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Participatory situation analysis: summary report of village consultations in Niue

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To all we wish the best success in addressing the environmental and resource concerns, which confront you now and in the future.

Contents

Abbreviation and Acronyms

IWP	International Waters Programme
PEC	Priority Environmental Concern
NGO(s)	Non Governmental Organisations
SPC	Secretariat of the Pacific Community
GEF	Global Environmental Facility
SPREP	South Pacific Regional Environmental Programme
FADs	Fish Aggregating Devices
DAFF	Department of Agriculture, Forestry and Fisheries
FFA	Forum Fisheries Agency
MPA	Marine Protected Area
PPA	Participatory Problem Analysis
PSA	Participatory Situation Analysis
PTAG	Programme Technical Advisory Group
NTC	National Task Committee
NTF	National Task Force
PCU	Project Coordination Unit
PICs	Pacific Island Countries
UNDP	United Nations Development Programme
NC	National Coordinator
NPT	Niue Problem Tree

Executive Summary

The International Waters Programme (IWP) on Niue planned and carried out island-wide village consultations and a participatory situation analysis from September to December 2002 to assist selection of a IWP pilot project. This initial community participation programme identified priority environmental concerns (PEC) of local residents and possible pilot project activities. Village information was also collected that will contribute to selection of a site for the pilot project.

The consultations included all 14 villages on the island and were organized and undertaken by eight community facilitators with the support of Niue IWP staff. Over the three-month period some 67 meetings were held, involving 29% of the adult population (or 33% of all households). Attendance by men and women was almost equal, and there was substantial engagement of youth. Meetings were also well attended by village council members, Assemblymen and government officers.

Community members were engaged in a range of participatory and experiential learning activities, such as stakeholder identification and analysis, marine transects, village and resource mapping, participatory problem analysis and development of solution trees. Outputs included:

- identification of village concerns;
- identification and analysis of key stakeholder groups for engagement on any actions to address priority issues;
- compilation of community information relevant to marine management;
- analysis of the views of village residents on the contributing or underlying causes to priority concerns; and
- identification of possible actions to address these concerns.

At a National Forum in April 2003 representatives from the 14 villages, government, village council members, and NGOs had an opportunity to share and discuss the initial findings of the consultations and further refined the information collected.

As part of the participatory process, village members were asked to assess the value of activities and suggest ways to improve participation in the Niue IWP. In general community response to the consultative process was extremely encouraging. Many participants expressed satisfaction with the meeting process, activities and outcomes. The participatory methods were new to most participants. The opportunity to analyse and discuss issues of concern was stated by many participants as one of the greatest strengths of the process. There were some difficulties in meeting arrangements, language, timing and sequencing of activities, and participation levels in some villages. Despite these challenges it was an important learning process for both the IWP and Niue.

The Niue IWP focal area is. Within this focal area, the declining availability and degradation of marine resources ***sustainable coastal fisheries*** was a shared priority concern for all villages. Improving marine populations and securing subsistence benefits from inshore reefs are seen to be of critical importance. Declining availability of marine resources included reference to both reef fish, bait fish and invertebrates found on the reef flat. All 14 villages were concerned about declining numbers or disappearance of reef resources; with some ten villages complaining of declining numbers of fish.

Shortages of *alili* were most commonly mentioned (13 villages) with crabs, *ugako, hihi*, seaweeds, *tatumiti, feke, sepulupulu, mataue, matapihu* being concerns shared by over half villages. Six villages cited concerns over *nue, ika tea, mohe aho, and lakua*; five villages complained of depleted stocks of *monega, meito* and *kolala*; and reductions of *hapi* and *uhomaka* were mentioned by four.

Many village participants expressed uncertainty at what exactly was causing the decrease in marine resources. Habitat degradation in general was cited by 14 villages and over harvesting of specific reef areas cited by 13 villages. All but two villages attributed resource decline to people either not following customary laws and practices or not asking permission to come use a local reef area. Spear fishing, coral damage from the use of non-traditional fishing methods, and dying coral from overexposure from heat and sun (suspected to be due to global warming and climate change) were all concerns mentioned by at least ten villages.

The FADs were viewed by some eight villages to draw fish away from traditional inshore areas and make them more difficult to catch by reef fishers or canoe fishermen. Participants did not cite FADs as affecting overall population levels. Some did mention that as a result of changed fish availability they were spending more time harvesting on the reef flat.

A long list of concerns was recorded in relation to coastal pollution. In general sea and inshore pollution was seen to result from a number of sources – sewage and household waste (13 villages), storm water siltation (7 villages), toxic chemicals (oil and fuel, heavy metals from batteries – 10 villages) and solid wastes (9 villages).

Fourteen villages expressed concerns with the quality of groundwater supplies, with eleven mentioning fears of potential contamination by herbicides and pollution from septic and household wastes. Other common concerns cited by more than half of the villages were *maketea* present in the drinking water, water causing allergies and disease and inadequate regular monitoring by the Health Department. Contamination was not necessarily seen as linked to coastal pollution.

Ciguatera poisoning was mentioned by 3 villages as a concern and a priority for the urban areas of Alofi South and Alofi North. There has been a rise in occurrence of ciguatera in recent years, and it is seen to be focused around fish caught near the Alofi wharf and harbour area. Coastal pollution was also seen as a contributing to Ciguatera poisoning. Participants in both villages cite the use of explosives, and impacts of fireworks as contributing to the problem.

The various contributing causes to the priority concerns were explored in more detail in the participatory problem analysis. The results from this analysis and developing actions focused on the Niue IWP focal area of sustainable coastal fisheries.

The results of the village consultations recommend that pilot activities should contribute to increasing local fisheries stocks through improved sustainable resource use and management. As indicated in the problem analysis an overarching theme and critical area of work is in strengthening local community involvement and effectiveness in marine management.
This requires a range of local and government actions; many that IWP may consider for support.

The report indicate a range of important priority areas in which the IWP may contribute to improving sustainable use and management of coastal fisheries on Niue. Details of these areas are provided in the report and include:

- supporting greater government recognition of defacto customary marine tenure;
- documenting, sharing and applying appropriate customary knowledge and practices to improve use and management;
- improving collaborative management of government and communities (examining and testing methods to improve greater public involvement in national inshore fisheries decision-making through bottom-up planning processes, investigating ways to effectively devolve some management decision-making and responsibilities to local communities and village councils, working with community stakeholders to investigate effective management guidelines for making harvesting practices more sustainable, exploring institutional changes and capacity needs);

- building collaborative working relationships between stakeholders across the island;
- monitoring the status and quality of marine resources;
- developing effective user education programmes; and
- undertaking specific actions that will assist the recovery of marine resources in some reef areas.

These findings assist to set the overall direction and broader objectives that communities, in partnership with IWP and government, will aim to contribute to with specific village activities. Individual village(s) within the selected site will decide the community activities that are undertaken as part of the pilot.

The National Task Committee (NTC) will select the site for pilot activities. Selection of the site for community pilot activities will consider and include:

- recognition of the concerns and interests of Niue communities as presented in the village consultations;
- assessment of criteria for selection of participating communities;
- community and government feedback from the Forum; and
- an analysis of strengths, weaknesses, threats and opportunities of different site options.

1 Background

1.1 Introduction to the International Waters Programme (IWP)

The Strategic Action Programme for the International Waters of the Pacific Small Island Developing States (IWP) is a 5-year programme for 14 participating Pacific Island Countries (PICs).[1] The IWP has been designed in response to requests by small island countries for assistance with sustainable management of their marine and freshwater environments. The Programme is funded by the Global Environment Facility (GEF) and implemented by the United Nations Development Programme (UNDP). Within the Pacific it is being executed by the South Pacific Regional Environment Programme (SPREP) with its regional base in Samoa. For further details on the structure of the IWP see Appendix 1.The scheduled completion date for the IWP is December 2006.

The IWP has two main components:

- *an oceanic component* which focuses on the management and conservation of tuna stocks in the western central Pacific; and
- *a coastal component* that focuses on integrated coastal zone and watershed management.

The oceanic element is covered by work with the Forum Fisheries Agency (FFA) and Secretariat of the Pacific Community (SPC) and not considered in detail here.

The coastal component involves the implementation of pilot projects that address sustainable resource management and conservation issues in the coastal zone[2]. As it is being implemented within the Pacific, these pilot projects aim to achieve community level action to address priority environmental concerns relating to:

- marine and freshwater quality;
- habitat modification and degradation; and
- unsustainable use of living marine resources.

To address these concerns the IWP is supporting the establishment of one pilot or demonstration project in each of the 14 participating countries. Each pilot project will:

- seek to strengthen national capacity by providing lessons for best practice and appropriate methods for sustainable resource management and conservation; and
- promote increased community involvement and responsibility for local resource management and conservation initiatives (PCU 2002).

The GEF and UNDP view the "pilot" or "demonstration" nature of the 14 projects as providing the basis for future funding opportunities from GEF facilities for these participating countries (PCU 2002). The IWP is considered an initial step leading to the development of Medium-Sized (up to USD 1 million) or Full Projects (in excess of USD 1 million) for technical assistance, capacity

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

[2] The coastal zone and watershed is used broadly to describe both the terrestrial and freshwater environments of islands that are ecologically contiguous with the marine environment and the marine areas seaward past the reef edge. For Niue this includes the shoreline, reef flats, reef slopes as well as local fishing grounds used by village communities.

building or investment. Such projects may be regional or national in scale. As a result, the later stages of the IWP are likely to devote considerable effort to analysing the results of the Programme to assist countries with the formulation of follow-up activities supported through the GEF and alternative sources of financing assistance.

1.2 Selecting a Pilot Project on Niue

IWP pilot projects are to address one or more of the following focal areas:

- marine protected areas,
- sustainable coastal fisheries,
- protection of freshwater resources, and
- waste management.

As a result of reviews of planning reports, policy documents and existing programmes, coupled with consultations with government and civil society representatives, Niue IWP decided to initiate a pilot project ***that supports and encourages the sustainable use and management of coastal fisheries.*** This focal area was in keeping with a national commitment to sustainable marine use and provides needed resources and an opportunity to initiate inshore management activities that as of yet have not been able to get underway.

In the design of the Programme's pilot project it is expected that activities will generally be confined to one or a few sites in one geographical location (PCU 2002). As indicated above, if the pilot project is effective in addressing priority concerns and supporting more sustainable use of coastal fisheries, then activities within the project may be later scaled up or replicated nationally, and linked to other local initiatives and concerns.

The Niue government, the IWP NTC, IWP staff in Niue, civil society and village council representatives have agreed that the design of the pilot project should build local ownership of project objectives and activities, and that national benefits will be enhanced through the wider involvement of the Niue community. With this aim, and given the small physical size and low population of Niue, it was then decided to implement a 'participatory situation analysis' on an island wide scale. This participatory situation analysis would provide an opportunity for all Niue villages to participate in the identification of priority concerns associated with 'sustainable coastal fisheries', provide community perspectives of what the underlying causes of these concerns were and information on each village to assist site selection.

1.3 Scope of this Report

This report describes the objectives, methods, and activities of village consultations and presents the results of the participatory situation analysis. Findings of an early draft of this report were reviewed by representatives from the Niue Government, NGOs , village councils and each Niue village at a National Forum in April 2003. At this Forum participants further added comments and refinement to the information collected and they have been included here.

Recommendations are made for consideration in the selection of the pilot project and submitted to the Niue IWP NTC for its decision on an appropriate site for the project.

2 Niue Community Overview

Most aspects of Niue have been described rather extensively in numerous well-researched planning reports undertaken for the Niue Government [3]. The purpose of this Section is not to review this literature in detail but provide a brief overview of Niue that can provide context to the concerns, views and suggestions expressed by village residents in the IWP consultations. It is also useful to draw attention to the significant and sometimes unique, social, economic and geographic circumstances that should be considered in selection of the pilot site and objectives for the pilot activities.

2.1 Geographical Setting

2.1.1 The Island and Coastal Landscape

The island of Niue, locally known as 'The Rock of the Pacific', is the largest raised coral island in the world. It consists of an uplifted coral atoll where the former reef and lagoon has been raised to about 60 metres above sea level (Dalzell et al 1993). Niue's limestone cliffs drop precipitously into the sea, creating a scenic and dramatic coastline. The island itself is relatively small with a total land area of 258km2 and circumference of 64.8 km. The island interior is rugged and rocky featuring numerous caves, underground pools and chasms.

There are no lagoons along the coast, where the coastline descends quickly to over 1000 metres within five kilometres off shore. The island is encircled in part by a rock shelf forming a fringing reef varying from a few metres to over a hundred metres in width. This reef supports a thin cover of coral in the intertidal zone with rich coral growth in subtidal areas providing habitat for a diversity of fish species and invertebrates. Much of the south and east sides of the island is entirely devoid of reef flat (Dalzell et al 1993).

2.1.2 Relevant Climatic Factors

During much of the year adverse weather conditions including high winds and seas limit access and use of the marine environment. This is said to significantly affect the eastern side of the island, where residents claim they can only access local sites for 'about half of the year'.

The island is also located on the edge of the southern tropical cyclone belt and is subject to severe cyclones on an average of one every ten years. These cyclones are known to cause extensive damage to the island and reef areas. Dalzell et al. 1993 report that in 1990 due to Cyclone Ofa, all the living coral was destroyed in some reef areas, and relatively fragile corals such as staghorns and plate coral were totally absent from the reef on the western side of the island.

2.1.3 Terrestrial Environment

Some 64% of the island is covered in forest. This is estimated to be a decrease from about 86% of forest cover in the 1950s (DAFF 1998). Clearance for agriculture has been the main reason of forest loss. There is some limited timber harvesting by a Niue company. Significant concerns about deforestation gave rise to the Huvalu Forest Conservation Project situated on the south-eastern portion of the island. This community conservation project was initiated under the South Pacific Biodiversity Conservation Programme and involves Hakupu and Liku villages. The site contains about 75% of the remaining forest on Niue, which is being conserved through strengthening traditional conservation activities and sustainable use.

[3] Refer for example to the many excellent studies referenced in Section 6 of this report.

Niue does not have any surface freshwater; residents rely on water drawn from bores tapping into the island's water lens, and to a limited degree on rainwater collection. Rainfall moves quickly through the thin layer of topsoil, down through cracks and cavities of the limestone base rock (Government of Niue 2001). Springs drain out from the base of the cliffs. There are many caves around the coastline and in the centre of the island. The latter often contain pools of fresh or brackish water which local people attribute to having medicinal and healing qualities.

The island supports a variety of agricultural crops such as citrus fruits, taro and other root crops, some vegetables and vanilla. Most Niuens have garden plots that provide both household produce and many sell their produce at the Alofi market. Limitations on water supply and soil fertility constrain agricultural productivity and crop production. In the past government programmes aiming to increase agricultural productivity encouraged use of fertilisers and herbicides to boost productivity. The potential impact of these chemicals on groundwater supplies is a contentious issue on Niue. These concerns have given rise to an active organic farming movement and public calls for testing of the water lens for commonly used herbicides.

2.2 Population

2.2.1 General Characteristics of the Niue Population

Over the last 30 years there has been a marked decline in the island's population; from a peak of about 5200 persons recorded in 1969, to the 2001 census estimate of a resident population of 1736 persons. The rate of decline continues with a 14% decrease in overall population between 1997 and 2001. The main reason for population decline is outmigration, which is further compromised by decreasing fertility levels.

Relocation of Niuens to New Zealand accounts for almost all of the outmigration. Niue residents are New Zealand passport holders due to special constitutional arrangements between the two countries. These arrangements allow Niuens to move to New Zealand unimpeded where they are able to benefit from enhanced employment, education and healthcare opportunities. In 2001 the estimated population of Niuens in New Zealand was 20,100 persons, of which 70% were New Zealand born (New Zealand Government Census 2001).

2.2.2 Population Structure

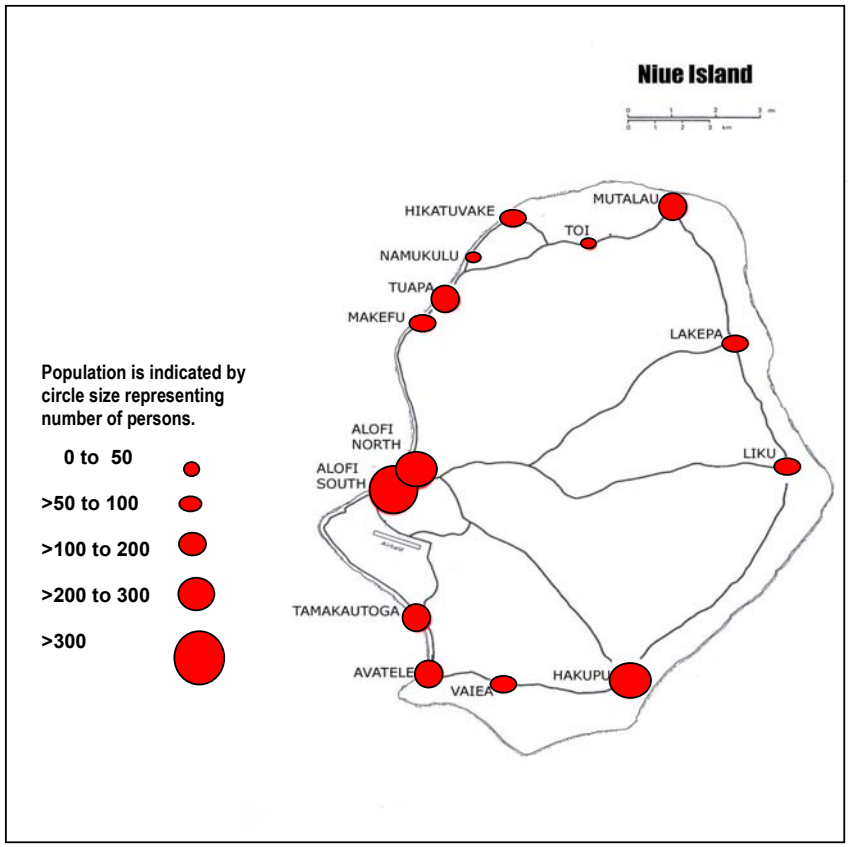
Of the island's residents 84.7% are ethnic Niuens. Niue has a number of ethnic groups including New Zealand Non-Niueans (5.2%), Tongans (3.6%) Tuvaluans (2.4%) and Fijians (1.4). Other citizens (i.e. Australians, Samoans, other Pacific Islanders, USA, Europeans and Asians) each represent less than one percent of the resident population (Premiers Dept 2002).
A large proportion of the economically most active age group have migrated overseas. This has resulted in Niue having a 'high dependency ratio', with a large percentage of young dependents (30% of residents under the age of 15), and over 15% of the population over the age of 60 years.

2.2.3 Population Distribution

The people of Niue live in 14 villages ranging in size from 12 to just over 300 persons. Niue villages are located around the perimeter of the island with no village more than three kilometres from the coastline. Population is much more concentrated on the western half of the island, where two-thirds of the population is located (see Figure 2.1). The largest and most densely populated area is the capital of Alofi, comprised of Alofi North and Alofi South.

Overseas migration between 1997 and 2001 negatively affected all villages except Vaiea where there has been a settlement of migrants from Tuvalu. Migration between villages has become increasingly common with a significant urban drift to Alofi (Fairbairn-Dunlop 1997).

Figure 2.1. ***Population Distribution on Niue.***



Population data source: Premiers Department 2002

Decline in population has had dramatic and far ranging impacts on Niue society, culture and economy. Some of the more pervasive consequences are:

- significantly fewer available persons to undertake needed necessary social welfare services, such as taking care of children, the elderly or sick, or plan and organise community functions;
- reduction in available skills and technical expertise;
- increased work load on all persons to carry out the normal roles of a functioning society (people on Niue routinely take on multiple roles and often have limited time);
- reduced domestic markets and limited options for generating income (Fairbairn-Dunlop 1997).

These factors need to be considered seriously in selecting and designing the pilot project. It will affect the focus of the pilot project and scope of work.

2.3 Community Organisation

The *aga fakamotu Niue* has guided behaviour for Niuens and adds meaning to life

(Fairbairn-Dunlop 1997). Central to these beliefs is the significant role of the family, the importance of maintaining community systems of reciprocity and the close relationship of Niuens to their customary land and sea areas.

Niue society is structured around the family unit which 'represents identity, status and security for Niuens' (Fairbairn-Dunlop 1997). Niuens have traditionally worked as a team to ensure family needs are met and maintain rules of social behaviour that demonstrate respect to parents, extended family members and village elders. Families routinely share their goods and resources, and by so doing, ensure that basic needs are met. These times of sharing reinforce family relationships, building social capital that provides support in times of economic need. Reciprocity is also maintained with families overseas, as demonstrated by local families sending gifts of local produce and marine products.

The Niue government gives legal entitlement to customary claims of land, however, all coastal waters below the high water mark are considered to be owned by the state. Defacto customary marine tenure, or local community claim to 'management and use rights' of inshore areas, that is common elsewhere in the Pacific, is widely understood and practiced on Niue. Most people on Niue are aware of the boundaries of inshore fishing areas for each village, or know which fishing grounds are 'held' by specific families.

Like elsewhere in the Pacific, Niue society is changing and facing new challenges. Some social concerns include:

- Fears that the elderly are no longer respected as the bearers of traditional knowledge. Beneficial customary practices are not being communicated to the younger generation and there are complaints that individuals are more frequently breaking local village rules.

- Parents are afraid that young people are not listening, are more interested in outside cultural influences and are not taking an active interest in reef harvesting and local fisheries. Some parents have expressed concern that this situation may result in younger people becoming too dependent on paid employment or government subsidy, which are not reliable.

- Family alliances are breaking down through land disputes and outmigration. The ability of families and communities to care and provide for each other is invaluable considering existing social services and this needs to be strengthened (Fairbairn-Dunlop 1997).

2.3.1 Government and the Village Councils

The Niue government is strongly influenced by structures inherited from New Zealand administration. At the community level, village authority is vested in the elected village council members with no formal role or recognition given to traditional leaders[4]. The size of the village councils ranges from three to five elected persons, with both women and men well represented.

Village councils are responsible for village development but have variable capacity and skills base. As a result, village development is uneven, with some villages focused on forward planning, development of initiatives and providing quality community services. Others provide much fewer services and are thought to be struggling.

[4] In Niue Eklesia there is the *Tulumotua*, a village elder who has a leading role in church and community (non-government)) issues. Some Tulumotua are still connected to past traditional lines of authority.

The village council acts as a link between the Government and the people; the Niue Assembly is seen to *govern in collaboration* with these Councils. This government-village partnership emphasizes village ownership of natural resources. Village commitment and contribution are therefore seen as critical features of sustainable development and building capacity for the village councils is seen as an important priority (Fairbairn-Dunlop 1997).

2.4 Local Livelihoods and Use of the Marine Environment

2.4.1 Economic Setting

According to Butler (2002), the Government sector accounts for the largest proportion of GDP (47.9%). Niue's fisheries production accounts for only about 7%, and combined services, such as hotels and restaurants, transport, communications, and community and personal services about 11%. In terms of developing the service sector, tourism is seen as offering the best potential for private enterprise development. Tourism is being encouraged to take advantage of Niue's beautiful scenery, island culture and marine and tropical forest environment. Marine based activities are being actively promoted including diving, snorkelling, guided tours, visits to coastal reef areas and arches and charter fishing tours.

The industrial sector is poorly developed with manufacturing accounting for only 1% of GDP – mainly the production of handicrafts (woven pandanus and coconut palm leaves and shell necklaces), 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 (Butler 2002).

2.4.2 Use of Inshore Marine Resources

In general people on Niue use a range of strategies to meet their household needs. Many individuals generate income from more than one source, often supplementing full- or part-time employment with additional casual work, or local selling and trading of natural products. With limited national opportunities for economic growth and financial challenges, households on Niue supplement family subsistence needs with garden produce, fisheries and forest resources. Family access to adequate stocks of natural resources was expressed in village meetings on the island as essential to maintaining nutrition and food security.

As part of this, local livelihoods are reliant on inshore fisheries resources. Marine resources are used for family consumption, for community functions and gift giving, sold through local restaurants and take away, or sold at the Alofi market. Some 80 percent of Niue's estimated total fisheries production (equivalent value of about NZ $1.1 million) is the result of subsistence fishing that is domestically consumed and does not enter the cash economy (Butler 2002).

Subsistence fishing practices include reef gleaning, use of spears, bamboo or wooden rods, fishing from the reef edge, hand lines, reef rod fishing, canoe and dingy fishing and spear fishing, Survey results in 1992 indicate that the total household catch is taken almost equally from the reef flats and coastal waters (Dalzell 1993). Most canoe fishing is done by males, accessed from specially constructed sea tracks that descend the steep cliffs, from the harbour at Alofi or the Avatele jetty. With the use of larger and well-equipped aluminium dinghies, more fishermen have started commercial fishing for deep-sea snapper and pelagic species.

A number of Fish Aggregating Devices (FADs) have been located around the island to stimulate offshore fishery and take pressure off the inshore areas. Most of these FADs are said to be outside of easy access by canoe fishermen.

Women and children commonly harvest the reef flats and rocky pools for *alili* (turban snail), *feke* (octopus), *ugako* (tube worms), and various crabs, clams and seaweed. Reef harvesting is known to use a range of tools including hammers, axes, and crow bars.

Depending on the season both women and men use a rod and line to fish for *kaloama* (yellow stripped goatfish) during the *kaloama* season (usually December to March) when schools routinely come into shallow waters close to shore. During the *kaloama* season the reef is closed to swimming and fishing (Tuara 2000).

In the past people have used gill nets and cast nets made of coconut sinnet or nylon but this has generally been discouraged by Niuens, although other ethnic groups are reported to continue to use these practices routinely. It is thought that traditional practices of fish poisoning are rarely carried out (Dalzell et al 1993, Tuara 2000).

The more sheltered sea conditions on the western side of the island are regarded as providing greater year round access for local fishing and reef gleaning. The longest contiguous areas of reef flat are on the western half of Niue:

- between just north of Makefu village to Makalea; and
- between Avatele to just south of Halagigie Point.

Despite these sizeable reef flats, it is believed that harvesting pressures are greatest on the western coast due to easier year round access and the higher population densities. The lack of current island-wide data on fish and reef stocks, however, makes assessment of the extent and distribution of harvesting impacts difficult.
One marine protected area of about 28 hectares has been established at Anomo involving villages of Makefu and Alofi North. This Marine Protected Area was initiated in 1998, and although registered, legislation has not yet been finalised. This area does not include any significant area of reef flat. Hakupu village have established their own Hakupu Heritage Marine Area to compliment the community's work on forest conservation.

2.4.3 Government Agency Support of Sustainable Inshore Marine Management

The current focus of the Fisheries Department is to safeguard the inshore resources from over-exploitation given the level of subsistence fisheries activities. Activity priorities of the Fisheries Department as outlined in the National Biodiversity Conservation Strategy (Government of Niue 2001) are to:

- strengthen the management of inshore marine resources and enforce legislation and regulations;
- consider further regulations to conserve the inshore fishery such as the regulation of the size of fishing nets, discourage the use of fish nets on the reef, and eliminate the use of fish poisons;
- integrate appropriate traditional fishing and management practices with modern management methods as a means of effectively managing stocks; and educating people in their use;
- put in place legislation to protect recognized traditional fishing grounds;
- develop a programme to increase the number of Marine Protected Areas;
- maintain monitoring at Anono Marine Reserve, the Hakupu Heritage Marine Area and other sites;
- 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;
- develop and implement a comprehensive inshore fisheries management plan;

- develop and improve data collection, survey and monitoring of fisheries resources;
- continue to promote and develop programs aimed at reducing fishing pressure on inshore fisheries resources e.g. FAD programme.

The Fisheries Department currently are beginning to work with the Secretariat of the Pacific Community (SPC) to develop an inshore fisheries management plan for the whole of Niue. Development of this plan will require assessment of the resource base. There is a desire to develop this with community input and to establish some monitoring capability.

In addition to the Fisheries Department there are other government departments with significant responsibilities that affect the quality of the coastal inshore management. These include Community Affairs (both in its role to support village councils and in its environmental duties), Department of Agriculture, Public Works, the Attorney Generals Office and the Planning Office. Lack of coordination between these various agencies in the past has been an issue affecting the management of inshore areas. This is generally recognised by government and various mechanisms are being established to improve this situation and they will require support and further development.

3 Participatory Situation Analysis

3.1 The IWP Approach to Community Participation

Community participation in an IWP pilot projects aims for 'bottom-up' involvement of the community throughout the entire pilot project process. It is intended that IWP pilot projects will be primarily community driven, owned, administered and managed, with facilitation provided through the National Coordinator (NC) and National Task Committee (NTC). In this way the community will play a central and driving role in problem identification, project concept proposals, planning and design phases, decision-making, social assessments, implementation activities, monitoring and evaluation stages of the project cycle (PCU 2002).

Rationale for this approach is based on the recognition that there is a direct link between successful project outcomes and stakeholder participation in initiatives that aim to enhance sustainable resource management. In the Pacific local communities are customary managers and primary users of inshore marine resources. It is hoped the design, implementation and evaluation of the pilot projects will build on the valuable skills, experience, and knowledge of these communities. Through effective partnerships encouraging full participation of local communities, government and the IWP, the pilot project will better address the social and economic needs of affected people, and cultivate country ownership and accountability for project outcomes (see Box 3.1).

3.2 Objectives and Methods Used in Participatory Situation Analysis

Participatory situation analysis provides community perspective on PEC and needed pilot activities, as well as local information that can contribute to selection of participating villages.

The specific objectives of the participatory situation analysis on Niue were to:

- identify primary stakeholders in coastal fisheries and begin the assessment of their interests and needs;
- compile basic village data that would assist both problem analysis and project planning;
- identify and assess community perceptions of the causes of problems in coastal fisheries;
- identify and explore possible solutions and activities with the local communities that address priority concerns and which support sustainable resource management;
- assist to identify possible pilot projects for support by the IWP; and
- indicate key links between possible project activities and needed institutional and policy support that should be considered in pilot project design.

Box 3.1. ***What do we mean by community participation?***

In explaining the IWP approach for community participation the terms "community", "stakeholders" and "participation" are often mentioned. These terms represent concepts that incorporate complex notions that are difficult to define precisely and which can have a range of meaning for different groups of people. Below are some broad interpretations of these concepts as they are intended for use in the IWP community-based pilot projects.

Community :

- For the purposes of the IWP, the term "community" is used in a limited sense to refer to a group of people residing in a village or several villages in an urban or rural setting that use resources in a common area.
- The term "community" encompasses "local or primary stakeholders" who are those people, groups or organisations who have direct interest in the use of a given area or set of natural resource.
- A community will not necessarily be homogenous; it is often comprised of many sub-groups, with diverse or opposing needs, capacities, and interests.

Stakeholders :

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- Stakeholders are people, groups or organisations who use, interact and depend on the natural resource. It includes those whose activities are affected by problems with the resource and those who influence these problems. It includes those who have an interest or 'stake' in these activities, both directly and indirectly.

- Identifying and involving different groups of stakeholders is important as they often have different interests, and different ways of perceiving problems and opportunities about natural resources. They may also hold different ideas about appropriate approaches to resource management. Ideally they should all be equitably represented in developing effective management systems for the resources where they have a common interest.

Participation :

- As with the other terms, 'participation' has different meanings for different people in diverse situations. The term participation is commonly used to describe various levels of involvement and engagement of stakeholders.

- It helps to consider participation along a continuum from "passive" participation, where people are merely told what is going to happen, to 'self-mobilisation', where people take initiatives independently of external institutions (see Appendix 2). Here participation changes according to the responsibility and role given to stakeholders in a development or conservation initiative. Pilot projects such as supported by the IWP intending to assist local initiatives in sustainable development, should aim for interactive participation in achieving that goal. It is hoped that as the pilot project demonstrates positive outcomes for the local community, participation may move towards self-mobilisation in replication of pilot activities across Niue.

Adapted from Stacey 2002.

3.2.1 Planning for Village Consultations

In August 2002 the NTC recruited two facilitators to work in each of the four administrative zones on the island. It was their intention that these facilitators would work in pairs, largely within their own communities and administrative zone, and carry out all village meetings and activities by themselves.

This design was reviewed during the September planning workshop and found to have a number of shortcomings. As a result of these concerns, during the planning workshop the participatory activities and sequence were modified. The agreed approach at the end of the workshop was that the entire group of eight facilitators would work as a team, with individual facilitators taking on specialist roles in the initial phases. Two facilitators were selected to organise and facilitate a large community meeting at the beginning and end of the consultations, with other facilitators assigned to meeting with individual stakeholder group and undertake a range of village profiling activities.

The sequence of activities within the village meetings was hoped to give each village a chance to 'brainstorm' resource concerns and identify the stakeholders dependent and influential to these issues. In the preparation of village profiles community members could identify further concerns with this information being added into the previous analysis. Finally it was intended that a large community meeting be held to review and prioritise resource concerns and undertake a *participatory problem analysis* (PPA) to determine community views on underlying causes of concerns.

This approach was reversed, however, when the NTC decided to return to the original plan of using paired-facilitators. After completion of the first series of meetings a review of the success and effectiveness of the consultations was made, and a number of gaps in activities were identified. It was then decided to undertake a second round of meetings (referred to as Village Feedback Meetings) to confirm information previously collected as well as close these gaps. The Village Feedback Meetings included presentation back of a composite Niue Problem Tree (which provided an island-wide synthesis of the PPA and introduced participants to developing a *solutions tree*.

The purpose of each of the activities undertaken in the consultations and a summary of their steps is outlined in Appendix 4. The PCU has also produced a *Facilitator's Toolkit* that outlines these activities and the facilitator's instructions in more detail.

Box 3.2 ***Important Principles in Meeting and Activity Design.***

"But how will local people benefit?" - A few village participants expressed their concern that the participatory situation analysis would be an extractive process 'picking the brains of local persons' and questioned the benefits for community members.

In response it was explained that in designing the community participation activities it was intended that village participants benefit from the discussions and workshop products. Meeting activities were selected to the extent the activities would specifically encourage participants to *engage with one another*. Activities were therefore selected to encourage active participation, learning and build on participant's experience and knowledge.

The overall process for engaging residents of Niue in identifying priority concerns and leading to the selection of the pilot project site was based on important concepts of effective facilitation and adult learning principles. As participants become active and animated, village members offer ideas, raise questions, build on one another's statements and challenge one another's opinions. This assists learning from and with other participants, and working together in collective analysis. This approach relies heavily on the use of structured activities and small group discussions. The results of such approaches are accepted as more effective but also are more time consuming.

Furthermore, NTC is committed to acting on the views expressed by the people of Niue and using these to guide selection and the shape of the pilot project. In addition, information provided by local people is extremely important to setting the wider direction of the IWP on Niue, structuring IWP activities so they provide benefits directly and indirectly to all of Niue.

This will be achieved by the following approaches:

- Focusing on concerns that are shared and are a priority for local villages.
- Identifying methods that can support and engage people living away from the pilot project site; allowing more people to learn and benefit from the pilot.
- Capturing lessons and practices that are working effectively in the pilot project and share these with other villages so they can be replicated elsewhere.
- Incorporate broader activities in the Niue IWP programme that not only support the pilot project but also meet the interests of many on Niue (for example general awareness and education programmes).
- Identify important actions of the IWP in working with the Niue Government and helping bring to their attention the concerns of local communities and requests for action.
- Undertake IWP activities in such a way as to support coordination and communication between government departments that will encourage an integrated approach to Niue's environmental problems.

3.3 Participation in the Consultations

Village consultations were held between 23 September and 12 December 2003. These island wide consultations involved some 67 meetings, including both large village meetings and meetings with individual stakeholder groups to undertake specific activities such as a marine transect or prepare a resource map. As can be seen in Table 3.1 below, 29% of persons 15 years and over, or approximately representatives from 33% of all households on Niue, attended one or more of the meetings during this period. Of the 349 participants, 132 were women, 144 were men and 73 were considered youth.

Participation rates varied between villages – with the highest village participation numbers achieved in Hakupu (89 adults). Participation levels in many of the smaller villages were also proportionately very high, for example Namukulu, Vaiea, and Hikutavake villages.

Meetings were also well attended by:

- 26 village council members;
- 8 Assemblymen; and
- 46 government officers.

Four of the NTC members attended the village meetings. See Appendix 5 for further details on individual village participation.

Table 3. 1. ***Participation in IWP Village Meetings.***

Village	Total Village Population *	No. of Persons Participating in the Village Meetings	Village Population (Persons 15 yrs. and over)*	% of Persons 15 yrs and over Participating in Village Meetings	No. of Households in Village *	No. of Households Represented in Village Meetings	% of Households Represented in Village Meetings
Namukulu	14	12	12	100%	8	8	100%
Tuapa	129	17	93	18%	39	10	26%
Makefu	87	11	63	17%	24	6	25%
Alofi North	256	20	160	13%	63	12	19%
Vaiea	62	33	40	83%	12	10	83%
Hakupu	227	89	138	64%	55	29	53%
Liku	73	25	49	51%	22	10	45%
Avatele	125	18	88	20%	38	12	32%
Alofi South	358	35	244	14%	115	20	17%
Taumakautoga	140	12	91	13%	38	9	24%
Hikutavake	65	23	43	53%	21	19	90%
Toi	31	13	25	52%	10	6	60%
Lakepa	88	19	66	29%	24	8	33%
Mutalau	133	22	96	23%	39	10	26%
Totals	1788	349	1208	29%	508	169	33%

*Based on 2001 Census data. The 2001 census data here is not restricted to residents but persons on the island.
Participation percentages should be seen as the minimum levels as the number of persons is known to have declined since the 2001 Census. Additionally in some meetings the names of all persons attending were not recorded.

3.4 Participants' Evaluation of Village Meetings and Participatory Activities

It was originally intended that each participant at the village meetings be given an opportunity to assess the value of the meeting by completing an evaluation questionnaire (see Appendix 6).

The evaluation aimed to obtain feedback on:

- overall participant satisfaction with the village meetings;
- satisfaction with process and activities of village meetings;
- satisfaction with meeting achievements; and
- obtain suggestions to improve the meetings in the future.

Evaluation forms were not regularly provided by facilitators to participants in the first round of meetings, and often forms were completed only by small groups. This partial sampling makes it difficult to know the extent community members were satisfied with the participatory process. Of the 22 forms completed, all but two who completed the evaluation expressed enthusiasm and interest in the meeting activities and outcomes.

Comments provided on the first three questions are listed below.

3.4.1 Question 1: Overall satisfaction with the meeting

Comments included:

- Well informed from the facilitators and village members.
- Tremendous contributions from women, men and youth.
- Very informative evening – opening up ideas and issues to youth and community.
- Brings out environmental issues of great concern.
- Very good because this is an important programme for us.
- Good but not enough time for participants to express their views on the project.
- Very good because it is important to see all of us, and it reminds us to care more about our environment.
- Very good because the issues discussed in the meeting are very interesting.
- Participants have given their best to share the concerns looking into the future developments and achievements.
- The participants show interest in the roles and responsibilities of stakeholders.
- Gave everyone an opportunity to discuss matters important to the community.
- We gain knowledge and understanding to protect our resources.

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3.4.2 Question 2: Evaluation of the meeting process and activities undertaken

Comments included:

- Simple in using two languages and sharing through discussion and presentations.
- Good communication between members, bringing in effective ideas and feedback.
- The progress from brainstorming to group discussion and recording to presentation, allows feedback and recommendations.
- Even though low level of attendance at the meeting the process was spot on.
- This is a very new format and the usual meeting sometime is one-way traffic.
- Learn by doing!
- Community never had these methods of participation in past meetings – good cooperation working together, good fun and better results.
- We all learning through a group case study and presentations comes from both facilitators and village members.
- Because we can know a lot of different observations or comments from people during the meeting, and we are very interested to discuss this.
- Because everyone takes part in all activities.
- We needed more time to present back our work and explain to other groups.
- I think everyone is happy and feel like keep on doing things like this in our community.
- One person complained that they did not understand the participatory problem analysis activity.

3.4.3 Question 3: Extent of satisfaction with what the meeting produced or achieved?

Comments included:

- Very satisfied with the outcomes of the meeting working together to produce charts and knowing the community concerns and important issues.
- Our village concerns are documented for consideration by IWP for future generations.
- Because of the achievement we made in producing in the meeting.
- Because we faced a lot of problems in our environment so we should work together and put efforts to care more about our environment.

Several participants commented that time for activities was too short; they were unable to complete activities sufficiently or were given inadequate time 'to think deeply about the problems before prioritising takes place'.

In addition to the evaluations, during the second round of community meetings in December, village participants were asked to reflect on community participation in the IWP meetings. They were then asked for suggestion on *actions the IWP could take to improve community participation, (for example, different meeting times? More or different community announcements etc).* Results of both the evaluations on improving the community are presented in Table 3.2.

Table 3.2. ***Village Suggestions for Improving Participation*.**

Suggestion for Improving Participation	Number of Villages who Suggested Improvement
Improve meeting announcements	
● TV announcements	10
● Radio announcements	11
● Niue Star advertisement	6
● Notify VC of date and time. It was emphasized that the IWP should work with the VC to make sure the dates for meetings fit in with village activities, before dates are set.	6
● The VC should improve notification to residents and encourage people to attend meetings.	3
● Telephone messages	3
● Letter to MP	3
● Door to door distribution of invitations to residents This was done in many of the villages in the first series of meetings.	3
● Leaflets to all households (and educational leaflets) Simplified leaflets in Niuen and English. The current information sheet is too long and complicated.	6
● Word of mouth	2
● Invitations to specific community groups – including govt workers	2
● Provide more information about the meeting to people before meetings	1
● Personal notification by facilitator	1
Target Youth	
● Hold meetings to target youth sector (during the school holidays)	2
● Invite older students to participate (Youth Forum)	1
● Send invitations to village youth groups	1
● Develop a special youth programme (for example use Youth Programme on Radio Sunshine)	3
Work with the Churches	
● Invitations to churches to participate	7
● Use church gatherings to promote IWP activities	1
● Pastors to attend meetings	1
● Include a church member in the NTC	1
Improve Meeting Arrangements	8
● Provide refreshments	13
● Pay sitting fees	1
● Provide donation to villages	2
● VC fee	2
● Look at different meeting times for the overly committed community members Need to be flexible with meeting arrangements and design programs to meet target audience	1
● There should be a meeting for ethnic groups to address local concerns.	1
● Hold more sessions (at least 3 nights of 2hrs)	4
● Hold small group meetings at different venues for different groups	1
● Hold daytime meetings (after lunchtime)	1
● Hold Sunday meeting after church services or in evening meeting	1
● Despite what time of day – attendance will always be limited	1

Suggestion for Improving Participation	Number of Villages who Suggested Improvement
Suggestions on Meeting Style or Content	
● Clarify purpose of IWP meetings	1
● Must ensure that village get something back for providing information. Need to be clear of community benefits from participation.	1
● Need to use more Niuen language in presentation and interpretation. (This could be the reason some persons did not return the second time.)	2
● Workshop style meetings more appropriate – agenda, framework, refreshments, and output presentation	1
● More time for family consultations before next IWP meeting	1
● Build awareness in the community as you interview people	1
● Need more awareness of the community of the IWP objectives and activities (education and children youth programmes	5
● IWP is long-term project and more consultations needed	1
● Need and IWP national day	1
General Improvements for the IWP Programme	
● Clarify wording – not freshwater but coastal resources	1
● Community consultation too fast not enough time for people to understand and make informed decisions	1
● Provide documentaries of the meeting issues and concerns	2
● Circulate electronic copies of previous meetings for all communities to contribute and input to	1
● Appoint an IWP person in each village to deliver all the information, paid by IWP to avoid information getting too long to get to the people.	1
● Todays water contamination and pollution problems are a government problem and should be returned directly back to the government to address.	1

Improving information about the IWP objectives and activities, the consultative process and increasing announcements of meetings was a continually repeated message in most villages. Advertisements for the village meetings were uneven with some village receiving household invitations, radio and church announcements and others given little notice. This difference significantly affected participation rates between villages. Many voiced the need for the IWP to produce a simpler one-page leaflet in Niuen that concisely describes its activities. Making more use of the church in organising and advertising community activities with the IWP was also emphasized.

In response to the suggestion for payment of sitting fees, it was explained that this was not allowed under the provisions for IWP. The IWP was based on the formation of voluntary partnerships between villages, governments, and NGOs to work together. The IWP will contribute funds towards supporting costs of the meeting (for example provision or contribution towards technical assistance, meeting materials, refreshments, etc.) and supports the village to come together to discuss and identify concerns. Village participants were also reminded that the participatory situation analysis was trying to identify a site for the project where the focus is of great concern to the village(s) and to their livelihoods. Villages were not being asked to participate for the benefit of the Niue IWP but to meet their own needs and interests.

4 Results Of Village Meetings

4.1 Priority Concerns

In participatory activities in the first village meetings participants were asked to list resource issues that were of concern to them. Additional resource issues were identified and discussed when village members participated in other activities, such as the marine transect, resource mapping and village mapping. The facilitators kept a cumulative list of concerns. In the village feedback meetings the community reviewed and confirmed the concerns that the village considered priorities. This list of concerns was also reviewed at the Forum in April 2003 where village representatives had an opportunity to check for errors or omissions.

The priority concerns for Niue could be grouped under four general categories:

- Declining availability and degradation of marine resources[5];
- Coastal pollution;
- Contamination and pollution of groundwater; and
- Fish poisoning (Ciguatera).

Table 4.1 shows the distribution of priorities in the broad classification. The declining availability and degradation of marine resources was a shared concern for all villages and a priority for 13 of them.

Table 4.1. ***Shared Priority Concerns on Niue.***

Niue Villages	***Decline & Degradation in Marine Resources***	***Coastal Pollution***	***Groundwater Contamination***	***Fish Poisoning***
Namukulu	*X*			
Tuapa	*X*	*X*		
Makefu	*X*	*X*	*X*	
Alofi North	*X*	*X*		*X*
Alofi South	*X*	*X*	*X*	*X*
Tamakautoga	*X*	*X*	*X*	
Avatele	*X*	*X*		
Vaiea	*X*		*X*	
Hakupu	*X*	*X*	*X*	
Liku	*X*		*X*	
Lakepa	*X*	*X*	*X*	
Toi	*X*	*X*	*X*	
Mutalau	*X*	*X*	*X*	
Hituvake	*X*	*X*	*X*	
Total Villages Listing Concern as a Priority	***14***	***11***	***10***	***2***

[5] Participants used the terms *degradation* and *decline* synonymously, as they spoke of 'resource degradation' when they were specifically referring to fewer numbers of fish or invertebrates. In addition decreased harvests were frequently seen to result from degradation of the habitat of reef flats and pools.

The specific issues of concern identified by village members are listed in Table 4.2. Here issues considered of greatest priority are marked with an asterisk. This table also shows which issues are held in common between villages.

4.1.1 Summary of Declining and Degradation of Marine Resources

Declining availability of marine resources included reference to both reef fish, bait fish, invertebrates and seaweed found on the reef flat. Some villages described in detail the fish or reef species that they were concerned about including those that were decreasing in number or had disappeared altogether.

All fourteen villages rated concerns about declining numbers or disappearance of reef resources as a priority, with some twelve villages complaining of declining numbers of fish.

Shortages of *alili* were most commonly mentioned (13 villages) with declines in crabs, *ugako, hihi, tatukumiti*, seaweeds, *feke, sepulupulu, matatue* and *matapihu* being cited by over half of the villages. Species where at least two villages expressed concern are listed below.

Ranking of Declining Marine Resources

Species named	***No. of Villages***
Alilis and segame (mollusc)	*13*
Crabs (combined of all types)	*11*
Hihi-hihi muitea (mollusc)	*10*
Ugako (mollusc)	*10*
Tatukumiti (shellfish)	*9*
Seaweeds	*8*
Feke (octopus)	*8*
Sepulupulu and loli	*8*
Matatue/ Papahua	*8*
Matapihu (mollusc)	*8*
Gege (clams)	*7*
Fouli and Fuafouli	*6*
Kina or vana (sea urchin)	*6*
Mama Matatue (mollusc)	*5*

Women are the primary harvesters of many of these inshore reef resources and this was recognised and confirmed by village participants.

Stated declines in fish were far less shared Six villages cited concerns over *nue, ika tea, mohe aho, and lakua.* Five villages complained of depleted stocks of *monega, meito and kolala*; and reductions of *hapi* and *uhomaka* were mentioned by four villages.

Many village participants expressed uncertainty at what exactly was causing the decrease in marine resources. Habitat degradation in general was cited by 14 villages and overharvesting of specific reef areas cited by 13 villages. All but two villages attributed resource decline to people either not following customary laws and practices or not asking permission to come use a local reef area. Spearfishing, coral damage from the use of non-traditional fishing methods, and dying coral from overexposure to heat and sun (suspected to be due to global warming and climate change) were all concerns mentioned by at least ten villages.

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The FADs were viewed by some eight villages to draw fish away from traditional inshore areas and make them more difficult to catch by reef fishers or canoe fishermen. Participants did not cite FADs as affecting overall population levels. Some did mention that as a result of changed fish availability they were spending more time harvesting on the reef flat.

4.1.2 Coastal Pollution

A long list of concerns was recorded in relation to coastal pollution. In general sea and inshore pollution was seen to result from a number of sources – sewage and household waste, toxic chemicals (oil and fuel, heavy metals from batteries) and solid wastes.
The most common concerns for each of these sources is listed below.

Sewage and household waste
Thirteen villages listed sewage discharge from leaking septic tanks or lack of septic system as a source of coastal pollution. Half of the villages also listed lack of proper drainage system from stormwater flow and wastes from pig stys near the coast as important sources of pollution.

Toxic chemicals
Ten villages expressed concerns over toxic wastes, most commonly mentioning waste oil and vehicle batteries being dumped at sea as the reasons for this.

Solid wastes
Thirteen villages identified rubbish and litter as a concern of coastal pollution. The sources of this rubbish were local littering of the coast (eleven villages), dumping of household rubbish (nine villages), rubbish from boats and ships (eight villages) and dumping of dead animals (seven villages).

4.1.3 Contamination of groundwater

Fourteen villages expressed concerns with the quality of groundwater supplies, with eleven mentioning fears of potential contamination by herbicides and pollution from septic and household wastes. Other common concerns cited by more than half of the villages were *maketea* present in the drinking water, water causing allergies and disease and inadequate regular monitoring by the Health Department. Contamination was not necessarily seen as linked to coastal pollution.

4.1.4 Ciguatera poisoning

Ciguatera poisoning was mentioned by 3 villages as a concern and a priority for the urban areas of Alofi South and Alofi North. There has been a rise in occurrence of ciguatera in recent years, and it is seen to be focused around fish caught near the Alofi wharf and harbour area. Coastal pollution was also seen as a contributing to Ciguatera poisoning. Participants in both villages cite the use of explosives, and impacts of fireworks as contributing to the problem.

These various contributing causes to the priority concerns were explored in more detail in the participatory problem analysis (see Section 4.4). As the Niue IWP focal area is sustainable coastal fisheries, the remainder of this report will focus on the priority concern of marine resource decline and degradation.

Table 4.2 ***Compiled List of Village Concerns***[6]

VILLAGE CONCERN	AVA	ALS	ALN	HIK	NAM	MUT	MAK	TUA	TAM	TOI	LIK	LAK	HAK	VAI
Decline Of Marine Resources[7]	**AVA***	**ALS**	**ALN***	**HIK***	**NAM***	**MUT***	**MAK***	**TUA***	**TAM***	**TOI***	**LIK***	**LAK***	**HAK***	**VAI***
1. Declining numbers of fish (some specific fish mentioned are listed below)	***AVA***	***ALS***	***ALN***	***HIK***	***NAM***	***MUT***	***MAK***	***TUA***	***TAM***	***TOI***		***LAK***	***HAK***	
Nue (drummers) –6						*MUT*	*MAK*		*TAM*	*TOI*		*LAK*	*HAK*	
Ika tea (threadfin) – 6				*HIK*	*NAM*		*MAK*		*TAM*	*TOI*			*HAK*	
Mohe aho (parrot fish) -6			*ALN*	*HIK*	*NAM*		*MAK*		*TAM*	*TOI*				
Lakua (skippers) –6			*ALN*		*NAM*		*MAK*	*TUA*	*TAM*	*TOI*				
Monega (parrot fish) - 5				*HIK*	*NAM*		*MAK*		*TAM*	*TOI*				
Kolala (surgeon fish) - 5				*HIK*	*NAM*		*MAK*		*TAM*	*TOI*				
Meito (wrasse) 5				*HIK*					*TAM*	*TOI*			*HAK*	
Hapi (surgeon fish) 4				*HIK*					*TAM*	*TOI*			*HAK*	
Uhomaka (?) – 4				*HIK*				*TUA*	*TAM*	*TOI*				
Kanahe (mullet) – 1		*ALS*												
Gatala (cod) –1		*ALS*												
Ulutuki (cod) – 1		*ALS*												
2. Declining numbers or disappearance of reef resources (some specific marine species mentioned are listed below)	**AVA***	**ALS***	**ALN***	**HIK***	**NAM***	**MUT***	**MAK***	**TUA***	**TAM***	**TOI***	**LIK***	**LAK***	**HAK***	**VAI***
Alilis and segame (mollusc) 13	*AVA*	*ALS*	*ALN*		*NAM*	*MUT*	*MAK*	*TUA*	*TAM*	*TOI*	*LIK*	*LAK*	*HAK*	*VAI*
Hihi-hihi muitea (mollusc) 10	*AVA*	*ALS*	*ALN*				*MAK*	*TUA*	*TAM*	*TOI*	*LIK*		*HAK*	*VAI*
Ugako (mollusc) 10		*ALS*	*ALN*		*NAM*		*MAK*	*TUA*	*TAM*	*TOI*	*LIK*	*LAK*	*HAK*	
Matatue/ Papahua (mollusc) 8	*AVA*	*ALS*		*HIK*	*NAM*		*MAK*	*TUA*	*TAM*	*TOI*				
Matapihu (mollusc) 8	*AVA*	*ALS*		*HIK*	*NAM*		*MAK*	*TUA*	*TAM*	*TOI*				
Fouli and Fuafouli (mollusc) 6		*ALS*						*TUA*	*TAM*	*TOI*	*LIK*		*HAK*	
Mama Matatue (mollusc) 5			*ALN*	*HIK*			*MAK*		*TAM*	*TOI*				
Maimamene (mollusc) 3								*TUA*	*TAM*	*TOI*				
Gege (clams) 7	*AVA*	*ALS*			*NAM*		*MAK*	*TUA*	*TAM*	*TOI*				
Feke (octopus) 8			*ALN*		*NAM*		*MAK*	*TUA*	*TAM*	*TOI*		*LAK*	*HAK*	
Sepulupulu and loli (beche-de-mer) 8	*AVA*		*ALN*		*NAM*		*MAK*	*TUA*	*TAM*	*TOI*				*VAI*
Seaweeds (species mentioned include Limu Kai, Limu tahi, Limu Fua) 8	*AVA*		*ALN*		*NAM*			*TUA*	*TAM*	*TOI*	*LIK*		*HAK*	

[6] Source of information includes from brainstorming, village and resource mapping, and marine transects.
Bold highlighting indicates summary information. Specific details given are in *italics.* Not every village mentioned specific marine species were less available. Many villages who did not list a species may also be concerned about species decline.
[7] Where villages said the concern was a priority it is marked with an*

Table 4.2 ***Compiled List of Village Concerns*** **(continued)**

VILLAGE CONCERN	AVA	ALS	ALN	HIK	NAM	MUT	MAK	TUA	TAM	TOI	LIK	LAK	HAK	VAI
Decline Of Marine Resources (continued)	**AVA***	**ALS**	**ALN***	**HIK***	**NAM***	**MUT***	**MAK***	**TUA***	**TAM***	**TOI***	**LIK***	**LAK***	**HAK***	**VAI***
2. Declining numbers or disappearance of reef resources (some of the specific marine species mentioned are listed below – continued)														
Tatukumiti (shellfish) 9	*AVA*		*ALN*	*HIK*	*NAM*		*MAK*	*TUA*	*TAM*	*TOI*				*VAI*
Fufu (shellfish) 8	*AVA*		*ALN*	*HIK*	*NAM*		*MAK*		*TAM*	*TOI*				*VAI*
Paka tahi (crab) 10	*AVA*		*ALN*	*HIK*	*NAM*		*MAK*	*TUA*	*TAM*	*TOI*			*HAK*	*VAI*
Tagau and Tutu (crabs) 8	*AVA*		*ALN*	*HIK*	*NAM*		*MAK*	*TUA*	*TAM*	*TOI*				
Uga (coconut crab) 6					*NAM*		*MAK*		*TAM*	*TOI*	*LIK*			*VAI*
Tohitohi (sea crab) 7				*HIK*	*NAM*		*MAK*	*TUA*	*TAM*	*TOI*				*VAI*
Tapatapa (crab) 7			*ALN*	*HIK*	*NAM*		*MAK*	*TUA*	*TAM*	*TOI*				
Kamakama (crab) 6				*HIK*	*NAM*		*MAK*		*TAM*	*TOI*				*VAI*
He (sea crab) 5				*HIK*			*MAK*		*TAM*	*TOI*				*VAI*
Mafana (crab)														*VAI*
Tea (crab)														*VAI*
Sitoko (crab)														*VAI*
Figota	*AVA*													
Hinavele									*TAM*					
Kina (short spined sea urchin) 5	*AVA*				*NAM*		*MAK*		*TAM*	*TOI*	*LIK*			
Vana (long spined sea urchin) 2		*ALS*								*TOI*				
3. Concerns that were reasons put forward for resource decline.														
Habitat degradation (see specific causes for this below) 14	***AVA****	***ALS***	***ALN***	***HIK***	***NAM****	***MUT***	***MAK***	***TUA***	***TAM***	***TOI***	***LIK***	***LAK***	***HAK****	***VAI***
Overharvesting (in specific reef areas) 13	*AVA*	*ALS*	*ALN*	*HIK*	*NAM*	*MUT*	*MAK*	*TUA*	*TAM*	*TOI*		*LAK*	*HA**	*VAI*
Overharvesting due to nets -Tautau ika - residents concerned that this practice catches large numbers of small size fish. It is also occurring everyday and resulting in overfishing.5	AVA	ALS	ALN	HIK					TAM	TOI				
Overly concentrated use of some reef resources due to lack of easily accessible sea tracks. 6	*AVA*		*ALN*				*MAK*		*TAM*	*TOI*			*HAK*	
Overuse by recreationists degrading area (such as Matapa Chasm and Talava Arches) or tourist activities invading area. 5				*HIK*	*NAM*		*MAK*	*TUA*		*TOI*				
Overharvesting and impacts from traditional fishing methods such as Tuha (Kaua Niukini), or Kieto toxic plant root for poisoning fish. The impact of this plant root is lethal to all marine life including coral and seaweeds and takes a very long time for marine life to recover.5			*ALN*	*HIK*			*MAK*		*TAM*	*TOI*				
Overharvesting because of introduction of modern fishing gear.6				*HIK*	*NAM*		*MAK*	*TUA*	*TAM*	*TOI*				

Table 4.2 ***Compiled List of Village Concerns*** **(continued)**

VILLAGE CONCERN	AVA	ALS	ALN	HIK	NAM	MUT	MAK	TUA	TAM	TOI	LIK	LAK	HAK	VAI
Reasons put forward for resource decline (continued)														
Displacement of seasonal fish such as kaloama, afule, ulihega, big eye scad, skipjack tuna and flying fish from reef edge, drawn away by FAD. These fish used to be caught by canoes but no longer. Residents concerned this results in more reef gleaning. 8			*ALN*	*HIK*	*NAM*	*MUT*	*MAK*		*TAM*	*TOI*		*LAK*		
Traditional practices of feeding and caring of fish and fish ponds - ava ika. This practice undermined but is important protect important fish stocks.8			*ALN*	*HIK*		*MUT*	*MAK*		*TAM*	*TOI*		*LAK*	*HAK*	
Traditional practice of keeping all fish. Some people keep to old ideas that you need to keep all fish caught (no matter how small) as was practiced in the past. This was done due to uncertainty of sea conditions and the need to maintain food security.7						*MUT*	*MAK*	*TUA*	*TAM*	*TOI*	*LIK*	*LAK*		
People from other areas using reef resources without permission. 8			*ALN*	*HIK*	*NAM*		*MAK*			*TOI*	*LIK*	*LAK*	*HAK*	
People from other areas not respecting local rules (e.g. tabu areas, seasonal closures use of proper baits, or harvesting methods) 11	*AVA*		*ALN*	*HIK*	*NAM*	*MUT*	*MAK*	*TUA*	*TAM*	*TOI*		*LAK*	*HAK*	
Aao taking over alili			*ALN*		*NAM*	*MUT*				*TOI*	*LIK*			*VAI*
Segame being eaten by ugauga			*ALN*		*NAM*				*TAM*	*TOI*	*LIK*			*VAI*
Eggs of uga eaten by feke							*MAK*			*TOI*	*LIK*			*VAI*
Unknown impacts of introduced species by yachts and ballast water from cargo ships (eg starfish).		*ALS*	*ALN*				*MAK*		*TAM*	*TOI*				
Spearfishing - Residents concerned it is scaring fish away from protected fishing holes or impacting on fish reef stocks	*AVA*	*ALS*	*ALN*	*HIK*		*MUT*	*MAK*	*TUA*	*TAM*	*TOI*		*LAK*		
Night diving		*ALS*	*ALN*		*NAM*		*MAK*	*TUA*	*TAM*	*TOI*				
Night reef fishing with torches – residents say with past use of handmade traditional torches people did not harvest as much; now they can see better and catch more.		*ALS*	*ALN*	*HIK*	*NAM*		*MAK*		*TAM*	*TOI*				
Diving on fishing grounds	*AVA*		*ALN*		*NAM*		*MAK*		*TAM*	*TOI*				
Netting of fish by foreign boats out at sea						*MUT*	*MAK*		*TAM*	*TOI*		*LAK*		
Crabs like uga and kalahimu being harvested during spawning season			*ALN*		*NAM*		*MAK*		*TAM*	*TOI*	*LIK*			
Traffic is running over crabs	*AVA*		*ALN*				*MAK*	*TUA*	*TAM*	*TOI*	*LIK*			
Increased numbers of dogs and wild pigs eating resources (like uga)	*AVA*		*ALN*		*NAM*	*MUT*	*MAK*		*TAM*	*TOI*	*LIK*		*HAK*	
Increased predation by birds – Motuku (Heron)					*NAM*		*MAK*		*TAM*	*TOI*				
Change of fish habits – they do not appear to be where they are supposed to be in protected fishing holes.	*AVA*		*ALN*		*NAM*		*MAK*		*TAM*	*TOI*				

Table 4.2 Compiled List of Village Concerns (continued)

VILLAGE CONCERN	AVA	ALS	ALN	HIK	NAM	MUT	MAK	TUA	TAM	TOI	LIK	LAK	HAK	VAI
Degradation of Coastal Habitat	**AVA***	**ALS**	**ALN**	**HIK**	**NAM ***	**MUT**	**MAK**	**TUA**	**TAM**	**TOI**	**LIK**	**LAK**	**HAK***	**VAI**
Damage to the reef flats from siltation – residents concerned about makatea (silt) running into reef flat zone from the storm water drains and development of sea tracks. Siltation causes changes to the reef environment and reef resources. Siltation also said to affect caves and pools on reef flat.	*AVA*	*ALS*	*ALN*		*NAM*		*MAK*	*TUA*	*TAM*				*HAK*	
Construction of car park and picnic areas in coastal zone causing makatea. Run-off.	*AVA*	*ALS*	*ALN*				*MAK*		*TAM*				*HAK*	
Coral damage from the use of non- traditional fishing methods, for example uses of hammers, axes, and crowbars when reef gleaning.	*AVA*	*ALS*	*ALN*	4.1.1	*NAM*	*MUT*	*MAK*	*TUA*	*TAM*	*TOI*	*LIK*	*LAK*		
Development of sea tracks using dynamite and other harmful chemicals.	*AVA*		*ALN*		*NAM*		*MAK*		*TAM*	*TOI*	*LIK*			
Wharf construction project has blasted around this area and damages coral.	*AVA*	*ALS*	*ALN*											
People are not using enough resources.				*HIK*						*TOI*	*LIK*	*LAK*		
Development of small pools?							*MAK*				*LIK*			
Dying coral from overexposure to heat and sun, sea to calm, this may be related to global warming and climate change.		*ALS*	*ALN*		*NAM*		*MAK*		*TAM*	*TOI*	*LIK*		*HAK*	*VAI*
Destruction of breeding holes (Feke) (From use of axes and hammers when harvesting?)	*AVA*		*ALN*		*NAM*	*MUT*	*MAK*		*TAM*	*TOI*				
Growth of corals narrowing swimming holes. Traditional treatment of 'Fou' sticks used for skirts from the bark were placed in these swimming holes.	*AVA*				*NAM*		*MAK*			*TOI*				
Lack of protection (village regulations) of sea shrubs.			*ALN*				*MAK*		*TAM*	*TOI*				

Table 4.2 ***Compiled List of Village Concerns*** **(continued)**

VILLAGE CONCERN	AVA	ALS	ALN	HIK	NAM	MUT	MAK	TUA	TAM	TOI	LIK	LAK	HAK	VAI
Coastal pollution[8]	AVA*	ALS*	ALN*	HIK*	NAM	MUT*	MAK*	TUA*	TAM*	TOI*	*LIK*	LAK*	HAK*	
1. Source - Sewage and household wastes	***AVA****	***ALS****	***ALN****	***HIK***	***NAM***	***MUT***	***MAK****	***TUA***	***TAM****	***TOI***	***LIK***	***LAK***	***HAK***	
Wastes and sewage discharge from septic tank leakage or toilets without septic systems (such as some water seal/ flush toilets and long drops) polluting sea area.	*AVA*	*ALS*	*ALN*	*HIK*	*NAM*	*MUT*	*MAK*	*TUA*	*TAM*	*TOI*	*LIK*	*LAK*	*HAK*	
Wastes and sewage draining into cavess and crevasses and that leads into sea area.		*ALS*	*ALN*		*NAM*		*MAK*	*TUA*	*TAM*			*LAK*		
Lack of proper drainage system and contamination by pollutants from stormwater flowing into coastal areas.	*AVA*	*ALS*	*ALN*		*NAM*		*MAK*		*TAM*				*HAK*	
*Wastes and sewage discharge from pig stys draining into sea area.**	*AVA*		*ALN*		*NAM*		*MAK*	*TUA*	*TAM*			*LAK*		
Sewage draining from resort and hotels going into reef area (pollution source and smells).					*NAM*		*MAK*		*TAM*					
Lack of facilities such as toilet facilities (such as around Utuko swimming area).		*ALS*					*MAK*		*TAM*		*LIK*			
Dumping of wastes and sewage from yachts and ships into sea.		*ALS*	*ALN*				*MAK*	*TUA*	*TAM*				*HAK*	
Human waste in the sea from local fishermen.		*ALS*		*HIK*					*TAM*					
Water tap's too close to the sea and the people using them for washing using soaps and shampoos that run down into the sea water.	*AVA*				*NAM*				*TAM*					
2. Source – Toxic wastes	***AVA***	***ALS****	***ALN****	***HIK***	***NAM***		***MAK***	***TUA***	***TAM***			***LAK***	***HAK***	
Oil pollution run off into the coastal area (Sites mentioned -Amanau area toxic wastes).		*ALS*	*ALN*				*MAK*		*TAM*					
Unsafe storage of petrol and fuel tanks (bulk fuel depot) Residents concerned storage tanks are too close and petrol and diesel runs off into the sea.		*ALS*	*ALN*				*MAK*		*TAM*					
Leaks during transfer from tanker.		*ALS*	*ALN*				*MAK*		*TAM*				*HAK*	
Oil from ships.		*ALS*	*ALN*				*MAK*		*TAM*			*LAK*		
Waste oil.		*ALS*		*HIK*			*MAK*	*TUA*	*TAM*			*LAK*		
Batteries being dumped into the sea.		*ALS*			*NAM*		*MAK*	*TUA*	*TAM*			*LAK*		
Pollution from ballast water.		*ALS*					*MAK*		*TAM*				*HAK*	

[8] Coastal pollution was commonly seen as contributing to habitat degradation and fish poisoning (ciguatera).

Table 4.2 ***Compiled List of Village Concerns*** **(continued).**

VILLAGE CONCERN	AVA	ALS	ALN	HIK	NAM	MUT	MAK	TUA	TAM	TOI	LIK	LAK	HAK	VAI
Coastal pollution (continued)	**AVA***	**ALS***	**ALN***	**HIK***	**NAM**	**MUT***	**MAK***	**TUA***	**TAM***	**TOI***	**LIK**	**LAK***	**HAK***	
3. Source: From solid wastes	***AVA***	***ALS***	***ALN***	***HIK***	***NAM***	***MUT***	***MAK***	***TUA***	***TAM***	***TOI***	***LIK***	***LAK***	***HAK***	
Ocean littering, for example plastics, empty cans and people treating the sea as dumping place.	*AVA*	*ALS*	*ALN*	*HIK*	*NAM*		*MAK*	*TUA*	*TAM*	*TOI*		*LAK*	*HAK*	
Rubbish and littering (around Alofi wharf area, sea tracks, and roadsides).		*ALS*	*ALN*		*NAM*	*MUT*	*MAK*	*TUA*	*TAM*			*LAK*		
Dumping of household rubbish in coastal area, or caves and crevasses.		*ALS*		*HIK*	*NAM*	*MUT*	*MAK*	*TUA*	*TAM**	*TOI*		*LAK*		
Waste fishing lines and plastics dumped by fishermen and by boats, yachts and cargo boats into the sea and reef.	*AVA*	*ALS*					*MAK*		*TAM*					
Concerned about rubbish (for example mooring ropes) at tourist and swimming sites (Utuko).		*ALS*					*MAK*		*TAM*					
Rubbish from boats and ships swept into sea and drifting into shore.		*ALS*				*MUT*	*MAK*	*TUA*	*TAM*		*LIK*	*LAK*	*HAK*	
Steel and pipes rusting in the sea and the possible bad effects on fish feeding on these.		*ALS*	*ALN*				*MAK*	*TUA*	*TAM*					
Dumping of dead animals (along roadside, into caves, into sea).		*ALS*	*ALN*		*NAM*	*MUT*	*MAK*	*TUA*	*TAM*					
Dead animals thrown in the dump (concerned about the smell and flies from this practice).		*ALS*			*NAM*								*HAK*	
Cemeteries close to coastal areas and if graves not sealed properly can pollute water.			*ALN*	*HIK*			*MAK*	*TUA*				*LAK*		
Sickness from Ciguatera poisoning	**AVA**	**ALS***	**ALN***											
Fireworks impacts at wharf area during constitution celebrations (concerns that the fireworks poison fish).		*ALS*												
Using of explosives at wharf area. Residents concerned that this contributes to the poison fish.		*ALS*	*ALN*											
Disposal of toxic land-based materials		**ALS***	**ALN**	**HIK**	***NAM***	***MUT***	***MAK***	***TUA***	***TAM***			**LAK**		
Asbestos dump has not been properly disposed of (from hospital, high school and people's homes). Residents are concerned of significant health risks.		*ALS*	*ALN*	*HIK*	*NAM*	*MUT*	*MAK*	*TUA*	*TAM*					
Contamination of groundwater	***AVA***	**ALS***	**ALN**	**HIK***	**NAM**	**MUT***	**MAK***	***TUA***	**TAM***	**TOI***	**LIK***	**LAK***	**HAK***	**VAI***
Vai pamu pupu (paraquats/grammoxone) impacts of these leaking into deep water lens contaminating drinking water.	*AVA*	*ALS*		*HIK*	*NAM*	*MUT*	*MAK*	*TUA*	*TAM*	*TOI*	*LIK*		*HAK*	
Makatea in the drinking water.		*ALS*			*NAM*	*MUT*	*MAK*		*TAM*	*TOI*	*LIK*	*LAK*	*HAK*	
Water contamination causing allergies and disease.					*NAM*	*MUT*	*MAK*		*TAM*	*TOI*		*LAK*	*HAK*	*VAI*
Lack of water supply testing and research by Niue Health Dept.	*AVA*	*ALS*		*HIK*	*NAM*	*MUT*	*MAK*		*TAM*	*TOI*	*LIK*		*HAK*	*VAI*
Wastes and sewage discharge from septic tank leakage or toilets without septic systems (such as some water seal/ flush toilets and long drops).	*AVA*	*ALS*		*HIK*	*NAM*	*MUT*	*MAK*		*TAM*	*TOI*	*LIK*	*LAK*	*HAK*	
Waste from pig stys down into water lens.					*NAM*		*MAK*		*TAM*		*LIK*	*LAK*	*HAK*	
Waste oil.		*ALS*		*HIK*		*MUT*	*MAK*		*TAM*		*LIK*			
Water bores next to burial grounds.									*TAM*		*LIK*			
Storage for water for rain and tap water is full of rubbish.	*AVA*		*ALN*		*NAM*		*MAK*		*TAM*		*LIK*			

Table 4.2 ***Compiled List of Village Concerns*** **(continued).**

VILLAGE CONCERN	AVA	ALS	ALN	HIK	NAM	MUT	MAK	TUA	TAM	TOI	LIK	LAK	HAK	VAI
Concerns about Marine Protected Areas.	**AVA**	**ALS**	**ALN**	**HIK**	**NAM**	**MUT**	**MAK**		**TAM**		**LIK**		**HAK**	
Want to clarify purpose of MPA.	*AVA*	*ALS*	*ALN*		*NAM*		*MAK*		*TAM*		*LIK*		*HAK*	
Residents unsure of legality and tenure issues related to a MPA including - Protection and enforcement of MPA, role of traditional rules clarification on by-laws of VC, etc.	*AVA*	*ALS*	*ALN*		*NAM*		*MAK*		*TAM*		*LIK*		*HAK*	
Unsure of government plans on MPA.	*AVA*	*ALS*			*NAM*		*MAK*		*TAM*		*LIK*		*HAK*	
Land boundaries of MPA.	*AVA*	*ALS*	*ALN*			*MUT*	*MAK*		*TAM*		*LIK*		*HAK*	
Visitors are causing damage to reef area.	*AVA*	*ALS*		*HIK*			*MAK*		*TAM*		*LIK*			
Visitors are littering and leaving rubbish behind.	*AVA*	*ALS*		*HIK*	*NAM*		*MAK*							
Conflicts between users	**AVA**	**ALS**	**ALN**		**NAM**		**MAK**	**TUA**	**TAM**				**HAK**	
Divers interfering or disturbing fishermen on reef, at fishing holes, or canoes at their fishing grounds.	*AVA*	*ALS*			*NAM*		*MAK*		*TAM*				*HAK*	
Tension between canoe and dinghy fishermen, as dinghy fishermen go too close to canoes (for example safety concerns and line entanglements).	*AVA*	*ALS*	*ALN*		*NAM*		*MAK*	*TUA*	*TAM*				*HAK*	
Coastal Infrastructure	**AVA**	**ALS**	**ALN**		**NAM**	**MUT**	**MAK**	**TUA**	**TAM**	**TOI**	**LIK**	**LAK**	**HAK**	**VAI**
Lack of adequate canoe storage area. Residents concerned waves and storms will wash their canoes away during sudden change of weather.	*AVA*	*ALS*			*NAM*		*MAK*		*TAM*		*LIK*		*HAK*	
Problems with sea tracks and access roads (for example lack of safety barrier for access road going downhill towards landing area, road too narrow).	*AVA*	*ALS*				*MUT*	*MAK*		*TAM*		*LIK*			
Need to improve or complete development of sea tracks (either to get other points of access to sea and reduce concentrated use in some locations or to make access easier).	*AVA*	*ALS*	*ALN*		*NAM*	*MUT*	*MAK*	*TUA*	*TAM*	*TOI*	*LIK*	*LAK*	*HAK*	*VAI*
FADs attracting too many sharks and humu kalue. Fishermen concerned with the sharks taking the yellowfins when hooked and the leather jackets eating the baits.	*AVA*						*MAK*		*TAM*					
Mooring of yachts at Avatele Bay.	*AVA*													
Village Housing	**AVA**	**ALS**	**ALN**	**HIK**	**NAM**	**MUT**	**MAK**		**TAM**		**LIK**	**LAK**	**HAK**	
Water tanks need upgrading as pipes are too old and rotten.	*AVA*		*ALN*		*NAM*	*MUT*	*MAK*		*TAM*		*LIK*			
VC and government to get rid of unoccupied houses.	*AVA*	*ALS*		*HIK*		*MUT*			*TAM*			*LAK*	*HAK*	
Fale polas broken down.					*NAM*									
Old sheds and outside cook houses.					*NAM*						*LIK*	*LAK*		
Public Nuisance	**AVA**	**ALS**			**NAM**	**MUT**	**MAK**		**TAM**		**LIK**		**HAK**	**VAI**
Cockroaches from septic tanks are multiplying.	*AVA*	*ALS*				*MUT*	*MAK*		*TAM*		*LIK*		*HAK*	
Dumping of raw sewage from septic tanks at Aliutu. Residents are concerned about flies.		*ALS*							*TAM*					
Gutting of fish near the ramp. Residents concerned about this practice attracting unwanted sharks into fishing area.	*AVA*	*ALS*			*NAM*		*MAK*		*TAM*					
Village dump too close to village (bad smell and flies).														*VAI*
Concerns about forest and wildlife		**ALS**					**MAK**		**TAM**			**LAK**	**HAK**	
Too many hunters in other areas shooting birds in our bushes.		*ALS*					*MAK*		*TAM*			*LAK*	*HAK*	

4.2 Stakeholder Identification and Analysis

As stated earlier, stakeholders are people, groups or organisations who use, interact and depend on the natural resource. This can apply to individuals, communities, social groups or institutions that represent diverse interests, differing social dynamics and relationships of power and influence surrounding an issue. The term stakeholder can also be applied to subgroups based on focus, level of authority, size and interests. For example:

- *Within communities:* subgroups are based on ethnic group, gender, age, religion, business size or interests, or social ranking (for examples, women, youth, chiefs, traders).
- *Within NGOs:* subgroups are defined by scale of operation, constituency or special interests (for example, national NGOs, international conservation organizations, community-based organizations).
- *Within governments:* subgroups are based on specific departments, location of service, decision-making roles (for example, fisheries officers, national planning offices, policy-makers).

In the village meetings the importance of assessing and developing strategies to work with different stakeholders was introduced. A process for identifying stakeholders around specific issues was presented and village participants did this analysis for priority concerns on Niue. In their small groups, participants first picked an issue and identified all stakeholder groups with an interest in this issue. They next assessed the relative importance of the issue to each stakeholder group as well as the relative influence of each group on the issue. A plenary discussion was held on how to balance participation by those who are affected strongly yet have little influence, and those who have a great deal of influence but were only minimally affected. Participants were also asked to consider which groups they felt should be involved in any activities to address the issue based on the outcomes of their analysis.

The compiled results of small groups focusing on the issue of marine resource decline and degradation are shown in Table 4.3. Only the results from ten villages are represented, as three villages took a different approach to the activity and their results are uncertain. Alofi South did not focus on the issue of marine resource decline but instead on its priority concerns of its more immediate issue of Ciguatera poisoning and coastal pollution.

In total, some 39 different stakeholder groups were identified. These included local subgroups of the community to regional and international organisations.

Stakeholders are often categorised or ranked to help decisions about which groups should be participating and what their respective roles should be.

1. *Primary* stakeholders are those people, groups or organisations who have a direct, significant and specific interest in a given area or set of natural resources. As primary stakeholders include those who are most directly affected by the resource concern, or by the outcomes of activities to solve a problem, it is generally felt that they should be directly involved in the decision-making process. Results from the participant's analysis suggest men and women fishers, women's groups, youth, elders and families would fall into this category, reinforcing the need for them to be directly involved in decision-making on marine resource degradation.

2. *Secondary* stakeholders are those people, groups or organisations who do not use the resource or depend on the resource directly but make use of products or services from the resource, or whose actions may affect the resource. These stakeholders may be affected more indirectly based on their organisational responsibilities or business interests. In general these stakeholders have more options to pursue if the issue is not addressed over that of the primary stakeholders. These stakeholders may be very influential and critical to the resolving the problem, for example, government officers

providing key technical information or policy support ,etc. Groups that fall into this category for marine resource degradation may include – fish sellers and overseas families.

3. *Third level* stakeholders includes relevant organisations with direct responsibility for managing activities affecting the resources or with an interest in the primary or secondary stakeholders including government agencies, informal or community organisations (e.g. women's groups, religious organisations, local environment committees), universities and colleges, and non-government organisations. In Niue, this would apply to DAFF, Department of Education, Department of Tourism and Community Affairs, to overseas agencies such as the SPC or end-users such as restaurants. This level also includes the IWP Project Team and related organisations and donors.

In reviewing the results of the stakeholder analysis and the comments of participants in the meeting discussions, it important to highlight the following perspectives that villager's expressed.

- In general participants could easily grasp the rationale and methods of the activity.

- Many took on a very inclusive approach to addressing the issue, feeling that most stakeholders identified should be involved and had something to contribute to resolution of marine degradation issues.

- People who fish or *fishers* (at the fishing grounds, over the reef flats or along the reef edge) were given the highest ranking in relation to how much they were thought to be affected by declining resources or their ability to influence the problem.

- Although village members discussed differences in fishing practices and interests between men and women, they usually included both genders as fishers, and often did not differentiate their dependency on the problem or the extent that they could influence the issue. Women's groups, however, were named separately and referred to, when discussing the organised activities of community women's groups who are involved in collecting shell for handicraft, social functions and some marketing of fish.

- Several groups added community or families to their diagrams in addition to the fishers – perhaps indicating that families and households need to be considered in this larger context. It was emphasized by many that village families were affected by decline in everyday food supply and this also had impacts on income. It was indicated that in some instances family sellers of fish and related businesses may struggle or suffer as a consequence of fisheries decline.

- Youth, as commonly defined in the Pacific, is not age based but considered to include persons over 15 years until married and settled. Sub groups of youth mentioned were the Youth Council and Boys and Girls Brigade.

- The analysis provides insights into the views of the village members on the roles and responsibilities of village councils, Assemblymen and government departments in relation to the issue. The role of the village council was emphasized by most participants and was seen to be extremely important in influencing the situation of resource degradation. Participants consistently felt the village councils could greatly improve the situation by facilitating greater discussion with the people in the village about marine issues, developing and enforcing by-laws, organising village activities to address these problems, raise the issue with Government and lobby for more support with various government agencies.

- The Fisheries Department was also seen to be important in their role as 'collaborator' to the village and village council. Specific ways they were viewed as being able to have positive influence was assisting VC and village with marine conservation plans and by-laws,

undertaking monitoring and needed research on the status of reef resources, providing information and awareness programmes and developing or encourage appropriate methods and raise fisheries issues with Government.

- Other government departments who were viewed as influential were Department of Education, Department of Tourism and Community Affairs. Participants felt that these departments had a very influential role in educating and raising awareness amongst children, visitors and community members about sustainable harvesting practices, appropriate conservation measures, culture, and explaining how marine ecosystems worked. It was often expressed that education was seen to be pivotal to changing attitudes and practices.

- Although not mentioned by all villages, Assembly men were identified by many groups and felt to have a significant role in ensuring sustainable coastal fisheries was central to policy-making and national development. Many suggested that improved management of the marine area and ensuring the availability of marine resources should be a priority of government. Degradation of the resource could lead to diminished quality of life for families and further lead to people leaving overseas.

- Responses to the roles of churches were mixed. The combined response was a medium ranking but this does not accurately convey village feelings, which were more polarised as either low or high. This may be due to levels of effectiveness or the varied roles of the church in the different villages.

- It is important to consider the stakeholder groups that were not mentioned at all or by many participants, or given low scores in the extent they are affected. This includes for example, ethnic groups, 'poachers' or families overseas, all of which who may have a significant impact on the local decline of resources. A main concern of two neighbouring villages was the clash of differences in fishing practices; with declines of fish being blamed on the non-traditional practices of the ethnic group. Although most villages said that 'poaching' was a main reason for overharvesting, few listed poachers as stakeholders. Similarly in the problem analysis, several villages cited the sending of food overseas as placing a significant demand on the resource, yet only in two instances were overseas families listed as stakeholders. This may reflect that many island residents questioned the status of these overseas families as stakeholders now that they are no longer living on Niue.

One village only mentioned tourists or visitors as being affected by degradation of coastal and even that was not seen as significant. This is an interesting result, compared to the ranking received by the Tourism Office.

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Table 4. 3. ***Identified Stakeholder Groups and Ranking in Village Meetings.***

Stakeholder Group[9]	**Level Affected** [10]	**Reasons Given On How Stakeholders Are Affected**	**Level Of Influence** [11]	**Reasons Given For Level Of Influence**
Community Level				
Fisherfolk (N= 10)	High (4.8)	• Reliance on harvesting for to meet food and income needs • Livelihood support • Maintain traditional practices and traditional knowledge • If fish scarce and affects their lifestyle Need to spend money on other food resources	High (5.0)	• As harvesters by the fishing practices they use and their attitudes can make a difference. • By supporting VC and DAFF • Prepare to provide voluntary labour • Level of demand can influence changes if the will is there to act by everyone.
Women's Group (N= 10)	High (4.6)	• As harvesters - shortage of shell affected livelihoods • Depend on resource for handicraft and generating income e.g. sell *alili* • Making gifts • Affects food supply	High (4.7)	• As harvesters – methods and practices used • Groups prepares to support VC efforts in addressing problems
Families (N= 3)	High (4.1)	• Everyday food supply • Income from tourism and fish sales • Coastal land ownership heritage • Claims to marine areas	High (5.0)	• Have the power to stop or ban harvesting • Claims to marine areas
Youth (N= 10)	High (4.3)	• Harvesters – source of food and involvement helping family • Depend on resources to sustain future generations • Sea and values towards part of Niue's lifestyle to pass on • Need to be educated in tradition • Income is now spent on other food source to supply youth activities	High (4.3)	• As harvesters– methods and practices used • Through Youth Council Initiatives and recreational activities • Their actions of today will determine impacts and approaches to marine resources in the immediate to long-term • Through education and understanding (capacity building of this sector to reduce trends)

[9] N refers to the number of villages (of the ten villages) that identified this stakeholder group for marine resource decline and degradation.
[10] This column indicates the level that the stakeholder group was affected by the problem of marine resource decline and degradation. Levels are comparative ranking between identified stakeholder groups. Ranking was on a scale from 1 to 5, with 1 as least affected to 5 highly affected. The average score for all the villages is in brackets. For example in the first row, the sum of scores for ten villages was 48; this was then divided by 10 to come up with the mean of 4.8, a high score.
[11] This column indicates the level that the stakeholder group was seen to be able to influence or address the problem of marine resource decline and degradation. Levels are comparative ranking between identified stakeholder groups. Ranking was on a scale from 1 to 5, with 1 as having least influence t to 5 with a high level of influence. The average score for all the villages is in brackets.

				• Little understanding of traditional harvesting • Are prepared to support the village in addressing the problem

Table 4. 3 ***Identified Stakeholder Groups and Ranking in Village Meetings*** **(continued)**

Stakeholder Group	Level Affected	Reasons Given On How Stakeholders Are Affected	Level Of Influence	Reasons Given For Level Of Influence
Village Council (N=10)	High (4.8)	● Responsible for community well-being ● Responsibility to inform village members ● Responsible for enforcing by-laws and village regulations ● Responsible for village affairs and village development ● Continued unsustainable practices have impacted on present position ● With few fish it is affecting social activities in village (i.e. show days) ● Only affected when problem severe	High (4.9)	● Recognised body of village affairs ● VC has authority to enforce local regulations ● Key role as Village organisers ● VC has authority to raise the problem to authorities egg DAFF and govt for action (e.g. so they can assist examination of solutions and create by-laws ● Responsible for well-being of the community can influence or enable actions where appropriate ● Can prepare funding proposals to support community actions
Churches (N=7)	Medium (3.5)	● Require harvesting where food is provided for donations, church functions and charity ● Is affected by community well being.	Medium (3.2)	● Encourages spirit of giving ● Church role to encourage community to consider economic and social impacts ● Has influential role in small community to highlight problems ● Has influence on parishioners attitudes and traditions ● Can be important in driving change or reinforcing attitudes ● Has a more reserved approach
Fish Sellers (Outlets or markets)(N=4)	High (4.0)	● Business depend on fish ● Marine resources provide extra income ● Provides business opportunities & market	High (4.5)	● Marketing demand exceeds supply
Elderly (N=3)	Medium (3.8)	● Reliance on traditional diet ● Have knowledge of customary practices ● Traditional leadership role and respect to elders and their experience could be influenced by changes in fishing habits	Medium (3.8)	● As respected members of the village they can lead to enabling change in fishing habits ● Influence is respected by community and could direct consultations
Restaurants (N=1)	Medium (3.0)	● Must provide customers food ● High demand at certain periods of year	Medium (3.0)	● Money makers
Children (N=2)	High (4.0)	● Dependent on food, the education of the marine environment ● Need marine experience	Medium (3.0)	● Future influence through education

Table 4. 3. ***Identified Stakeholder Groups and Ranking in Village Meetings*** **(continued)**

Stakeholder Group	Level Affected	Reasons Given On How Stakeholders Are Affected	Level Of Influence	Reasons Given For Level Of Influence
Ethnic groups (N=2)	Low (1.0)	● Conflict over fishing practices and lack respect for traditional Niuen values ● Demand of delicacy marine resources	Medium (3.0)	● With education these groups could foster better networking and relationships in the village
Overseas families (N=1)	Low (1.0)	● Niue marine resources adds to the variety of their food	Low (2.0)	● Change of their diet can influence resource pressures
Poachers (N=1)	High (4.0)	● Less income	High (5.0)	● Influence by level of greed and pressure they put on resources
NTC (N=1)	High (5.0)	● Responsible for approving pilot project	High (5.0)	● Responsible for organising pilot project
IWP (N=2)	High (5.0)	● Provide information on community concerns	High (5.0)	● Programmes ● Identify problems ● Influences decision makers ● Funding association
Divers (N=1)	High (4.0)	● Come to view reef	Medium (3.0)	● Not stated
Visitors (N=1)	Low (1.5)	● Sightseeing affected	Low (1.0)	● Refuse to come back
Niue Government				
Elected Members of Parliament (N=7)	High (4.1)	● Responsible for decision-making for community well-being ● All govt divisions responsible for long term planning ● Responsibility for controls of damage and assessment ● Policy makers responsible for supporting and assisting people ● Responsible to connect and support outside programs like IWP	High (4.1)	● As policymakers could influence change in reef management ● Can empower and influence priorities of departments and planning strategies towards better implementation and control measures ● As govt of the day accountability in reef resources could be reviewed

Table 4. 3. ***Identified Stakeholder Groups and Ranking in Village Meetings*** **(continued)**

Stakeholder Group	Level Affected	Reasons Given On How Stakeholders Are Affected	Level of Influence	Reasons Given For Level Of Influence
DAFF (N=10)	High (4.0)	● Responsible to provide information and educate people in community ● Responsible for carrying out resource surveys and fisheries ● To assess, review and provide marine reports well before issues arise and data for evaluation of resources ● Responsible for distributing reports of marine or reef resources to communities ● Only affected when problem severe ● Can help introduce new methods for harvesting or fishing ● Supposed to provide management advice on fish products ● Do fish stocking when needed	High (4.5)	● Collaborator with community ● Assist VC and village with marine conservation plans ● Assist VC to find solutions and by-laws ● Carry out awareness programmes ● Develop appropriate fishing methods ● Through programme and management dept ● Can implement co-ordinated approaches for government to support constructive research & monitoring and capacity building ● Can raise the issue as high priority to government and encourage them to provide funds ● Better marine management
Education Dept. (N=6)	High (4.2)	● Responsibilities to inform, educate & produce awareness programmes about marine resources ● Responsibilities to educate school children on culture, traditions and food	High (4.3)	● Educate new generations to look after marine resources
Tourism (N=5)	High (4.1)	● Responsible for tourist promotion ● Activities reliant on diving, snorkelling fishing charters reef walks which are dependent on quality of reef ● Development of reef sites and guide training	Medium (3.8)	● Better education of visitors to respect for local fishing grounds and fishing practices
Community Affairs (N=3)	Medium (3.3)	● Organise and supports village activities ● Responsible for information and education and support to environmental and community based approach	High (4.0)	● Govt dept who enforces village activities ● Can undertake public awareness programmes
Justice (N=2)	High (4.0)	● Provide tech assistance – for example village aerial photos and profiles ● Assist VC with fines and punishment for those breaking the law	High (4.2)	● Law making
Planning Department (N=1)	High (4.0)	● Responsibility to assist project planning	High (5.0)	● Assist village planning of projects

Table 4. 3. ***Identified Stakeholder Groups and Ranking in Village Meetings*** **(continued)**

Stakeholder Group	Level Affected	Reasons Given On How Stakeholders Are Affected	Level Of Influence	Reasons Given For Level Of Influence
Premiers department (N=1)	High (4.0)	● Decision-making responsibilities	High (5.0)	● Policy makers
Health (N=1)	High (4.0)	● Responsibilities to care of patients ● Encourage good food and health from natural foods	High (5.0)	● Medicine distribution ● Promotion of natural foods
MET Office (N=1)	High (4.0)	● Inform the public of weather conditions	High (5.0)	● Weather forecasts
Treasury (N=1)	High (4.0)	● Pays for village work	High (5.0)	● Approves finance
Police (N=1)	Medium (3.0)	● Control of village regulations and by-laws ● Only affected when problem severe	Medium (3.0)	● Law enforcement authority
Regional & International Organisations				
SPC (N=2)	High (4.0)	● Identifies relevant issues	High (5.0)	● Provides assistance programs
GEF (N=1)	High (4.0)	● Has environmental concerns	High (5.0)	● Funding assistance
SOPAC (N=1)	Low (2)	● No understanding of local peoples economy	High (5.0)	● Funding association
UNDP (N=1)	Low (2)	● No control of harvester's methods	High (5.0)	● Funding association
SPREP (N=2)	Low (2)	● No understanding of people's relationships with government project	High (5.0)	● Funding association
FAO (N=1)	High (4.0)	● Community diet and food programmes	High (5.0)	● Food analysers
WHO (N=1)	High (4.0)	● Overseas agent	High (5.0)	● Provides information on health issues and programmes

Table 4. 3. ***Identified Stakeholder Groups and Ranking in Village Meetings*** **(continued)**

Media				
Niue Star (N=2)	Low (2)	• Informs community of concerns	Medium (3.0)	• Publish and distribute information
Television (N=2)	Low (2)	• Informs community of concerns	Medium (3.0)	• Broadcast information
Community Newsletter (N=2)	Low (2)	• Informs community of concerns	Medium (3.0)	• Publish and distribute information

4.3 Participatory Problem Analysis

In the first round of village meetings participants were introduced to Participatory Problem Analysis (PPA) - a simplified and visual process of analysing the underlying causes of resource problems. The advantages of PPA are that it can break a large problem into interrelated small problems that assist people to examine appropriate actions to take to address an issue. The exercise begins with framing a priority resource concern as a problem and then moving outwards, sequentially asking the question "why?". This is repeated for each 'cause' listed and in this way allows village participants to put forward their views on what the contributing and underlying causes are to their concerns. Example of this logic are shown in Appendix 7.

The importance of problem analysis in designing a project was discussed in the village meetings. It was mentioned that community or government projects are often not effective as they could be due to inadequate attention to ensuring that the planned activities are focusing on the real and underlying causes of community problems.

It was explained that a problem tree can be used to identify and examine differences in community views about an issue. In doing the PPA activity participants are encouraged not to judge ideas or perspectives of others because they may not seem to be correct or true. The completed problem tree should capture everyone's perceptions of the problems and causes. In this way the PPA captures the varied opinions of the community and facilitates discussion amongst stakeholders on issues and differences in these opinions.

Additionally as stakeholders carry out a problem analysis they often recognise or state that they do not know the relative significance of the underlying causes to a central problem. In this way the PPA is useful in providing a framework for shared investigation; helping the community and other stakeholders to identify information needs and assess if community perceptions and opinions have a factual basis.

After the steps of a PPA were explained and participants taken through a hypothetical example, they were divided into small groups and asked to work on a priority issue using these methods. Results of this activity for each small group were displayed and discussed with the rest of the participants.

At the conclusion of the first round of village meetings across the island, the results for the participatory problem analysis from the villages were compiled and analysed. This formed the basis of a composite Niue Problem Tree (NPT). This NPT was presented back to villages in the Village Feedback Meetings of the second round where village members reviewed it. At this stage village members had an opportunity to add or modify it.

The composite NPT is presented in Appendix 7. In examining the NPT it is important to remember that the NPT:

- was put together by the Niue IWP staff, trainer and facilitators based on the PPAs developed from all 14 villages and the range of concerns of marine resources identified in the brainstorming activities and other community profiling activities (listed previously in Table 4.2);
- it combines the range of issues and underlying causes that were identified by community members and reflects detailed discussion with these meetings;
- it was presented as an early draft and revised further based on the community's comments;
- it contains community views and perceptions of the problems – not always the facts; and
- at this stage it does not show yet what are the **most** significant causes to the problems but does indicate the breadth of community concerns.

4.3.1 Important Results of the PPA

The NPT composed for the declining availability of marine resources (Appendix 7) combines the village concerns for declines of specific fish and reef species (for example *alili, nue*, *ugako* etc, as listed in Table 4.2) and links these to various community views of underlying causes. This NPT is presented in Figure 1 of

Appendix 7, along with the NPT for other concerns such as coastal pollution (Appendix 7 Figure 2) and contamination of groundwater supplies (Appendix 7 : Fig 2).

In this section the problem and solution trees are not described in great detail. It is assumed the problem and solution trees presented in the Appendices are fairly self-explanatory and will be clear to the reader if the logic of each activity is followed. Instead some of the key points from these problem and solution trees that came up in meeting discussion are highlighted.

4.3.2 Decline in resource availability

In looking at Appendix 7 Figure 1. the five broad causes that village participants suggested lead to declining availability of marine resources are:

- unsustainable harvesting of marine resources;
- habitat degradation;
- lack of management activities or practices to assist resource recovery;
- change in fish patterns so that fish are no longer easily available in some inshore areas; and
- natural events - increased predation from other species.

In the problem trees in Appendix 7 (Figures 1.1 to 1.5) each of these contributing factors are explored further. Unsustainable harvesting and habitat degradation were most frequently cited as the most significant reasons for fish or reef species decline.

Unsustainable harvesting was seen to be an activity resulting mostly from the actions of local island residents and not attributed to outside fisheries fleets or very marginally to overseas visitors.

Unsustainable harvesting was described in six problem streams. These are each outlined below. The first three factors were seen to be significant causes and areas that many felt should be addressed with actions aimed to improving marine management.

Ineffective village-level management arrangements

The frequent focus on the ineffectiveness of local management reflected village recognition and support of customary marine areas and the traditional village or family responsibilities to manage these areas. Ineffectiveness was attributed most commonly to issues tied to the degeneration of customary practices and knowledge that were traditionally used to maintain a reef or fishing area and lack of any other management system (local or otherwise) to fill this gap. Lack of programmes that documented traditional knowledge and shared this knowledge with younger generations was seen as instrumental to this breakdown.

Many felt that these traditional systems needed to be strengthened, and often expressed dissatisfaction that the local laws were not sanctioned by village council by-laws or other means so they could be better enforced[12] To counter the problem of eroding traditional culture required addressing what some described as a passive attitude amongst many, that was allowing Niuen culture to slip away. Greater education of traditional knowledge would require addressing issues such as identifying and supporting 'traditional trainers' (for example elders), documentation of knowledge and other creative programmes which actively involved the youth and elders alike. Some also suggested that family members living overseas should also be included in such programmes.

Local participants commonly expressed the view that in many cases the village council did not share the concern over the resource base and the need to strengthen local management, and this was not being communicated to government. This was often said to be due to ineffective village councils struggling with low capacity. In some situations where village councils had been more vocal, they felt that government members were not responsive and had other interests. With either reason, most agreed that these issues were not a priority of the government due to competing government concerns such as national economic issues and problems brought on by a declining population.

[12] Legislation allowing for the establishment of village by-laws for management of marine resources does exist and has been used by one village but for only one species. Some complained that establishing such village by-laws is a very lengthy and cumbersome process which many village councillors are not familiar with.

Many participants stated that a major factor contributing to the lack of action taken by the village councils and government was that the lack of available information on the current status of fish or reef resources. The need for regular island-wide resource monitoring, more research on the contributing causes of resource decline and programmes measuring the impacts of certain practices was emphasized by most villages.

Local people generally unaware of the impacts of their harvesting practices on the resource
Inadequate awareness due to lack of effective user education was repeatedly expressed as a reason for people over-harvesting or using practices with detrimental environmental impact. Again it was felt that the need to act was not being pushed by village councils or at government levels and this was due, in part, to the lack of available information on the current status of fish or reef resources by DAFF.

Low levels of awareness in areas such as ineffective of management, illegitimate use of others' customary fishing areas and destructive fishing practices, etc., repeatedly cited as contributing directly to other stated causes of resource over-harvest and habitat degradation.

Persons from other villages using reef areas considered to be within the customary domain of another village or family (and not following the local rules and practices that the latter group has put in place)
Repeatedly participants complained about the use (and consequently over-harvest) of village marine resources by persons from outside the village or 'poachers'. The use of local reef areas by 'outsiders' without permission was not accepted or seen as legitimate by local residents. In the development of this problem tree participants were encourage to think more broadly about the wider and deeper reasons for this situation – rather than just expressing anger that people are 'being disrespectful' or 'greedy'. As a result they cited that contributing to this situation was:

- resources not available in their (the poachers) own customary areas;
- DAFF encouraged 'open' use of marine areas;
- lack of respect of customary laws due to erosion of traditional culture; and
- 'outsiders' do not know what the customary laws are.

Some described the situation of 'poaching' being due to something akin to a 'domino effect'; where some reef areas adjacent highly populated villages are being over-harvested and degraded, which then motivates some of these residents to go and harvest other areas outside of their customary areas and in turn causing these areas to be over-harvested. In some instances people said they felt this progression was made worse due to commercial interests (selling at the local markets) not just collecting for immediate family use.

Under the current constitution and legislative arrangements all marine areas under the high water mark are held by the State. DAFF works within that mandate and has suggested the wider use of reef areas, particularly to those persons or groups in areas where poor weather limits accessibility of local areas. From meeting discussions it was clear that many in the community do not acknowledge this situation as legitimate.

The problems of outsider over-harvesting was viewed as consequence of the wider problem of erosion of cultural knowledge and practices and the various contributing factors to this described earlier. Increased intermarrying of people across the island was also mentioned by a few as adding to the confusion of who was or was not a legitimate user of particular reef areas. Lack of clarity and disagreement existed in some areas relating to the customary rights of persons marrying into new villages and the rights of their relatives. Again this was compounded by changes in traditional culture and lifestyle.

Finally it was believed that in some cases, 'outsiders' were simply not aware of what laws existed in a particular area, due to no communication and lack of dialogue between villages, families or generally across the island. Island-wide discussion of customary practices used in different locations and a

community information programme or village posting of laws was suggested by some as possible actions to address this.

High rates of family harvest due to demands for subsistence and some income generation
Causes of over-harvesting were not just due directly to harvesting practices or management of catch but the demands which lead to over-harvesting. Sources of demand cited were to:

- meet local family subsistence needs;
- generate additional income (mainly market sales);
- provide food for families and friends overseas; and
- provide for other social obligations such as church and other community functions.

It was emphasized by most persons that local residences were reliant on marine resources for food due to generally low income levels, lack of employment opportunities and the high cost of imported foods. A certain but unknown amount of additional income was being generated from the domestic sale of fisheries produce in the markets and to local restaurants. There is no quantitative information on this and people were unsure generally how much this contributed to over-harvesting.

Similarly obligations to provide food parcels by families and friends overseas were viewed as a factor contributing to local harvesting effort. How much extra fishing or reef collecting resulted from the need to meet overseas family demands or the amount actually sent overseas was unknown. Several participants considered there was a significant amount of marine resources given improved air links to New Zealand and the large Niuen population abroad.

Overly concentrated use of some reef areas
Intensive and concentrated use of some reef areas was a problem for villages on both the east and west coast of the island. In the west coast where access to reef and fishing sites is generally easier, some of the villages (i.e. Alofi North and Alofi South) have high populations using most of the available and close reef area. In other eastern sites access to the reef is often limited and use is concentrated at places where sea tracks are present or better developed. At other areas along the south and eastern sides there seems to be a combination of landscape and population factors concentrating use; large villages such as Hakupu and Mutalau with limited access tracks to the sea, and relatively narrow and small areas of available reef flat. In some instances it was put forward that the tradition of using own customary areas and not having access rights elsewhere contributed to this concentration of use.

Visitors taking reef resources
Although mentioned by a few villages there was concern by some that some visitors (tourists) were taking reef resources that contributed to its decline in these areas. Most felt that this was due to poor education and that the government tourism office, private sector and village councils who promote tourism are not providing adequate information to these visitors.

4.3.3 Habitat Degradation
Major reasons for habitat degradation that were impacting on availability of fisheries resources are described below.

Highly concentrated use of some reef areas
The reasons cited for the high concentration of reef use are the same as discussed earlier for this factor contributing to over-harvesting.

Uncontrolled siltation and makatea run off from storm water or sea tracks
Siltation of reef flats was frequently seen to be major problem and cause of reef degradation, resulting from the lack of adequate storm water drainage systems. Insufficient government planning (Public Works) and inattention to environmental impacts due to inadequate government education, communication, data and funding were viewed as contributing to this situation.

Use of destructive practices (such as hammers, axes and crowbars) in harvesting – This refers to the practices commonly used by women to harvest invertebrates on the reef flats. It was generally recognised that the breaking of coral occurred widely as no local management laws existed to limit it and most women were unaware of the cumulative impacts of the practice on reef habitat. Again any education programmes or materials that explained the relationship of the practice to declining reef resources were lacking. Others mentioned that there was no known alternative non-destructive method for harvesting some of these specific reef species. Insufficient research on Niue reef habitats, their status and the impacts of local practices was cited as a critical underlying and contributing factor.

Use of explosives in development works

Reference here is made to the pollution and physical impacts of explosives on the coral in development of the wharf and landings adjacent reef areas. Problems with poor planning, inadequate management and supervision by the Department of Public Works, and most importantly, the discretionary requirements for an impact assessment and lack of government concern about environmental well-being were seen as the reasons for this.

Impacts of climate change

Many individuals stated that the reef flat 'had changed'; often citing that reefs appeared more exposed for longer periods during times of calm seas in recent years. Few mentioned the impact of past cyclones contributing to reef degradation. Some stated that past damage to reefs from cyclones was not an issue; that reefs had recovered quickly in most areas. The common reason presented for the changed reef situation and greater drying, was that it was due to climate change events associated with global warming.

Lack of programmes to protect habitat

A few individuals believed that there were no village activities that protected the reef as had been done in the past (e.g. caring for fishing pools). When questioned they also said there were few if any marine reserves in place. The lack of action at both government and village level, was attributed to lack of data in putting the case before people for the need for reserves. One person said that the marine reserves were being introduced because of their role in attracting tourists and had not necessarily been linked to protecting habitat sites that village people actually use and that they were concerned about.

Impacts of coastal pollution

A full problem tree for coastal pollution is presented in Appendix 7 Figure 2. Major sources of pollution were;

- untreated waste or leaking effluent from household septic systems;
- waste pollution - littering, domestic rubbish and dead animals;
- contamination from toxic chemicals.

Meeting details of the underlying causes of coastal pollution (and contamination of groundwater) are not discussed in detail here. In general it was a common opinion that pollution issues were an area where greater and more direct government action was needed – particularly in the enforcement of existing regulations, more environmental impact assessment in planning village and infrastructure development, stricter limitations on the importation and use of agricultural chemicals and changing government policy priorities to reflect community concern over protection of water resources.

Finally the last three causes contributing to declining availability of marine resources are outlined below.

Lack of management activities or practices to assist resource recovery

Some participants felt that dwindling resources was not just the result of current harvesting but also due to past over-harvesting when the population was much greater. In this instance it was suggested that the fisheries was suffering from continued use and not having any measures taken to repair or allow the habitat to recover. The reasons for lack of action were again linked to the breakdown in customary practices, which encouraged care of fish pools, feeding of fish, and other measures restricting harvesting. Many felt that as part of ineffective management the village council could have put in place closures on some reef areas to provide time for the reef to recover. It was also suggested to introduce new fish or shellfish stocks in some areas.

Changes in fish patterns so that they are no longer available in inshore areas

The changes in fish patterns were attributed to the FADs, which pulled seasonal, and some pelagic species from coming closer to the reef edge. Several persons questioned why FADs were installed and why they were not tested first to see if they were inappropriate to local fishing practices. Although many expressed dissatisfaction with the devices, no one suggested their removal.

Increased predation (from birds, octopus, uguaga, etc)

Many older persons commented on changes of predation of shellfish and some fish by birds or other marine species. It was difficult to understand exactly the nature of the change or what they felt was causing it. Some mentioned the low tides and changes in the reef flat, but many said they were unsure of the cause.

4.3.4 Community Feedback on the Niue Problem Tree

For local people creating a 'problem tree' can be very empowering, as it enables them to see the linkages between problems at a specific site (for example, a particular reef area or a source of pollution), to the practices and attitudes of various stakeholders, user education, village level management or underlying policies and programmes of government. In so doing, for many it confirms that government needs to listen to the concerns of local village members and that solutions will only be found when the stakeholders such as communities, government and NGOs work together closely to address these concerns.

Participants were asked to provide comments on the value of the PPA. These are summarised below:

- Most villages said that they felt the NPT accurately captured their views and concerns.
- For some participants it helped them to see other issues, points of views and different concerns that they had not considered.
- Many also commented that the strength of this compilation was that it indicated 'common ground' and shared problems between villages. Similarly many expressed the feeling that they had learned a lot about other villages in this process. Some said they were surprised to see that villages on the eastern side of the island were also concerned about depletion of marine resource, as they had thought this only occurred on the western side.
- In many instances the PPA demonstrated how well informed or aware village members are of fisheries issues, and coastal and groundwater pollution.
- Overall the PPA was thought to encourage participants and generated enthusiasm for a pilot project.
- Some of those participants who considered it to be highly useful, recommended that PPA be applied other topics and issues and used by other organisations.
- Several village members stated that it was a useful tool, but were disappointed by the insufficient time they were given to review it – considering the NPT was so broad in scope. They felt more time was needed to sufficiently add more 'whys'. One village said that they wanted to continue to develop their problem tree on their own, as an aid to the village council.
- One village noted that it "showed us how many issues the government has not addressed." Yet at the same time it has created greater understanding of the difficult situation of government due to its lack of resources as a result of the analysis.
- Several participants commented that it enables the community to make an assessment of the problems in the coastal zone and work out some solutions.
- Some participants repeated the caution giving in using this method - that it may contain many assumptions in the causes of problems, and these needs to be investigated more thoroughly.

4.4 Possible Activities for Addressing Priority Concerns Suggested by Participants

In the village feedback meetings community members were shown how the problem tree could be used in identifying actions to effectively address an issue and as an aid in project planning. Working in small groups they were asked to select a small subset of the NPT to focus on and asked to change the problem, and each of the contributing causes, from a 'problem' and negative situation to a positive situation. For example, if one contributing cause was ' Low awareness of the community about impacts of…' the positive situation was seen to be 'Community understand the impact of …'. In this way the NPT is modified and changed into a Solutions Tree. In turn this tree can be further developed and provide with a project framework to assist outlining project goals, objectives, specific outputs and detailed activities to be undertaken.

At this stage of the selection of the pilot project, the exercise was introduced so that participants understood how the problem tree may be useful in identifying actions for assessment. Later those communities involved directly in the pilot project may further use this planning tool to design pilot activities. A comprehensive Solutions Tree to counter the NPT was not developed with villages. Instead village participants worked on pieces of the problem tree, which were of interest to them. In addition to the Solutions Tree other possible actions to address coastal fisheries concerns were identified in discussions during the participatory small group activities, such as reef transects and mapping.

Some of the solutions to the problems that were most commonly cited are listed below.

Village level solutions to declining marine resources focused on local actions to limit further damage to resources or habitat and undertaking conservation measures for recovery of marine resources. Over half the villages suggested the following possible actions:

- The village to place 'closures' on overharvested reef areas to repopulate marine resources. (Suggestions were for a two to four year period or 'as long as required for resources to recover').
- Collect, document and share information on customary practices that improve harvesting and conservation practices.
- Put in place local systems to regulate harvest and the types of practices being used. A number of options were recommended, such as reinstating Fono system or village by-laws; indicating a need to investigate the most appropriate mechanism. Placing specific restrictions on spearfishing, netting and nightdiving were mentioned, as well as seasonal restrictions on some fish species.
- Strengthen the capacity of the village council to better work with the community to manage marine resources and reef areas.
- Undertaking programmes that encourage respect for traditional and family fishing grounds and local fishing rules.
- Establish or strengthen community reserves at Ana Chasm, Matapa Chasm, Talava Arches and Toi Reef (Vao Mutua at Mahihi).

Other suggestions for local actions mentioned by a several villages were:

- transplanting reef resources and establish breeding and restocking programme for some species;
- encourage people to leave undersize fish;
- provide protection of canoes from boats;
- reinstate Ava Ika practices with village council enforcement.

The following main actions were recommended for government to take in support of improved community management:

- Make sustainable resource management a priority and provide resources that will support it.
- Increase village council capacity so that it can have a more effective role in assisting community management.
- Undertake monitoring and research on the status of marine resources (this was strongly endorsed by nine villages). There were specific requests for research on the causes of depletion of marine resources and habitat degradation. Alofi North and Alofi South both requested more government research on the causes of fish poisoning.
- Assist development of effective community awareness and education programmes on the sustainable use and management of marine resources (incorporating traditional knowledge and practices).
- Apply restrictions on traditional food exports and undertake a conservation awareness campaign to Niuen family overseas.
- Require the assessment of possible environmental impacts before construction of works around coastal landings or sea tracks.
- Develop systems to manage stormwater run-off and limits the siltation of reef areas.
- Improve government planning of infrastructure development affecting the coastal area.

4.4.1 Community Feedback on using a Solutions Tree

Observation of village participants showed them to be actively engaged in development of the solutions tree and that it generated a great deal of information and debate. At the end of the activity participants were asked to provide comments on the value of the solutions tree tool in helping them identify actions to address problems in coastal fisheries management. These are summarised below:

- Four villages mentioned that the solutions tree enabled identification of activities to cater for problems and with one saying that it was very easy in finding solutions to use.
- Two villages said that the process gave direct involvement and ownership to the community, and therefore more commitment from stakeholders.
- One village commented that it was good to know how to overcome some of the problems – e.g. control issues to be followed up VC by-laws as an enforcement tool.
- One village said that it was not easy prioritising problems – unless some sort of research results is available, it will not be easy to make an assessment and adjust accordingly.
- Different problems require different control measures.
- That problems that are supported by solutions is good the community is now aware that control of harvesting is one way . Need further research.
- Identifying the village in the NPT and then adding more before the solutions tree was educational.
- Solutions could be technically difficult to pursue but a logical process from the analysis has been identified for examining options.
- Three villages said that the solutions tree was useful but that it was too quick - too much work with too little time allowed and there was much to be done on the this.
- People or special committee should be set up to prioritise.
- We need a Niuen translation.

5 Findings of the Village Consultations

The IWP public participation activities undertaken with Niue villages encouraged and assisted a holistic approach to the analysis of the island's environmental issues. A wide range of problems, causes and underlying attitudes critical for consideration in addressing community and national concerns were identified. Many of the issues raised have been identified in earlier civil society consultations, but with the use of PPA methods there was more understanding of village views on the relationship of these issues to each other; identifying which concerns were considered more symptomatic or which were more contributing to the central problem.

A number of government officers, assemblymen, NGO representatives, village council members and some of the NTC participated in the community meetings where they were resident in addition to the local citizens who attended. This diversity of viewpoints added to the breadth of the analysis and the generation of varied opinion that will require further investigation and validation. Many questions were raised in the process of developing the problem trees and participants challenged each other about the 'facts' or 'data' available to support their reasoning, or asked each other about the various mandates, policies, roles and responsibilities of the government departments. In this way the problem analysis provides a useful vehicle for stakeholder discussion, exchange of views and shared investigation.

All 14 villages expressed a high level of concern about the declining availability of reef and fish resources. This view contradicts that expressed by some government officers in discussions with Butcher (cf Butcher 2002) that local persons were not generally aware of fisheries problems. The various contributing causes and opinions expressed by participants were inclusive of and considered:

- the effectiveness of management (encompassing consideration of customary, village and state levels);
- perceptions of resource rights and management responsibilities;
- levels of user education;
- practices of users (harvesting or resource protection);
- user demands for resources (due to subsistence, income generation and familial obligations); and
- impacts of population distribution and landscape factors.

In the statements of participants, underlying factors inevitably linked to wider issues of government policy, national and village level capacity, and critical social issues of cultural change and declining population.

This section presents and summarises important issues for consideration in guiding the overall direction of the IWP on Niue and suggests the direction of specific pilot activities. First there are a number of social, cultural and economic issues that are valuable to consider in planning IWP activities and these are outlined. These issues have been raised in recent socio-economic reports on Niue and were emphasised in discussions in village meetings. This is followed by a presentation of broad areas of activity identified in the consultations that can help provide the framework for community level pilot activities and IWP partnerships. Possible activities to be undertaken include those with government or other national level stakeholders, as well at those with the local community.

5.1 Important social, cultural and economic considerations in design of the IWP activities on Niue.

Decreasing population, a limited resource base and erosion of traditional culture are critical issues for Niue, significantly impacting on all aspects of a community's social and economic life, as well as the overall development of the nation. In combination, the consequences of these factors potentially threaten the provision of needed community services, family well-being, the cultural integrity of Niuens and could contribute indirectly to increased environmental problems in the future.

The consequences of these challenges need to be considered in the selection and design of the pilot activities.

5.1.1 Low population may severely limit the availability and capacity of village members to participate in the pilot project.

The IWP would like the design and implementation of pilot activities to be driven by the community. This needs to be balanced with the possibility of the limited number of persons available to undertake pilot activities and key issues of capacity. For example, in selecting activities the Niue IWP should consider:

- the availability of adequate numbers of community members to design and implement the pilot project at the selected site;
- the skills and capacity of community members to take on the different roles required;
- the ability of local villages to commit to a community-based pilot project activity if it requires an intensive amount of time.

As much as possible the participating villages and IWP should ensure that activities in designing and implementing the project are of the appropriate scale that they can be achieved without detrimental effects on other aspects of village life.

5.1.2 Partnerships established to implement the IWP on Niue and the long-term sustainability of pilot activities may be constrained due to capacity issues of the Government.

The government has been decreasing the size of its public service over the 1990s and has limited staff and financial resources. For example, there is only one principal fisheries officer and no persons solely tasked with monitoring or enforcement issues. This does impose limits on direct government support to communities in undertaking resource surveys, enforcement of fisheries regulations and providing community education after the project is finished.

In developing partnerships with government the IWP recognises constraints of many government officers to participate in pilot activities and still complete other required departmental activities. For this reason the focus of the pilot activities should be also seen to be integral to achieving DAFF's objectives as have been outlined in the Action Strategy. This applies similarly to Community Affairs who has a critical role in building village council capacities.

5.1.3 The need to build social capital, as a desired outcome of pilot activities should be emphasised.

It has been recommended that all new projects and programmes aiming to improve sustainable development on Niue should contribute to the building of social capital, that is, increasing collaboration, strengthening social relationships and contributing to the ability of all people on Niue to work together and support each other. This is vital, as increasing social capital and improving natural assets are critical to offset the uncertainty of low economic opportunities. Design activities should realistically assess and consider the potential for increased conflicts that may result from the pilot, ensure sufficient attention is given to addressing differences between user groups and establish effective grievance procedures. Ways of building social capital across the island should also be considered, for example identifying ways of sharing benefits

from the pilot project and reducing potential jealousies or rivalries from villages not involved directly in a site where pilot project activities are being carried out.

5.1.4 The reliance of local people on diverse livelihood strategies that combine employment and subsistence activities should be recognised.

A limited economic base, uncertain employment opportunities, and a relatively high cost of living poses financial challenges for many households. Many people speak of the need to maintain a number of jobs and multiple part-time sources of income to meet their living requirements. Continued access to reliable fish resources is said to be important in providing protein to their diet and some market income. Most people in the village meetings emphasized the need to protect the subsistence benefits derived from inshore resources as a priority in supporting village livelihoods.

5.1.5 Strengthening and protecting Niuen traditional culture.

People within Niue have expressed real concern about the maintenance of culture and customary knowledge on Niue (see Butler 2002 consultations with civil society). Niue's culture is perceived as being threatened by:

- an overall declining island population,
- gradually increasing influences of contemporary western culture on Niuen youth;
- lack of documentation and programmes that encourage sharing of cultural knowledge.

A further concern is the significant population of New Zealand born Niuens who may be losing understanding of Niue history and customary knowledge.

The loss and erosion of customary knowledge and practices related to use of coastal resources is viewed as a major contributing cause to the inability of villages and families to effectively manage their inshore areas.

5.1.6 Pilot activities need to engage youth is a high priority.

The large outmigration has given rise to an a typical population structure for Niue with a high dependency ratio. Concerns over the future of youth are widely expressed by Niuens. Youth are seen as important stakeholders in coastal fisheries issues. There was a significant amount of discussions within community meetings on the need to better engage youth in community responsibilities and in protection of marine resources. Teaching youth about customary practices related to the marine resources was seen as critical to this.

5.1.7 Design of pilot activities may need to consider the potential impact of large numbers of Niuens families overseas and their influence on local fisheries.

Overseas Niuens are consumers of family gifts of marine resources, and receivers of 'informal' sales of resources from local families. The increased harvesting pressure to provide for these families is unknown but thought by some to be significant – particularly for some village areas where there already exists a high level of resource pressure or severe decline in reef resources.

5.1.8 Design of pilot activities may need to consider the potential impacts of future successful settlement schemes.

The government is actively pursuing the resettlement of New Zealand born Niuens or attracting other Pacific Islanders to counter the island's population decline. It may be necessary to assess how the results of pilot activities may influence the compatibility of Niuens and other ethnic groups on the island in that context. For example reviewing the ability of local fisheries management regimes that are being supported in pilot activities to engage and incorporate the views and practices of new groups, handle conflicts of use rights, or improve understanding between users in terms of fishing practices.

Community environmental concerns and problem analysis
The results of the village consultations recommend that pilot activities should contribute to increasing local fisheries stocks through improved sustainable resource use and management. As indicated in the problem analysis, an over-arching theme and critical area of work is in strengthening local community involvement and effectiveness in marine management. This requires a range of local and government actions; many that IWP may consider for support.

Obviously there are real limits in the resources available to IWP, and the Programme may be constrained to support only one or a few of the possible actions identified below. As much as possible the IWP would like to build on existing actions and initiatives of local villages, NGOs and government and this may provide greater scope for contribution.

Priority areas identified in the participatory situation analysis that would contribute to improving sustainable use and management of inshore marine resource are described below. It is intended that some of these priority areas will guide the overall direction and broader objectives that communities, in partnership with IWP and government, will aim to contribute to when selecting specific village-level pilot activities.

Recognition of defacto customary marine tenure
Local community claim to 'management and use rights' of inshore areas is widely understood and practiced on Niue. Most people on Niue are aware of the boundaries of inshore fishing areas for each village, or know which fishing grounds are 'held' by specific families. Subsequently managing use of marine resources was consistently expressed as a responsibility of families, local villages and village councils. Participants in village meetings repeatedly referred to the underlying causes of resource decline as the breakdown of previous traditional systems and the lack of alternative effective management system replacing it. Wider government acknowledgement and policy support for local perceptions of customary rights may need to be reviewed by policymakers and this may be facilitated with IWP support.

Documentation, sharing and applying appropriate customary knowledge and practices
Village members expressed strong desire to document customary laws, knowledge and practices that contribute to the care of coastal resources and the marine environment and where these are appropriate to use them as a basis for managing local areas. Families in Hakupu, Lakepa, Hituavake and Liku have already initiated some documentation. Most villages requested programmes and activities that support this documentation as well as the sharing and training of these practices. These activities could also contribute to overall testing and learning about which practices are most effective, or provide alternatives to current destructive practices.

Improving collaborative management
Strengthening local management systems cannot be done in isolation from government but will require collaborative management approaches that integrate customary systems with management responsibilities and actions of DAFF and other departments. Protection of coastal fisheries will require balancing the needs of the state and an island–wide perspective on resource management with the strengths of local customary management. The government has an important role to play in coordinating island-wide management strategies, providing technical advice on harvesting practices and management options, working with other government departments to lessen habitat degradation from island pollution sources, and providing research support and monitoring.

One of the strengths of customary systems is the frequent emphasis on the group's responsibility to ensure resources are maintained and managed to meet the collective needs of the local reef managers and users. In many areas of the world where long held customary systems have been replaced by state responsibility for resource management this change and loss of community control has been shown to have a profound effect on local user attitudes and behaviour. Repeatedly in such cases, community responsibility and custodial roles are de-emphasised and replaced by more individualistic and competitive attitudes towards the use of resources; commonly resulting in detrimental impacts to the environment.

There are a number of ways DAFF can build on the strengths of customary systems and has already listed the need to link traditional fishing and management practices with modern management as a priority activity.

The Fisheries Department is also beginning to prepare a national inshore coastal management plan that provides an exciting opportunity for IWP pilot activities to contribute to the strengthening of collaborative management. Example of actions that IWP could support in partnership with Fisheries and with a community in pilot activities include:

- examining and testing methods to improve greater public involvement in national inshore fisheries decision-making through bottom-up planning processes;
- investigating ways to effectively devolve some management decision-making and responsibilities to local communities and village councils;
- working with community stakeholders to investigate effective management guidelines for making harvesting practices more sustainable;
- exploring institutional changes and capacity needs required to strengthen collaborative management both at government and village council level;
- supporting the documentation, sharing and testing of customary knowledge that can improve conservation or harvesting practices.

The specific resource focus for collaboration between government and the local communities for developing local guidelines or improving practice is suggested in the results. For example, many communities may want to establish restrictions on certain practices such as spearfishing, gill netting, night fishing, use of destructive harvesting methods, etc. Activities can also focus on the management of certain species of concern – for example women may choose *alili* or other shellfish and invertebrates or a all key species being harvested over a given reef area. The specific resource focus of a community should be determined as the initial steps of IWP pilot activities when participating communities reassess the composite NPT. The resource focus is almost irrelevant; what is most important is that the process and methods for strengthening local involvement in coastal management are emphasised and improved.

Island-wide dialogue for either of the above purposes may be facilitated with broader IWP programme activities and integrated into plans for sharing of pilot benefits with villages not directly related to the site as was discussed in the National Forum.

Building collaborative working relationships between stakeholders.
A critical requirement in achieving collaborative management is that different groups in and outside the community recognise and understand the legitimacy of other stakeholders with respect to resource declines. They should also understand and appreciate the varied roles of each of these stakeholder groups in addressing the problem. In general participants in the village meetings were very inclusive in thinking about stakeholders and their interest in the issues of marine resource decline. Most suggested that to effectively address underlying causes of fisheries depletion requires contribution from a range of stakeholders, including primary stakeholders such as fishers, youth, elders as well as the village council, various government departments and members of government. The role of each of these groups was felt to be critical if sustainable management of coastal fisheries was to be achieved.

It is important to consider the stakeholder groups that were not mentioned at all or by many village participants in the meeting activities, and not recognised as being affected greatly by depletion of resources.

Stakeholder groups frequently excluded were ethnic groups, 'poachers', families overseas, and tourists. The first three were all mentioned by villages as having a potentially significant impact on the local decline of resources. For example:

- *Village differences* - a main concern of three neighbouring villages was the clash of differences in fishing practices; with declines of fish being blamed on the different fishing practices of one village.

- *Poachers* – most villages said that 'poaching' was a main reason for overharvesting yet few persons listed poachers as stakeholders.

- *Overseas families* - several villages cited the demands to send food overseas as placing a significant demand on the resource, yet only in two instances were overseas families listed

as stakeholders. This may reflect that many island residents questioned the status of these overseas families as stakeholders now that they are no longer living on Niue.

- *Visitors* - one village only mentioned tourists or visitors, as being affected by degradation of coastal resources. This is an interesting result, compared to the relatively high ranking given to the Tourism Office as a stakeholder, and the interest in establishing smaller area MPA around sites of particular interest to tourists.

Inshore marine areas are a 'livelihood source' for all Niuens. As there are real limits in size, quality and accessibility, any one site cannot just accrue benefits to just one 'owner'. For this reason there is a need to focus on the relationships between a numbers of stakeholders directly dependent on access to these areas. It was fairly clear from village discussion with the problem analysis that to improve communities, livelihoods and access to resources, relations among some of these stakeholders need to change. Mechanisms to build communication and management agreements between villages and across the island are essential and need to be undertaken.

An important part of the above is establishing island-wide dialogue on coastal fisheries issues. There is a clear need for more discussion that builds understanding of the multiple perspectives and interests of different villages and stakeholders. Many village members expressed surprise at how their concerns about depleted stocks were shared by other villages. In particular many villages on the western side of the island expressed great interest in the depletion of reef resources on the eastern side, which they had thought to be plentiful. Developing mutual understanding and common interests is also essential to encouraging an island-wide strategy towards coastal fisheries management.

Island-wide discussion is also vital to bringing local level concerns to the attention of national government. Many community members stated a strong need to bring the collective concerns to the attention of government so that there was greater support to village councils to address these issues. An underlying concern frequently repeated, was that support for resource management was not a priority of government due to other economic priorities.

Finally in relation to distant stakeholders, activities that investigate the potential effects of the demand incurred by overseas families might need to be considered. Depending on the impact of these practices, education of these families on existing resource pressures on Niue might be required to lessen the demand. As suggested by one village, education of New Zealand Niuens on resource concerns and their role in supporting island residents to protect these resources may be a useful activity to be supported by the New Zealand government in the future.

Monitoring the status and quality of marine resources.

The lack of current island-wide data on fish and reef stocks makes assessment of the extent and distribution of harvesting impacts difficult. This lack of information hampers both DAFF and village communities in taking actions to manage marine resources, or take actions to help reef recovery. In recent years there has been an inability to monitor inshore resources due to limited government resources. Many village residents requested updated inventories of their marine stocks, development of monitoring programmes and more research into the different causes of resource decline.

The information from reef monitoring was seen as vital to ensuring government policy support, mobilising the village council and encouraging community responsibility for local reef areas. Establishment of a monitoring programme should involve the local community. This could help to ensure that the concerns of local residents and the species commonly used and valued as food resources are being assessed. IWP activities could examine how it can contribute to meeting the needs of monitoring and assessment, either in the short-term through direct resource support, or in the longer- term, working with DAFF to train community members to take on some roles of inshore monitoring. Baseline assessment activities could also help the relative significance of underlying causes to depletion of marine resources.

Developing effective user education programmes
All villages cited the need for more education on how to improve use and management marine resources. Specific interests included information on least destructive harvesting practices, functioning of marine ecosystems and traditional knowledge. This interest is in keeping with IWP intentions of working with DAFF, Community Affairs and other groups to undertake community education supporting pilot activities.

Assisting the recovery of marine resources
Most villages discussed the need to take local action to help marine resources recover. This was seen as additional to limiting the use of destructive harvesting practices or overharvesting; providing a set time or other inputs to assist resource populations to recover.

Most frequent recommendations included putting in place closures over a reef area or fishing ground for a two to four years period or until the reef improves. The closures discussed were not formal government sanctioned protected areas but those locally controlled and flexible. Establishing such management actions may be a IWP pilot activity considered by a community as part of improving local fish or reef populations.

Some villages mentioned more permanent sanctions, such as a MPA as an option. These were usually suggested for areas frequented by tourists and seen as an action that would possibly attract tourists. MPAs did not seem to be recommended by villagers for areas regularly used by local people and as a solution to improving reef site populations for local harvest. This seems to follow the example for Makefu Anono MPA that does not include significant reef flats or local harvesting areas. A few villages also suggested re-stocking of some specific species.

5.2 Next Steps

This report presents the objectives, activities, methods and outcomes from the village consultation meetings. The report indicates a range of important areas in which the IWP may contribute and that will lead to improving sustainable use and management of coastal fisheries on Niue. These findings assist to set the overall direction and broader objectives that communities, in partnership with IWP and government, will aim to contribute to with specific village activities. Individual village(s) within the selected site will decide the community activities that are undertaken as part of the pilot.

The NTC will select the site for pilot activities. Selection of the site for community pilot activities will consider and include:

- recognition of the concerns and interests of Niue communities as presented in the village consultations;
- assessment of criteria for selection of participating communities;
- community and government feedback from the Forum; and
- an analysis of strengths, weaknesses, threats and opportunities of different site options.

After selection of the site, Niue IWP staff will work with the village(s) to establish a village-based management committee or working group that will determine and drive pilot activities within the village. As part of the design process, village members will review the finding of the consultations, the results of their previous meetings and activities, and the composite NPT. They will be encouraged to investigate, validate and further develop parts of the problem tree that reflect their specific interests, which can then be used to decide on pilot activities.

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Appendix 1

Structure Of International Waters Programme

The Project Coordination Unit (PCU) based at SPREP is responsible for overall administration of the Programme, and manages the coastal component, while the Secretariat of the Pacific Community and the Forum Fisheries Agency administer the oceanic component. The PCU supports six staff: Programme Manager; Community Assessment and Participation Specialist; Community Communications Specialist; Natural Resource Economist; Project Accountant and a Project Secretary.

For the coastal component, the IWP will support a National Coordinator, and in some cases an Assistant National Coordinator, in each of the participating countries who will be responsible for the day-to-day management of pilot project activities. In addition, each country will establish a multi-sectoral National Task Force (NTF) to oversee implementation of the IWP as well as Local Project Coordinating Committees for each of the pilot projects. At the regional level, the Programme Technical Advisory Group (PTAG) considers technical and logistical issues associated with the implementation of the Programme

Source: PCU 2002

Appendix 2 *Typology And Characteristics Of Participation.*

Type of Participation	Characteristics of Type of Participation
Self-mobilised	● Stakeholders or communities participate by taking initiatives independent of external institutions to change systems. ● They retain control over how resources are used. ● External agents may serve as technical advisers or provide assistance.
Interactive	● Stakeholders or communities participate in joint analysis, leading to action plans, and the formulation of new local institutions or strengthening of existing ones. ● These groups take control over local decisions thereby generating an incentive in maintaining structure and practices.
Functional	● Stakeholders or communities participate by forming groups to meet pre-determined objectives of a programme, which can involve development, or promotion of externally initiated social organisation (e.g. form committees). ● Such involvement does not tend to occur at the project planning stage but after major decisions have been made. ● Institutions dependent on external initiators and facilitators but can also become self-dependent.
Consultative	● Stakeholders or communities participate by being consulted, and external stakeholders consider their views and knowledge. ● Outsiders define both problems and solutions but may modify these based on local people's responses. ● Process does not concede any share in decision-making. ● Outsiders under no obligation to take on board stakeholder or community views.
Material Incentives	● People participate by providing resources, for example labour, in return for food, cash or other material incentives. ● Much on-farm research falls in this category, as farmers provide the fields but are not involved in the experimentation or the process of learning. ● It is very common to see this called participation, yet people have no stake in prolonging activities when the incentives end.
Information sharing	● Local stakeholders or communities participate by answering questions posed by external stakeholders or project staff using questionnaires or similar approaches. ● They do not have an opportunity to influence decision-making as findings are not shared.
Passive	● Stakeholders and Local communities participate by being told what is going to happen, or what has already happened. ● Decisions are made by powerful external stakeholders.

Adapted From Pretty *Et Al.* (1995:61).

Appendix 3
Timeline Of Niue IWP Events

A summary of activities over the last 10 months with the Niue IWP leading to the Planning Workshop is outlined below.

Activities	Date
● Visit by the IWP Project Coordination Unit (PCU) to Niue and planning of review of Niue priority environmental concerns.	Nov. 2001
● Initiation of literature review and consultations with key government agencies by consultant, David Butler on Niue environmental priorities. This review considered the results of civil society consultations conducted by the Environment Unit previously. A joint report was prepared and submitted on Priority Environmental Concerns as part of the IWP Niue review and Niue's National Assessment to the World Summit on Sustainable Development.	Dec. 2001
● Appointment of the Niue IWP National Coordinator	Feb. 2002
● A consultation workshop with the Niue community on priority environmental concerns in relation to the IWP focal areas of coastal fisheries, marine protected areas, waste reduction and preservation of freshwater quality. This workshop built on Butler's report with participants being sent a draft of the report and a questionnaire to complete.	March 2002
● The First Meeting of the Niue IWP National Task Committee (NTC)	April 2002
● Endorsement that by NTC "sustainable coastal fisheries" be the focal area for the NIUE IWP but, where possible, an integrated approach be also adopted to addresses other key environmental issues, such as waste and preservation of freshwater quality through land-based sources of pollution.	April 2002
●	
● Visit by IWP PCU to Niue and development of a broad outline for a process approach to planning of a pilot project in Niue. Presentation of this outline to the Second National Task Committee Meeting for endorsement held in Niue.	May 2002
● Advertisement and recruitment of community facilitators	July 2002
● Planning for planning and facilitator training workshop	Aug 2002
● Community facilitators recruited and trained for community consultations about the pilot project.	Sept 2002

Activities	Date
● Community consultations – visits to all 14 Niue villages. Community members discuss changes and concerns in their environment and their views on the causes of resource problems.	Sept – Oct 2002
● Village Feedback Meetings – return and discuss village results and gather ideas on possible actions for the pilot project.	Nov – Dec 2002
● Compilation of village meeting results by facilitators.	Jan 2003
● Analysis and report preparation.	Feb/Mar 2003
● Niue Public Forum with recommendations on the pilot project site. ● NTC meeting and decision on the pilot project site.	Apr 2003
● Consultations with participating villages and initial activities to design pilot project.	May 2003

Appendix 4 *Summary Of Participatory Activities Used In Village Meetings.*

1st Round of Village Meetings Sept/Oct 2003	
Activity - Brainstorming of environmental concerns	
Purpose	***Summary of Key Steps***
To identify the environmental problems of greatest concern to the local village communities.	● Explain to community members that one of the important objectives of this stage of the IWP village consultations is to identify community concerns about the environment. ● Explain that they will take part in an activity allowing all members to share their views about the environment or resource degradation issues. ● After describing the 'rules' for brainstorming the question *"What change(s) in the Niue environment are you most concerned about?"* is posted. It is explained that a change can be something that they have observed over the last few years or over many years. It can also be a change that they fear will happen due to the way people use resources. ● After given some time to think about this, participants begin to list their concerns. When participants stop listing their concerns, the list is reviewed. The meaning or wording of each of the concerns is clarified to ensure it has been accurately recorded. ● The list is sorted so that resource degradation issues within the scope of the IWP are highlighted. (It is explained that some of the problems they have listed are outside the scope of IWP pilot project (for example if they are not 'water-related' issues). ● The village list is added on to as the IWP facilitators meet with stakeholder groups and carry out other participatory activities. At the final community meeting this list is again reviewed and the community has a chance to rank their primary environmental concerns.
Activity - Stakeholder identification and analysis	
Purpose	***Summary of Key Steps***
To introduce a visual approach for identifying stakeholders and analysing their interests. To identify and discuss the relative power of different stakeholders to influence a resource issue	● Participants are asked what they understand by the term "stakeholder" in the context of environmental or resource issues. These terms are further defined and clarified. ● In small groups participants select an environmental issue of priority concern and identify stakeholders who have an interest in this issue. ● Group members use coloured circles to represent each stakeholder group. They choose a circle size to represent the relative interest or stake of the stakeholder group. To determine this stake, they consider how affected the stakeholder group is by the issue or its outcome. For example, a large circle indicates that the stakeholder group is greatly affected by the issue and are significantly affected by the outcome. A small circle indicates that the stakeholder group is not affected as much. The circles are glued onto the paper in away that shows their closeness to the issue. ● The group members then discussed the relative power that each of these stakeholder groups has to influence the outcomes of the issue. They are asked to choose a triangle that represents the relative influence of each group (the bigger the triangle, the more power the group has to influence the outcome of the issue). These triangles are glued on top of the appropriate circles. ● Finally group members are asked to discuss, and then mark with a star (*), those stakeholders that they feel who should be involved in managing the issue. ● Each group presents their chart for discussion by all participants.

Activity – Village and Resource Mapping	
Purpose	***Summary of Key Steps***
To show where resources, activities and issues of concern are located	● The purpose and general instructions for preparing village and resource maps were explained. Participants were told that map making stimulates discussion of the layout and organisation of the village and its infrastructure; and how this contributes to resource issues, and the access and use of resources. ● Village map – participants were asked to prepare a sketch map of the village and its close surroundings. As far as possible they were too do this without much interference. Maps could include whatever basic features the village members thought was important. It did not have to be scaled. Most recorded landmarks such as roads, paths; house dwellings (occupied and empty), sea tracks, churches, stores, community hall, tourist accommodations; location of water supplies, pig stys, rubbish dumps, etc. ● Resource map - Each group was asked to focus on resources used by the village. The group was to decide on the scale of the map that best suited their use of resources. Maps usually indicated where people accessed the sea, where men and women go fishing, where people keep their boats and fishing gear, conservation or important cultural sites, reef areas that are not as good as they used to be, areas where people do not fish or gather resources, areas of pollution,etc. ● After each group has prepared its map, these are shared and discussed. Discussion focuses on how groups use resources differently; the rights and access to fishing areas and resources; differences between formal or legal rules, and what people actually do. ● During discussions a number of new issues usually arise and these were added to the list of community concerns. ● The facilitator copied the map onto an A4 sheet and the information from this was recorded.
Activity – Marine Transects	
Purpose	***Summary of Key Steps***
To identify and discuss how the community views, uses and manages their coastal areas	● Purpose and main steps for marine transect are explained. Site is selected by participants based on where they harvest marine resources. ● When the group gathers at the coastal site, discuss and identify a logical starting point for walking the transect line and the direction that you will be walking. Remember the transect should cover as many different ecological zones as possible, and represent the different harvesting areas that the community uses. ● Proceed along the transect, taking time within each zone to discuss and record the habitat, what resources are used for different purposes, views on resource abundance, traditional or past management practices, existing management restrictions or actions, changes in resource abundance or what opportunities there are for meeting management or development needs. ● It may take several hours to complete one transect. At the end of walk the transect team compiles the information onto flip charts for presentation in a larger village meetings.

Activity- Seasonal Calendar	
Purpose To identify and record environmental factors that affect resource use and seasonal variation in harvesting activities.	***Summary of Key Steps*** ● It was explained that seasonal calendars record important environmental factors that influence the abundance or harvest of marine resources (for example, cyclones, seasonal winds, tides, moon phases); when individual marine resources are harvested and how the level of harvest varies over the harvesting period (for example, times of the greatest or lowest fish catch); variation in harvesting practices (for example, if people's harvesting methods for a specific species change during the year), existing management regulations that influence harvest periods (for example, prohibitions on fish catch at certain times of the year), and local knowledge about the resource (for example, spawning times, fish migration, etc.) ● Instructions were explained for preparing the chart and participants divided into small groups to carry out the work. ● Along list of questions were provided to stimulate thinking. Groups were asked to prepare their chart. ● When each group had completed recording their seasonal information it was presented back for discussion. The village members were encouraged to examine the relationships between different harvesting activities and their attributes.
Activity – Participatory Problem Analysis	
Purpose To help stakeholders examine the origins and underlying causes of natural resource issues or problems.	● The purpose of the activity is introduced. Activity is explained that will assist the understanding of how and why resource problems originate and the sequence of contributing causes. The activity allows one to break a large problem or change of which they may have little understanding, into smaller problems or reasons that village members can better understand and act upon. ● A *Sample Problem Tree is posted and* the steps of the process are described. ● Participants are divided into small asked select one of the resource issues that they have identified earlier as of particular concern. ● After the group has selected their resource issue, they write the problem at the top of the flip chart. ● Participants then begin to ask themselves 'why' the problem has occurred, and identify the immediate causes of the problem. These reasons are written onto post-its and placed below the main issue heading on the flip chart. ● The group continues working outwards, asking "Why?" for each of the immediate causes. Participants discuss the reasons, writing each on a post-it. It is very important that each reason is stated as a problem or change, and worded as a negative state. ● These steps are repeated until the group members have reached some basic or root causes of the issue being addressed. ● From time to time as the various reasons are being listed it is important to check the logic in reverse. For example, if a problem is 'Breakdown of traditional management practices' and the answer to 'Why?' is 'Lack of understanding of traditional management practices' then the reverse check would be a statement that '*Lack of understanding is* ***why*** *there is a breakdown of traditional management practices'.* ● The group can move the post-it notes around if necessary, until they are confident about the logic, and lines are drawn into show the linkages between causes and effects. ● Each group then presents back their problem trees and these are discussed.

Activity – Discussion Questions for Village Sub-groups	
Purpose To identify any conflicts arising within the village from resource issues, and the level of interest the village had in taking action about the issues they were concerned about.	● In small groups village participants were asked if there were any conflicts in the community over environmental changes or the way people are using resources, and how severe these conflicts were. They were to rank any conflicts identified from minor to major and provided with guidelines to help them with this assessment. ● A second question was then asked about how interested the group was in taking action to address the change (or problem). This was followed by a discussion of why they felt this way, and their possible reasons for not wanting to take any action. ● The discussion points were recorded.

2nd Round – Village Feedback Meetings Nov/Dec 2003	
Activity - Review of Village Work	
Purpose To allow village members to view all outputs from activities undertaken in past meetings and discuss these.	● Village activities of the earlier IWP village meetings were reviewed. ● Participants had a chance to look at work completed in the first round of meetings. Some of the small group work (for example, village maps, transects) had not been seen by all village members. Those who participated explained what they did and what resource issues identified from it. Others were new and needed to be introduced to the process and outcomes to date. ● Participants then returned to the brainstorming of issues list and checked to see if any additional issues should be included or some deleted. Confirm their priorities. ● Issues listed in previous meetings were checked to confirm recording and interpretation of previous outputs.
Activity - Reflection on Participation	
Purpose To provide an opportunity for village members to reflect on their participation in earlier meetings and suggest ways to improve participation in the IWP.	● It was explained that the IWP was appreciative of the support of the village so far, and emphasized that the success and benefits to Niue from the pilot project will be dependent on the support of Niue communities. ● Participants were then asked to consider their involvement to-date in the village meetings and to think about how many people have attended and who has participated. ● Participants were asked *What actions could the IWP take to improve community participation? (for example, different meeting times? More or different community announcements? etc)* ● Their suggestions were listed on a flip chart and then discussed.
Niue Problem Tree Purpose:	
Purpose To present and explain the Niue Problem Tree and to show village members what concerns they share with other villages; and how views on underlying causes may be shared or differ.	● The purpose and methods for developing a participatory problem tree completed in the first round of meetings were reviewed. ● It was explained that a Niue Problem Tree had been developed that combined the information of all village meetings in Niue. ● The Niue Problem Tree was presented. The logic of asking 'Why?" was also reviewed. ● Participants were then divided into small groups and given an opportunity to look at the Problem Tree more closely. Participants had a chance to look at the problem trees that they had made in the first meetings and to check if their ideas were correctly included in the Niue Problem Tree. They were asked to contribute further information or inform the facilitators of other needed changes. ● Changes and additions to the Problem Tree were recorded by the Facilitator and used in the revision of the Niue Problem Tree.

Developing a Solution's Tree	
Purpose To show community members how the problem analysis can be used to identify solutions and possible activities for the pilot project. To better understand what the community believes are possible solutions and valid activities for the pilot project.	● The purpose and methods of the Solutions Tree were explained. ● An example was provided based on the Niue Problem Tree. The process for checking the logic (If and Then) was emphasized. ● Participants were divided into small groups and given an opportunity to focus on a particular aspect of the problem tree of their interest. They were given time to try and create a solution's tree on this area of focus. ● The large group was asked What they learned about the solutions to Niue's resource problems in doing the activity, how easy or difficult it was to do, and what if any possible pilot project activities did they identify. ● It was explained that this was a first step in developing ideas on possible pilot project activities. The results from all villages would be considered together.

Appendix 5 *Details Of Village Participation.*

Village	No. of Meetings	PARTICIPATION (NO.)							
		Total Participants	Women	Men	Youth	NTC Members	VC Members	Members of Parliament	Govt Officers
Namukulu	4	12	5	5	2	0	3	0	0
Tuapa	3	17	4	4	9	0	1	0	2
Makefu	4	11	3	5	3	1	2	0	3
Alofi North	3	20	9	5	6	0	2	1	3
Northwest Zone Totals	**14**	**60**	**21**	**19**	**20**	**1**	**8**	**1**	**8**
Vaiea	3	33	11	16	6	0	2	1	3
Hakupu	8	89	31	39	19	1	3	1	12
Liku	6	25	9	8	8	0	2	0	5
Southeast Zone Totals	**17**	**147**	**51**	**63**	**33**	**1**	**7**	**2**	**20**
Hikutavake	5	23	10	8	5	0	0	0	2
Toi	6	13	3	7	3	0	2	1	3
Lakepa	7	19	8	8	3	0	1	0	2
Mutalau	5	22	9	11	2	0	2	1	1
Northeast Zone Totals	**23**	**77**	**30**	**34**	**13**	**0**	**5**	**2**	**8**
Avetele	5	18	9	9	0	0	2	1	4
Alofi South	4	35	14	15	6	1	3	2	5
Taumakautoga	4	12	7	4	1	1	1	0	1
Southwest Zone Totals	**13**	**65**	**30**	**28**	**7**	**2**	**6**	**3**	**10**
Niue Totals	**67**	**349**	**132**	**144**	**73**	**4**	**26**	**8**	**46**

Appendix 6 *Meeting Evaluation Form.*

To help us improve community participation in the Niue International Waters Programme we would like to hear your views on this meeting. Could you please take a moment to complete this short evaluation. Thank you!

1. What is your overall evaluation of the meeting?

-------1----------2----------3----------4----------5------
Very Bad Fair Very Good

Why?_____
_____ _____

2. What is your evaluation of the meeting process and activities undertaken?

-------1----------2----------3----------4----------5------
Very Bad Fair Very Good

Why?_____
_____ _____

3. To what extent were you satisfied with what the meeting produced or achieved?

-------1----------2----------3----------4----------5------
Dissatisfied Moderately Very Satisfied

Why?_____
_____ _____

4. How could the meeting have been improved?

_____
_____

Appendix 7 *The Composite Niue Problem Tree.*

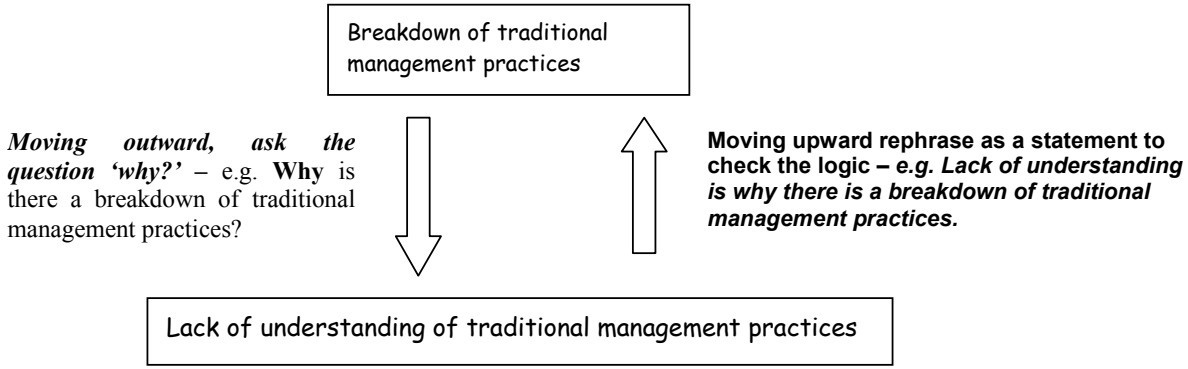
The composite Niue Problem Tree is divided into three main parts:

- Figure 1: Decline in Available Marine Resources
- Figure 2: Coastal Pollution
- Figure 3: Freshwater Contamination

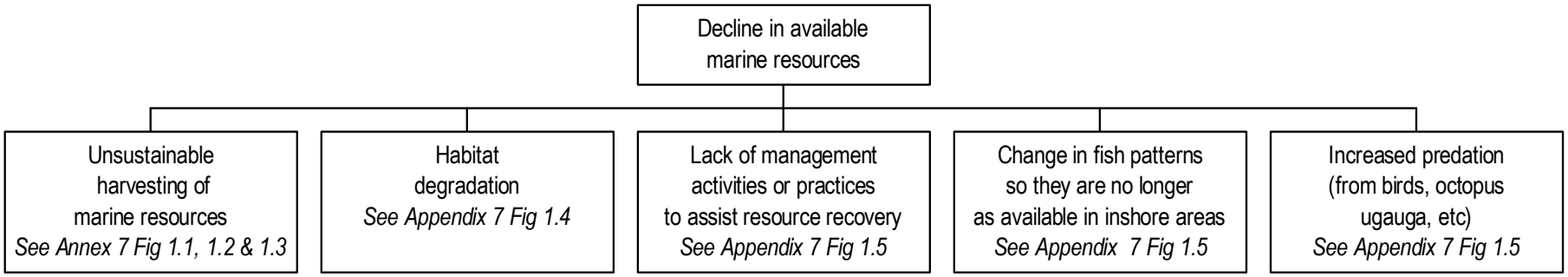
Figures 1 and 2 are further divided into a series of Figures that show the contributing causes to these issues of community concern. For example the entire list of contributing causes attributed to the decline in available resources are shown in Figure 1, then Figures 1.1 to 1.5, and for coastal pollution – Figure 2, then Figures 2.1 to 2.4.

In reading the problem tree it is important to remember that the problems at the bottom of the tree are feeding or contributing to the top.

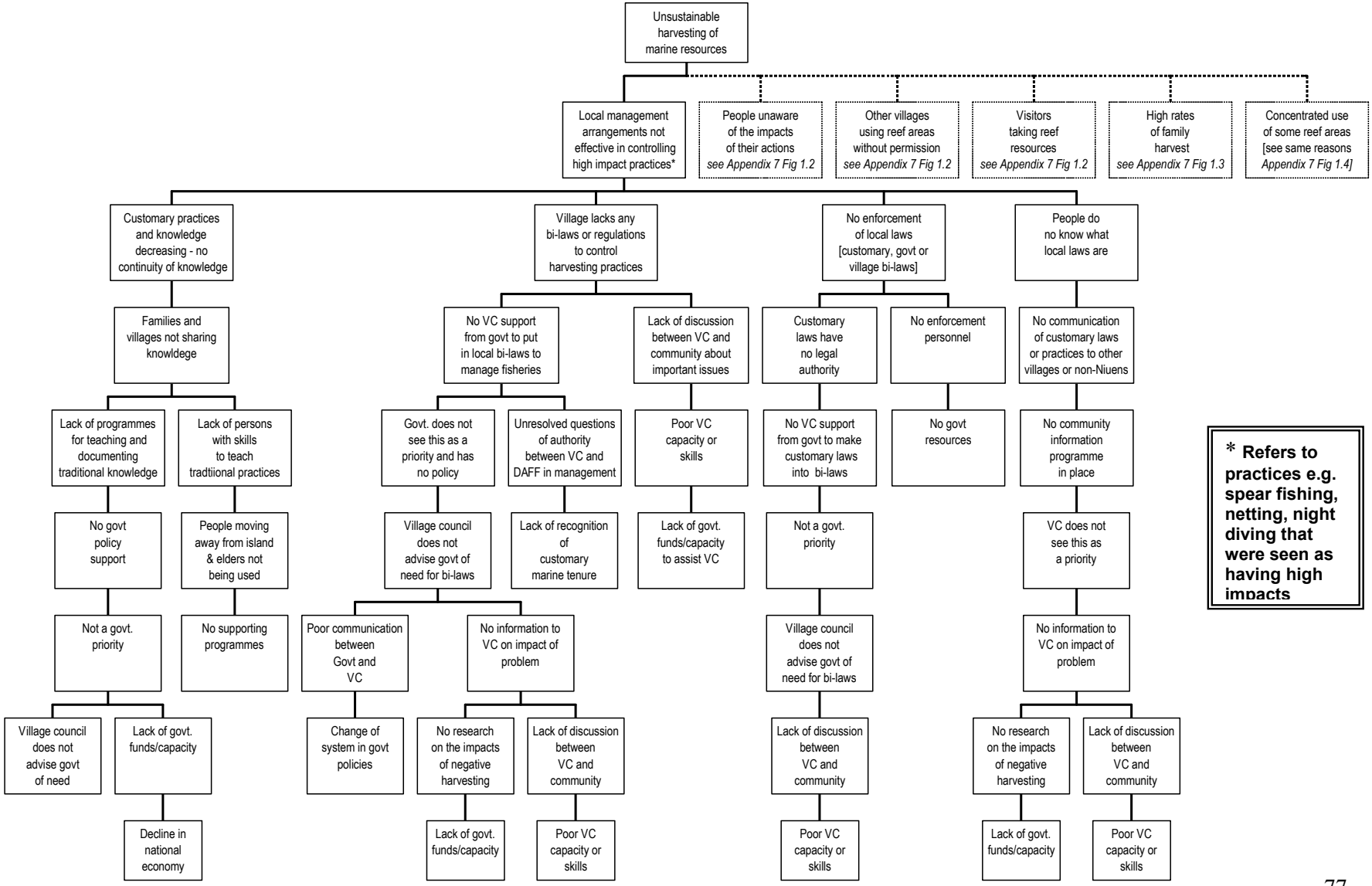
For example if the problem was 'Breakdown of traditional management practices:



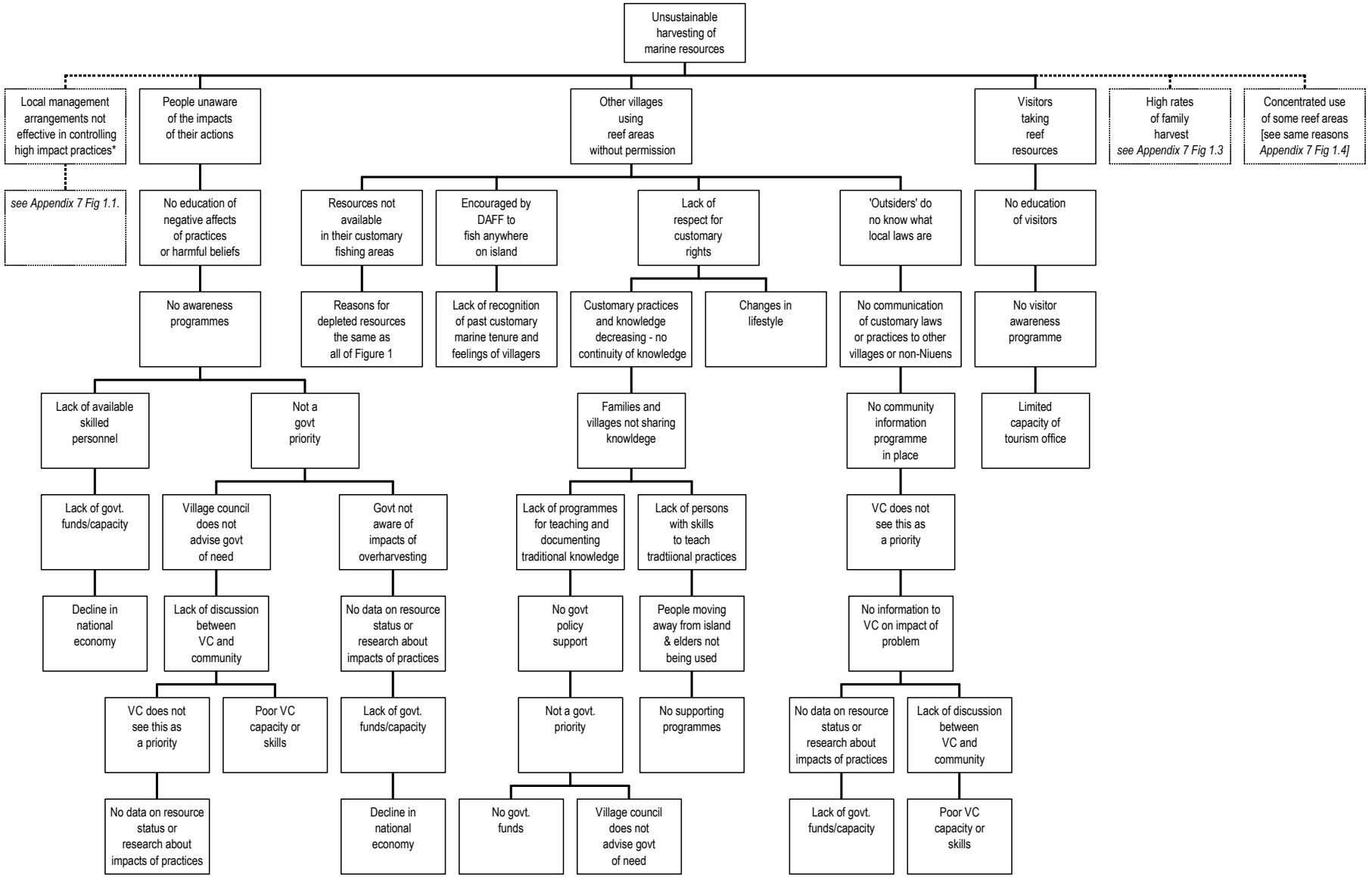
Appendix 7 Figure 1 *Decline In Available Marine Resources.*



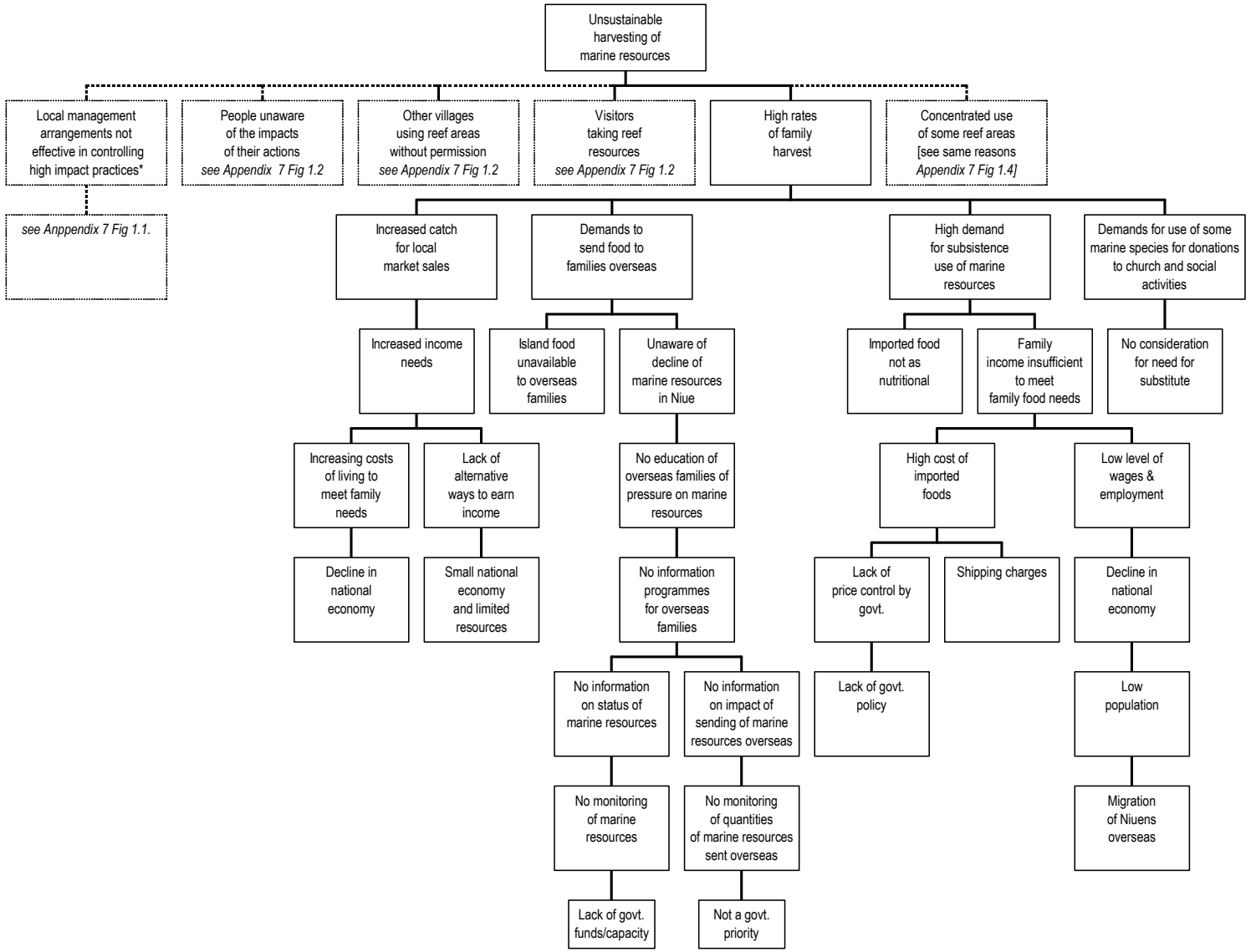
Appendix 7 Figure 1.1 *Unsustainable Harvesting Of Marine Resources.*



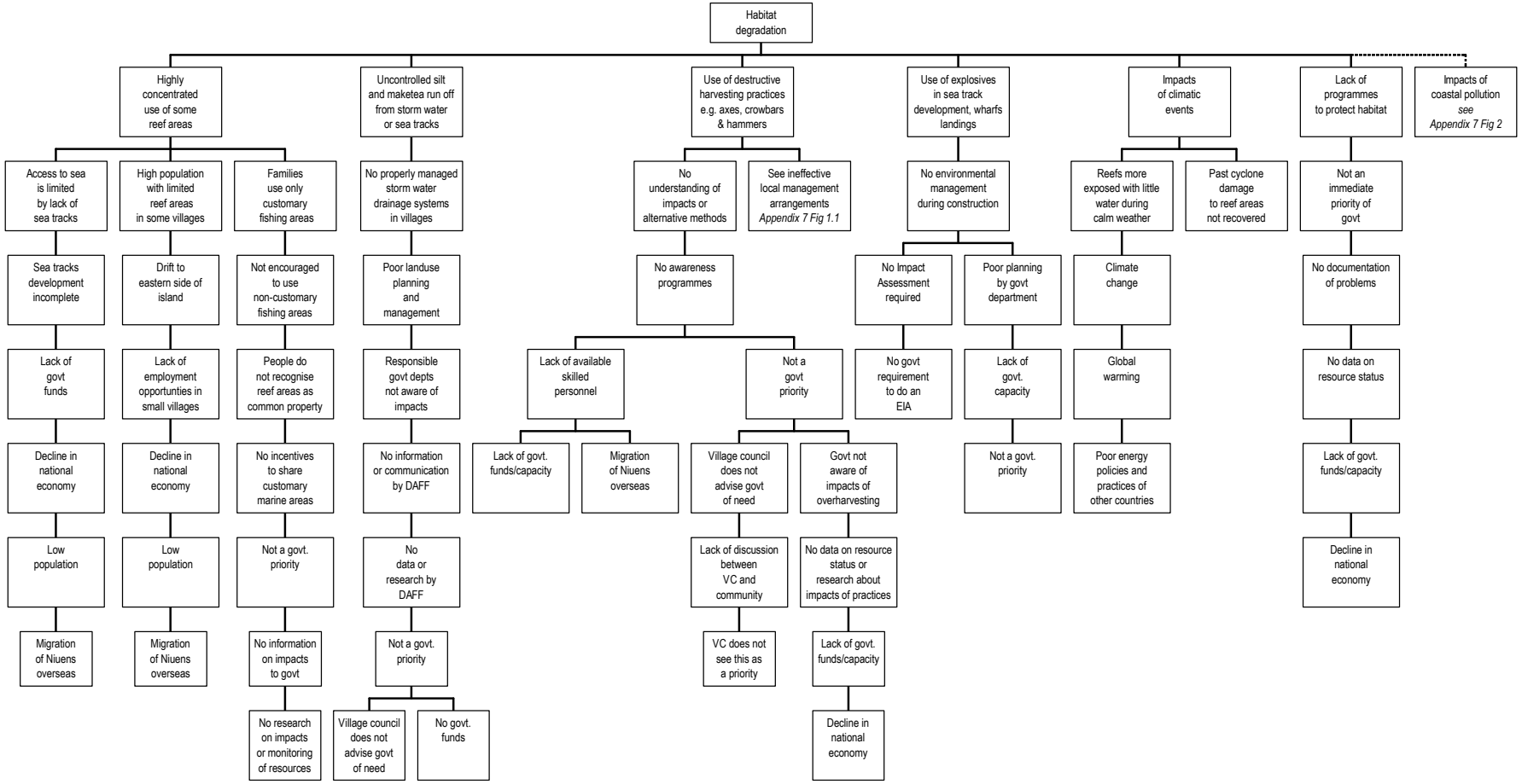
Appendix 7 Figure 1.2 *Unsustainable Harvesting Of Marine Resources (Continued).*



Appendix 7 Figure 1.3 *Unsustainable Harvesting Of Marine Resources (Continued).*

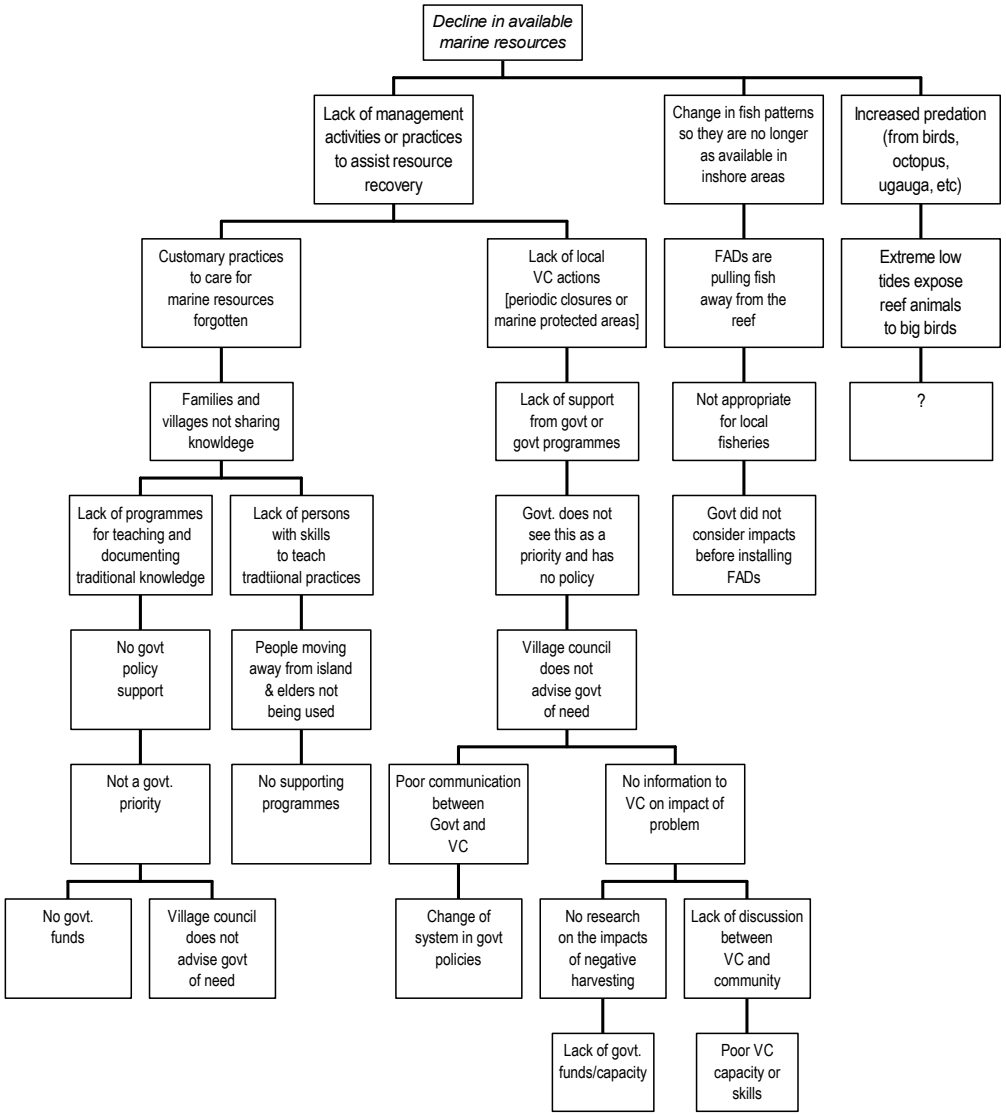


Appendix 7 Figure 1.4 *Habitat Degradation.*

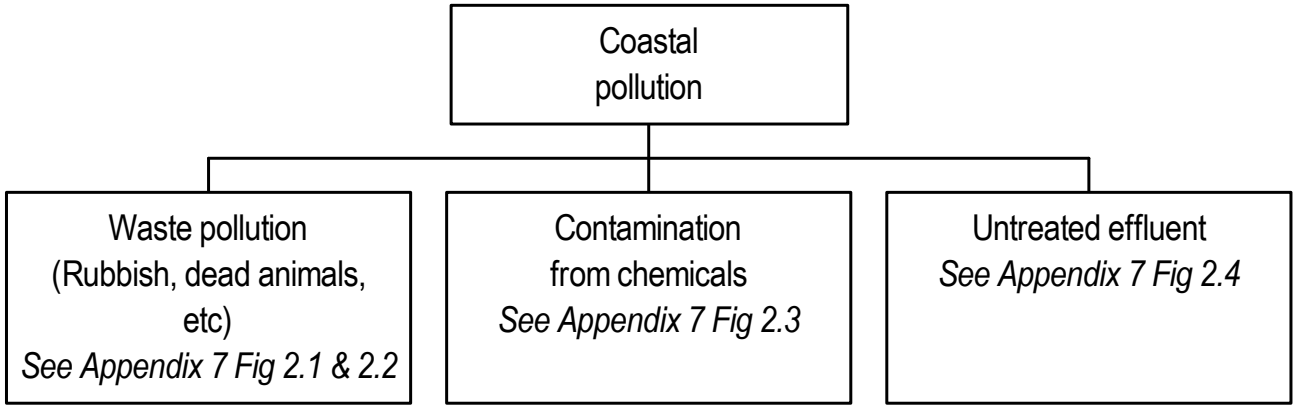


Appendix 7 Figure 1.5

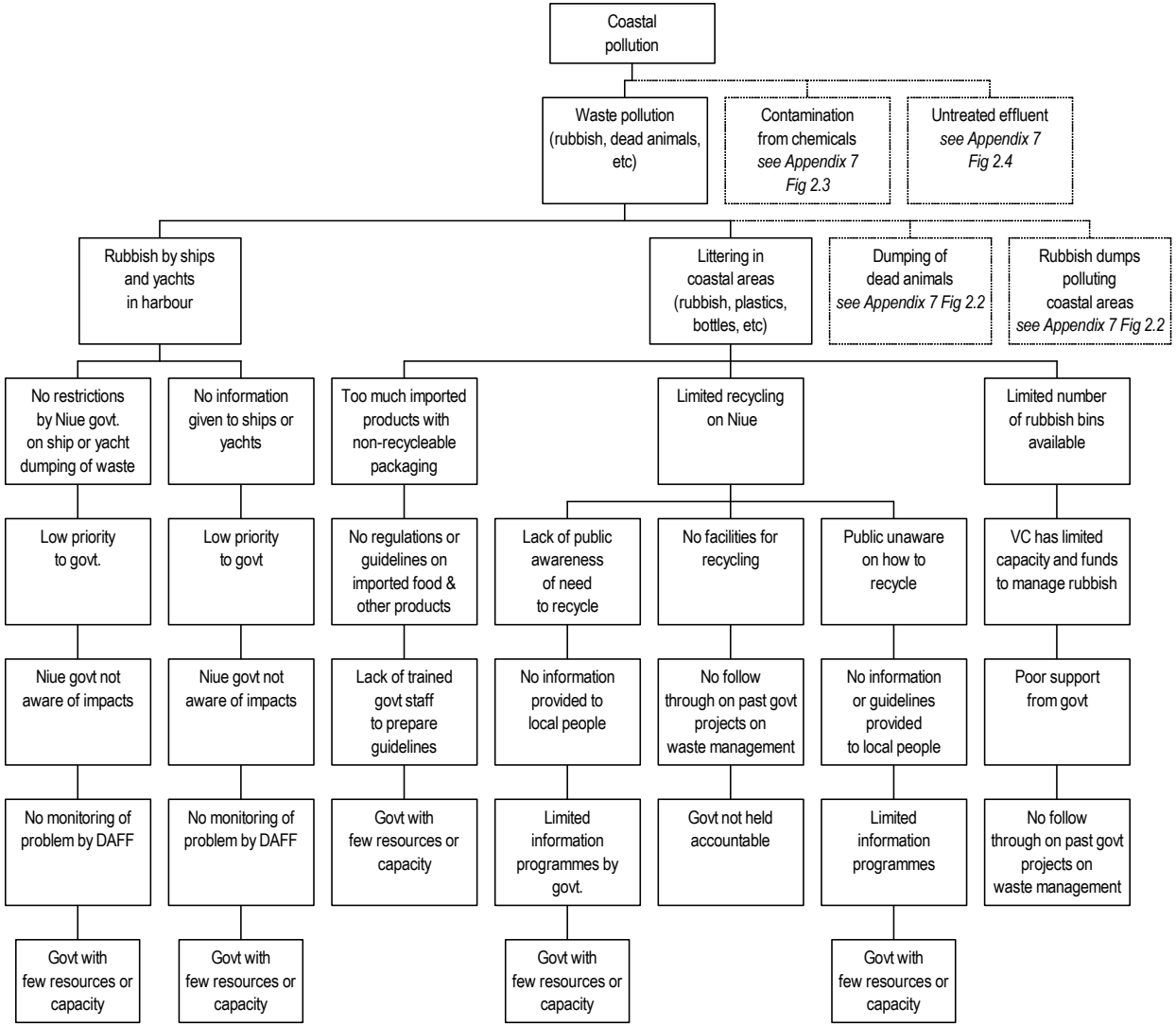
Lack Of Recovery Activities, Changes In Fish Patterns And Increased Predation.



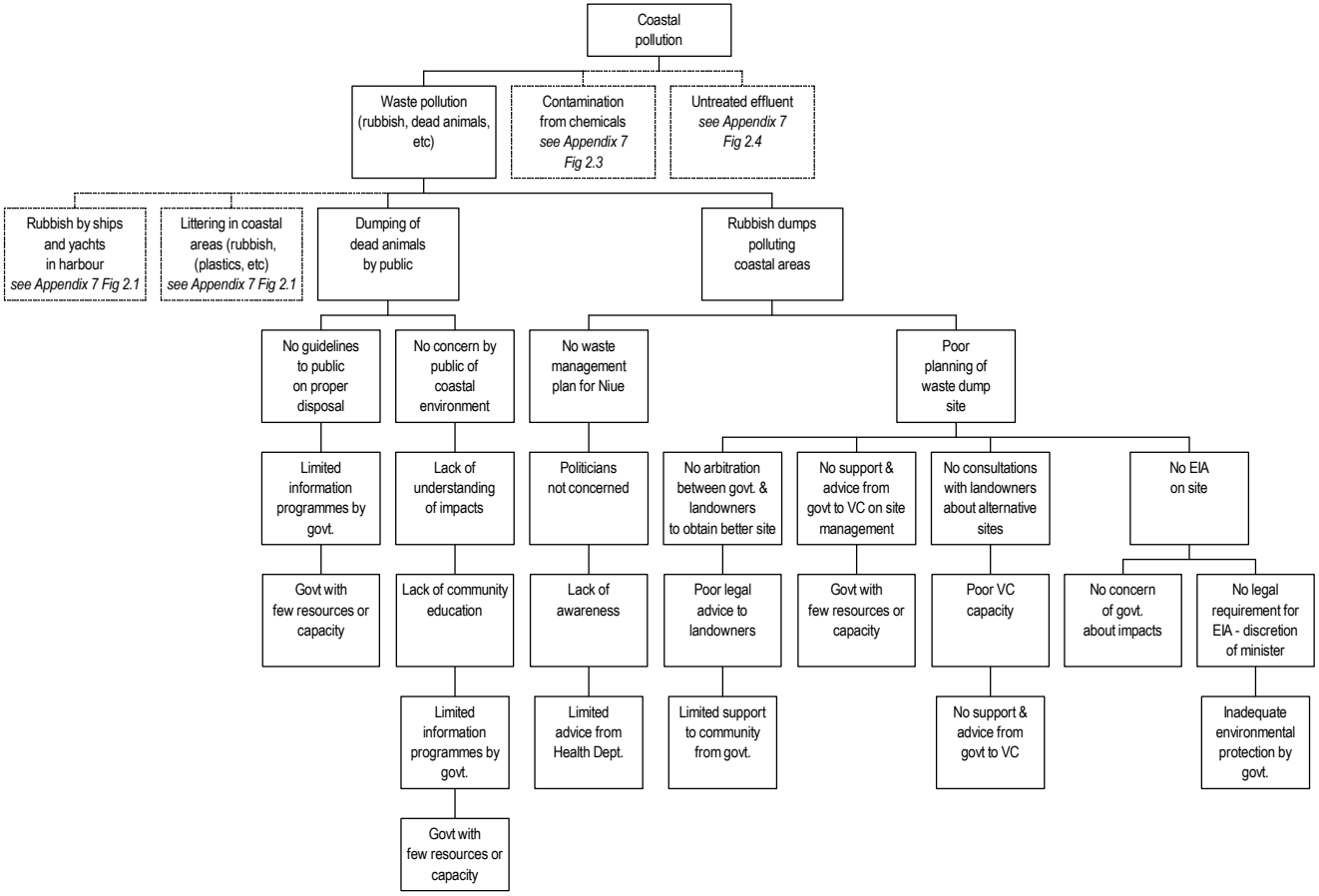
Appendix 7 Figure 2 ***Coastal Pollution.***



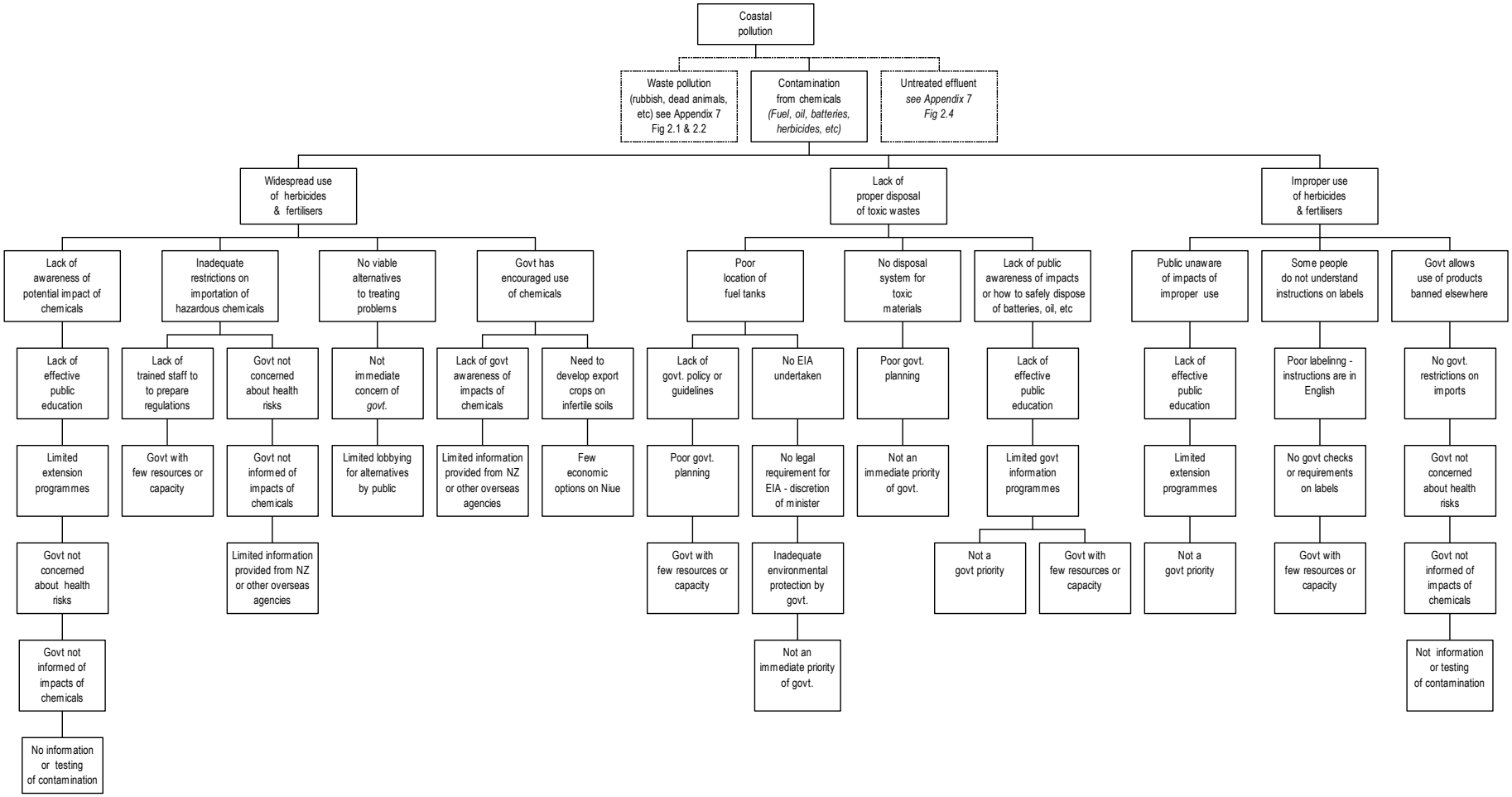
Appendix 7 Figure 2.1 *Solid Waste Pollution.*



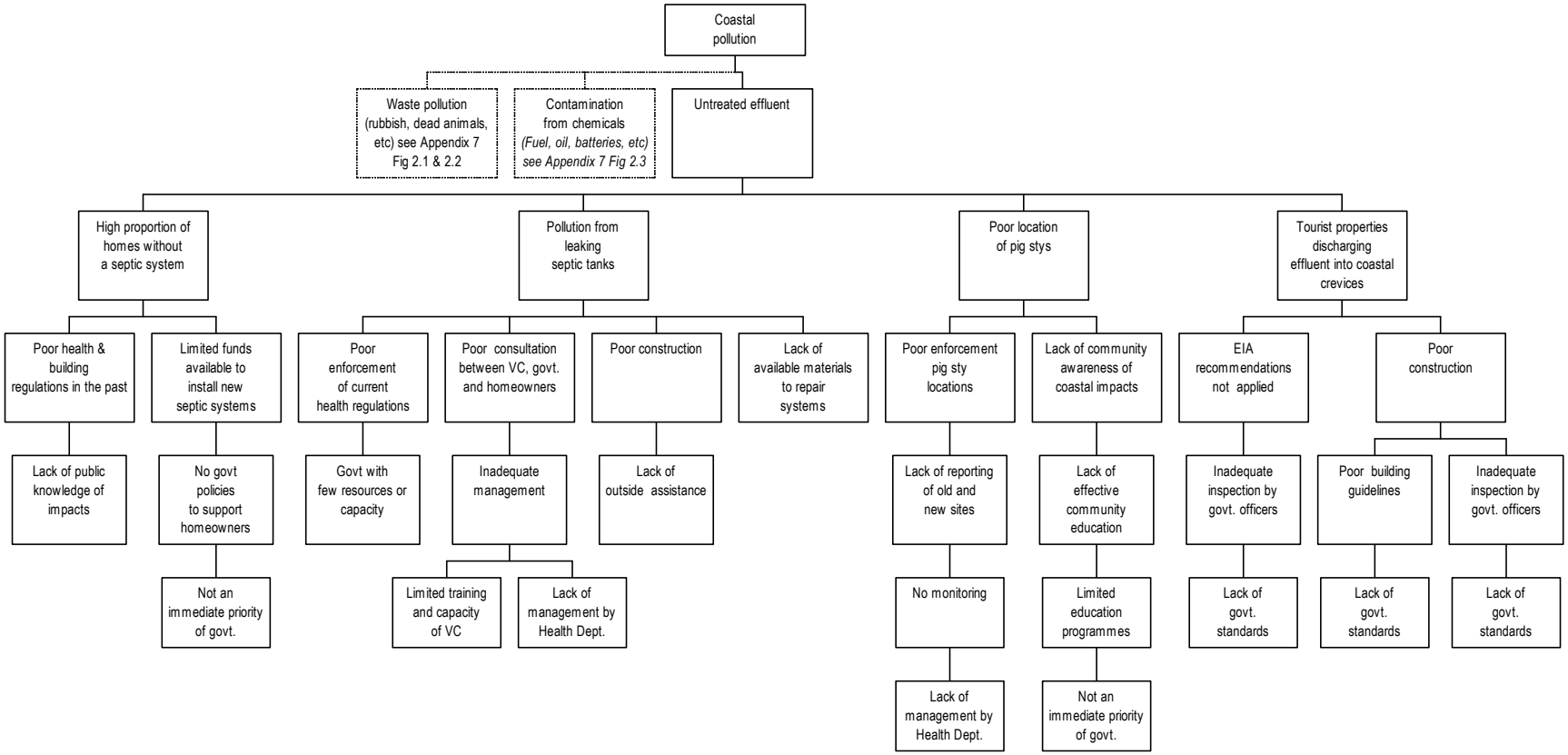
Appendix 7 Figure 2.2 *Waste Pollution (Continued).*



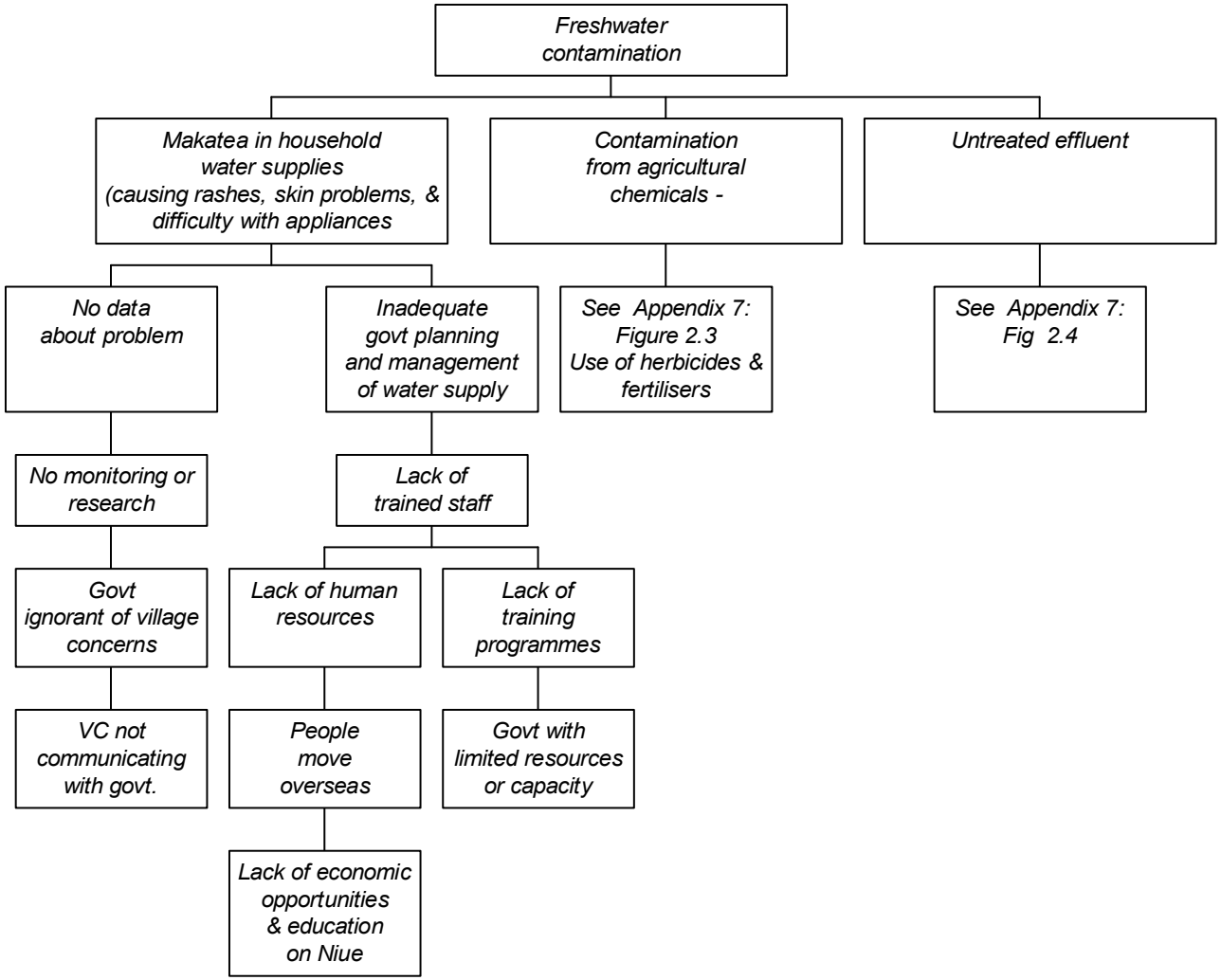
Appendix 7 Figure 2.3 *Contamination From Chemicals.*



Appendix 7 Figure 2.4 *Untreated Effluent.*



Appendix 7 Figure 3 *Freshwater Contamination.*



Appendix 8 ***Example Of A Solution Trees.***