW

### 2. PROGRESS SINCE 1992:

#### International Agreements:

-

#### Legislation:

- Draft Environment Planning Act

#### Planning:

- LMERP Project and associated Guidelines

#### Advocacy & Education:

-

### 3. WORK STILL REQUIRED

#### NBSAP

#### Theme 4:

Action 2.1: Ensure that any development projects undergo an Environment Impact Assessment. (EIA).

#### CBEMP

- Adopt an integrated approach to environmental policy and planning;
- Incorporate the principle of sustainable development into the mandates and policies of the sectoral line departments;
- Promote common approaches to economic and environmental planning in both public and private sectors;
- Promote open consultation mechanisms with local communities and the pursuit of traditional consensus approaches to decision making;
- Develop and apply EIA guidelines;
- Institutionalise the EIA as part of the physical development, resource use policy programmes, and environmental decision making process;
- Coordinate resource use planning and management - need for a central unit to co-ordinate sustainable development decision making.

### 4. DISCUSSION

Addressing the concerns within this issue is vital for sustainable development. The work required has been clearly identified during the LMRPP and much of it has been done with the production of guidelines and drafting of legislation. It is now largely a matter of finalising these and of running a public awareness campaign so that all can see the benefits of initiatives like EIA and local planning and will be more likely to adopt them.

### 3.2.3. Legislation

#### 1. CONCERNS IDENTIFIED

#### UNCED REPORT 1991

- Lack of legislation for the utilisation and conservation of natural resources.

#### SOE 1993

- Need to incorporate EIA provisions in legislation.



NEMS 1994

- Lack of comprehensive framework of environmental law.

NBSAP 2001

- Lack of legislation covering management of the environment as a whole.

THIS REVIEW

Consultation with Civil Society

-

Government Department Consultations

## **2. PROGRESS SINCE 1992:**

-

## **3. WORK STILL REQUIRED**

NBSAP

Theme 4. Objective 1:

Action 1.1: Ensure that immediate action is taken to enact the draft Environment Bill.

Action 1.2: Ensure that immediate action is taken to finalise and enact the Integrated Environment Planning and Management Bill.

Action 1.3: Draft and enact Bio-prospecting regulations to protect traditional knowledge applicable to the use of the biological resources of Niue.

Action 1.4: Adopt the draft Access to Benefit Sharing (ABS) guidelines consistent with the regionally accepted “Access Laws Checklist” and “Guidelines and Access to Genetic Resources in the Pacific Island Countries”.

Action 1.5: Draft, as a matter of urgency, the required regulations to ensure maximum protection of the water supply.

Action 1.6: Ensure that Niue becomes a party to the Cartagena Protocol (on bio-safety).

Action 1.7: Continue the current arrangement with respect to the Convention on International Trade in Endangered Species (CITES) enabling New Zealand to act at the request of the Niue Government.

Action 1.8: Ensure that the Agriculture Quarantine Act 1984 is reflected in any new entry and departure forms.

Civil Society

- That the Environment Bill be enacted

## **4. DISCUSSION**

This is another area like the one of Government structures in which little concrete progress has been made to the frustration of many. While effort has been put into consultations and drafting legislation, two key statutes, the Environment Bill and the Environment Planning Act, have not been passed into law. This stands out as a priority concern. Further delays will undermine the country’s ability to meet the challenges of environmental management and sustainable development. Not all the measures will be immediately popular and associated public awareness campaigns will be required.

### **3.2.4 Education And Public Awareness**

#### **1. CONCERNS IDENTIFIED**

UNCED REPORT 1991

-

BENSON 1992 (a specific review of environmental education and community awareness).

- Environmental education is being covered in a haphazard manner;

- Most teachers and students have a narrow view of what ‘environmental education’ is about;
- There is a lack of resources for environmental education.

#### SOE 1993

- Lack of environmental awareness and education.

#### NEMS 1994

- Lack of public awareness on the need for and ways of protecting the environment;
- Difficulties integrating environmental education into schools due to non-availability of appropriate Niuean material – lack of trained teachers – non-inclusion of environmental science in examinations.

#### NBSAP 2001

- Lack of understanding within communities on how to sustainably manage their resources;
- General lack of information for communities.

#### THIS REVIEW 2001

##### Consultation with Civil Society

-

##### Government Department Consultations

- Environmental education of adults a key gap.

### **2. PROGRESS SINCE 1992:**

- Environment Education Officer appointed within Department of Community Affairs;
- Primary school initiatives;
- Campaigns such as Year of Sea Turtle and Coral Reef;
- Waste management campaigns.

### **3. WORK STILL REQUIRED**

#### BENSON 1992

- Incorporate environmental education into the whole curriculum;
- Emphasize environmental education in training of teachers;
- More resources adapted for Niuean situation;
- Ethno-botanical study be carried out to provide information on plants and their cultural uses;
- NGOs and community leaders be provided with training to cater for information needs of village groups;
- Ongoing community environmental awareness programmes maintained in villages.

#### NBSAP

##### Theme 7:

Action 1: To provide a public education programme to increase understanding of the sustainable use of natural resources.

Action 2: The Health Department to continue to educate the public on proper ways and means of managing waste at home, on road verges, community buildings and village surroundings.

Action 3: Develop active national and village environmental education campaigns focused on sustainable management and utilisation of forest resources.

Action 4: Provide more information for tourists and Niueans returning overseas on the

species that are fully protected under CITES and which may not be imported into signatory countries (e.g. coral, clam shells, turtle products).

Action 5: Enhance and support the “Keep Niue Clean” awareness program.

Action 6: Educate people on the importance of retaining the knowledge of traditional practices associated with biodiversity conservation.

#### **4. DISCUSSION**

While environmental education is being delivered in primary schools, more local material is needed. The secondary curriculum follows that of New Zealand in which this subject is given greater emphasis. The priority then seems to be the provision of information to adults to allow them to make better informed decisions about how they use the nation’s resources. Many of the environmental concerns identified, such as over-harvesting of inshore marine resources, of *uga*, *lupe* and *peka*, the poor use of land and felling of more forest, can only be addressed through individuals altering their actions. In order for them to be expected to do this, they require good information on the likely consequences of the different options available to them. This information needs to be relevant to Niue’s own situation and usually presented in Niuean.

### **3.2.5 Traditional Knowledge and Practices**

#### **1. CONCERNS IDENTIFIED**

UNCED REPORT 1991

-

SOE 1993

- Need to maintain traditional social structures and subsistence economy.

NEMS 1994

- Traditional systems for resource management and the knowledge on which they were based are beginning to be lost due to the development of a cash economy and the weakening of traditional authority.

NBSAP 2001

- Gradual and continual loss of traditional knowledge of conservation and environmental management;
- Low priority given to maintenance of traditional knowledge within some Departments and school curricula.

THIS REVIEW 2001

Consultation with Civil Society

-

Government Department Consultations

- Ensuring equitable sharing of benefits from access to genetic resources.

#### **2. PROGRESS SINCE 1992:**

This issue has intensified over the period. Initially nations felt powerless to protect their own intellectual property, their traditional knowledge of medicinal plants etc. Regional programmes have, more recently, helped empower countries to take control of this issue.

#### **3. WORK STILL REQUIRED**

- That mechanisms to protect traditional knowledge be designed and implemented (a civil society priority);
- Draft and enact Bio-prospecting regulations to protect traditional knowledge applicable to the use of the biological resources of Niue (NBSAP Action);

- Adopt the draft Access to Benefit Sharing (ABS) guidelines consistent with the regionally accepted “Access Laws Checklist” and “Guidelines and Access to Genetic Resources in the Pacific Island Countries”(NBSAP Action).

#### **4. DISCUSSION**

The key activity required is to put draft measures into policy and then monitor them. An awareness campaign is required to ensure that individuals understand and support the system that exists to protect their rights.

### **3.3 Economic**

This review concentrated on environmental concerns and their interplay with social concerns. Economic concerns are, nevertheless, recognized as important considerations, for these can affect the pressures put on the environment. However they were less relevant to the current terms of reference and thus not actively pursued in both consultations and the literature review. A few issues were however raised in civil society consultations and included in this category.

#### **Population**

Population decline was mentioned as an issue in the SOE and the NBSAP noted that though it may be reducing pressure on natural resources, it made it harder to sustain Conservation Areas and the infrastructure needed for sustainable development. Fisheries staff contended that people might believe that a smaller population could not over-exploit their natural resources when in fact they could.

#### **Civil Society recommendation:**

- That there be a focus on opportunities/incentives to slow or reverse de-population and “brain drain”.

(But note the following issue raised in the NEMS: Taxes or subsidies are presently supporting activities that damage ecosystems or natural resources)

#### **Relationship with New Zealand:**

- That the need for a definitive and descriptive partnership between Niue and New Zealand be addressed to reflect a stronger relationship (Civil Society)

#### **Land Tenure System:**

- That the land tenure system be reviewed in order to find ways of attracting overseas investors to Niue.

#### **Technology:**

- That there be continuous training, especially of employees, in marketing and business and to upgrade skills and knowledge on technology.

The sectoral review (section 2.11) identifies a range of economic concerns. The Niue Economic and Social Review (revised 1992) concluded that Niue has limited economic prospects at present. External factors such as the cancellation of Air New Zealand flights to Niue have seriously affected the tourism sector – the sector having the best potential to contribute to growth and development. The continuing decline in population limits the potential for increasing production for domestic consumption. At present Niue remains heavily dependent on NZODA assistance although there is some evidence that the country is moving closer to achieving financial self-sufficiency despite a very low level of economic activity. The productive sector, where it exists, is presently not in a position to take up the challenge and many of the opportunities currently being tabled involve production at the subsistence level. There is a small and underdeveloped private sector with little evidence of commercial/productive enterprise. Subsistence agriculture and fisheries, including the promotion of Niue as an ‘organic’ island (although there is resistance by some farmers to stop using chemical herbicides) offer the best potential to contribute to the future growth and development of Niue. The tuna industry has some potential but Niue is not currently in a position to exploit it.

Clearly an improvement of the economic situation will be very important for the sustainable management of the environment to occur. Conversely, any decline would make it more difficult for the Government to maintain the capacity of the departments that address environmental issues. It also may make it harder for individuals to make the choices that benefit the environment, such as not over-exploiting resources, dealing appropriately with waste etc.

#### **4.0 Concluding Discussion for IWP**

The major outcomes required of this project were a review of priority environmental concerns and associated issues facing Niue as it enters 2002 and the identification of remedial actions that could address these issues.

The focus of IWP activities is in four possible areas :

- Marine protected areas;
- Sustainable coastal fisheries;
- Protection of freshwater resources;
- Waste management.

It is clear that all four are still key issues for Niue. The first recommendation within the Marine – Oceans/Coastal Waters/Reefs (Section 3.1.1) was that the IWP Pilot Project includes an emphasis on sustainable coastal fisheries. The second recommendation was that some attention be given to Marine Protected Areas, as a possible management tool to achieve sustainability of these fisheries.

The review of freshwater resources (Section 3.1.5) concluded with the recommendation that this does not become a major activity within Niue's pilot project because it has been covered by a range of initiatives in the past, and is likely to receive funding again in the future from programmes with this as their major focus. However informing people how they can better look after their freshwater resources could be included in any pilot project education programmes.

Waste management has also received significant attention with initiatives to implement the Waste Management Plan. The scale of the problem is much less than in some other small island states in the Pacific and support for schemes like aluminum-can recycling shows some commitment at the community level to addressing at least one aspect of the issue. However the fact that the pilot project will be working closely with communities does provide opportunities for good waste management practices to be encouraged through education programmes.

In conclusion, the emphasis on Sustainable Coastal Fisheries is seen as readily justified because no previous programmes have addressed this long-standing issue and there are no identifiable alternative sources of assistance with this. In contrast, much work has already been done addressing the issues of freshwater resources and waste management, and there are specific regional and international programmes likely to be sources of future support for these.

It was not considered relevant to try and develop recommendations for the IWP within sectors not covering the four focal areas. However the management of the pilot project can be undertaken in ways that help to address other environmental concerns. For example the Task Force to oversee the project could be integrated with other similar bodies such as the NBSAP Steering Committee to form the Environment Council identified in section 3.2.1. The Environmental Impact Assessment could be introduced as a tool to assist in the sustainable management of coastal resources to help address the issues identified in section 3.2.2 (Planning and EIA). Finally, making as much use of traditional conservation methods as possible will contribute to recommendations in section 3.2.5 (Traditional Systems and Knowledge).

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## **Annex I: Workshops for Civil Society**

These workshops were conducted by Tagaloa Cooper and Judy Nemaia of the Environment Division, Department of Community Affairs, and their write-ups are reproduced here with their kind permission.

### **PARTICIPANTS:**

National Council of Women: *Beckys Tauasi*

Niue Island Organic Farming Association (NIOFA): *Aokuso Pavihi, Ahohiva Levi, Bill Vakaafi*

Niue Church Council: *Rev Matagi Vilitama*

Niue Fisherman's Association: *Uhotau Pasisi, Cedric Tutaki*

NISANOC (Niue Sports Body): *Alan Tano*

Conservation Area Coordinating Committee, Huvalu Project: *Pokotoa Sipeli, Masani Togiamana*

Niue Youth Council: *Amanda Heka*

Niue Growers Association: *Hunuki Hunukitama, Morris Tafatu, Taso Tukunui*

Niue Tourism Organisation: *Herman Tagaloailuga*

Hakupu Cultural & Heritage Park: *Bradley Punu, Misa Kulatea, Pitasoni Tanaki*

Niue Woodcraft: *Sonia Tafatu*

Village Council Representatives: *Atalase Tauati (Avatele), Falefoou Siavale (Namukulu), Sunlou Freddie (Hakupu), Snow Touna (Alofi North), Moka Talaiti (Vaiea), Lofa Rex (Alofi South), Logopati Seumanu (Liku), Maryanne Talagi (Makefu), (Bill Vakaafi (Mutulau) was listed earlier as a NIOFA representative)*

Private Sector: *O'love Jacobsen*

### **Meeting Record**

#### **PROCEEDINGS**

#### **OFFICIAL OPENING**

The Workshop was opened by welcoming remarks by Ms Judy Nemaia one the facilitators. The Reverend. Mr Matagi Vilitama shared few thoughts and conducted the opening prayer, followed by an opening address from the Acting Director for the Department of Community Affairs, Mrs Gina Tukiuha. House keeping matters were made by Ms Judy Nemaia and Ms Tagaloa Cooper the main facilitator of the workshop provided an overview of the workshop to participants.

#### **WORKSHOP SESSIONS**

##### **DAY 1**

1. POWER POINT PRESENTATION ON THE RIO + 10. This was conducted by Ms Tagaloa Cooper at the Fale Kifaga Niue.
2. MORNING TEA. Provided by the Niue Hotel.
3. WORKING GROUP SESSION 1 : ENVIRONMENT  
Participants were divided up into 4 Groups to discuss environmental issues especially regarding their respective areas. The exercise focused on the achievements, constraints, and recommendations. After discussions Groups reported back by making presentations of their findings.  
A summary of the discussions is attached as an annex.
4. LUNCH BREAK
5. WORKING GROUP SESSION 2 & 3 : SOCIAL AND ECONOMIC



Due to time constraints out of the 4 groups, 2 were asked to concentrate on Social issues and 2 for the Economic Issues. Again the aim of the sessions were to focus on the achievements, constraints regarding sustainable development since the Rio Earth Summit and recommendations for a way forward

6. AFTERNOON TEA. Provided by Niue Hotel.
7. WORKING GROUP SESSION 2 & 3 : SOCIAL AND ECONOMIC  
Final Presentations were made by the groups
8. HOUSE KEEPING MATTERS. by Ms Judy Nemaia.
9. SUMMARY/WORD OF THANKS. Ms Tagaloa Cooper commended participants for their time and commitment to the Workshop and look forward to the final session of the workshop on Monday 12th November, 2001 for final discussions and endorsement of the Report.
10. CLOSING PRAYER. Conducted by the Reverend Matagi Vilitama

## DAY 2

### OFFICIAL OPENING

The Workshop was opened by welcoming remarks by Ms Judy Nemaia one the facilitators. Mr Pitasoni Tanaki conducted the opening prayer. House keeping matters were made by Ms Judy Nemaia and Ms Tagaloa Cooper the main facilitator of the workshop provided an overview of the workshop to participants.

1. POWER POINT PRESENTATION ON THE RIO + 10. This was conducted by Ms Tagaloa Cooper at the Fale Kifaga Niue.
2. MORNING TEA. Provided by the Niue Hotel.
3. WORKING GROUP SESSION 1 : ENVIRONMENT

Participants were divided up into two groups to discuss environmental issues especially regarding their respective areas. The exercise focused on the achievements, constraints regarding sustainable development since the Rio Earth Summit and recommendations for a way forward. After discussions Groups reported back by making presentations of their findings.

*Summary of discussions attached.*

4. LUNCH BREAK
5. WORKING GROUP SESSION 2 & 3 : SOCIAL AND ECONOMIC

Due to time constraints out of the two groups, one group discussed Social issues and one explored the Economic Issues. Again the aim of the sessions was to focus on the achievements and constraints regarding sustainable development since the Rio Earth Summit and recommendations for a way forward.

*Summary of discussions attached.*

6. AFTERNOON TEA.
7. WORKING GROUP SESSION 2 & 3 : SOCIAL AND ECONOMIC

Final Presentations were made by the groups

8. HOUSE KEEPING MATTERS. by Ms Tagaloa Cooper
9. SUMMARY/WORD OF THANKS. Ms Tagaloa Cooper commended participants for their time and commitment to the Workshop and look forward to the final session of the workshop on Monday 12th November, 2001 for final discussions and endorsement of the Report.

CLOSING PRAYER. By Mr Morris Tafatu

## Summary of Prioritised Concerns:

### ENVIRONMENT

1. **THAT** due to lack of accurate scientific data regarding the safety of the water lens, a competent survey be conducted to identify the effects of “development”, and to address if necessary, ways of improving the quality of freshwater.
2. **THAT** the Environment Bill be enacted.
3. **THAT** a more stringent policing method be used to deter illegal hunting of *peka* and *lupe* outside the prescribed seasons sanctioned by Cabinet.
4. **THAT** all dwelling houses and work places with asbestos roofing be replaced, i.e. re-roofing.
5. **THAT** new protected areas be established for marine and land based natural resources.
6. **THAT** mechanisms to protect traditional knowledge be designed and implemented.
7. **THAT** guidelines be developed and adopted on access to benefit sharing that ensures benefits accrue to traditional owners.
8. **THAT** Regulations for access to genetic resources be enacted.

### SOCIAL

1. **THAT** the Government be realistic in its policies to counter de-population and to concentrate resources to improve standard of living of the Niueans residing in Niue.
2. **THAT** there are insufficient initiatives for capacity building in all Government Departments.
3. **THAT** the Education Department adopt a Curriculum that responds to Niue’s needs.
4. **THAT** the Health Department design and implement programmes to promote a holistic approach to healthy lifestyles that will complement the Moui Olaola Program.
5. **THAT** water quality tests be carried out.

### ECONOMIC

1. **THAT** there be a focus on opportunities/incentives to slow or reverse de-population and “brain drain”.
2. **THAT** the need for a definitive and descriptive partnership between Niue and New Zealand be addressed to reflect a stronger relationship.
3. **THAT** the Land Tenure System be reviewed to investigate ways of attracting overseas investors.
4. **THAT** research be carried out for marketable alternative crops.
5. **THAT** there be continuous training, especially of employees, in marketing and business and to upgrade skills and knowledge on technology.

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## Annex II: IWP Civil Society Workshop

This workshop was conducted on 15 March 2002 after the participants were sent the first draft of this report and a questionnaire. The following notes were prepared from a report provided by Sione Leolahi, the IWP National Coordinator for Niue.

### Attendees:

Minister for DAFF: Honourable Young Vivian (who opened the workshop).

Director for DAFF: Mr. Sauni Tongatule (who welcomed participants).

WSSD Chairperson: Mr. Crossley Tatui (WSSD Secretariat).

IWP National Coordinator: Mr. Sione Leolahi (IWP Secretariat).

Rapporteur: Assistant Coordinator: Mr. Logo Seumanu

Rapporteur: Ms Char Funaki (Council of Women)

Others: Mrs. Mata Tahafa and Mrs. Ponita Molai (Niue Council of Women), Reverend Iosefa Sionetuato (National Council of Churches), Mr. Aokuso Pavihi and Mr. Ahohiva Levi (Niue Island Organic Farming Association), Mr. Taumafai Fuhiniu (Niue Canoe Association), Mr. Henry Eveni (Niue Growers Association), Ms Roberta Sionesini (Niue Youth Council), Mr. Uhotau Pasisi (Niue Island Fishermen's Association), Mrs. Lofa Rex (Game Fishing/Chamber of Commerce and Alofi South Village Council), Mr. Pao Helemoni (Alofi North Village Council), Mr. Charlie Tohovaka (Makefu Village Council), Mrs. Mata Okesene (Tuapa Village Council), Mr. Launoa Gataua and Ms Kiligutu Hiligutu (Hikutavake Village Council), Mr. Bill Vakaafi and Mr. Meleki Tauefasi, Mr. Niumaka Seumanu (Liku Village Council), Mr. Bradley Punu (Hakupu Village Council) Mrs. Mokahemotu Talaiti (Vaiea Village Council), Mr. Atalase Tauati and Mr. Hakemotu Laufoli (Avatele Village Council), Mr. Ricky Makani (Tamakautonga Village Council).

### Summary of Discussions:

- Civil society recommended sustainable coastal fisheries as the priority focal area for the IWP pilot project.
- It was recommended that the IWP national task committee consist in equal numbers of representatives from the Government sector and Civil Society.
- Village council representation on the IWP national task committee should be through four members each representing a group of villages as follows: Alofi North, Makefu, Tuapa and Namukulu to be represented by Makefu; Hiku, Toi, Mutalau and Lakepa by Mutalau; Liku, Hakupu and Vaiea by Hakupu; and Avatele and Tamakautauga by Tamakautauga.
- Freshwater remains a key commodity for Niue and its management and conservation should be addressed by separate approaches for assistance whilst the IWP should integrate the three other focal areas to sustainable fisheries

### Concerns reported in the Questionnaires:

(This list was drawn from all the questionnaires received. Some comments may have lost some meaning in translation and others appear contradictory. They can provide an indication of the different viewpoints that will need to be taken into account in planning a pilot project.)

- Marine reserves should be backed by a total ban on the collection of seashells.
- Need some research done on shoreline species to determine their numbers and vulnerability.
- Need to reduce the use of pesticides and detergents, and better manage human and animal wastes.
- All household waste should be separated into biodegradable - to be composted - and non-biodegradable - to be incinerated.
- Recycling to be improved.
- There is a need for more national awareness campaigns on the impacts the use of chemicals

have on water resources.

- Community education is needed on all four IWP focal areas.
- Increase 12-mile zone to limit interactions.
- Collect data and identify the number of species in the coastal zone from high water line to edge of the breakers.
- Impose periodic bans on the harvesting of certain species.
- Provide more education to improve community participation in resource management.
- Establish clear village boundaries.
- Ensure no fishing activities in marine reserves, day or night.
- Ensure no tourists go diving or snorkeling in the reserve area.
- Only fisheries officers to be allowed in protected areas for research and surveillance.
- Boats and canoes should be kept more than 100 meters from the coastline of the reserve.
- Develop campaigns to reduce wastage of water and encourage repairs to leaky taps.
- Develop community-based waste management plans.
- Avoid dumping waste and dead animals in deep crevices.
- Allow the incorporation of recreational activities in coastal and inshore planning.
- Follow up methodology to control flies, mosquito and rodents at these sites.
- Carry out research on opportunities for the sustainable commercial fishing of Niue's marine resources.
- Explore opportunities for spear fishing and the organisation of an international game fishing competition to bolster tourism.
- Provide compensation, in the form of a small fee, to the civil society for marine reserve protection.
- Promote traditional methods of bylaws to restrict reef fishing for a period of time.
- Conduct a survey on water loss in Niue.
- Support the use of rain-water catchments.
- Provide training in schools to promote sustainability in coastal and inshore areas.
- Provide incentive assistance to boost the morale of the public.
- Organise an annual national day to promote sustainability and IWP initiatives
- Develop management plans to guide sustainability.
- Place burial sites well away from water bores.
- Compost bins should be funded.
- Prepare guidelines for hunters during the season when crabs spawn.
- Protect *Pandanus* areas for use by women.

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### **Annex III: Departmental Consultations**

#### PEOPLE CONSULTED:

##### **Department of Community Affairs (DCA) 13/12/01 pm:**

Tagaloa Cooper, Environment Officer

Sione Talagi, Environment Education Officer

##### **Department of Agriculture, Forestry & Fisheries (DAFF) 4/12/01 am:**

Sauni Togatule, Director

Brendon Pasisi, Government Fisheries Adviser (and 10/12/01 pm)

Wendy Cover, U.S. Peace Corps (13/12/01 pm)

##### **Department of Health (DOH) 4/12/01 pm:**

Dr Andrew Morgan

Sione Hetutu

##### **External Affairs & Acting Secretary to Government (EA/SOG) 5/12/01 am:**

Crossley Tatui, Director (EA)

##### **Education Department (ED) 5/12/01 am:**

Kupa Magatogia, Director

##### **Public Works Department (PWD) 6/12/01 am:**

Deve Talagi, Director

Andre Siohane, Head of Water Division

##### **Department of Justice, Lands & Survey (DJLS):**

Ahohiva Levi, Registrar of Lands 6/12/01 pm

Coral Pasisi, Environment Planning Officer 12/12/01 pm

##### **Niue Meteorology Service (NMS) 7/12/01 am:**

Sionetasi Pulehetoa, Director

##### **Tourism Office:**

Judy Nemaia (Community Affairs) met with Aroha Inia (Acting Head of Department) and Esther Pavihi (Tourism Education Officer) in 2002 subsequent to the author's work in Niue.

##### **Meeting notes:**

Note: Square brackets [ ] are used to denote information or comments added to the report after the meetings, not discussed at the time, or points needing following up.

##### **Community Affairs (Environment Unit)**

The Environment Unit was formed with the appointment of a single Environment Officer in 1992 as a result of UNCED (to assist in preparation and reporting). The Unit was housed in Community Affairs because of the commitment of the Director of the Department at that time and a feeling that no-one else wanted it as it was seen as likely to stand in the way of progress.

The main concerns are reflected in the Unit's work programme (Annex VI). It tends to be largely reactive, being the focal point for different environmental initiatives particularly those regional ones through SPREP. However Niue is unique and more country-driven approaches are required.

A priority is the continuation of the Huvalu Conservation Area project now that the South Pacific Biodiversity Conservation Programme's (SPBCP) support is ending, with no guarantee of ongoing sustainability. This project is significant for several reasons. Firstly, it represents the first time that the Government has acknowledged the need for conservation and conservation areas through its endorsement of the project and the establishment of a Coordinating Committee involving Directors of different Government Departments and tourism. Secondly the project covers a very large area in proportion to

the land area of the country (the largest of any project in the programme) so it has the potential to conserve much of its biodiversity. Thirdly, it represents the first role model for a conservation area in Niue. In this respect it demonstrates the value of the *tapu* approach and of strengthening similar traditional conservation practices. Recent civil society workshops have confirmed that people recognise *tapu* provisions more than they do by-laws or regulations.

An application has been made to the NZODA PIE Fund to support the continued monitoring of *peka*, *lupe* and other birds. The income-generating activities, particularly the coconut oil production, have been the big successes of the project – the second village, Liku, is now joining Hakupu in this venture after its alternatives such as nonu production had difficulties. There has been interest in the oil from overseas markets but there is not enough production yet to meet this demand.

However, the main issue is the lack of enacted legislation. An Environment Bill is in a draft form, indeed it has been in this situation since the completion of UNCED. A final draft is with the Minister's office, after a full process of consultation, from which it should go to Cabinet. It creates an Environment Council which should assist in an integrated, mainstream environment effort. The Bill will work through the issuing of regulations.

Education and raising public awareness is a continuing priority. An Environment Education Officer position was created in 1994 and he has since been involved in a wide range of activities, including assisting other Government agencies. These have included annual environmental campaigns in June each year associated with World Environment Day and regional campaigns through SPREP for waste, water, sea turtles, etc. The older people are now more receptive to conservation messages, partly through what their children have learned.

Other important ongoing issues are too much forest clearance for agriculture and waste management. The aluminum can recycling programme is the success story here – used as an example to other countries. Managing information is also important, e.g. the State of the Environment database project.

Concerns that have arisen more recently include the protection of traditional resources, access to genetic resources and benefit sharing. An Access to Benefit Sharing (ABS) workshop in 1990 led to the raising of this issue locally when the Environment Officer made a presentation to the first National Workshop of the NBSAP process. This made people aware that this was a big issue for the whole region and that it was not a lost cause – there was an opportunity for Niueans to protect their own knowledge and resources. Guidelines including a permit system were drafted at the ABS workshop and draft regulations have been prepared for Niue. A traditional medicines committee has been formed at the Niue Hospital to integrate this with modern medicinal practice.

Bio-safety is an issue for which the Cartagena protocol is very important, offering mechanisms for capacity building in the Pacific. Niue consists of a single island so there is limited response potential in the event of serious problems from introduced organisms – people cannot move to another island.

### **Agriculture, Forestry and Fisheries**

Agriculture policy has largely had an income-generating focus rather than one on sustainability, examples being the Moui Faka Niue Scheme (a key aim of which was to increase agricultural production for export) and programmes to develop new crops such as limes and passion fruit, which required intensive cultivation. The NEMS report shifted the outlook somewhat but the primary focus is still largely unchanged. Reducing overseas aid (e.g. from New Zealand) was identified as one factor behind this.

Some key concerns have been high levels of deforestation associated with unsustainable land clearance, the use of pesticides (e.g. with lime/passion fruit programmes) and unsustainable resource use in general. There are almost no management guidelines for the use of natural resources, such as the pigeons or flying foxes, typically because of the lack of baseline information, expertise or capacity. A key issue is the way that the community looks at resources, not optimizing their use in a sustainable way. It will be important to link environmental concerns to poverty alleviation and sustainable development.

Key strategies include the recently approved Forest Policy, although its development cannot really be linked back to the Rio Summit, and an Agricultural Policy. Some key concerns are being addressed: pesticides use through a new SPREP-funded programme on Persistent Organic Pollutants, management of water resources and irrigation with a request to SOPAC, and invasive pests through a Bio-security

Act project by SPC/NZODA. Recent SPOT satellite imagery is being finalised to allow assessment of recent changes in forest cover by comparison with 1994 figures. However major gaps remain such as the assessment and management of inshore and coastal fisheries.

Several reports and corporate plans were provided.

### **Fisheries**

The key concern is the unsustainable use of inshore fish resources including shellfish, deep-water snapper and cods, clams, lobsters and crabs, and reef fish (e.g. parrot fish, surgeon fish). (Note: *Uga*, though more terrestrial, would be included in any inshore fisheries management as they are covered under fisheries legislation). No guidelines exist for the management of the different inshore fisheries and there is limited baseline data – only from the 1990 Fisheries Resources Survey (Dalzell et al. 1993) and the more recent studies at Anono Marine Reserve (Labrosse et al., 1999). Because of the relatively low population the people do not see depletion of resources as an issue and need information on the importance of managing them as declines in availability are evident. Though there are some regulations in place (e.g. size restrictions), enforcement is very difficult particularly as few fish ever reach a formal market.

Another important issue is pollution including land-based sources and oil spills. Problems could include leachates from the rubbish dump or septic tanks sited near the coast and waste from visiting yachts but there is a lack of monitoring. Waste Management was identified as a priority for possible work under the IWP in 1997 and Niue contributed its proposal to a regional programme submitted for GEF funding. However one of the purposes of the current report is to revisit the country's concerns as this may no longer be the priority.

Work needed to deal with the first concern includes baseline surveys, finding out more about the biology of the different species to be able to define a sustainable harvest, working out how to manage (through input or output controls) and establishing monitoring. There has been a request to the South Pacific Commission (SPC) for technical assistance with the development of an inshore fisheries management plan. If this topic was to be the subject of a pilot project it could start with one or two village communities, or cover the whole island.

Other issues include identifying the potential of the offshore reefs, Beveridge & Antioch Reefs, and ensuring their protection. (Some regulations were put in place when a boat ran aground on the former but there are some questions about the standing of these). Possible threats of invasive pests arriving in ballast water should be addressed in an Invasive Species Action Plan being produced by Agriculture. The offshore elements of the IWP, centered on the management of tuna stocks, are being dealt with by Forum Fisheries Agency (FFA) and SPC. The FFA is conducting a review of country provisions (legislation, etc.) tied into international conventions.

Funds are in place for marking the Anono Marine Reserve, which two villages have agreed to and accepted in practice. A programme is needed for the community to monitor the reef resources and then scuba divers will be needed for the rest. Traditional conservation practices put in place by communities are receiving more consideration these days and have wide support– e.g. closing an area to fishing as a conservation measure to ensure that it provides food for a large feast that is coming up. Civil Society have also referred to a return to traditional fishing methods, e.g. the use of a single hook. This suggestion seems to have partly stemmed from issues arising from the presence of the Tuvaluan community of Vaiea – these people traditionally have had a greater emphasis on fishing and often no other source of employment. They have been fishing almost every day for much longer periods than Niueans would, raising concerns about fish stocks in certain areas. However there seems better ways to address this issue rather than requiring the use of single hooks.

Additional comments from the US Peace Corps volunteer concerned land-based pollutants and invasive species. Lack of concern about pollutants reaching the marine system as opposed to the freshwater lens has led to the deliberate locating of possible sources such as the rubbish dump and laundromat on the coast. Paraquat may enter the sea where there is little soil in which it can degrade. Invasive species arriving in ballast water is not a major concern as ships currently take on very little cargo in Niue and thus do not need to discharge water. There are plans to revamp the regulations. Crown of Thorns

starfish are monitored but do not appear to build up into high enough numbers to cause problems on Niue.

### **Health**

A Health Improvement Plan completed in November 2001 provides an updated strategy identifying issues and detailed targets for future work. This is part of an NGO-based “Niue Moui Olaola” (Healthy and Safe Niue) project, which is due for review shortly by NZODA. Waste management was a particular focus with 12-months work by an overseas expert leading to the development of a national Waste Management Plan. Parts of this plan are being implemented and other elements taken to donor agencies for possible funding. Overall, the Department has tended to operate without a clear corporate strategy as a result of frequent changes at senior level.

Issues discussed included:

- Water quality – monitoring of freshwater continues although equipment was obtained for monitoring sea water (faecal coliforms, etc.) in the past this is not currently undertaken.
- Management of the rubbish dump – a site for a new dump has been identified inland – the present coastal site may have lead to discharges into the coastal zone.
- Fish poisoning – this has generally been rare but recently there have been several cases of suspected ciguatera poisoning from reef fish collected in the vicinity of the wharf area – waste discharged from visiting yachts is one possible cause being investigated.
- Asbestos – no cases of asbestosis are known. The way asbestos removal from buildings is managed is highly variable, some using full protective clothing and equipment and others nothing.
- Dump for contaminants – a designated dump operates near the airport for disposal of contaminants like asbestos.
- Pesticides – no cases of health problems from pesticide use have been reported except for some deliberate self-administration.

A request for departmental plans was passed to the Director who has just returned from overseas.

### **External Affairs**

The meeting focused on identifying sources of information on Government policies and plans of relevance to the environment and to be consulted during the visit. The Pacific Regional Submission to the preparatory process to WSSD was provided to ensure that the national assessment was consistent with this.

### **Education**

A key issue now is the education of the older generation in environmental matters. Over the past ten years there has been a big change in the amount of environment education taught in schools, usually as part of Social Studies. However children then go home and see their parents sometimes doing the opposite of what they have been taught. The older generation’s style is to learn by doing, rather than by reading or listening to the radio, so practical programmes operating in the community are needed. In the current user pays environment people will work hard if there are incentives, however small they may be.

Primary schools have become involved in many practical environment projects in recent years, recycling rubbish and in particular aluminum cans, collecting tyres (to prevent them being breeding grounds for mosquitoes and for use in planting) and composting. Waste management has been a particularly strong area in recent years as there were funds for education available and an expert on island for a year. The High School uses the New Zealand curriculum.

A problem now is obtaining sufficient resources to address issues. They are frequently allocated on a population basis, and although Niue has smaller numbers of people they still face the same issues as larger countries. Maintaining programmes is difficult with resources often available for two or three years with little or no follow-up.

### **Public Works Department**

The key issue is groundwater contamination, an issue with which close liaison is maintained with the



Health Department. A model for the groundwater lens is lacking – not completed during an AUSAID project and a request is now in with SOPAC (European Union is providing the Commission with funds for water-related projects in the region). A mini lab is also on request, to enable testing of chemical residues (currently the only testing done is by Health on bacteria). Such testing did occur in the past during a 2-year project involving a UNDP consultant on the island and at this time a bore near the Agriculture Department's farm was shut down due to excess nitrogen derived from leakage of stored fertiliser. The shipment of *alpaca* held at the Quarantine Farm in the past were a potential concern as a concentrated source of animal wastes and of fertiliser used to maintain the grass for them.

*Use of house roof water catchments:* It was a policy that all new houses or extensions had to catch and store their roof rainwater – Cabinet order in the 1980s – however this lapsed when the new system based on bores into the freshwater lens was developed. Calculations suggest the lens provides a very large potential supply.

Septic tank outflows are potential sources of contamination. Tank standards, and those for pit latrines where there is no piped water supply, are set out in the Niue Building Code (1990). [The code describes the use of absorption trenches or soak pits for receiving the outflows of the main tank]. A US team of engineers considered this issue, among others, in a regional Disaster Management project and their report is expected to contain recommendations for alternate designs with double chambers. Research is also proposed to monitor and look at recycling options for tank outputs.

*Land clearance:* The increased number of access roads to plantations was seen as an environmental concern, allowing people access to areas they did not previously use thereby increasing hunting pressure on *lupe* and *peka* for example. Under the current system, a Village Council applies to Public Works to construct a road and the Government will fund this if there is seen to be sufficient public benefit. Costs will depend on issues like whether the village will provide land for free for the extraction of *makatea* (limestone rock) for road construction. Most roads are requested to access land for taro cultivation but the supply of this crop is not well coordinated. It seems, for much of the time, there are too many plantations for the demand resulting in product that goes to waste, but at other times there is not enough taro to meet the demand.

The use of the larger D8 bulldozers for land clearance was discouraged when Deve became Director, because of their destructive capability (can knockdown large trees, etc.) in favour of the smaller D6's (currently the D8 use has increased as the D6 is broken down). PWD would like to cut back the rounds made of the island by the two bulldozers from four to two a year. There is no planning or policy in place regarding land clearance and when a village requests it then it happens. There is a standard system for establishing the main tar-sealed roads, which has minimum clearances of vegetation on either side aimed at reducing maintenance costs. This caused difficulties during the upgrade of the Hakupu/Liku road when villages wanted more trees left and this did occur when the road passed through the primary forest of the reserve (a conservation area).

The use of multiple *makatea* pits for rock extraction was not seen as an environmental concern (although others have raised this). The fuel costs of moving rock from one quarry to roading or building sites all over the island are considered prohibitive.

There are proposals to turn the existing rubbish dump into a transfer station with a new dump at Vaiea with the station being concrete lined. The placement of the existing dump on the coast is seen as an advantage as any chemicals leaching out would be dispersed in the ocean rather than possibly entering the freshwater lens (others with an interest in managing the coastal zone would clearly disagree with this).

EIA's should be undertaken for all development projects and are usually at the Minister's request. An EIA was conducted for the new Commercial Centre by a consultant from Kiribati employed by SPREP. Others are conducted in situations where they do not appear needed, e.g. for the re-siting of the Post Office.

## **Justice, Lands & Surveys**

### *Registrar Of Lands:*

The key piece of work relating to the environment has been the AUSAID-funded Land and Marine

Resource project. It included the development of an Environmental Planning Strategy including guidelines for sustainable development, for town and rural planning. However, these have no effect without the necessary policy and legislative instruments. Draft legislation has been prepared but this has not been finalised. The Department has been re-structured in response to the strategy, forming three divisions of Court, Administration and Lands, although the latter is short-staffed with a proposed technical assistant for the Environment Planning Unit to first undergo further training – a Diploma in either or both GIS and town planning.

The Department has prepared a proposal for the establishment of a large computer server for internal/external networking in conjunction with SOPAC. This may be considered by AUSAID. A key need is the storage of data in an integrated, layered manner. One element would be land titles - a NZ-funded project which has ceased made a start on titling the country's land (under 12% complete) and ideas are being sought as to how this can be done in the future. Other elements would include conservation areas, *tapu* areas, and more small-scale information such as town and rural village infrastructures. A survey locating power lines, drains, etc. was done in Alofi in 1993/94 but needs repeating in outer villages.

Assessing progress since the Rio Summit, it appears that there has been no continuity of effort. A framework should have been established back then but was not and initiatives came to a halt. Things started up again around 1998 with many projects/programmes but structural deficiencies have limited accomplishments. There needs to be some form of coordinating body at the top such as a Sustainable Development Commission, which links together the different programmes and implementing units with External Affairs acting as a conduit to outside agencies. There is insufficient monitoring of national performance and comparison with stated objectives. Within the environmental area there is scope for consolidating activities under a Land & Resources Department.

The following themes were suggested to encompass present concerns:

- Agricultural development;
- Lack of Environmental awareness on sustainable development;
- Combating poverty;
- Demographic dynamics and sustainability;
- Status of biodiversity;
- Health;
- Water;
- Protection of atmosphere;
- Seas and oceans;
- Waste Management;
- Capacity building and technological development;
- Information dissemination and institutional strengthening.

A 3-year Corporate Plan for DJLS was developed to coincide with the term of Government. Such plans provide a way of evaluating the performances of Heads of Departments.

*Environment Planning Officer:*

A key issue is the disjointed administration of the country's environmental mandate – e.g. Environment Unit in Community Affairs, Environment planning unit in DJLS, waste management in DOH, water monitoring with DOH and PWD. Also there is a lack of coordination of the management of sustainable development – planning is spilt with economic planning in Treasury, resource planning in DJLS, and infrastructure development with Public Works.

The planning project has established a process that should ensure all developments are considered in social, economic and environmental terms. Cabinet has given its support to the process through a minute of 14/3/2000, which “accepted the products of the LMRUPP, as a suite of tools to assist in the coordinated development of Niue. This is in recognition that they are not yet final and at this stage does not commit the Government of Niue.” Several key activities need to take place before finalisation is

possible (while physical planning was identified as a priority in the NEMS and earlier, there has never been a regionally-funded programme so it has been difficult to make progress).

Activities needed are:

*Consultation:*

Draft planning guidelines were circulated to Government departments and workshops are needed to finalise these.

'Local Area Plans' for village lands were drafted with the involvement of the different villages and further meetings are required to consult on and finalise these.

*Awareness Raising:*

A workshop is required to discuss the benefits of having planning guidelines and controls.

*Baseline data:*

Baseline data is needed in a number of areas to be able to plan development and allow monitoring. There is little information on coastal and marine resources – the LMRUPP largely only covers land for this reason. Now that GIS mapping capability exists, coastal and marine data can be stored in a useful way. Also more knowledge is needed of the freshwater lens and its outlets, so that developments can be located to ensure no contamination or local over-use of the water supply.

*Networking:*

The GIS system needs to be networked to be available to more Departments. (Forestry is already making good use of a copy).

Although the planning process has not yet been finalised or supported by legislation (An Environment Planning Act has been drafted), it is occurring to some extent. Any developments go through the land registry so that the Environment Planning Unit usually has an opportunity to comment on them.

Other major environmental concerns are:

- a) Water supply – e.g. dumping in caves giving access to the lens
- b) Coastal and marine management

New concerns include bio-safety and the sharing of genetic resources.

### **Meteorology Service**

The Meteorology Service used to be part of Telecoms but since 1995 was separated and moved to its new location at Hannan Airport in 1997. Since 1992 there has been substantial donor involvement in upgrading the facilities and programmes to the point that automated recording and reporting is in place. A switch to computer operation is made at 4:00pm each day and from then reports are submitted automatically every hour by e-mail to Fiji, New Zealand, Melbourne and the (GTS) international recording system. There are three permanent staff plus one on contract as the Climate Change project coordinator.

Niue's project within the United Nations Framework Convention on Climate Change (Government of Niue 2000) has been a major activity for the service since 1998. A top up project includes three sets of activities for the year 2002:

- I. Running a National Awareness Workshop.
- II. Identifying and prioritizing technology and technology transfer for Niue.
- III. Enhancing systematic weather observations on Niue.

All three activities are to be carried out in partnership with SPREP, SOPAC and AOSIS.

Another activity that the service is involved in at present is the seeking of funds to install a SEA-FRAME sea level monitoring tide gauge to measure the variation of Niue's tidal movements and Sea Level Rise. Steps are already in place by the Government of Niue and the Government of Australia, through AusAID, for the implementation of this project.

The NZ Meteorological Service has provided assistance since 1995 with NZODA funding, including annual visits to check and upgrade recording instruments.

Some additions are being made to the rainfall recording system within a US-funded project. A gauge in the centre of the island is desirable, as all recording is currently done around the coast but considerable funding would be needed to set this up, including cabling if it was to be automated.

One specific environmental concern is the disposal of instruments, including thermometers, containing mercury. These are currently being stored until such time they can be transported off the island.

### **Tourism Office**

The Tourism Office was established within the Planning and Economic Department until 1994 when the then Director and staff resigned. The office was left in limbo and re-established a year later as a separate entity under the Niue Tourist Authority Act of 1995.

A major planning tool is the Niue Island Tourism Accreditation Scheme, a voluntary scheme administered by the Tourism Office that aims to establish a high-quality industry. The Scheme has Environment Management Guidelines (Annex IV) to ensure environmental responsibility.

Eco-tourism was introduced as a concept in 1996. Feasibility studies were carried out then for whale and dolphin watching and other marine-based activities, and later in 1998 for caving. From then on there was an increased focus on environmental protection applied to the development and general upkeep of scenic sites. Some such sites and sea tracks are privately owned and the Tourism Office enters into verbal agreements for their use - the land can be taken back at any time. Most tourism promotion programmes thus depend on the goodwill of owners.

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## **Annex IV: Niue Island Tourism Accreditation Scheme - Environment Management Guidelines**

### **Introduction:**

These guidelines have been prepared to assist businesses that are members of the Niue Accreditation Scheme to work towards responsible environmental management. The Scheme is voluntary, aimed at maintaining the reputation of Niue as a quality destination for overseas visitors.

### **Why address Environmental Concerns?**

An important component of the Niue Tourism Accreditation Scheme is responsible environmental management. Two objectives in the Niue Tourism Charter specifically relate to environmental responsibility. These are:

- To adopt environmental friendly-type practice to minimize exploitation of natural resources and to reduce adverse effects on the environment.
- To maintain and enhance the natural beauty of Niue.

Some operators may be wondering why environmental concerns are relevant to the Niue Tourism Industry and why these two specific objectives have been included in the Tourism Charter.

There are two main reasons cited in the document:

1. Niue is a very attractive tourist destination and its environment is very fragile. We depend on our natural resources such as water and clean and pristine waters. If we have an influx of tourists into the island, we have to be mindful of our resources and conserve them. Tourists will not visit destinations with a fragile environment. It is therefore in a spirit of enlightened self interest that the tourism industry should address its environmental responsibilities and contribute towards maintaining and enhancing the natural beauty of our little Rock of Polynesia.
2. Individuals and organizations around the world are increasingly aware of the various threats to the environment. This awareness is translated into higher expectations and demands of the environmental management practices of the tourism industry. In reaction to these trends, operators are now making an effort to reduce their impact on the environment. Including environmental criteria in the accreditation scheme provides credible and tangible evidence to visitors of the responsible approach to environmental management taken by the tourism industry.

### **WHAT ENVIRONMENTAL ISSUES SHOULD BE ADDRESSED?**

Four key factors have guided the selection of environmental issues for inclusion in the accreditation scheme. Environmental issues have been included in the scheme that are:

- Necessary for the achievement of the two environmental objectives of the Tourism Charter;
- Essential for any comprehensive and credible environmental management scheme; and,
- Relevant to the industry

As a result, six broad environmental issues have been selected for inclusion in the Niue Tourism Accreditation Scheme. These are energy, water, waste, discharges, hazardous substances and natural ecosystems.

The following section discusses the ways in which the tourist industry is associated with these abroad environmental issues and the contribution of the industry to any adverse environmental impacts.

#### **WASTE:**

All tourist activities generate waste – it is the form and quantity of waste, which varies. Solid waste includes any unwanted or discarded items requiring disposal and can include materials such as cardboard, paper, plastics, glass, metals, garden waste, kitchen waste, textiles, and waste building and construction materials. The storage, transfer and disposal of solid waste have the potential to create adverse environmental effects. These effects vary with the practices used. For example, local reuse and recycling causes minimum environmental effects while landfill disposal causes contamination of the freshwater and marine bodies, land contamination, air pollution, and visual nuisance. In an island with space constraints, the effects of landfill-based disposal are even more significant. Responsible

management practices include reduction, reuse, recycling and recovery of waste followed by the responsible management of any residuals.

#### WATER:

Reliable supplies of good quality drinking water are essential for everyone on the island – local and visitors. The majority of the island's water is from the underwater supply. There are many factors, which can affect the reliability of supply and quality of water. These include natural and human factors such as drought, storms, high consumption, leaks in the network and contamination of water. Tourist activities that consume water include toilet facilities and the provision of drinking water. Other activities, such as accommodation will also use water for laundry, washing, recreation and irrigation. Consumption of water also has energy costs through pumping and in some cases through heating. Any efforts taken to protect the quality of supply and minimize the wastage of water will benefit locals and visitors.

#### ENERGY:

All tourist activities consume energy for lighting, heating and cooling, for appliances and equipment and for transport. Forms of energy used in Niue include non- renewable and renewable sources. Solar power is a renewable energy source with minor impacts on the environment. It is commonly used to heat water in the Niue tourism industry. Electricity, petrol, and diesel are non-renewable energy forms. The extraction, generation, supply and use of non- renewable energy forms have the potential to adversely affect the environment. Adverse effects can include air pollution, contribution towards the threat of global warming, and water and soil contamination from oil and fuel spills. Reducing energy consumption helps to reduce these adverse environmental effects. Given the high costs of energy locally, it also makes sense to conserve energy to reduce energy costs.

#### HAZARDOUS WASTE.

Many hazardous substances are very useful and all tourist activities use hazardous substances at some time during their operation. Hazardous wastes include those materials that have flammable, toxic, corrosive, or explosive properties that could cause adverse effects on the health of people and ecosystems unless stored, handled and disposed of with care. Hazardous waste materials include batteries, pesticides, chemical cleaning agents, oil, petrol, paints and solvents, and CFCs. Spills or uncontrolled dumping of any hazardous substances can create significant adverse environmental effects- contaminating, soil, water and natural ecosystems to the point that they cannot be used for extensive periods. Many hazardous substances are persistent and are concentrated up the food chain. These very significant adverse effects have to be managed responsibly. Use of many hazardous substances such as PCBs is now controlled through international agreements. The tourism industry can contribute towards minimizing these adverse effects by reducing their use of hazardous materials and ensuring responsible disposal practices.

#### DISCHARGES:

All tourist activities generate discharges, which can contribute towards a range of local and global environmental problems. Local problems include the discharge of untreated waste from poorly designed septic tanks or package pans, which pollute water and soil.

#### NATURAL ECOSYSTEMS;

All activities have the potential to adversely impact natural ecosystems through the removal of vegetation, soil and land. Such impacts affect the habitat value and can affect the integrity and diversity of native species. A number of activities, particularly those involving tour guiding, have the potential to affect natural marine and land ecosystems through their ongoing operations and introduction of visitors into sensitive locations. Some activities are more damaging than others. Many tour-based tourism activities in Niue could be classified as eco-tourism as the tourist experience is nature-based. Eco tourists are even more demanding of high environmental standards than other tourists. Therefore, management of activities to minimize adverse impacts is crucial if they are to appear credible and sustainable in the long run.

It is clear that every sector of the tourism industry creates adverse environmental effects through its use of energy, water, materials, hazardous substances, generation of discharges and impacts on natural ecosystems.

Six environmental goals have been identified to address the six environmental issues. The goals highlight the long-term achievements sought by the industry in the key environmental areas. Realizing these goals will enable the two environmental objectives to be achieved.

- To minimize waste as far as is practical;
- To minimize the use of water as far as is practical;
- To minimize use of energy as far as is practical;
- To minimize the use of hazardous substances and ensure their disposal causes minimum adverse environmental effects;
- To minimize the adverse effects of any discharges;
- To minimize any adverse effects on natural ecosystems and to promote the natural beauty of our beautiful 'Rock of Polynesia'.

### **How can the environmental goals be achieved?**

#### **Identifying entrance criteria**

Having identified the environmental goals it is necessary to identify where specific actions can be taken which will enable progress towards achieving the goals. Having identified actions it is possible to draft criteria, which operators will have to meet to be a member of the accreditation scheme.

There are many actions that can be taken by all sectors of the industry to reduce environmental effects and work towards the goals. Some of these require simple, no cost changes to business operations and are often classified as "good housekeeping actions". Examples include improved maintenance segregation of waste for recycling and reuse and bulk purchasing of materials. Often these changes result in financial savings and therefore all operators should be encouraged to implement these actions.

Other actions require low cost changes to business operations such as the purchase of alternative products with less impact on the environment or the responsible disposal of waste through the community landfill. These are however necessary to reduce serious environmental effects or avoid negative feelings of tourists.

A third group of actions exist which require more investment. These include replacement of incandescent with fluorescent bulbs, installation of a water tank to collect rainwater or recovery of treated wastewater for irrigation. While these have significant investment costs they are also likely to result in considerable cost savings yielding a longer-term payback to the business.

#### **Key and Recommended entrance criteria**

These three groups of actions have been used to determine environmental entrance criteria for the accreditation scheme. For each action we have identified minimum entrance criteria for year one. Some of the year one criteria are easy to achieve – these have been classified as 'key' criteria, which means they must be achieved in year one to become a member of the accreditation scheme. Criteria that are more difficult to achieve either because they have financial implications or require time to establish are classified as 'recommended' for the accreditation scheme. Because the recommended entrance criteria are still very important they could be reclassified as key in year 2 of the scheme.

#### **Best – practice criteria and phased implementation**

In general the minimum entrance criteria require taking initial steps to improve environmental management. However, the long-term objective of the accreditation scheme is that all members will demonstrate best practice in environmental management. We recognize that not all actions can be achieved immediately given time or budget constraints. Therefore we have also drafted "best-practice" criteria that clearly show the ultimate minimum standard, which members of the accreditation scheme are working towards. An indication of the likely timeframe in which these standards will become key is also provided.

#### **Amendment of the criteria from year to year**

The environmental criteria, and the key and recommended status will be amended from year to year to reflect changes in visitor expectations, technology and infrastructure changes. This means that actions that are currently not viable or achievable are undertaken when appropriate. It is also critical that the

scheme keeps up with changing visitor expectations to protect the integrity of the industry.

### **What are the benefits of responsible environmental management?**

In addition to the specific benefits gained by the environment, benefits will also be gained at an industry-wide level and by individual operators.

### **Assessment of applicants**

As a voluntary scheme, no business is forced to adopt any of the actions specified or to participate in the scheme. However, it is hoped that industry operators will perceive the scheme benefits to be attractive enough to justify membership.

Although there are key entrance requirements for year one and for each subsequent year, assessors will be flexible in determining eligibility for membership. Where applicants are not able to achieve all key items at the initial inspection, they will be permitted as a conditional member of the scheme on the condition that they are able to make the changes necessary to achieve the action within a specified timeframe. In this way the scheme recognizes the individual environmental achievements as well as the overall commitment of the business towards improving environmental management. This flexible approach ensures that the accreditation scheme will be open to all organizations providing tourism services.

## **Annex V: Changes to Legislation 1990-2001**

### **Changes to established legislation:**

Agriculture Quarantine Act 1985 (Niue)

Plant Quarantine Regulations 1985

Agricultural Quarantine (Disease Control) Regulations were enacted in 1991 to address the eradication of endemic diseases or pests and the control of animals and disinfecting or closing of land in the event of a foreign disease outbreak or threat. It also established fees for the importation of animals, animal products and biological products or organisms.

Wildlife Act 1972

A Gazette Notice in 1991 declared the *lupe* (pigeon) and the *peka* (flying fox) to be Partly Protected Species except for the period from 1<sup>st</sup> to 31<sup>st</sup> December each year.

### **New regulations:**

Pesticides Act 1991

A new Act to regulate the importation and sale of pesticides. This provides for the declaration of substances as pesticides and the establishment of a Pesticides Committee to oversee their management. It deals with applications to import or sell pesticides and establishes standards for their use.

Domestic Fishing Act 1995

Domestic Fishing Regulations 1996

An Act making provisions for the protection of fish covering the prohibition of destructive fishing methods like the use of dynamite, fish poisons (*akau Niukini*), small mesh nets and of scuba for taking fish. It also includes sections on establishing marine reserves or *tapu* (temporary bans), restricting the harvest of *crustacea* with eggs or in moult or below minimum sizes, and enabling bans on exports and on Sunday fishing. The Regulations lists species (e.g. turtles, marine mammals, live tropical fish) that cannot be exported without Cabinet approval, sets out size limits and quotas for *uga* (coconut crabs), crayfish, clams and *tapatapa* (slipper lobster), fully protects certain species (including turtles and marine mammals); and regulates vessel safety equipment.

Niue Tourist Authority Act 1995

An Act to reconstitute the Tourist Board as a Tourist Authority. It states among the authority's functions that 'Tourism projects should be subject to environmental impact assessments and (the) authority should have regard to the Niue environment management strategy (i.e. the NEMS) and other Government policies concerning the environment.



#### Water Resources Act 1996

An Act to make provision for the investigation, use, control, protection and management of water. It includes identification of the need to ensure adequate supplies; to ensure adequate facilities for drainage, the safe disposal of sewage, effluent and water-borne wastes; the protection of water sources from the intrusion of saltwater; and requires the consequences of development proposals on the environment to be properly investigated and monitored.

#### Territorial Sea and Exclusive Economic Zone Act 1997

An Act establishing an exclusive economic zone for Niue adjacent to the territorial sea and making provisions for the exploration, exploitation, conservation and management of its resources. One part deals with fisheries management including requirements for plans to address protection of fish stocks and habitats, and prohibition of certain methods like drift-netting.

#### Pig Control Act 1998.

An Act to provide for the control of pigs. It includes requirements for keeping animals tethered or in enclosures and measures for the control of those that go feral.

## **Annex V: Changes to Legislation 1990-2001**

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## **Annex VI: Goal and Objectives of Environment Unit Plan 2000-2001**

**GOAL:** TO EFFECTIVELY MANAGE OUR NATURAL RESOURCES WHILST PROMOTING SUSTAINABLE PRACTICES TO ENSURE INTER-GENERATIONAL EQUITY.

**OBJECTIVES:**

- 1 Implement the Huvalu Conservation Project Plan and facilitate the phasing out period of the Project.
- 2 To update and implement the State of the Environment Programme.
- 3 To implement the Pacific Region Environment Campaign on Niue.
- 4 To review and improve the Aluminum Can Recycling Programme.
- 5 To present the Environment Act to cabinet and other stakeholders.
- 6 To investigate the feasibility of acceding to other environmental related Conventions and legal instruments.
- 7 To guide further implementation of the Capacity Building for Environmental Management in the Pacific Project (CBEMP).
- 8 To establish the Pacific Environment Information Network (PEIN Project).
- 9 To provide technical assistance to the project team and guide the implementation of the Biodiversity Strategy Action Plan (BSAP).
- 10 To enhance the existing Environmental Education and Awareness Programme through the delivery of new and improved initiatives.
- 11 To review the status of Environmental Impact Assessments (EIA).

## **Annex VII: Terms of Reference**

### **THE STRATEGIC ACTION PROGRAMME FOR THE INTERNATIONAL WATERS OF PACIFIC SMALL ISLAND DEVELOPING STATES**

#### **TERMS OF REFERENCE**

##### **The Review and Assessment of the Priority Environmental Concerns of Niue.**

In late 2001, as part of the preparations for input to the World Summit on Sustainable Development (WSSD), Niue commenced a National Assessment to review developments addressing priority environmental issues and concerns in the 10 years since the Rio Earth Summit in 1992. The WSSD is scheduled to convene in Johannesburg, South Africa in September 2002. The National Assessment will provide the basis for Niue's input to the preparatory process leading up to, and including, the Summit.

Also in late 2001, implementation of the coastal project of the Strategic Action Programme for the International Waters of the Pacific Islands Region (IWP) commenced. Niue's component of the IWP involves the design and implementation of a community-based demonstration project that, based on Niue's priority environmental concerns, will address sustainable resource use and conservation issues related to i) coastal fisheries and/or ii) waste management and/or iii) freshwater.

In order to contribute to both activities, the Department of Agriculture, Forestry and Fisheries (DAFF), as the Lead Agency for the IWP, working in collaboration with other Government Departments, particularly the Department of Community Affairs, which is the Lead Agency for the WSSD preparations, will support a review and assessment of Niue's priority environmental concerns entering 2002.

The objectives of the review and assessment will be addressed by a consultant tasked with the following activities:

- Review all available literature (formal reports, gray literature, internal government memoranda, non-government organisation briefs, cabinet submissions, etc.) relating to research, assessment, development, management and/or conservation in relation to all environmental or natural resource issues on Niue since 1992;
- On the basis of the literature review and discussions with primary interest groups within Government and the Niue community, perhaps facilitated through a community workshop, draft an assessment of the priority environmental concerns for Niue in 2002;
- On the basis of the review and the draft assessment, consult broadly with all possible stakeholders in Government and among Niue communities to discuss the assessment. Meeting notes recording the views expressed during such meetings should be separately compiled as a means to confirm the conclusions of the final report; and
- Prepare a report that, in addition to a review of available literature, clearly identifies the priority environmental concerns of Niue entering 2002. The report should identify the issues and describe their context, including reference to previous work related to each issue. Proposed remedial action, including resources, required to address the issue should be included for each issue.

The consultant will work under the direction of the Director of DAFF and the Director of Community Affairs, or their delegates.

In order to complete the assignment, the consultant will be expected to spend two weeks on Niue during which time he or she will consult broadly with Government officials from all Government Departments, non-government organisations, church and youth groups, Village Councils, industry associations and representatives and the interested public.

One or two weeks of preparatory and report writing time will be provided in addition to the two weeks on Niue at the consultant's home base.

The International Consultant will be required to present the following by and not after the dates specified:

- A draft assessment report of the priority environmental concerns for Niue in 2002 by the end of December 2001.
- A copy of compiled meeting notes from stakeholder consultations by end of December 2001.
- A final report for the work identified in this Terms of Reference by the end of the first week of February 2002.

**Duty Stations:** Alofi, Niue and Nelson (New Zealand).