

Samoa

COUNTRY ENVIRONMENTAL ANALYSIS

**Mainstreaming Environmental Considerations in
Economic and Development Planning Processes**



FINAL REPORT

Prepared by: John E. Hay and Tapa Sueasi

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Summary for Policy and Decision Makers and Other Stakeholders

1. The Asian Development Bank (ADB) uses the country environmental analysis (CEA) as the tool to assist with early incorporation of environmental considerations into the country strategy and programme (CSP) for its Developing Member Countries. The CEA provides targeted information necessary for informed decision making on environmental constraints, needs, and opportunities, including those that impinge upon poverty partnership agreements, as appropriate. The focus is on adding value to planned and ongoing development initiatives by reducing environmental constraints and exploiting environment-related opportunities.
2. This CEA for Samoa describes the environmental issues that are most important to Samoa's development strategy, as well as ADB's current and possible roles to help remove the environmental constraints on sustained development and to help take advantage of opportunities offered by the environment and natural resources of Samoa. The CEA is directed in part at the policy, programme, and sector levels, but the principal focus is on identifying how opportunities and constraints presented by the environment and natural resources of Samoa can be addressed by way of environmentally sensitive projects in the assistance pipeline.
3. Thus the present CEA for Samoa focuses on the general environmental status and trends in Samoa, including the role of the environment and natural resources in the economy, the key environmental constraints and opportunities, the policy, legislative, institutional, and budgetary frameworks for environmental management, and the principal constraints on, and barriers to, improved environmental management. It also identifies priority improvements in policy, institutional and legislative mechanisms, as well as programmes and projects that will help to mainstream environmental considerations into economic development planning.
4. The findings and recommendations presented in this report are based on an in-depth participatory, consultative process, supported by a literature review and research. Extensive in-country consultations involved Government, communities, the private sector, non-governmental organizations (NGOs) and international and regional organizations. The consultations included a National Dialogue. The preliminary findings were presented at the National Dialogue and subsequently strengthened through discussion and sharing of additional information and insights. Formal and informal activities conducted as part of the CEA were also designed to strengthen understanding among key players involved in policymaking, economic planning, and environmental management at both national and community levels. The focus was on key environmental and natural resource management issues and their influence on achieving macroeconomic, national and community development goals.
5. Environmental services and natural resources underpin important parts of Samoa's cash and subsistence economies, including land- and marine-based food production and tourism. Moreover, it is possible to identify the large economic and social consequences of environmental changes, such as the taro blight in 1993 and cyclones Val, Ofa and Heta. Many environmental concerns were identified by way of the consultations, and reinforced by consideration of the relevant literature. Currently the environment is not effectively mainstreamed in national development planning processes. This is highlighted by the few references to environmental considerations in the current Strategy for the Development of Samoa (SDS), the pre-eminent policy and planning document. The lack of mainstreaming the environment extends down to community development projects and goes hand in hand with the many shortcomings in current environmental management practices, at national through to community levels. Samoa is highly vulnerable to natural hazards, including tsunamis, earthquakes, volcanic eruptions, cyclones, coastal and more widespread flooding,

drought, pests and diseases. While considerable effort has been put into reducing these vulnerabilities, much remains to be done. This is true at national level, but especially so at the community level where there continues to be a general lack of awareness of the relevant hazards, their consequences and appropriate prevention and response initiatives.

6. Both land and forest degradation have been very rapid in recent decades, and continue today, albeit at slower rates, in general. In many parts of Samoa there is unsustainable use of living marine resources. Rates of solid waste generation are high, and in most parts of the country waste management practices are inadequate. This even includes the Apia area, where there is a formal system for collecting domestic waste. Energy supply is an escalating problem for Samoa, as it struggles to deal with the large increases in the costs of imported fossil fuels. Even the development of the considerable indigenous sources of renewable energy is not without problems. Loss of key biodiversity resources and land access and compensation are hampering the development of hydropower. Increased use of biomass, already a major contributor to the energy supply, is also having significant environmental and related consequences.

7. Chemicals usage is high in Samoa. Poor practices, especially in rural areas, are a matter of high and growing concern. There is evidence of low level, but widespread chemical contamination. The sustainability of tourism is also a matter of concern. Degradation of natural resources and loss of social and cultural values and traditions threatens to undermine the tourism industry and its role as a major source of income for present and future generations of Samoans.

8. Many opportunities for improving the key economic sectors such as agriculture, fisheries, tourism and energy, revolve around building a whole of Government and whole of country consensus on how the opportunities can be realized, and the limits to doing so. The benefits of recent reforms in the public sector, such as better integration and less duplication, also represent a major opportunity. There is also the chance to build on the significant successes achieved by NGOs, such as improvements to family and village well-being through certified organic farming. These successful initiatives need to be upscaled, without loss of their beneficial local impacts. Likewise, there are opportunities represented by recent capacity developments, such as the new Samoan Research and Development Institute. Many opportunities are related to increasing the sustainability of land use, for example by linking land capability assessments and land use planning, and by integrating community-based tourism and conservation initiatives.

9. Several constraints on achieving improvements in the key economic sectors can also be identified. These include policy constraints, such as no explicit inclusion of environmental considerations in the SDS 2005-2007 and shortcomings in environmental legislation, compliance and enforcement. With reference to cooperation and coordination, it is difficult to ensure effective multi-stakeholder participation in both project preparation and implementation. Many key players in the private sector feel inhibited by the current "command and control" approach of Government. Widespread uncertainties in the tenure of customary lands, including ownership and boundaries, are leading to long delays in settling disputes which in turn discourages moves towards productive and environmentally sound use of the land, by both traditional owners and lessees.

10. The complex nature of the constraints identified above, and the many dimensions to the opportunities, highlight the need for greater cooperation between Government, the private sector, and civil society, including community leaders and members, and NGOs. This is particularly so given two conflicting situations. Over 80% of the land and other natural resources of Samoa are under customary ownership and management. This is therefore where the greatest opportunities exist for using these resources in a sustainable manner to further the development of communities and the country as a whole. However, at present the

majority of customary land owners and users lack the capacity to make and implement decisions that will result in more productive and sustainable use of their resources.

11. Moreover, national institutions are the source of development assistance (including expert advice, technologies and financial and other resources), or it must pass through them in the form of overseas development assistance. Similarly, development decisions are made at national level but their implementation is dependent on local resource owners and users being well informed, motivated and capable of taking the requisite actions. Another reality is that Government mechanisms are inefficient and often ineffective at building capacity at community level. Few of the decisions made at national level reach those in whose hands the opportunities for successful implementation reside.

12. NGOs have demonstrated much greater success at supporting good environmental and development practices at community and family levels. They are being used increasingly as the conduit for delivering information and national and international assistance to communities.

13. The Government might best focus its efforts on initiatives that will assist local resource owners and users to make and implement decisions that result in more productive and sustainable use of their resources. This includes supporting the work of those who are efficient and effective in providing development assistance that will build the capacity and hence self-reliance of needy families and communities. The two key practical acts by Government that will help achieve these outcomes are strengthening the enabling environment for environmental management and working to ensure that the existing policies that integrate environmental considerations into current and new development plans, project implementation and development assistance are implemented in a timely and effective manner.

14. A lack of information and tools is also hampering decision making at both national and community levels. For example, there is little baseline data available to support environmental impact assessments. The effectiveness, or otherwise, of environmental policy and management initiatives cannot be determined if there is inadequate information on the state of the environment. If environmental and related considerations are to be integrated successfully in sector plans and operations, there needs to be a mechanism for determining the extent to which specific environmental outcomes are being achieved. This can be done through the use of environmental indicators. The same indicators can also be used to ensure that environmental considerations are an integral part of performance based budgeting. The Ministry of Finance monitors the effectiveness of Government programmes, though currently the process is somewhat ad hoc. Plans are in place to develop indicators, to improve the robustness of the performance monitoring. These should include a suite of appropriate environmental indicators. They can be used to assess the extent to which all Government agencies are ensuring that their activities are making productive and sustainable use of environmental and natural resource assets and services.

15. Consistent with this, the management plans of all Government ministries and agencies need to be strengthened by including: (i) measurable and time bound targets that encompass environmental outputs and outcomes in conjunction with the conventional outputs and outcomes of the institution - the environmental targets should reflect the commitment in the relevant sector plan to minimize adverse environmental impacts and maximize the appropriate use of environmental services in ways that add value to their efforts; (ii) establishing and monitoring a suite of indicators which can be used to assess the extent to which the targets have or have not been achieved; (iii) the requisite reporting and quality improvement activities, based on the targets and indicators; and (iv) recognition that future allocations of financial resources to the institution will, at least in part, reflect the extent to which the agreed targets have been met.

16. Five priority areas for action resulting in the mainstreaming of environmental considerations were identified, namely environment for development; accessible, affordable, sustainable and renewable indigenous energy supplies; equitable and sustainable land management; secure and affordable access to nutritious foods; and reduced vulnerability to natural disasters and social and economic pressures. A sixth cross-cutting priority area for action was also identified, namely ensuring the capacity for sustained and sustainable development. Specific actions related to this last priority area have been incorporated into the actions related to the other five priority areas.

17. ADB assistance already in the pipeline was assessed with respect to the ability to address the need for action in each of the five priority areas. The planned Power Sector Improvement project could be strengthened through inclusion of specific assistance to assess the environmental and related implications of renewable energy development in Samoa, to strengthen Samoa's national energy policy and planning and to strengthen the capacity of the Electric Power Corporation in renewable energy planning and implementation. The planned Securitization of Land Leases project could be strengthened through the addition of specific assistance to increase the timeliness, certainty and equity in resolving land disputes. Finally, the proposed Small Business Development project could be strengthened through addition of assistance to strengthen family and small business support programmes aimed at enhancing food security and nutrition and to increase the opportunities for food producers to engage successfully in the cash economy.

Where the planned assistance was considered to be insufficient, even when strengthened as described above, additional projects were identified. These are:

- developing an inclusive, participatory consensus on contribution of environment to development;
- enhancing capacity of national government to mainstream environmental considerations;
- building capacity of village mayors and women government representatives in development decision making and environmental leadership;
- enhancing capacity of NGOs to include environmental considerations in community (including family) development projects;
- building capacity for sustainable land use planning and management at national and community levels; and
- upgrading technical early warning systems and response capabilities.

18. It is recognised that ADB does not have the capacity to provide assistance in all of the areas identified above. Other development partners, both international and bi-lateral, are urged to consider reflecting the CEA findings in their own work programmes, either as separate initiatives or by working collaboratively with Samoa's other development partners.

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List of Acronyms

ADB	-	Asian Development Bank
ADF	-	Asian Development Fund
CBO	-	Community Based Organization
CCA	-	Copper Chrome Arsenic
CEA	-	Country Environmental Analysis
CSP	-	Country Strategy and Program
CSPU	-	Country Strategy and Program Update
DMC	-	Developing Member Country
EIA	-	Environmental Impact Assessment
JICA	-	Japanese International Cooperation Agency
LSE	-	Land, Survey and Environment
MNRE	-	Ministry of Natural Resources, Environment and Meteorology
NEMS	-	National Environmental Management Strategy
NGO	-	Non-governmental Organization
PAH	-	Polycyclic Aromatic Hydrocarbons
PARD	-	Pacific Department (ADB)
PCB	-	Polychlorinated Biphenyl
PCP	-	Pentachlorophenols
POP	-	Persistent Organic Pollutant
PUMA	-	Planning and Urban Management Agency
SWOT	-	Strengths, Weaknesses, Opportunities and Threats
TA	-	Technical Assistance
TBT	-	Tributyl Tin
TPH	-	Total Petroleum Hydrocarbons
UN	-	United Nations

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I. INTRODUCTION

1. The Asian Development Bank (ADB) uses the country environmental analysis (CEA) as the tool to assist with early incorporation of environmental considerations into the country strategy and programme (CSP) of each of its Developing Member Countries. The CEA provides targeted information necessary for informed decision making to address, in an appropriate manner, environmental constraints, needs, and opportunities, including those that impinge upon poverty partnership agreements. The focus is on adding value to planned and ongoing development initiatives by reducing environmental constraints and taking advantage of environment-related opportunities.

2. Preparation of the CEA involves a participatory process at both country and ADB levels. This is initiated before the CSP, and continues through CSP preparation. The CEA is directed at the policy, programme and sector levels, but it also highlights issues and opportunities associated with environmentally sensitive projects in the pipeline.

3. The technical assistance (TA) to Samoa to assist with preparation of this CEA had as its main objectives the mainstreaming of key environmental considerations into economic and development planning processes, and to contribute to the alleviation of poverty in Samoa. The TA to Samoa was also designed to strengthen understanding among policymaking, economic planning, and environmental authorities about key environmental and natural resource management issues and their influence on achieving macroeconomic and national development goals.

4. This CEA for Samoa therefore focuses on:

- the general environment status and trends in Samoa, including the role of the environment and natural resources in the economy;
- key environmental constraints and opportunities;
- characterizing current climate-related risks and how these may change as a consequence of global warming (see Annex 1)
- the policy, legislative, institutional, and budgetary frameworks for environmental management;
- the principal constraints on, and barriers to, improved environmental management;
- priority areas in policy, institutional and legislative mechanisms, as well as programmes/projects that will help to mainstream environmental concerns into economic development planning; and
- identification of the main environmental opportunities associated with Samoa's country strategy and programme update (CSPU), including recommending incorporation of environmental considerations in programmes/projects in the pipeline as well as new priority actions and programmes at the country level TA program.

5. **Methodology.** The findings and recommendations presented in this report are based on an in-depth participatory, consultative process, supported by a literature review and research (Figure 1). In April through May, 2006, ADB fielded a mission¹ to Samoa during which meetings with over 60 stakeholders (individuals and groups) were conducted (see Annex 2). Stakeholders included Government, civil society, including non-governmental organizations (NGOs), the private sector, bi-lateral donors and regional and international organizations.

¹ Prof. John E. Hay, Environmental Management Specialist, assisted by Mr Tapa Sueasi, Domestic Consultant, conducted in-country activities from 3 April to 12 May, 2006. Prof. Hay's and Mr Sueasi's consultancies were supported under ADB RETA TA: 6204-REG Mainstreaming Environmental Considerations in Economic and Development Planning Processes in Selected Pacific Developing Member Countries.

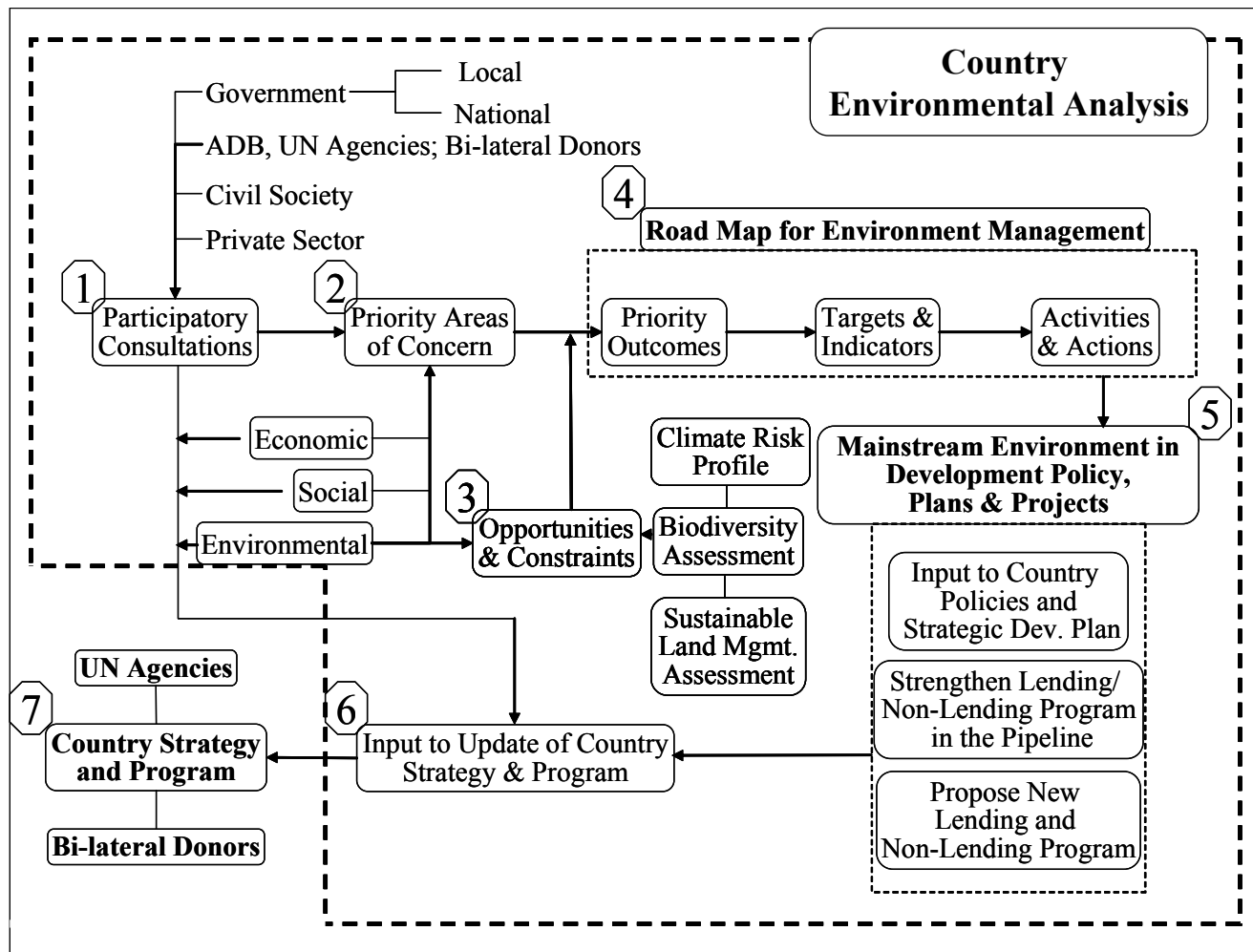


Figure 1. Process diagram for the country environmental analysis (CEA) in Samoa.

6. The extensive consultations also included organizing and hosting a one-day National Dialogue². Over 45 key stakeholders participated in the National Dialogue and provided valuable feedback on the preliminary CEA findings and recommendations. The participants represented a wide cross-section from various sectors, including Government (elected officials and Government employees), NGOs, the private sector, bi-lateral donors and international and regional organizations. The agenda and list of participants for the National Dialogue are provided as Annex 3.

7. The consultations and National Dialogue helped to confirm the preliminary findings on key environmental and related issues, and facilitated a consensus on priority areas for national initiatives and ADB assistance and on proposals for mainstreaming environmental considerations into the CSPU for Samoa. Participants in the National Dialogue, and other interested parties, were afforded the opportunity to provide further comment on a draft of the present report.

II. SITUATION ANALYSIS

8. This section describes recent changes in the state and management of the environment of Samoa, identifying both improvements and deterioration in environmental practices and quality. In each instance the causes (i.e. drivers) of the changes are identified, as are the lessons learned and, where appropriate, the success factors and stories. The lessons learned are also presented for situations where intended changes in environmental management and quality have not occurred.

9. The background context for this analysis is provided in Annex 4. It contains information related to Samoan society; geography; geology; geomorphology; climate; land ownership; the economy; governance; institutional, policy, legal and budgetary frameworks; performance indicators, the role of environment and natural resources in the economy; and the nature and coordination of external assistance related to the environment.

10. Also as background, a review of ADB's strategy and programme for Samoa is presented in Annex 5. This gives details of ADB's strategic priorities for the Samoa; a summary of past and current ADB operations for Samoa; and assessment of the environmental impacts of ADB's assistance to Samoa; and lessons learned from the assistance provided by ADB to Samoa.

A. Improvements in Environmental Practices and Quality

a. The Changes

11. The Ministry of Natural Resources, Environment and Meteorology (MNREM) now has as its goal "the sustainable development and management of the country's natural resources and environment to ensure a better quality of life for all Samoans". MNREM has positioned itself to create an enabling environment for development. It provides a wide range of environmental services to help achieve this goal. The Ministry used to have 6 staff but currently has over 300 employees. It now shows strong leadership in terms of environmental stewardship. For example, an initial focus on waste collection is now moving on to recycling. A number of manufacturing companies are involved in recycling glass bottles, aluminium cans and other metals. For instance, the Vailima Breweries buys back bottles and reports that 95% of bottles are returned. One of the largest manufacturing companies in Samoa, Yasaki, has a recycling sewage system where treated wastewater is recycled to flush toilets and urinals. The Vailima Breweries also has an on site sewage treatment plant.

² The National Dialogue was held on May 2, 2006.

12. In 2000 the solid waste collection service was extended to rural areas on both Upolu and Savaii. A twice a year free collection for bulky waste such as refrigerators and television sets was introduced in 2002. The Apia landfill has been upgraded by modifying the Fukuoka method so it is applicable to a small island country. This includes high level treatment of the leachate. The landfill is now serving as example for the rest of the Pacific region. A second landfill was established on the island of Savaii at Vaiaata in 1999. Its planning included the undertaking of an environmental impact assessment (EIA). A wastewater treatment plant serving the central business area and township of Apia is soon to be constructed. It will provide tertiary treatment of wastewater.

13. The refocusing of the MNREM's programmes started with surveying, and involved moving to survey systems that utilise global positioning satellites as well as to geographical information systems. The consequential improvements in the quality and accessibility of cadastral and other spatial information have resulted in their extensive use by the private sector. Similarly, in addition to short term weather forecasting, the Meteorology Division now provides a wide range of geotechnical and related information for the management of the environment and natural resources.

14. Most government ministries have prepared disaster management plans – all are committed to doing so. This is in part a reflection of the fact that Samoa is very vulnerable to natural disasters. Tropical cyclones caused widespread devastation in 1990 and 1991, and again in 2004. The Disaster Management Office used to be located in the Prime Minister's Office. A very top down approach to disaster management was followed. The Disaster Management Office is now located in MNREM and pursues a mix of top down and bottom up approaches, with the relevant government agencies (e.g. quarantine, health) taking on relevant disaster management responsibilities.

15. The services provided by the Samoa Water Authority are supplemented by independent reticulated water suppliers, usually at the village or community level. An increase in metered customers connected to two new treatment plants resulted in a 37% increase in water sales in the year ending June 2004. Following Cyclone Heta (January 2004) major reconstruction and rehabilitation of water supply infrastructure was required, including in relation to headworks' infrastructure, network reticulation and borehole pump stations.

16. The National Health Care Waste Management Plan has been completed and the related policy is almost completed. A programme to manage the collection and disposal of health hazard wastes was developed in the last three years within the National Hospital in Apia and includes the district hospitals in the rural areas. Eventually the programme will extend to health care clinics throughout the country. The Ministry of Health is about to commence a programme to monitor water quality, including drinking water and recreational waters. The main concern is typhoid; dengue outbreaks are infrequent and isolated, and can usually be contained quickly.

17. While some distrust still exists between NGOs and Government, and between NGOs and private sector, the situation is improving. For example, neither the Government nor NGOs working alone have sufficient capacity to assist communities with develop projects, including improving the management of the environment and natural resources. There is now increasing coordination and cooperation, with the Government providing technical assistance in relation to, for example, marine reserves, while NGOs fund activities that will help reduce hardship and address other relevant Millennium Development Goals. An important related issue facing both the Government and NGOs is how to ensure effective multi-stakeholder participation in both project preparation and implementation.

b. Causes/Drivers

18. Traditionally Samoans were acutely aware and appreciative of the goods and services the environment provided. This strong relationship with the environment has weakened over time, for a variety of reasons. But now Samoans are regaining this realization of the important roles played by the environment and natural resources. They are showing increasing appreciation for the environment - including biodiversity – and an increased awareness. People are once again recognising the importance of the environment and realising that waste and other pollutants are a significant and growing problem.

19. Communities are becoming more aware of the potential of their lands. With over 80% of land in customary ownership, the resources of the country are largely under the stewardship of communities, including villages. This is appropriate in the Samoan cultural context. The Government must engage in consultations with landowners when requiring access to their land for development activities. While this is time consuming, land access is increasingly being seen as more a reality than a constraint. One reason is that consultation increases local ownership and participation and often leads to community management. Thus resolving land access issues is providing an opportunity to increase public engagement and participation. This contributes to community building, which in turn contributes to nation building. Other land issues relate to registration, lease, security and access to land information. The aim is to eventually establish a registration system for customary land, giving more certainty in title and boundaries. More resources are required if this goal is to be achieved.

20. The recent public sector reforms, including institutional reorganization and strengthening, have resulted in a rationalization of Government operations, with better integration and less duplication. For example, there is now improved cooperation between environmental (in the broadest sense) and other agencies, such as the Ministry of Agriculture and Fisheries. This provides increased opportunity for cross-cutting themes, such as the sustainable use of environment assets and services, to be addressed in a whole of Government approach.

21. Also as a result of the public sector reforms the Ministry of Finance now monitors the effectiveness of Government programmes, though currently the process is somewhat ad hoc. Plans are in place to develop indicators, to improve the robustness of the performance monitoring. This represents an excellent opportunity to include a suite of appropriate environmental indicators. They can be used to assess the extent to which all Government agencies are ensuring that their activities are making productive and sustainable use of environmental and natural resource assets and services. In compliance with the Foreign Investment Act, the Ministry of Labour requires investors, both local and foreign, to contact the Planning and Urban Management Agency (PUMA) and obtain information on procedures to be granted a development consent, including meeting environmental requirements. Where relevant, commercial banks are also making a favourable preliminary environmental impact report a prerequisite to granting a loan.

22. The initial intention was for the PUMA legislation to apply only to the Apia urban area, but the planning approach in the Act is now applied to the entire country. In addition to managing the environmental and other implications of development projects, through a consent process, PUMA is also responsible for strategic planning. Sustainable management plans can apply at national, regional and site levels and can be enforced under the PUMA Act, though the preference is to use related legislation to enforce elements of the plans, as necessary. Some stakeholders have concerns that the broad approvals implied or explicit in sub-national sustainable management plans may be used to bypass requirements for project-level EIAs.

23. Environmental codes of practice have been introduced by the Ministry of Works, Transport and Infrastructure, thereby increasing the attention being given to environmental considerations in infrastructure and other public sector development projects. Both Ministry staff and contractors are now much more aware of the need for sound environmental management practices. For example, an environmental management plan is now a required part of a contractor's work plan. There is a need to extend this initiative through the preparation and application of environmental codes of practice to other parts of the private sector. For example, currently one large industrial plant engages in solid waste disposal practices that are definitely detrimental to the environment while another discharges untreated waste directly to the lagoon.

24. Donors, such as ADB, the World Bank and Japan International Cooperation Agency (JICA), are reinforcing the importance of EIAs being undertaken at an early stage in the project cycle, and are urging that Samoa's EIA regulations be strengthened. These development partners also insist on compliance with their own environmental and other safeguard procedures, during both project preparation and implementation.

c. Lessons Learned and Success Stories

25. It is unlikely that the renewed importance Samoan's are placing on the environment will become widespread and enduring in the absence of substantial efforts to support awareness raising and action oriented programmes in the villages and other communities. Importantly, experience has shown that it is not productive to just promote the environment to communities – it is far more effective to facilitate livelihood improvements. Environmental improvements then follow indirectly, as co-benefits. For example, land degradation might best be addressed through initiatives such as organic farming, biodiversity through ecotourism, and water quality and security through upgrading of village water supply and solid and waste water disposal systems.

26. As a result of improving working relationships between Government and the NGO community there has been impressive progress related to civil society participation in national and sub-national planning processes, including strategic planning. However, at the individual and household level NGOs still highlight an urgent need to raise awareness and improve decision making skills. Many people fail to recognise the wider consequences of their individual and collective decisions. Communities are therefore being encouraged to develop plans to improve their well being, and to be proactive and well informed when making decisions and implementing them.

27. The Asset Management Project funded by the World Bank has helped catalyse the mainstreaming of environmental considerations in development initiatives, at least to a limited extent. There have been some successes at the planning, institutional and legislative (e.g. the PUMA Act) levels. The first phase of the project included preparation of a Coastal Infrastructure Management Strategy, and incorporated aspects of natural resources management. A major effort was put into preparing coastal infrastructure management plans, right down to district and village levels. Infrastructure assets are highly vulnerable given the costs that are incurred for construction and maintenance. The aim is to reduce the vulnerability and increase the resilience of infrastructure and related assets.

28. However, the planning is also raising village expectations. But the Government has yet to develop a clear strategy to implement the Coastal Infrastructure Management Plans that have been prepared. As a result the coastal infrastructure assets remain highly vulnerable. There also needs to be an extension of the plans to accommodate inland flooding and watershed management, in light of the impacts on infrastructure and works.

29. There is strong uptake of MNREM's community awareness programmes, due in part to the support and involvement of political leaders – they have an impressive high level of engagement in the many environmental awareness programmes.

30. As noted above, the PUMA Act was initially intended to apply only to the Apia municipality. It has now been extended to all of Samoa, including customary lands. This wider application of the Act occurred without adequate consultation, legislative review or consideration of the broader social and cultural consequences. Currently even minor developments on customary land require an approval. This would suggest the need to identify specific activities that are permitted on customary lands, thereby avoiding the requirement for a development consent.

31. PUMA has operational responsibility for development planning and for the regulation of development projects, to ensure that environmental, social and related impacts are kept to acceptable levels. Its approaches are considered by many individuals and organizations to be too complex and more suited to a developed country – many people, including politicians, dislike the role PUMA is playing in the development process. Many advocate a change in PUMA's mandate and procedures to ensure that the planning and regulatory processes better reflect Samoan cultural and social systems. This will require extensive consultations at community and other levels if the desired improvements in consistency, certainty, transparency, equity and timeliness are to be achieved while also ensuring that good environmental outcomes are not compromised. A comprehensive framework will be needed to guide any changes in the legislation and associated regulations.

32. Capacity building is increasingly taking a more integrated approach to development planning. This includes building capacity within Government to prepare and secure approval of national policies and legislation. While many activities are currently project driven, recent moves to a more programmatic approach are encouraging. The implications for core funding by Government still need to be identified and addressed. The improving relationship between the National University of Samoa and the Ministry of Education, and especially with Faculty of Education, is helping to ensure that the training provided by the university is catering to the needs of the education system.

33. Government is now outsourcing some development projects, but there has not been a concomitant increase in the capacity of the private sector and civil society to provide these additional, and sometimes new, services. For example, there is a need to improve the capacity of the private sector with respect to environmental planning, management and monitoring. Capacity is also required in line ministries to ensure effective engagement with the private sector and NGOs and also to ensure that outsourced work is adequately monitored, assessed and interfaced with Government policies and plans. Importantly, many ministries are still implementing projects whereas their focus should be on providing an enabling environment, including improved coordination and cooperation between ministries and with other stakeholders.

34. Where possible there should be greater emphasis on involvement of civil society at the programmatic level, in order to ensure sustainability of expertise and service delivery. For example, it is currently difficult to maintain an adequate supply of pandanas for mats and wood suitable for carving. This is in part due to the long lead time required to produce such materials.

35. To date economic policy makers and planners have seldom been involved in preparation of proposals for development projects in the key economic sectors. This decreases the chance of success, due to lack of, for example, information on how to access co-financing. Importantly, staff of the Ministry of Finance were not involved in preparation of the National Adaptation Programme of Action or in the National Capacity Self Assessment.

36. Several NGOs have demonstrated success in increasing the income generating abilities of families and small businesses, many of which are reliant on aspects of the environment and natural resource base. For example, the Small Business Enterprise Centre has a focus on training for businesses with five employees or less, including proposal preparation, business planning and marketing and finance. They also provide a small business loan guarantee scheme. This addresses the main barrier to accessing finance, namely the absence of collateral due to most small businesses being on customary land. The Centre deposits funds with the banks, to underwrite 80% of the loan. Most of the funds are provided by the Government, via a loan from the ADB. Before such funds were available the maximum loan was WST 5,000; now the normal limit is WST 50,000, but it can rise to WST 70,000. To date the failure rate is only 6%, which is much better than the rate for commercial loans. Most failures have been in the fisheries sector (due to lack of fish and bad weather conditions), retailing (inadequate business practices) and taxi operators. An EIA is required for some business development projects, before a loan will be guaranteed.

37. Given the increasingly important roles being played by NGOs there is a need for capacity building around mechanisms for the Government to engage with NGOs, including how to channel funding and outsource activities. One aspect of this capacity building relates to cultural change within Government, helping officials and politicians to see the value of utilising NGOs in implementation and to not feel threatened by such partnerships. Currently there is a tendency for some Ministries to 'create' an NGO if they want or need an NGO to work with. The processes for Ministries working with NGOs, or outsourcing to them, need to be transparent and just.

38. In Samoa it is comparatively easy to obtain a loan to develop a small business, but it is often difficult to earn sufficient money to repay the loan, even one with a very low interest rate. In order to increase income generating opportunities for families, Women in Business (an NGO) is: (i) linking small business development loans with income generation projects and ongoing financial literacy and business training support to help increase rates of success; (ii) developing niche export markets including for handicrafts, virgin coconut oil and organic produce; (iii) developing value added products that will benefit families, such as through Fair Trade Certification; (iv) establishing market chains that benefit the producers and protect them from private sector exploitation; and (v) working with producers to ensure quality and supply demand are met.

39. Organic farming is providing significant income generating opportunities for families in some of the more remote areas of Samoa. With support from Women in Business, including access to microfinance and assistance to develop income earning skills, some 30 family farms have been certified and over 40 more are in the process of being certified. Nonu is the main focus at present, but there are increasing opportunities related to virgin coconut oil. A farm will not gain certification if virgin forest is cleared in order to produce crops. Obtaining certification is a major challenge for the typical Samoan (subsistence) farmer. It is difficult to meet the cost of certification. The process is also a lengthy one, typically three years. A critical land area is needed for certification - once sufficient land is certified it is possible to develop viable export crops. When export volumes grow the cost of certification will be manageable as a result of the premiums earned on sales. Until this happens Government support is required to cover the cost of certification as well as for developing the export crops for which there are identified markets. This includes provision of planting materials. To date there has been a lack of consistent Government support for organic certification, including the supply of planting materials. The assistance of Government, or an investor, is required to build up a reliable supply of planting materials.

40. In 2005 the Ministry of Agriculture launched the bamboo crop development project, based on the potential of bamboo to provide another source of income for farmers as a result of its many uses as a wood substitute as well as its nutritional benefits. The two local

bamboo species have limited commercial value. Over the past five years clumping varieties of commercial bamboo have been introduced and planted at various locations. These have the potential to provide edible bamboo shoots, and poles for the construction and furniture making industries. The Matuaileoo Environmental Trust, an NGO, has been appointed national coordinator of this project in order to strengthen stakeholder participation.

41. The recently established Institute for Research and Development will focus, in part, on increasing the capacity for agro-processing in Samoa, as an alternative to exporting fresh products. It is generally easier for processed agricultural products to meet the quarantine and food safety requirements of importing countries. Such processing also adds value prior to export. Limited progress has been made to date, but there is considerable potential.

42. Land capability classification and land use planning can help address sustainability issues by considering the broader interactions between land development and environmental quality. It can help ensure that the most appropriate farming practices are used, including integrated farming systems, inter- and mixed-cropping and chemicals use. With lands, forestry and environment now under the one ministry there is an excellent opportunity to link conservation of biodiversity and protection of watersheds and water resources through integrated land use planning. This can facilitate multiple and integrated uses of land resources while minimizing adverse environmental impacts. MNREM has built up strong capabilities in GIS-based mapping to support such planning, and is making a good start by identifying and mapping areas of high conservation value. This integrated approach is being put to the test with the proposed hydro power development in the Vaitai³ catchment, Savaii. The catchment has been identified as high conservation value, a use that does not conflict with the hydro development. However, the area that would be inundated by stored water has also been identified as being worthy of protection.

43. Inshore living marine resources are very important to the well-being of Samoans. However, there is often over fishing and many of the methods used are not sustainable. An ecosystem-based approach to management is advocated but not often practiced. Marine protected areas, including 117 village fisheries reserves with local bylaws, have been established. The principal success factor is effective consultation involving all stakeholders. Significantly, only some 70% of the original village fisheries reserves are currently fully functional.

B. Increasing Environmental Pressures and Decreasing Environmental Quality

a. The Changes

44. Many coastal fisheries have been severely depleted and are believed to be fished beyond their maximum sustainable level. Coral communities are severely impacted by anthropogenic factors and by recent cyclones. However, assessments indicate that reef fronts are in reasonably good condition, with most areas supporting healthy coral assemblages. Initial assessments of many community-owned marine protected areas indicate substantial coral recovery and growth. Mangroves continue to suffer from coastal development, despite the institution of conservation and mitigation strategies. Protection of mangrove ecosystems is controlled under the Lands and Environment Act 1989 but to date there are no regulations governing the protection of mangroves. Presently only about 27% of communities with community-based management plans have opted to impose appropriate actions to manage activities adversely impacting on mangroves.

45. The quality and security of water supplies are being threatened by forest clearance within catchment areas and by deforestation on marginal land areas, for both subsistence

³ Vaitai stream is part of the Sili river basin – the largest catchment in Savaii.

and commercial oriented agriculture. While some benefits of policy and management initiatives are showing, the need for watershed protection is not being addressed in a coordinated manner.

46. In Samoa there is high use of plastic packaging, along with generally poor reuse and disposal practices at the household level. As a result, high volumes of waste are produced by households, with waste generation rates being similar to the larger countries of the Pacific such as Fiji, Solomon Islands and Vanuatu. The waste generation rate has increased from 0.52 kg/person/day in 1994 to 0.86kg/person/day in 1999. A lower generation rate of 0.45 kg/person/day was recorded for a rural area in Savaii. The large volumes of waste generated per household, when coupled with the often inadequate size of the waste receptacles, mean that the once per week collection often results in bins overflowing and in local littering. Informal dumping is also a problem, and will likely escalate if the planned user pays policy for solid waste management is implemented.

47. Escalating energy prices are increasing the levels of hardship. This in turn is highlighting the urgent need to develop indigenous energy resources. Hydro power and biofuels, especially coconut oil, have the highest potential. But increased development of these resources raises serious environmental and related concerns. Recent developments of indigenous energy resources have had adverse impacts on biodiversity and other environmental attributes. For example, construction of the Afulilo hydroelectric dam resulted in the loss of a globally unique wetland forest which earlier had been proposed for conservation. It also resulted in degradation of a substantive area now forming the Afulilo reservoir.

48. There continues to be prolific use of pesticides in agriculture, despite the growing interest in the use of natural biocides, including insecticides. The recent expansion in cattle farming, and the resulting increased use of agricultural chemicals in water catchments, presents a risk to the quality of water used for domestic and related purposes. According to the 1999 Census of Agriculture, a higher number of farmers are using organic fertilizers (14.8%) than are using inorganic fertilizers (13.7%). The number of holdings using agricultural chemicals has risen slightly (by 2%) since 1989. This is probably due to wide application of chemicals to combat the taro leaf blight. In Samoa as a whole, some 10,000 households report that they use chemicals, while around 8,000 say they do not.

49. There is concern about the use and disposal of various chemicals, agricultural pesticides and herbicides, empty containers and household chemicals. There may be low level, apparently widespread contamination of the Samoan environment by pesticides that are persistent organic pollutants (POPs). This manifests as specific contamination (usually by chlordane) of a range of sites and as the presence of DDT and DDE in low but consistent concentrations in analysed pig fat samples. Specific chemicals of concern are pesticides (particularly POPs-type organochlorines), polychlorinated biphenyls (PCBs), timber treatment formulations (copper/chrome/arsenic (CCA)), and pentachlorophenols (PCP), total petroleum hydrocarbons (TPH) and associated polycyclic aromatic hydrocarbons (PAH), a range of heavy metals, and tributyl tin (TBT). Special concern is also directed towards those chemicals that have been shown to cause health problems, including DDT, dieldrin, chlordane and PCBs. Contaminated sites tend to be associated with agricultural pesticides, PCB contaminated transformer oils, timber treatment chemicals and waste oil.

50. While other environmental media such as shellfish and water do not generally reveal levels of POPs pesticides which are in excess of guidelines, the levels of POPs in pig fat suggest that other elements of the food chain in Samoa could also be contaminated. Contamination from PCBs in oils emanating from leaking electrical transformers is very localised, limited in extent and concentration, and quite manageable by securing the known sites of contamination and, in due course, excavating and appropriately disposing of the

contaminated soil. The redundant timber treatment site at Asau is grossly contaminated. This, and other sites contaminated with petroleum hydrocarbons, including polycyclic aromatic hydrocarbons, will require extensive clean-up activity. More fundamentally, basic environmental management regimes need to be promptly established to prevent further significant contamination, both of the sites themselves and the surrounding environment. At the Electric Power Corporation's Tanugamanono site the more or less continuous release of waste oil into the Vaisigano River is a cause for major concern, requiring immediate management attention.

b. Causes/Drivers

51. In recent years there has been a rapid and accelerating transition from a subsistence to a cash economy, along with growing pressures on customary resources and practices and increased use of polluting and non-biodegradable substances. These changes have been paralleled by increased development of infrastructure and associated facilities, for example in relation to tourism. But natural systems are also facing increased stress due to external factors, including climate change, sea-level rise and the invasion of pests and diseases. Together these give rise to a large number of environmental and related concerns.

52. There are many natural hazards that pose a threat to Samoa, including tropical cyclones, storm surges, volcanic eruptions, earth quakes, tsunami and drought. The vulnerability of Samoa to the impacts of climate change and sea-level rise is a serious concern because 70% of its population and infrastructure are located in low lying coastal areas. Samoa's economy largely depends on its natural resources, which rely on good stable climatic conditions for growth and sustenance. Much of Samoa's primary production relies on a climate that is characterised by sufficient sunlight, rainfall and absence of extreme events. The mapping of areas vulnerable to natural hazards indicated that 65% of all areas assessed for sensitivity to coastal hazards were highly vulnerable, 20% medium and 11% being very highly sensitive. Only 4% of the coastline is considered to be resilient to coastal hazards, most of which are climate related. Understanding the implications of climatic change, such as sea-level rise and global warming, is of critical importance in Samoa's attempts to adapt to these changes. The climate risk profile for Samoa (Annex 1) quantifies the climate related risks, based on an analysis of observed data and on projections using global climate models.

53. Samoan island ecosystems are especially vulnerable to the problems of land degradation and unsustainable land use because their natural resource base is limited and ecologically fragile. In some well-delineated areas, such as the watersheds and catchment areas around the Apia urban area and in northwest Savaii, a variety of factors interplay to produce a situation where land degradation is an issue of increasing concern. The most pressing land degradation issues in Samoa include: a) deforestation as a result of: i) commercial felling/extraction, with little replanting; ii) inappropriate agricultural activities and inappropriate land uses which in turn causes the loss of soil fertility; and b) coastal erosion as a result of: i) extraction of sand; ii) destruction of mangroves; and iii) inappropriate coastal reclamation. The push for cash crops is a principal reason for land clearance, with people ignoring their own need for a secure food supply of adequate nutritional value.

54. The increase in the population of Samoa over the past two decades has increased pressures on inshore marine resources, particularly the more accessible lagoon resources commonly harvested by village fishers. More people are looking to the nearshore resources for their subsistence. Moreover, pressures arising as a result of over fishing, use of destructive and overly efficient fishing practices, inshore environment degradation, ongoing coastal developments, pollution, and natural disasters have adversely affected the coastal resources and marine environment.

55. The supply of coconuts is currently diminishing, partly in response to the present lack of a reliable market and partly because people see poor returns for their efforts. Moreover there has been no major replanting of coconuts since the planting regimes in the middle of the last century. These trends conflict with plans to address energy price and security issues by increasing production of biofuels in Samoa. This will likely to require considerable improvement in the productivity of existing coconut plantations as well as extensive new plantings.

56. **c. Lessons Learned and Yet To Be Learned**

57. Many factors are contributing to inadequacies in, or total absence of, information on the current state of the environment. These factors include insufficient technical equipment, financial resources and individuals with the necessary expertise, as well as environmental monitoring being a low priority for Government. The need for such information is growing in importance. The information that does exist suggests that environmental quality is deteriorating, especially in and near areas of higher population density, and that the natural resource base and biodiversity are both declining. Environmental information is required to establish baseline conditions, against which the anticipated environmental impacts of planned development can be judged.

58. Furthermore, the effectiveness, or otherwise, of environmental policy and management initiatives cannot be determined if there is not adequate information on the state of the environment. If environmental and related considerations are to be integrated successfully in sector plans and operations there needs to be a mechanism for determining the extent to which specific environmental outcomes are being achieved. Environmental indicators provide a mechanism for determining the extent to which outcome targets have been achieved. The same indicators can also be used to ensure that environmental considerations are an integral part of performance based budgeting.

59. A large number of villages are reclaiming customary lands, with the associated rights of use. Importantly, many of these areas constitute critical watershed lands. As a result, there is a need for the Government to be more proactive with respect to ensuring protection of such important areas. The Government is undertaking some trials, but even in its water supply projects little attention is being given to watershed protection. Overall, the areas involved in the trials, and the rate of progress, are both considered to be inadequate. With respect to cropping, little attention is being given to protecting the soil, or the environment in general.

60. Coastal and marine resources are fundamentally important for the well-being of Samoans. They provide food, shelter and protection as well as other basic needs for human and economic development. But as shown above the condition of these resources is generally in decline. This is despite the protection, conservation and development of marine resources having been a high priority for the Samoan Government since independence in 1962, and remaining a major focus of sustainable development efforts.

61. The implications of increased biofuel production for current land uses, as well as for biodiversity, are likely to be substantial. Any substantial increase in the demand for coconut oil could have a major detrimental impact on natural resources, especially if it results in large forest areas being targeted for replanting. The vulnerability of such monocropping is also a concern. Disease, or an intense cyclone, could wipe out most of the supply. Currently there is small scale production of virgin coconut oil, for export or local processing into high value products. It would be unfortunate if this small, but locally important industry became unsustainable due to a rising national demand for coconut oil as a biofuel.

62. There are concerns that the Government sometimes exempts itself from regulatory requirements⁴, resulting in Government driven development taking place without adequate assessment of the environmental and related impacts. The Government needs to set an example, rather than argue special circumstances, such as urgency. Politicians express concerns that meeting environmental requirements constrains development, though there are decreasing levels of frustration as awareness grows. The current state of the environment and natural resources, and the stresses on them, was not discussed during the 2006 election campaign.

63. Often the efforts made by the Electric Power Corporation to protect the environment and natural resources are poorly understood. There are several locations in both Upolu and Savaii where it is technically feasible to develop hydro power resources, but there may be environmental, social and cultural constraints. One of the most challenging issues relates to negotiating access to land and compensation for the right of use by landowners. The policy of the Electric Power Corporation, and the Government, is to not expropriate land but to compensate for its use.

64. There is a serious absence of baseline data on the state and use of the environment and natural resources, despite its importance for environmental assessments (including EIA) and for policy development and evaluation. Factors contributing to this situation include a lack of equipment, qualified personnel and operating and maintenance budgets. Tools and procedures also need to be in place if the planning and statutory systems are to work effectively and efficiently. For example, valuing environmental services and natural assets makes it possible to identify the full economic costs and benefits of development, and is thus a valuable decision support tool. But there is a serious lack of such expertise, both nationally and region wide. The International Waters Project could not achieve all its objectives, in Samoa and regionally, in part because of a lack of such expertise. Significantly, next year the National University of Samoa will start offering a third year course in natural resource economics.

65. There are also significant gaps in environmental awareness amongst the general population. These need to be addressed if members of civil society are to be more effective partners in development and environmental projects. In many villages there is still a lack of understanding about practical and feasible opportunities to improve the well being of individuals and families. Over 80% of the population have not completed a basic education, Initiatives of the Ministry of Education and local NGOs, including Second Chance Education, are helping to ensure that members of the wider community recognise the value of practices that will improve their own quality of life, as well as the well being of the environment and natural resources. This is the first and critical step in ensuring they are motivated and have the skills to engage in activities which are beneficial not only to themselves but also to the wider community and the country as a whole.

66. Tourism is one of the fast growing economic activities in Samoa, with natural resources and people being Samoa's principal tourism assets. Degradation of natural resources and loss of social and cultural values and traditions threatens to undermine the tourism industry and its role as a major source of income for present and future generations of Samoans. There is a need to ensure that the physical environments such as waterfalls, caves, cliffs, and mountains, and biological important areas such as rainforests, mangroves, and marine ecosystems are protected and managed sustainably and jointly as wildlife conservation areas and tourist attractions. In addition, numerous socioeconomic and cultural opportunities and constraints need to be addressed, principally through rural-based

⁴ Many of those consulted referred to the relocation of the Planning & Urban Management Agency from MNREM to MWTI in 2005 as a reflection of this attitude of the Government, however, with the recent return of PUMA to MNREM, many were hopeful that this will be an opportunity for future positive changes in government policy with respect to environmental management.

community tourism. The current five year Tourism Development Plan for Samoa identifies the need for sustainable tourism but does not provide substantive guidance on how this might be achieved. Community tourism ventures need to be made more aware of the importance of conserving national resources and the environment at large. Rather than engaging in traditional tourism activities, further development of ecotourism would be an appropriate alternative. It would serve as an effective environmental mainstreaming strategy.

C. Unchanged Environmental Practices and Quality

a. The Status Quo

67. A common view amongst informed Samoans is that there is considerable talk about the environment but many missed opportunities. Much of the action to date is considered to be donor driven. There has also been little progress with integrating environmental considerations into development policies and planning, in a whole of Government approach. Environmental policies and management are by and large left to individual ministries, due in part to the environmental policy vacuum in the current SDS. The result is an ad hoc approach that is largely driven and underpinned by external funding. Environment-related assistance appeals to governments and citizens of donor countries, as well as to development assistance partners.

68. The intention was to mainstream environmental considerations in the current SDS. But as noted above, the SDS is effectively silent on the environmental policy and management dimensions of the six goals and their associated strategies and priorities. There is not even a statement acknowledging that an attempt has been made to mainstream environmental considerations.

69. This is not the case for the draft National Energy Policy. It at least states that “Cross cutting issues such as Environment, Energy Efficiency and Conservation, Human and Institutional Capacity and Promotion and Dissemination of Information are reflected in each section [of the Policy]”. But an analysis of the Policy reveals that inclusion of environmental considerations also leaves much to be desired. There appears to be greater concern about complying with multi-lateral environmental agreements than about managing environmental impacts in ways that add value to the proposed policy initiatives rather than detract from them.

70. Samoa is facing and suffering the widespread social and economic consequences of escalating energy costs. However, only one Electric Power Corporation vehicle is currently successfully fuelled by coconut oil. The engine of a second vehicle (different brand) was not well suited to the fuel and it soon failed. An organic waste biogas generation project was piloted at the Tafaigata landfill, but technical issues led to its premature closure. Development of hydro-power in the large island of Savaii has remained in the planning stages for over three years and may take some additional time due the difficulties associated with securing the support and consent of landowners of the potential river systems for this development⁵.

b. Barriers and Lessons Learned

71. The evidence presented above suggests that, while there is an interest in, and commitment to mainstream environmental considerations, the practical procedures are eluding those responsible for drafting key policy documents. Moreover, mainstreaming environmental considerations requires that there be a high level policy directive that such mainstreaming will occur. For Samoa this might best be achieved by including such a

⁵ This refers to the Sili river basin hydro-power scheme where studies were carried out in the 1990s. Initial talks with landowners and impacts assessments commenced in 2002, and are still continuing.

statement in a set of principles that guide the content and implementation of the SDS. Subsequent policy goals and priorities should give effect to this principle. A similar approach could also be followed in each of the sector plans, thereby providing the policy context for all ministries and other Government agencies.

72. The current almost total absence of environmental considerations in national policies and plans is a significant barrier. For example, when seeking funding, whether from internal or international sources, it is very difficult to claim that the Government gives a high priority to addressing climate change when there is no reference to it in the SDS. As another example, the national energy policy that is about to be submitted to Government advocates increased use of renewable energy but, as noted above, it limits environmental considerations to the global benefits of decreased consumption of fossil fuels rather than recognising the environmental implications (both positive and negative) for Samoa.

73. The current development approach in the public sector is very sectoral. There was a start towards a more integrated approach, but now emphasis is moving back to sectors. The sector planning guidelines list 15 sectors, grouped into economic, social and infrastructure. Moreover, the Government focus is on macro-economic policy supportive of national goals and the private sector.

74. Public sector institutions need to be mandated to mainstream environmental considerations. Otherwise they are likely to assume that environmental policy, planning and management are largely, if not exclusively, the responsibility of the ministry that includes the environmental portfolio. In the case of Samoa this is the MNREM. Conversely, the mandate of the MNREM should be clear about its roles in environmental policy, planning and management, in light of the environmental responsibilities assigned to other Government institutions. Clearly there is value in ensuring that MNREM recognises its responsibility to address the full range of cross-sectoral environmental considerations.

75. As noted above, SDS 2005-2007 does not provide any policy guidance on mainstreaming environmental considerations. This is an unfortunate omission, especially given that the Sector Planning Guidelines make reference to giving effect to cross-sectoral policies. As noted in Annex 4, there are numerous national cross-sectoral policies that in turn identify environment as one, of several, cross-sectoral themes. It is important that these policies provide clarity in terms of which Government institution has principal responsibility for implementation. For example, the National Policy on the Sustainable Development of Forests, 2005, identifies MNREM as the implementing agency. But all policies should go further and define the roles other Government institutions will play in implementing specific elements of the policy, consistent with their environmental mainstreaming responsibilities.

76. In addition, mainstreaming of environmental considerations will succeed only if there is informed and willing acceptance of such a whole of Government approach. This is a major hurdle, given that many people will see the work as an additional burden, for little personal gain. It calls for concerted efforts to engender a collective responsibility for environmental stewardship

77. Successful mainstreaming of environmental considerations also requires that relevant individuals in Government institutions have the understanding and skills to ensure that sector and cross-sectoral policies and plans, including the SDS, incorporate strategies and actions to minimize adverse environmental impacts and maximize the appropriate use of environmental services in ways that add further value to intended outcomes. It is also important that in each institution there are individuals with the ability to establish environmental performance targets and identify, monitor and evaluate appropriate performance indicators. Furthermore, all relevant Government institutions need to be able to

access the expertise required to undertake the environmental assessments required as part of project planning and programming.

78. As noted above, project planning and programming by Government is largely sector based. It is perhaps unwise to think that, even when environmental considerations are fully mainstreamed, all the opportunities and constraints associated with a cross-cutting theme such as sound environmental management will be fully accounted for through sector planning and the use of sector-based performance targets and indicators. This is especially so for the environment, activities within one sector may impact adversely on the environmental performance of another sector, whether it be in terms of exacerbating negative environmental effects or reducing the extent to which the environment adds value to activities in that sector,

79. Thus there is need for the policy framework and operational procedures to address the full range of cross-sectoral environmental considerations (Figure 2).

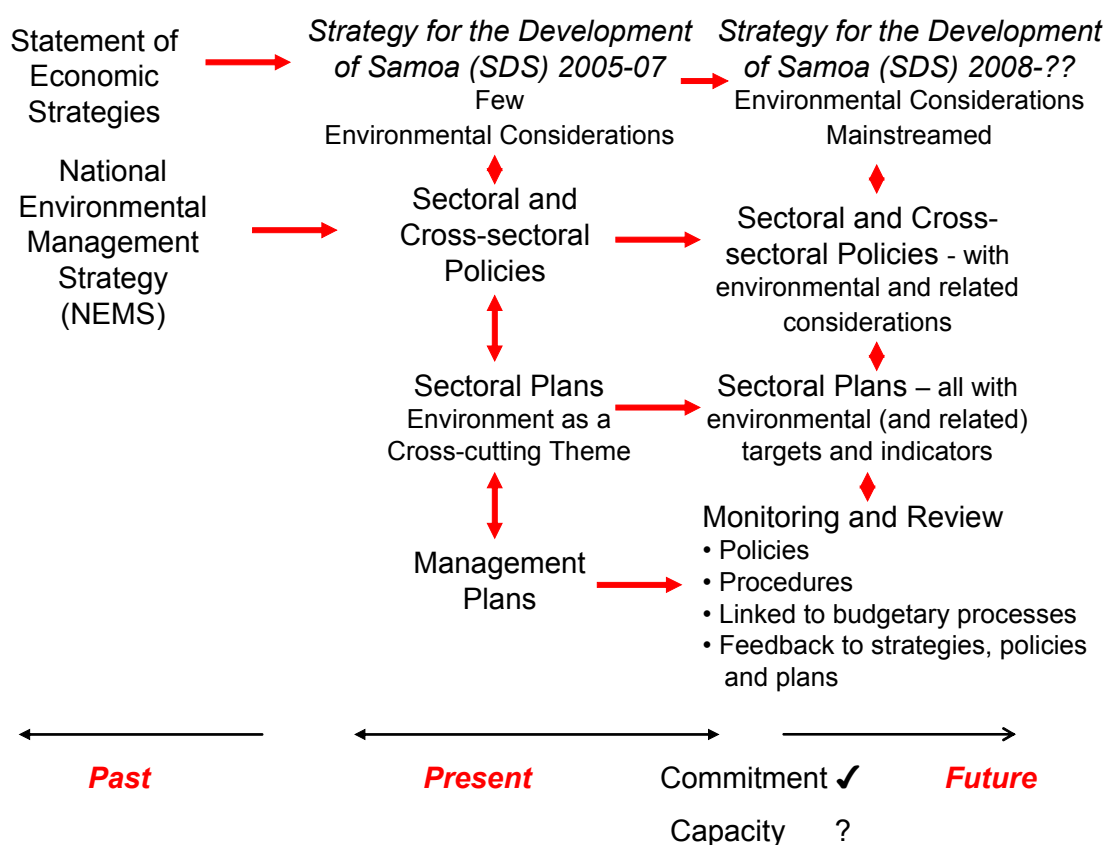


Figure 2 Past, current and proposed approaches for including environmental considerations in national development planning processes.

80. At the level of project planning and programming the guidance is very explicit, and clearly states that the responsibility for preparing project viability documentation, including an environmental impact analysis, rests with the concerned line agency. Environmental impacts are also considered during project evaluation. Evaluation criteria could usefully be extended to include the extent to which environmental services have added to the project outcomes.

81. The Sector Planning Guidelines do note “.....that there are issues or themes that cut across more than one sector — for example, environmental management, urban

development, and private sector development. Specific policy and legal frameworks and strategies may be developed to address such concerns, and may affect many or all sectors. Formulation of sector plans should ensure consistency between the plans and any cross-sectoral policies”. But as noted below, the management plans of Government institutions need to go several steps further. In doing so they will hopefully provide a model for the private sector and civil society to emulate. In this way mainstreaming environmental considerations progresses from being a whole of Government policy and practice to a whole of country practice. In reality, the private sector and NGOs often lead the mainstreaming process, albeit within the narrow purview of their own operations.

82. The additional steps are to ensure that the management plans include: (i) measurable and time bound targets that encompass environmental outputs and outcomes in conjunction with the conventional outputs and outcomes of the institution - the environmental targets should reflect the commitment in the relevant sector plan to minimize adverse environmental impacts and maximize the appropriate use of environmental services in ways that add value to their efforts; (ii) establishing and monitoring a suite of indicators which can be used to assess the extent to which the targets have or have not been achieved; (iii) the requisite reporting and quality improvement activities, based on the targets and indicators; and (iv) recognition that future allocations of financial resources to the institution will, at least in part, reflect the extent to which the agreed targets have been met.

83. Achievement of environmental targets should be helped by the fact that the Manual on Project Planning and Programming requires that the viability of all public sector projects be demonstrated in part by showing it is “environmentally friendly”. This is achieved by undertaking an environmental impact analysis. An incentive to meet such requirements is the fact that the Ministry of Finance will increasingly be using the information contained in the reports as input to the performance-based budgeting process.

84. One of the main constraints to ensuring environmental and related improvements in the key economic sectors is the lack of understanding of the environment and related legislation, resulting in less than desirable levels of compliance and in a lack of enforcement. Much development is inconsistent with at least the spirit of the legislation and ignores or downplays environmental considerations. There is a need to improve understanding of the relevant legislation, including the processes related to gaining a development consent. The current tendency to offer both verbal approvals and approvals “in principle” undermines the process of ensuring compliance. These constraints suggest the need for capacity building, especially in relation to procedures for development approvals.

85. A related constraint arises from differences in definitions and their interpretation. For example, “environment” is considered by most Samoans to refer to only the biophysical (or “natural”) environment. This is also how “environment” is defined in the Land, Survey and Environment Act. But the PUMA Act has a much broader definition that includes social systems and the built environment, with people central.⁶ Importantly, the breadth of the definition is now recognized to be conducive to mainstreaming environmental considerations, rather than an impediment. It facilitates consideration of the interactions between the built and natural environments and also mobilizes more resources for environmental management. But there is some overlap (i.e. conflict, duplication) between MNREM and PUMA in terms of what their respective legislation enables them to do. This needs resolving.

⁶ “Environment includes: (a) Ecosystems and their constituent parts, including people and communities; and (b) All natural and physical resources; and (c) Amenity values; and (d) The social, economic, aesthetic, and cultural conditions which affect the matters stated in paragraphs (a) to (c) of this definition or which are affected by those matters” (PUMA Act 2004).

86. During the 1990s draft EIA legislation, consistent with the LSE Act (1989), was twice submitted to Government for approval, but never came into force. As an interim measure the Division of Environment and Conservation prepared guidelines for conducting an EIA. The recently approved PUMA Act provides for EIAs, with a two tier process. The formal regulations under the PUMA Act are currently being drafted. Thus the specific EIA procedures currently lack statutory authority and could be challenged in the courts. There is also a possibility that MNREM will continue to seek approval for the EIA regulations under its Act, using that definition of “environment” and seeking to ensure that all development is sustainable.

87. In the interim, informed opinion is that the current legislation provides adequate legal power to control development and protect key assets such as the environment. Thus there is sufficient legal power underpinning the EIA and related regulations. However, it is important that decisions are always consistent with the legislation. Where the regulations are failing to deliver the desired environmental and related outcomes, the regulations themselves should be strengthened.

88. Current practice is to submit the findings of a preliminary EIA as part of an application for a development consent. Both Government and the private sector generally adhere to this practice, though there are notable exceptions. Criteria for a development consent include not only environmental considerations but also social and amenity impacts, both positive and negative. The Chief Executive Officer of the Ministry of Works, Transport and Infrastructure has been delegated powers to decide, on the basis of advice regarding the scale and nature of potential impacts, if a full EIA should be prepared. One criterion is the capital cost of the proposed development – if it is less than WST1million a full EIA may not be required. If a full EIA is required it is normally prepared by the applicant, often with the assistance of private consultants. PUMA plays a monitoring role.

89. The PUMA Board, and the Minister, have powers to change or waive the EIA requirements. This flexibility is designed to allow for emergency situations, but some people consider it provides too much discretion, and has been abused. There are several instances where an EIA has been undertaken after a project has been given approval and, in isolated cases, where project activities have already started. Inconsistencies in rulings on applications for development consents have also raised concerns, both within Samoa and from development partners such as ADB and the World Bank.

90. PUMA was initially established within the Department of Lands, Survey and Environment (now the Ministry of Natural Resources, Environment and Meteorology). In 2005 PUMA moved to the Ministry of Works, Transport and Infrastructure. This gave rise to concerns that public works would be given preferential treatment for development consents. However, others saw it as an important step in the mainstreaming process. The close working relationship between the major public sector development agency, and the development regulator, would allow for improved understanding and better coordination of their respective roles, facilitate the uptake and application of best practices, and reduce consent processing times.

91. The Government elected into office in April, 2006, decided to relocate PUMA back to MNREM, after only 18 months in the Ministry of Works, Transport and Infrastructure. During this time MNREM has undergone considerable institutional strengthening, to reflect a wider mandate regarding planning and technical assessments. Major benefits will result if the work programmes and procedures of PUMA and MNREM can be harmonized so that both institutions strengthen the enabling environment for sustainable economic and social development. A review of the Lands, Surveys & Environment Act 1989 is in progress, to reflect the ministry's new functions and responsibilities.

92. There are many young and capable entrepreneurs in Samoa who are keen to contribute to the development of Samoa, but they are often frustrated and deterred by regulations that degrade the enabling environment and by high compliance costs. The Government must take the private sector seriously, and ensure it provides a strong enabling environment, rather than seeing the private sector as making others rich. There is thus a need for Government to move from a “command and control” approach to allowing increased flexibility for the private sector to meet development, environmental and social objectives. In this way the private sector will be more willing to engage in a coordinated development process.

III. MOVING FORWARD

93. Both the environment and natural resources of Samoa provide substantial development opportunities, in such sectors as agriculture, fisheries, tourism and energy. There is widespread agreement on the desirability of, and opportunities for, environmental and related improvement in the key economic sectors. But there is no consensus on how these opportunities might be realized, let alone who should lead the process. It is clear that many of the necessary changes will have to be initiated and facilitated by Government, in a whole of Government approach that encompasses the SDS and sector strategies and plans. MNREM has the vision and capacity to coordinate the process. Senior people in Government will need to understand that, while a concerted effort will be required, many of the benefits will only become apparent in the longer term. The stable political situation in Samoa should be conducive to Government taking such a longer-term approach to development, including paying increased attention to environmental considerations. There is also a need to change the mind set of most senior Government officials. This requires that they make themselves more aware of what is happening, and should be happening, in the villages and other communities.

94. Extensive participatory consultation will be a prerequisite to success. This will require consultations within Government, as well as engaging effectively with the private sector and civil society, to the village level. People are keen to move forward, but need to be guided and encouraged, and need to see that the contributions that make will bring tangible improvements in their quality of life. Both the increased openness of Government, and its greater willingness to engage in dialogue, provide a foundation on which to build a consensus on how the environment can contribute further to the development of Samoa, without compromising environmental quality and the integrity of the country’s natural resource base. While it is important that the process and resulting development strategies be nationally owned, support will be required from development partners. The latter will also need to be ready to reflect the new strategies in their assistance programmes.

95. The following two examples highlight the need for comprehensive assessments and meaningful consultation as part of improved environmental management practices.

96. The Ministry of Labour is planning new industrial zones, to address the shortage of suitable land in existing areas. They recognise the desirability of MNREM advising on possible sites for new industrial zones. To date national parks have been established only on Government lands. The intention is for these initiatives to provide an example that will eventually be extended to customary land. One national park is also being developed as a RAMSAR site, which will increase its appeal to both overseas and domestic visitors.

97. The Peoples Republic of China recently designated Samoa as an officially endorsed tourist destination. While this is likely to result in substantial investment in tourism infrastructure, there has been no formal discussion with stakeholders about the potential environmental impacts. Opportunities exist for further development of community level tourism. Such initiatives will help increase the income generating capacities of rural families.

But there are numerous examples of families and communities constructing beach fale and other structures, in anticipation of a growing demand for such tourism facilities. Inadequate planning, poor management practices, combined with low levels of patronage in the absence of marketing and other support, have often resulted in business failures, with the facilities falling into disrepair due to harsh conditions and inadequate maintenance. The sustainability of such initiatives requires that families and communities have the necessary skills as well as ready access to mentoring and other support programmes. Community-based conservation programmes will also have higher value and increased sustainability if they are linked with tourism development. Importantly, it will be a challenge for the Samoan Tourism Authority to promote such small to medium scale developments in an effective manner.

IV. PRIORITIES FOR ACTION

98. This section draws on the preceding analysis to identify and justify the selection of seven broad priorities for action that will help reduce environmental constraints and maximise the development opportunities provided by Samoa's environmental assets and natural resources. The priorities for action have major implications for national policies and practices, as well as for ADB and Samoa's other development partners.

A. Priorities

a. Environment for Development

99. This priority goes beyond the conventional view of environment⁷ as one of the three pillars of sustainable development, to also consider the Samoan environment as a key component of the "enabling environment" for development. On the one hand, the intention is to highlight and take advantage of the many ways in which the environment, including natural resources, can further the social and economic development of Samoa. On the other hand, this important contribution must be sustainable. Prudent policies and wise management practices are required since, in all likelihood, the natural assets of Samoa will play an increasingly important role in the economic and social well-being of the country. In summary, the priority is designed to give *practical* meaning to the statement "sound environmental management is a profitable investment, not an unproductive cost".

100. A critical step is to achieve a consensus regarding what is needed to facilitate development in Samoa through sustainable use of environmental and related assets. Not only is a whole-of-Government consensus and commitment to action required, but indeed the consensus must be whole-of-country. The vision and implementing strategy will be more inclusive and robust if it is built up from village and community levels. This is not to imply a prolonged and expensive consultative process. Quite the contrary, thanks to the committed efforts of NGOs, community-based organisations (CBOs), the Government and other key players. Amongst village and community leaders, and their constituents, there is already a well-developed understanding regarding what is needed to increase their individual and collective well-being, including that of the country at large. Government should heed these messages and ensure they are better reflected in such important policy and planning instruments as the SDS and sector and cross-sectoral policies and plans. This approach is preferable to updating such policy documents as the National Environmental Management Strategy (NEMS). Doing so would do much to negate the limited progress already made in mainstreaming environmental considerations in development and planning processes.

⁷ In this context, environment is used as defined in the PUMA Act (2004), namely "Environment includes: (a) Ecosystems and their constituent parts, including people and communities; and (b) All natural and physical resources; and (c) Amenity values; and (d) The social, economic, aesthetic, and cultural conditions which affect the matters stated in paragraphs (a) to (c) of this definition or which are affected by those matters"

101. On the other hand, the intention that the current SDS would mainstream environmental considerations by treating the environment as a cross-cutting theme clearly failed. Thus careful thought needs to be given to how the informed views of stakeholders, including the private sector and civil society, can be accommodated effectively in policies, plans and management initiatives. Figure 2 has outlined the major changes required to achieve an environment for development, including the mainstreaming of environmental considerations.

102. The first step might well be to establish an inclusive national task force, comprising qualified and motivated individuals from ministries seconded to work with like-minded key players from the private sector and civil society. The task force would be mandated to identify and define the national consensus regarding what is needed to facilitate development in Samoa through sustainable use of environmental and related assets. It would also be charged with the responsibility to provide bureaucrats with a menu of options for policy, planning and operational initiatives that would give effect to the consensus view. The task force could also become a more formal Government unit under the MNREM and undertake the monitoring and evaluation of the mainstreaming activities, with staff trained for the purpose.

b. Accessible, Affordable, Sustainable and Renewable Indigenous Energy Supplies

103. Progress has been made in terms of achieving the priorities set for the power sector in SDS 2002–2004. The rural electrification programme is completed. Some 98% of Samoan households are now supplied with electricity. Based on 2002 community consultations, the Electric Power Corporation was the only Government agency given the “most satisfactory” rating for provision of quality basic social services.⁸ Moreover, in 2003 the financial performance of Electric Power Corporation was positive for the first time in 10 years. But despite pro-poor “lifeline rates”, escalating prices of fossil fuels are imposing increasing hardship on many Samoan families, as well as impacting the national economy. Any increased frequency in drought due to climate change will leave Samoa with diesel as the only option. But by then operating costs will be high and it will affect usage rates. Investment in other forms of renewable energy and promotion of renewable energy technology is therefore crucial.

104. There appears to be little planning for such a contingency, despite the fact that petroleum products accounted for 15% of Samoa’s total import expenditure in FY2004/05 and the transport and communications sector has a 12.5% share of GDP. Samoa 2000: Building on Recent Reforms is silent with respect to energy policy and planning, other than noting poor security of supply and a cross-subsidy from business to domestic consumers of electricity. The SDS 2005-2007 refers only to improving efficiency in the supply of electricity to the private sector and the public, and to a review of legislation to open electricity generation to the private sector. A national energy policy is awaiting Government endorsement, leaving Government agencies, and particularly the Electric Power Corporation, no alternative but to use interim ministry policies or ministry and project guidelines in the meantime. The Sector Planning Guidelines identify electricity and transport infrastructure as two of 14 distinct economic sectors. But in terms of both energy sources and the hardware focus this is an overly restrictive view of the energy sector.

105. Fuel represents 74% of Electric Power Corporation’s total generation costs, and 51% of overall costs. As a result, electricity consumers are highly exposed to changes in world oil prices and in foreign exchange rates. Electric Power Corporation’s Corporate Plan identifies diversification through the development of indigenous and renewable energy resources as a

⁸ ADB TA: SAM Participatory Assessment on Hardship, L. Zuniga, 2002

key priority to reduce current reliance on diesel as the primary source of energy. Recent and on-going renewable energy projects in Samoa are summarized in Annex 6.

106. Pressure to identify and develop renewable indigenous energy sources already exists, and is growing. This applies not only to the power sector, but also to fuels for land and marine transport. Traditionally the energy sector in Samoa was dominated by consumption of indigenous biomass – wood fuel and coconut residues – for domestic cooking and crop drying. In 1989 biomass accounted for nearly 60 percent of primary energy supply, diesel fuel and petrol accounted for 16 and 10 percent, respectively, and hydroelectricity, 5 percent. In the 1990s Samoa underwent a rapid transformation toward use of a commercial energy supply based on imported petroleum and hydro-generated electricity. By 1998, diesel fuel and petrol accounted for 22 and 17 percent of the primary energy supply, respectively; hydroelectricity increased to 7 percent, while biomass declined to less than 50 percent. Transport recorded the biggest increase, from 28 percent in 1989 to 36 percent in 1998. In the same period the share of electricity increased from about 9 percent to 13 percent of total energy consumption, with diesel being the primary fuel for generating electricity in that period.

107. Unless there are substantial policy changes it is expected that the demand for diesel, petrol, and electricity will further increase relative to biomass, such that transport-related fuels will account for 50 percent of the primary energy supply by 2008, compared with 34 percent in 1989.

108. No hydrocarbon deposits have been found in Samoa. Although a small geothermal resource has been located, it is too remote from population centres to be utilized. Solar energy is limited to water heating, with some photovoltaic systems on the smaller islands. Wind, wave, tidal and ocean thermal energy are judged unviable, in part due to potential storm damage. A pilot study to assess the potential of renewable energy in the small island of Apolima found it too costly and unaffordable. Nevertheless, trials of some of these energy sources being conducted in Fiji and other nearby countries should be monitored in case experience shows they may have wider relevance to Samoa.

109. At least currently, and in the near future, biofuels, hydropower and solar thermal appear to have the highest potential to provide accessible, affordable and sustainable supplies of renewable, indigenous energy. In the Samoan context these present major development and operational challenges, many of which have environmental and related dimensions. Many biofuels (e.g. those based on vegetable oils, biodiesel, biomass, ethanol, and bagasse) have the potential to make at least modest and sustainable contributions to energy supply in Samoa, along with some of the broader operational and environmental considerations. For example, jatropha may well be worthy of consideration. The tree is very popular in India and China, and is now gaining popularity in the Philippines. The tree is easy to grow and does not require sensitive cultural treatment.

110. However, when considered from the potential to make at least modest and sustainable contributions to energy supply, as well as the broader operational and environmental considerations, it is clear that biofuels are not necessarily the panacea for Samoa's energy supply problems. Thorough and comprehensive analyses will be required before a substantial investment is contemplated in any of these energy sources.

111. Currently a significant portion of power requirement is supplied from local renewable resources, including a hydropower capacity equal to 75% of the demand during the wet season and 37% during the dry season. According to the Electric Power Corporation there are no technical constraints on the further development of hydropower resources in Samoa. But numerous social and environmental issues have been associated with existing

hydropower projects.⁹ All but one of the five existing hydro power plants are on customary land. The fifth is located on land in urban Apia which was privately owned. Unless land compensation is not traditionally settled and legally documented, consulting only selected community leaders and a few of the landowning family members during project inception and design is likely to result in repetitive demands for cash compensation from the Government by different members of the landowning clans and/or community leaders. Community opposition commonly stems from inadequate compensation, perceived disrespect of traditional village authority, and lack of project awareness resulting in speculations such as preferential compensation received by other landowners and fear of potential project damage to the community. If landowners and other community representatives are part of project implementation, monitoring and evaluation this will help ensure continued local support for the project and increase the sense of local ownership of the project.

112. If support for the project is not ensured during the planning stage, there is a possibility that it could encounter active opposition from the local community. Such situations will likely be avoided if, prior to project implementation, landowners are appropriately identified and compensated, agreements legally documented, and if traditional village leaders and members understand and agree with the potential benefits that the hydro facility will bring.

113. Regular project site monitoring will not only help ensure efficient operation of the hydro facilities within the community, but can also be used to conduct regular meetings, if needed, to monitor community concerns, thus helping to identify community concerns as early as possible and prevent unnecessary surprises such as community actions that may prevent access or incur damage to the hydro sites.

c. Equitable and Sustainable Land Management

114. About 15% of land in Samoa is public land and is generally known and recognized as Government land. Government lands can be accessed by every Samoan by way of lease or sale. Freehold land takes up 4% of the total land area. Landowners independently manage their own lands. These can be alienated in any manner desired by the owner, be it through sale, gifting, leasing, licensing or exchange. However alienation to non-citizens or overseas residents is prohibited under the Alienation of Freehold Land Act 1972, unless granted consent by the Head of State. Customary land comprises 81% of land in Samoa. These lands, which are vested in Samoans in accordance with Samoan custom and usage, are primarily managed by a *matai*, being the head of an extended family. As trustee for his family, the *matai* is responsible for the management and allocation of the land for various uses by family members. These lands are protected from alienation for sale by the Constitution of the Independent State of Samoa 1960, except by way of lease or license in accordance with the Alienation of Customary Land Act 1965. An emerging form of land tenure is leased land, that is land under lease arrangements between the lessor and the lessee. All types of land, whether public, freehold or customary, can be leased out to individuals, corporations, community or to private investors. In this regard, leasing can provide a viable option to access the land necessary for private sector growth. It also allows for upgrading the socio-economic statuses of individual family with large-scale farming intentions and for residential purposes. Ideally leasing allows the use of land without alienating it from traditional landowners.

115. Leasing of customary land is closely controlled by the Government. The Minister of Natural Resources, Environment and Meteorology, as the trustee of customary lands, is

⁹ TA 5972 (REG): Promotion Of Renewable Energy, Energy Efficiency And Greenhouse Gas Abatement (Prega 2) Projects.

vested with the power to manage and administer lease arrangements between the landowner (lessor) and the applicant (lessee). The Minister's involvement in land leasing is designed to ensure that landowners are protected from entering into inappropriate land deals or making unwise decisions, and to prevent alienation of customary land or ownership from the landowner. But it might not be appropriate for the Minister to have this role. An autonomous body might be more effective in achieving the outcomes that are the current basis for the Minister's involvement.

116. Freehold and customary land are valued differently. The process for leasing of customary land is cumbersome. It needs to be shorter and more certain, with landowners knowing their rights and a lessor having security of tenure. Frequently the competing claims for ownership of land delay the formalisation of a lease. The court system is viewed as the only way to resolve disagreements regarding land ownership. Currently there is a six year backlog in appeal cases being heard by the Land and Titles Court. The court system can also result in inequities. Some people are less capable than others when making use of the legal system. The court does not allow lawyers to present cases. Dispute resolution, including mediation, tends to be far more equitable. Access to land information is also far from equitable at present – land tenure records are very inadequate. A computerised system for record keeping would do much to reduce this inequity, increase certainty and shorten the time taken to resolve disputes.

117. Unregulated clearance of native forests occurs as a result of shifting cultivation and expansion of family plantations, leading to soil erosion and the loss of other environmental assets and services. Approximately one third of the country's forests were cleared between 1977 and 1990, the clearance rate of 3% per year being one of the highest in the world. Deforestation impacts adversely on wood supply, water supplies, biological diversity and on livelihoods. Many Samoan families actively maintain a weed-free environment. This can promote the exposure of soils to rain splash action, with the resultant movement of particulate matter downslope and downstream. The practice of slash-and-burn farming, and shifting cultivation on steep slopes and riverbanks, without buffer zones, is relatively common. The destructive roles of cyclones in clearing forests were evident during recent cyclones. Infrastructure development in the interior and on coastal lands also contributes to land and forest degradation. Recently 3,000 acres of 'virgin' forest in Tafua village have been designated by Government for the expansion of Salelologa Township in Savai'i. When soil becomes bare, and hence vulnerable to compaction, soil fertility will decline as a result of both reduced return of organic matter to the ground and leaching of nutrients from the soil. This in turn leads to less biological activity and in some cases to increased land pollution as a result of the need to resort to agrochemicals in order to maintain crop production rates.

118. The construction of access roads for agriculture under a Government-funded programme is considered to be a factor in villages clearing substantial areas of forests for agriculture. The programme has since been discontinued, at least on paper. The Government continues to respond to village requests for the construction of access roads. However, most of the recently established access roads are in areas already cleared and cultivated, and are therefore unlikely to be the cause of additional forest loss or degradation.

119. Monocropping, rather than the more traditional systems such as mixed cropping and integrated farming, is more likely to result in land degradation via soil erosion due to rainwater. Commercial logging has, over the years, contributed significantly to the reduction of forest areas as well as their severe degradation. Changes in agricultural land use patterns and the consequences of the taro leaf blight in the late 1980s have influenced the increase of secondary forests and overgrown agriculture plantations on the major islands of Upolu and Savaii. Degradation of land and its resource base is believed to be almost non-reversible, especially in view of the severe repercussions on the soil and for productivity of the land.

120. To ensure the proper utilisation of land resources, there is a need to promote land capability guidelines and an integrated system of land information that developers can use to guide the best development methods to the most suitable land. Such measures can now be strengthened under the umbrella of the recently approved Land Use Policy. Addressing the high population growth rate and the impacts of increasing urbanisation will require concerted efforts to establish an integrated planning and management system that is responsive to urban growth pressures and which builds on the existing capabilities of agencies and village groups already servicing the urban area. The system should provide regulatory policies and frameworks that would ensure good delivery of services required to sustain the quality of life desired.

d. Secure and Affordable Access to Appropriately Nutritious Food

121. Samoans rely heavily on biological resources for their economic, social and cultural wellbeing. The use of natural resources for food, artisanal and medicinal purposes is an essential expression of the Samoan culture. The challenge is to achieve protection for biodiversity resources within the context of sustainable use. This is best done with the cooperation of those living in the area and who are the main owners and users of the resources. Key objectives related to enhancing food security in Samoa are to increase domestic production and productivity through modern technologies and reduce dependence on food imports. In particular, emphasis is on diversification, including fruits and vegetables, to improve the diet and nutritional status of the population. Accordingly, improving efficient production and strengthening information and technology transfer are seen as crucial areas in enhancing food security.

122. The agricultural sector is a substantial subsistence base which continues to provide a source of livelihood for over 80% of the population and a high level of domestic food security. As noted in the SDS, increased community agriculture production is central to the need for food security. The latest study to measure poverty in Samoa used the results of the 2002 Household Income Survey to examine food and basic need poverty lines. The Food Poverty Line was estimated at WST 24.68 per capita per week. Around 8% of households have incomes and expenditures which are below this value.

123. A survey undertaken by the Ministry of Health in 2002 showed that most Samoans eat fruit less than three days a week. Approximately one third of the population eat no fruit, or less than one serving a day. The same survey found that people eat vegetables most days of the week. However, consumption of vegetables would have been much less had the survey not included starchy foods such as taro, bananas, yams and breadfruit as vegetables. A comprehensive study undertaken by the Food and Agriculture Organisation¹⁰ made the following recommendations:

- increase understanding of the Samoan view of food;
- provide more meaningful nutritional information and education on food;
- encourage parents to introduce fruit and vegetables to children while they are young;
- promote healthy eating in schools;
- introduce vegetables in small quantities and as part of a *mea ai lelei* (meat dish);
- conduct demonstrations in handling, storing, preparing and cooking fruit and vegetables; and
- use role models to raise the value and importance of fruit and vegetables.

194. Village based farmers and farmer groups, including women and youth groups, need to be better supported by agricultural extension officers and relevant NGOs through the

¹⁰ Knowledge, Attitudes, Beliefs and Practices Related to the Consumption of Fruit and Vegetables in Samoa. Food and Agriculture Organisation, Samoa, 2004.

sharing of ideas, experiences and farming techniques that can lead to solutions to common problems that hinder production. Assistance related to improvements in marketing will also enhance food production and food security. The Ministry of Agriculture strategy for 2005-2008 includes continued efforts to enhance food security at the village level through: (i) improving access for producers to agricultural and fisheries information; (ii) demonstration of good agricultural practices and community-based resource management systems; and project development at the village level initiated through the *pulenu'u*.

195. Other strategies include existing policies and regulations to strengthen the enabling environment for improved food production; undertake research and development of new plant varieties; introducing new animal species suited to local conditions; maintain nurseries that provide cultivars and other planting materials; promote partnerships with external institutions for expertise and knowledge sharing; enhance marketing and trading activities; increase access to early warnings and educate people regarding appropriate responses; and promote traditional planting schedules.

196. Appropriate management of inshore fishery resources is under the authority of the *Alii ma Faipule* (village council). Their critical role needs to be strengthened by the Fisheries Division working closely with communities to provide the technical support to ensure sustainable use of the inshore fisheries resource for the benefit of communities. The benefit of improved management of fisheries resources is demonstrated by the fact that villages with fisheries management plans have catch rates averaging 2.8 kg/person/hr compared to an average catch rate of 1.8 kg/person/hr for villages with no management plans.

197. There is an opportunity to strengthen aquaculture development with a clear focus on resource enhancement and food security. Priority actions include developing aquaculture technical skills to improve rehabilitation of coastal resources and moving towards more intensified, diversified and sustainable aquaculture.

e. Reducing Vulnerabilities

198. As a semi-subsistence nation, Samoa is sensitive to threats on water supplies, food production and natural resources. Samoa's high vulnerability to natural disasters has been highlighted earlier in this report. The occurrences of tropical cyclones, long periods of droughts and flooding events have affected the source of income of most of the Samoan population. People are losing land to accelerated erosion from destructive waves, frequent storm surges and landslips, causing social problems among families and communities. Some people are facing hardship due to destruction of their plantations by flooding, cyclones, pests and diseases, all of which threaten food security. Samoa experienced four major forest fires during the drought/dry periods of 1982-83, 1997-98, 2001-02 and 2002-03. The droughts in 2002 and 2003 led to rationing of electric power. The impacts of climate change on the tourism sector include loss of beaches, inundation, and degradation of coastal ecosystems, saline intrusion, damage to critical infrastructure and declining attractiveness of coral due to bleaching.

199. The vulnerability of Samoa also results from more subtle natural factors such as the more gradual increases in temperature and sea level. In addition, many people in Samoa are vulnerable to the social and economic pressures they face during their day to day living. The participatory assessment of hardship conducted in 2002¹¹ identified many direct and indirect causes of hardship, including lack of employment, low levels of education, health problems and the numerous church and village obligations. Children, youth and women were identified as often being especially vulnerable to hardship, for specific reasons. Lack of health and education support for children was an overwhelming concern among communities. In rural

¹¹ Priorities of the People. Hardship in Samoa. Asian Development Bank, Manila.

areas, diminishing markets and falling prices for traditional produce have reduced the cash available to pay for children's education, as has meeting increasing church and village obligations. Moreover, improper nutrition, lack of health facilities and poor hygiene cause children to suffer from treatable diseases such as scabies and skin fungus. Lack of appropriate schooling in rural and urban communities, as well as few job opportunities, were considered to be major causes of hardship for youth. The migration of young people from rural to urban areas has resulted in large tracts of plantation lands laying idle.

200. The lack of education, employment and cash were identified as the main causes of hardship for women. They need cash for *faalave/lave*, and don't have enough left over to take care of the basic needs of their families. Low levels of education and skills often prevent women from finding employment or starting a business. However, the situation was considered to be improving, due to increased access to education, with a consequential improvement in employment opportunities.

201. The Disaster Management Office is in the final stages of gaining approval for the National Disaster Management Plan. This will include a review of relevant legislation, to ensure authorities have the appropriate mandates for dealing with a disaster. The emergency response plans of various agencies are also in the final stages of preparation. To give effect to these plans there is an urgent need to improve the capacity to receive, generate and disseminate early warnings for a wide range of hazards, related to both natural and human causes. Another urgent priority is to raise awareness of natural and other hazards. Currently there is relatively low awareness, despite the high vulnerability. In this respect the Disaster Management Office, working in conjunction with NGO and other partners such as the Red Cross, has initiated awareness campaigns. However, with only three staff in the Disaster Management Office, the impact of these programmes has been very limited to date.

202. The recently completed National Adaptation Programme of Action and the National Capacity Self Assessment thematic report related to climate change have identified many measures that can be implemented to reduce Samoa's vulnerability to climate change. Required actions that have been given high priority include: (i) reviewing existing legislation to ensure it enables adaptation to climate change, where appropriate; (ii) strengthening awareness of all sectors on the importance of integrating adaptation to climate change in their work programmes; (iii) establishing a system for monitoring and responding to climate-related health concerns; (iv) providing training for village leaders (chiefs, women's committee, church ministers, untitled men's groups and youth groups) to help them understand and integrate adaptation actions and measures into their current and future activities; and (v) enhancing community water resources by developing water purification programmes for communities, community watershed management programmes, alternative water storage programmes and by restoring coastal springs in communities.

203. As part of the hardship assessment, people in the communities were asked to identify what the Government could do to reduce their vulnerability. Their suggestions were, in order of priority: (i) reduce the cost of living; (ii) provide access to loan assistance; (iii) support agricultural development; (iv) improve access to basic services, particularly water supply, schools, markets, and roads for disadvantaged communities; and (v) provide access to housing assistance. Addressing these priorities will require institutional advancements such as devolution of responsibilities over natural resources to the local level, improving social services delivery, redirecting investment to open up a greater range of environmentally friendly economic opportunities and livelihood options, as well as promoting entrepreneurial drive and small scale enterprise development.

f. Cross-cutting Priority for Action

204. **Ensuring the Capacity for Sustained and Sustainable Development.** While capacity enhancement will be incorporated into actions related to the preceding priority areas, its critical importance justifies some additional comments. This is in part because the increasing pace and changing nature of development activities in Samoa is causing a rapid transition into the more technical aspects of environmental management, including in situ and remote monitoring and laboratory analyses.

205. Moreover, as highlighted during a recent regional meeting¹², scientific and technical capabilities influence the ability to provide clean water and safe and adequate food supplies, good health care and adequate infrastructure. In this way they make a significant contribution to political stability and global security. Scientific skills unlock the potential of innovation and technology to accelerate economic growth. A lack of innovation and diversification from primary products, and therefore poor competitiveness, is often associated with poor capacity in science and technology. There is thus a need to strengthen science and technology within a supportive policy and institutional framework. The Millennium Development Goals Task Force Report also places science, technology and innovation capacity building near the top of the international development agenda and suggests that meeting the goals will require development policies to focus on key sources of economic growth, including those linked to the use of new and established scientific and technological knowledge and related institutional adjustments.

206. Science and technology are still a relatively low priority in the Pacific, and their roles in sustainable development are rarely acknowledged, either at the national or regional levels. Science and technology capacity, although somewhat improved, is still not sufficiently strengthened for the region to be both self-reliant and competitive in the global arena. The challenges of the 21st century, such as climate change, globalization, biotechnology and possible disease pandemics, require a science and technology framework at both national and regional levels. Such a framework will provide a supportive environment for: (i) integration of science and technology into national policies; (ii) development of national education policies, which are a blend of traditional values and science and technology; and (iii) strengthening of national and regional capabilities for the assessment, adaptation, acquisition, use and monitoring the effects of technology.

207. Another priority is for technical capacity to be built at the operational level, not just at the focal level. For example, there is a desire to move into captive breeding programmes in Samoa, but there are no facilities. In forestry there is no basis for identifying the areas most suited to wood production, due to a lack of technical capacity. Forest remnants also need to be mapped, protected and restored.

208. Much of the untapped human and governance potentials for raising the levels of environmental management and effective economic and social development capacity beyond current experience are in the country's grassroots communities, which directly managed 80% of the country's terrestrial and coastal resources. By virtue also of their being largely located (70% of them) in coastal flooding, erosion and landslide hazard zones they are also directly grappling with the greater share of the country's environmental management and economic development difficulties. Current capacity building efforts have largely targeted the small national work force of the public and private sectors. Effective capacity building strategies are now required to systematically unfold and tap the huge potentials in the wider community. This can in the long run greatly strengthen environmental management and improve economic development on a much larger scale.

¹² Science and Technology Information Paper. Report on a Regional Meeting on Science and Technology, Suva, Fiji, March 2005. Secretariat for the Pacific Community, Suva, Fiji.

209. Recent reforms mean that the Government is now outsourcing delivery of services to both rural and urban communities, as well as the provision of policy and technical advice. But there has not been a concomitant increase in the capacity of the private sector and civil society to provide these additional, and sometimes new, services. For example, there is a need to improve the capacity of the private sector with respect to environmental planning, management and monitoring. Capacity is also required in line ministries to ensure effective engagement with the private sector and NGOs and also to ensure that outsourced work is adequately monitored, assessed and interfaced with Government policies and plans. Importantly, ministries are still implementing projects whereas their focus should be on providing an enabling environment, including improved coordination and cooperation between ministries and with other stakeholders.

210. Shortages of the necessary capacity (technologies, finances, knowledge, skills) is thus constraining development and making it difficult to give appropriate attention to environmental considerations. There is thus urgent need for further development of a science knowledge and skills base of relevance to Samoa. Donors, especially after the Rio conference, encouraged developing countries to establish an environment “sector”. But this was not matched by the required capacity building. Many developing countries outside the Pacific have a government department with a mandate for science and technology and have developed policies and programmes in science and technology.

211. In Samoa people with a science or other technical background are in high demand. The shortage of individuals with technical knowledge and skills can be traced back to lack of Samoans with the desire and qualifications to enter science and related programmes in the universities and in the high schools. This in turn can be attributed, in part, to teachers in primary school being required to deliver learning programmes across the entire curriculum, despite often lacking science knowledge and skills. Many teachers are therefore not proficient at delivering the science curriculum, and are sometimes even science averse. Thus young learners are provided with early signals that shape their subsequent attitudes and choices regarding both learning and careers in science and related areas.

212. The shortage of both primary and secondary school teachers is most acute in areas of mathematics, science and technology. There used to be a top up for science and mathematics teachers, to increase recruitment and retention, but this was dropped, for equity reasons. Science education and training is resource intensive but resource poor. Many schools cannot afford consumables for practical subjects, including science. Cabinet is being asked to approve a budget to meet these expenses. JICA is funding a pilot programme designed to enhance the teaching of science and mathematics. A recent ADB loan for the education sector is being used to:

- improve infrastructure and other facilities for colleges and schools;
- provide equipment for teaching of agricultural science, food technology and science;
- teacher upskilling in science and agricultural science;
- strengthening policy and research; and
- enhance curriculum assessment.

213. The Ministry of Education is also encouraging the universities to facilitate entry of science students and is providing financial assistance to students studying science and agriculture. But the World Meteorological Organisation reports that in Samoa scholarships to support science students interested in studying climatology, meteorology and natural hazards are going unfilled.

214. There is also a lack of capacity to: (i) undertake EIAs, including social impact assessments; (ii) assess the EIA findings and provide guidance to decision makers; and (iii) monitor project outcomes, across all areas, including the environmental outcomes. At the

individual and village level there is very little knowledge, and hence consideration, of interacting factors, including cumulative environmental effects. For example, individual farmers are largely unaware of the combined impact of their activities on stream water quality.

215. While the lack of resources is often viewed as a constraint, Samoans are also beginning to take a more mature attitude to resource limitations by recognizing that more does not mean better. Resources will always be limited, in Samoa as they are everywhere else. The real challenge is to make smarter use of the resources that are available.

216. Targets for training people in environmental policy and management, and other areas of sustainable development, need to be set and achieved. This will happen only if the current capacity in human resources development is enhanced. For example, a recent review of the geography programme at the National University of Samoa suggested that it focus on the less resource intensive components of geography, such as human and historical geography, and forego training in geographic information systems and other resource intensive aspects of the discipline. This is counter to the expertise desperately needed in Samoa. Partnerships with the technical agencies of Government, such as MNREM, would go a long way to addressing such resource constraints, while also improving the practical and overall quality of the training. There is also an opportunity related to making better use of the expertise and knowledge associated with visiting researchers and scholars.

B. Addressing the Priorities: A Road Map for Environmental Management

217. To facilitate the mainstreaming of environmental considerations in national development planning it is useful to present the five thematic priorities for action in the form of a road map for environmental management. Best practice in environmental road mapping involves the following sequential steps: (i) identify critical environmental concerns, needs and problem areas; (ii) determine the current state of relevant environmental components and systems; (iii) specify a timeframe within which improvements in environmental performance and quality are to be achieved (typically by between five and twenty years); (iv) develop goals and targets for environmental performance and quality, consistent with national and state policies, strategic plans and objectives; (v) identify actions and activities that are required to meet the specified targets; (vi) identify the implementers; (vii) identify and implement a system to achieve changes in environmental performance and quality; (vi) review progress at pre-determined intervals; and (vii) feed back information from the review process into the implementation process. To the extent practicable, actions and strategies to promote improvement should be innovative, test new theories and alternative technologies, and promote breakthroughs for solving difficult problems.

218. Much of the information relevant to the first stages of preparing an environmental road map has been presented in preceding sections of this report and in Annex 4. The remaining sections of the road map focus on the outcomes, indicators, targets and actions that will improve environmental performance and quality, consistent with national and development policies, plans and operational objectives.

219. There are three important comments to make about the environmental management road map: (i) to date Samoa has not developed a national system of management targets and performance indicators – this is in fact a priority need that should be met as soon as possible; in the interim indicators such as those included in the ADB Country Strategy and Programme for Samoa (see Annex 5) could be used (ii) while consultation, training, education and awareness raising have been identified as areas requiring substantial attention if improvements in environmental performance and outcomes are to be achieved, these activities have not always been given separate attention in the issues, constraints and actions section of the road map – rather, their place in the road map is implicit; strengthening

consultation, training education and awareness raising will be infused into the work plans of the projects that are identified in the road map; and (iii) consistent with ADB's practice of mainstreaming climate change in national and state development planning and processes¹³, climate variability and change have not been given separate attention though they are to the fore in the fifth priority for action – in other cases addressing climate-related risks to the sustainability of projects and other development initiatives forms an integral part of the objectives and work plans of the projects that are identified in the road map.

220. In total, 18 project interventions are proposed. Some interventions relate to strengthening the assistance currently being provided by ADB or in the ADB assistance pipeline for Samoa, namely:

- Education Sector;
- Sanitation and Drainage;
- Power Sector Improvement;
- Securitization of Land Leases; and
- Small Business Development, including Supporting SOE Reforms and Privatization.

220. The planned assistance related to power sector development, sanitation and to drainage, presents a strategic opportunity for ADB assistance to address, in a direct manner, some of the key environmental concerns identified in the participatory consultations.

221. Six proposed project interventions could be addressed by strengthening assistance currently being provided, or in the pipeline (Table 1).

Table 1

Proposed Additional Activities for Current or Planned Assistance

Current or Planned Assistance	Priority Area	Proposed Additional Activity
Power Sector Improvement	Accessible, Affordable, Sustainable and Renewable Indigenous Energy Supplies	Assessment of the Environmental and Related Implications of Renewable Energy Development in Samoa
		Strengthening Samoa's National Energy Policy and Planning
		Strengthening the Capacity of the Electric Power Corporation in Renewable Energy Planning and Implementation
Securitization of Land Leases	Equitable and Sustainable Land Management	Increasing the Timeliness, Certainty and Equity in Resolving Land Disputes
Small Business Development	Secure and Affordable Access to Nutritious Foods	Strengthening Family and Small Business Support Programmes Aimed at Enhancing Food Security and Nutrition
	Reduced Vulnerability to Natural Disasters and Social and Economic Pressures	Increasing the Opportunities for Food Producers to Engage Successfully in the Cash Economy

221. Except in relation to renewable indigenous energy supplies, the above assistance does not provide sufficient opportunity to make substantial improvements in the five priority areas for action, it is therefore proposed that 6 new projects be considered by the Government of Samoa. It is unrealistic to expect that all the projects could be implemented

¹³ Guidelines for Adaptation Mainstreaming in Pacific Department Operations, ADB, Manila, 2005.

in the immediate future. Likewise, it is not realistic to suggest that ADB could provide all the necessary technical and other assistance. Collaboration, cooperation and coordination with the Government, and amongst development assistance partners, will be required if substantial progress is to be made in implementing the proposed projects in a timely manner. The six proposed projects are shown in Table 2. Each proposed project addresses some aspect of each of the four priority areas where further assistance is provided.

Table 2
Proposed Projects and Their Relationship to Priority Areas

Proposed Project	Priority Areas Addressed			
	Environment for Development	Land Management	Secure Supply of Nutritious Foods	Reduced Vulnerability
Developing an Inclusive, Participatory Consensus on Contribution of Environment to Development	X	X	X	X
Enhancing Capacity of National Government to Mainstream Environmental Considerations	X	X	X	X
Building Capacity of Village Mayors and Women Government Representatives in Development Decision Making and Environmental Leadership	X	X	X	X
Enhancing Capacity of NGOs to Include Environmental Considerations in Community (including family) Development Projects	X	X	X	X
Building Capacity for Sustainable Land Use Planning and Management at National and Community Levels	X	X	X	X
Upgrading Technical Early Warning Systems and Response Capabilities	X	X	X	X

222. Concepts for the proposed assistance are provided in Annex 7. The following sections describe how activities related to the five priority areas can be integrated into the 12 project interventions, initially from an overall perspective and subsequently for the six proposed assistance projects. The roadmap is presented in Table 3.

Table 3

Environmental Management Road Map

Proposed Outcomes and Indicators	Targets					
	Current (est.)	Year 5	Year 10	Year 15	Year 20	Year 25
Environment for Development						
Portion of population aware of, and complying with, national environmental policies [%]	10	60	90	100	100	100
National and sector policies with environment considerations mainstreamed [% of policies]	0	80	100	100	100	100
Policies with quantitative targets and indicators - incl. environmental [% of policies]	0	60	100	100	100	100
Known value for all natural resources and environmental assets and services [% completed]	0	30	60	90	100	100
Projects approved using best practice in EIA [%]	70	100	100	100	100	100
Environmental conditions for approved projects monitored and enforced by regulator [%]	<10	60	90	100	100	100
Environmental violations successfully prosecuted [%]	<60	100	100	100	100	100
Village mayors and women representatives trained in decision making and leadership [%]	<10	60	80	90	100	100
NGOs meeting need for promoting good environmental practices in community projects [%]	40	60	90	100	100	100
Accessible, Affordable, Sustainable and Renewable Indigenous Energy Supplies						
All environmental considerations reflected in the National Energy Policy [% completeness]	25	100				
Portion of national energy needs provided from renewable sources [%]	55	75	95	100	100	100
Electric Power Corporation and other staff with necessary competencies in renewable energy [%]	<10	90	100	100	100	100
Renewable energy projects accepted by affected communities [%]	<10	75	100	100	100	100
Renewable energy projects with minimal adverse environmental affects	60	90	100	100	100	100

Equitable and Sustainable Land Management						
Delay in appeals to Land and Titles Court being heard [months]	72	36	24	12	6	6
Customary land disputes [% of present number]	100	80	60	40	30	10
Portion of customary land disputes being taken to Land and Titles Court [%]	100	75	60	40	35	30
MNREM and other staff with necessary competencies in sustainable land management [%]	<10	90	100	100	100	100
Communities in compliance with sustainable land use plans	<20	50	60	70	80	90
Communities using both traditional and modern sustainable land use practices [%]	<20	60	90	100	100	100
Secure and Affordable Access to Nutritious Foods						
Domestic food production (thousands pounds) and food imported (ST million)	247 107	300 90	350 85	375 85	380 85	385 85
Value of chemicals imported (ST million)	42	38	35	25	15	5
Portion of households using chemicals [%]	55	40	25	15	10	5
Portion of population below the Food Poverty Line	10	5	3	2	1	<1
Food price index [relative to March, 2004]	99.9	102	104	107	110	114
Communities using both traditional and modern methods of food production [%]	<20	60	90	100	100	100
Reduced Vulnerability to Natural Disasters and Social and Economic Pressures						
Population with 24 h access to early warning system [%]	<1	50	90	100	100	100
Population with adequate preparedness for disaster [%]	<1	50	90	100	100	100
Rural population with sustainable access to safe drinking water [%]	95	97	98	99	99	99
Portion of rural households with no income from agriculture [%]	50	35	20	5	5	5
Portion of households in which all seafood caught is eaten [%]	30	25	20	10	10	10

Initial Actions	2006	- 2010	- 2015	- 2020	- 2025	- 2030
Environment for Development						
Implement New Projects:						
▪ Inclusive, Participatory Consensus on Contribution of Environment to Development	■	■				
▪ Enhancing Capacity of Government to Mainstream Environmental Considerations	■	■				
▪ Building Capacity of Village Mayors and Women Government Representatives in Development Decision Making and Environmental Leadership		■				
▪ Enhancing Capacity of NGOs to Include Environmental Considerations in Community (including family) Development Projects			■			
Accessible, Affordable, Sustainable and Renewable Indigenous Energy Supplies						
Strengthen Current Project:						
▪ Power Sector Improvement	■	■				
Equitable and Sustainable Land Management						
Strengthen Planned Project:						
▪ Securitization of Land Leases		■	■			
Implement New Project						
▪ Building Capacity for Sustainable Land Use Planning and Management at National and Community Levels			■	■		
Secure and Affordable Access to Nutritious Foods						
Strengthen Planned Project:						
▪ Small Business Development, including Supporting SOE Reforms and Privatization		■	■			
Strengthen New Project:						
▪ Enhancing Capacity of NGOs to Include Environmental Considerations in Community (including family) Development Projects - Food Security and Nutrition and Harmonization of Traditional and Science-based Methods and Technologies for Food Production, Processing and Preservation			■	■	■	

Reduced Vulnerability to Natural Disasters and Social and Economic Pressures						
Strengthen Planned Project: ▪ Small Business Development, including Supporting SOE Reforms and Privatization	██████					
Implement New Project: ▪ Upgrading Technical Early Warning Systems and Strengthening Response Capabilities	██████					
Strengthen New Project: ▪ Enhancing Capacity of NGOs to Include Environmental Considerations in Community (including family) Development Projects - Improving Water Quality, Accessibility and Availability for Communities and Increasing the Use of Improved Agricultural, Fisheries and Food Preparation and Storage Practices and Technologies by Rural Families	██████					

C. Implications for ADB's Intervention Programmes

223. Table 4 presents the results of a systematic analysis of the strengths, weaknesses, opportunities and threats (SWOT) in relation to addressing the five priority areas for action through a more explicit consideration of environmental opportunities and constraints in ADB's assistance to Samoa. The table shows that the planned assistance from ADB can make valuable contributions in all priority areas. But the full benefits of such assistance will be realised only if Government and other stakeholders take ownership and show total commitment to successful implementation of the proposed activities.

a. Mainstreaming Environment in Planned ADB Assistance

224. Table 5 illustrates how, through mainstreaming environmental considerations into development planning and processes, activities related to the five priority areas for action can be integrated into projects currently in the pipeline for ADB assistance to Samoa.

b. Proposed New ADB Interventions, with Environment Mainstreamed

225. As noted above, concepts for the proposed new projects are presented in Annex 7. Six assistance projects are proposed because, practically, there are only limited opportunities to realign and strengthen the programmed assistance in ways that would address the identified needs in the five priority areas for action. Table 6 illustrates how the proposed assistance will assist in mainstreaming environmental considerations into development planning and processes in relation to the five priority areas for action.

226. A national consensus on the contributions the environment and natural resources can make to national and community development would provide a framework for the other projects that are required if the priority areas are to be addressed in an adequate manner. Many of the proposed projects build on and add value to assistance already provided by ADB. Table 6 also highlights the many linkages between the six proposed assistance projects and, in turn, between these and the assistance that is already programmed (Table 5).

Table 4

SWOT Analysis of Mainstreaming Environment in Proposed ADB Assistance to Samoa

Priority Area	Strengths	Weaknesses	Opportunities	Threats
Environment for Development	Widespread stakeholder support, with unanimous agreement that the current SDS should have done more to address environmental considerations in each of the strategies and priorities; consistent with ADB's Pacific Strategy for the New Millennium and especially with the Pacific Region Environmental Strategy.	Not part of current ADB strategy for Samoa but would provide a policy framework for ADB's strategic priority of enhancing the environment and public health of Apia.	Reaching a whole of Government and whole of country policy consensus on how the environment can support development will do much to ensure that all national policies, sector plans and development projects will pay due regard to environmental considerations	While there is a clear will to reach a consensus, the challenge of doing so should not be underestimated; there is residual mistrust between Government, the private sector and civil society; previous attempts to mainstream environmental considerations, including in the SDS, have failed.
Accessible, Affordable, Sustainable and Renewable Indigenous Energy Supplies	Consistent with ADB's operational strategy and strategic priorities for Samoa and builds on initiatives that form part of current ADB assistance. Consistent with the draft National Energy Policy; environmental considerations will play a big role in determining the sustainability and overall economic viability of major renewable energy developments; renewable sources already provide a substantial portion of Samoa's energy needs.	Due to the pressure to address escalating energy prices, and reduce the social and economic consequences, the Government may be impatient to develop renewable energy without giving appropriate and timely attention to environmental considerations.	Samoa is well endowed with renewable energy – hydro, solar and biomass. The economic and social benefits of reducing the country's dependency on imported fossil fuels will be substantial.	Unless careful consideration is given to environmental and related concerns there is a substantial risk that the long term benefits of improved energy security and reduced expenditure will not be realized.
Equitable and Sustainable Land Management	Consistent with ADB's operational strategy and strategic priorities for Samoa and with the SDS and relevant national policies and sector plans; widespread recognition that current practices with regard to clarifying tenure are cumbersome and often inequitable. Current	With over 80% of the land in community ownership there is a large gulf between national land management policies and plans and the actions taken by individual land owners; Government cannot develop policy and hope that it is given effect at community level: rather.	As a result of initiatives taken by NGOs, working with families and communities, there are now excellent examples of best practice in sustainable land management; the lessons learned, as well as the success stories, should be built on, thereby ensuring that the best	Community knowledge, structures, and capacities are being weakened by out migration; there is a critical and growing knowledge gap for underdeveloped parts of Samoa; community leaders may manipulate and exploit the deficit in communal practices and

Priority Area	Strengths	Weaknesses	Opportunities	Threats
	land use practices are recognized as being largely unsustainable and have to be changed to reflect land capability and other factors	through awareness raising and other initiatives it must assist land owners and users to improve the quality of their decision making and reduce the adverse effects of their actions.	practices are adopted and used by communities throughout the country.	knowledge, for their own personal benefit; the resultant undermining of trust in community leadership will eventually weaken communities even further and put at risk the social capital that has been built up over centuries.
Reduced Vulnerability to Natural Disasters and Social and Economic Pressures	Consistent with ADB's operational strategy and strategic priorities for Samoa and with the SDS. Samoan communities have high exposure to natural and other hazards, including those related to health. Strong links between vulnerability to natural and other hazards and levels of hardship experienced by individuals and families.	Only weak linkages with projects in the pipeline. Requires information and understanding in order to take actions that reduce risk and in so doing help alleviate hardship. Many risks are not part of traditional experience or have been modified due to western influences, meaning significant behavioral change is required. People will need to be motivated and empowered to make these changes.	Reducing risks associated with current natural and other hazards, including those related to health, prepares communities to face the increase in risk as a result of climate and other changes. Since the poor are impacted disproportionately by natural and other disasters and by disease and other causes of poor health, reducing risks will also alleviate hardship	Despite best efforts, disasters caused by natural and other hazards, and epidemics, cannot be avoided even if reasonable preventive steps are taken. People will have to be made aware of such possibilities, and encouraged to take preventive steps even if they may not always be successful.
Secure and Affordable Access to Nutritious Foods	Consistent with ADB's operational strategy and strategic priorities for Samoa and with the SDS; also consistent with ADB's Pacific Strategy for the New Millennium and with the Pacific Region Environmental Strategy; Ministry of Agriculture and Fisheries Corporate Plan for 2005 to 2008 highlights the need to improve food security. Strong linkages with ADB assistance for small business development.	With over 80% of the land and associated natural resources in community ownership there is a large gap between national land management policies and plans and the actions taken by individual land owners; Government cannot develop policy and hope that it is given effect at community level; rather, through outreach programmes and other initiatives Government can assist farmers and fishers to adopt practices that produce food on a sustainable and secure basis.	Policy frameworks and plans are very supportive of initiatives to enhance food security and improve nutrition in Samoa; the NGO community has also demonstrated successful approaches to improving food security and nutrition for rural families; the enabling environment provided by Government, including provision of targeted technical advice, lays a strong foundation for major improvements across the country.	Government sends wrong signals to communities as a result of some of its decisions, such as reduced import tariffs on foods known to be detrimental to human health; the absence of consistently supportive messages from Government does little to ensure cooperation and support for initiative that may well be in the interest of communities and families, but are seen as Government interfering in village affairs.

Table 5

**Integration of the Planned Assistance from ADB into the
CEA Priority Action Areas for Mainstreaming Environmental Considerations**

Planned Assistance	CEA Priority Action Areas for Mainstreaming Environmental Considerations				
	Environment for Development	Increased Supply of Renewable Energy	Land Management	Secure Supply of Nutritious Foods	Reduced Vulnerability
TA: Preparing the Power Sector Development Programme	The high price and low reliability of power supplies in Samoa is a major concern for the private sector as well as for communities and families; further development of renewable energy will reduce exposure to the rising cost of fossil fuels and the effects on the country's balance of trade; care must be taken to ensure that development of renewable energy is environmentally sound as well as socially acceptable.	Consideration should be given to expanding the current focus of the technical assistance to include such matters as: <ul style="list-style-type: none"> ▪ assessment of the environmental and related implications of renewable energy development in Samoa ▪ strengthening Samoa's national energy policy and planning ▪ strengthening the capacity of the Electric Power Corporation in renewable energy planning and implementation. 	Major disputes over land access and compensation have occurred as a result of hydroelectric developments; areas of high biodiversity significance have also been lost; important to build on the lessons learned and demonstrate that such development can be environmentally sound and socially acceptable.	Improvements to security and pricing of electricity will assist small businesses to be more profitable and reduce wastage; care needs to be taken to ensure that development of renewable energy resources does not impact adversely on food production.	Reducing the price of electricity and increasing the security of supply will do much to reduce social and economic hardship in Samoa, especially in rural areas. Less reliance on imported fossil fuels will help reduce vulnerability to external price shocks and also to breaks in the supply chain due to events outside the country.

Planned Assistance	CEA Priority Action Areas for Mainstreaming Environmental Considerations				
	Environment for Development	Increased Supply of Renewable Energy	Land Management	Secure Supply of Nutritious Foods	Reduced Vulnerability
TA: Securitization of Land Leases	Increasing the timeliness, certainty and equity in resolving land disputes will strengthen the enabling environment for development; a major focus should be on decreasing the number of disputes that go through the formal legal system, and increasing the use of alternative, non judicial, means of dispute resolution, such as mediation.	Improving certainty with respect to land tenure and land leases will help expedite the development of renewable energy, and especially hydroelectricity and biofuels.	Reducing uncertainties in land tenure and leases will go a long way to addressing this priority for action. In additions to facilitating development in the private sector it will contribute to increasing sustainable land management as land owners and land users will take a longer term perspective in managing this valuable resource.	Reducing the uncertainty in land tenure and leases will also encourage land users to take a longer term view on food production and thus use practices that increase the security of supply of food, including that which has high nutritious value.	By reducing the uncertainty in land tenure and leases there will be improvements in land management, food production, energy supply and related areas. All these make major contributions to reducing vulnerability, to both disasters and to social and economic pressures.
TA: Supporting SOE Reforms and Privatization	Providing an enabling environment for increased small business development is part of enhancing the environment for development.	The success of the Electric Power Corporation highlights the benefits of reforms and privatization. However, such SOEs need to be strengthened as their roles and responsibilities change; thus the Corporation needs to increase its capacity with respect to development of renewable energy, including improving its capacity to assess the environmental and related implications of renewable energy development in Samoa and strengthening its capacity in renewable energy planning and implementation.	Increasing the timeliness, certainty and equity in resolving land disputes will help increase the options for and viability of the private sector.	Care needs to be taken to ensure that developments in the private sector do not impact adversely on families making the transition from subsistence living to partial engagement in the cash economy.	The rapid restoration of electricity supplies after cyclone Val shows that an SOE can be highly effective in providing essential services to the public.

Planned Assistance	CEA Priority Action Areas for Mainstreaming Environmental Considerations				
	Environment for Development	Increased Supply of Renewable Energy	Land Management	Secure Supply of Nutritious Foods	Reduced Vulnerability
Loan: Sanitation and Drainage , Phase 2	The loan will be used to expand sanitation and drainage systems to critical areas of Apia not included in Phase 1. Improvements in sanitation and drainage in Apia will bring major benefits to residents, businesses and Government agencies located in Apia.	Opportunities should be explored when designing the wastewater treatment plant, to assess the extent to which it can be energy self sufficient or even a net energy supplier.	This project will enhance the sustainability of urban land uses.	Once flooding risk is reduced, and there is improved sanitation, there will be greater incentive for families living in the Apia area to engage in gardening.	Further improvements in drainage and sanitation in the Apia area will do much to reduce social and economic hardship and vulnerability to flooding and related problems, including those related to human health.

Table 6

**Integration of the Proposed Assistance from ADB into the
CEA Priority Action Areas for Mainstreaming Environmental Considerations**

Proposed Assistance	CEA Priority Action Areas for Mainstreaming Environmental Considerations				
	Environment for Development	Increased Supply of Renewable Energy	Land Management	Secure Supply of Nutritious Foods	Reduced Vulnerability
Developing an inclusive, participatory consensus on contribution of environment to development	The proposed assistance will assist Samoa to implement a broad-based consultation process to build the necessary consensus; such a consensus is critical to developing a more effective working relationship between the Government and the communities that have ownership of the vast majority of the land and other natural resources that will underpin future development of Samoa; the private sector must also be engaged as it also plays a critical role in the development process.	Minimising any adverse environmental effects of further renewable energy development will be an important focus of the agreed strategy on how the environment will underpin development.	Increasing the certainty of land ownership and use, and increasing the sustainability of land use will be an important focus of the agreed strategy on how the environment will underpin development.	Increasing the security of supply of nutritious food produced locally will be an important focus of the agreed strategy on how the environment will underpin development.	Reducing vulnerability to natural and other disasters, and to social and economic pressures, will be an important focus of the agreed strategy on how the environment will underpin development.

Proposed Assistance	CEA Priority Action Areas for Mainstreaming Environmental Considerations				
	Environment for Development	Increased Supply of Renewable Energy	Land Management	Secure Supply of Nutritious Foods	Reduced Vulnerability
Enhancing capacity of national Government to mainstream environmental considerations	Government must have the capacity to implement the agreed strategy on how environment will underpin development; this includes having the ability to value environmental assets and services, and to set environmental performance and other targets and apply environmental and other indicators	The current draft National Energy Policy can be strengthened through a more comprehensive approach to including environmental considerations in energy supply and consumption; staff need to be provided with the knowledge and skills to meet these additional responsibilities.	While day to day responsibility for and management rests with the customary owners, Government has a responsibility to provide a strong enabling environment to facilitate the increased sustainability of land management; staff need to be provided with the knowledge and skills to meet these additional responsibilities; if alternative methods of resolving land disputes are to be used, Government needs to have the capacity to strengthen the enabling environment for such procedures.	National policies and technical advice need to reflect a strengthened focus on enhancing the security of local food supplies and the on a nutritious diet; staff need to be provided with the knowledge and skills to meet these additional responsibilities.	Government needs strengthened capacity to oversee activities that reduce vulnerability to natural and other disasters, and to social and economic pressures.

Proposed Assistance	CEA Priority Action Areas for Mainstreaming Environmental Considerations				
	Environment for Development	Increased Supply of Renewable Energy	Land Management	Secure Supply of Nutritious Foods	Reduced Vulnerability
Building capacity of village mayors and women Government representatives in development decision making and environmental leadership	Priority for assistance is to ensure legislation and regulations related to land use planning, zoning, building codes, EIA and management and harvesting of marine resources is enforceable and that there is the capacity within Government to educate, prosecute and penalize violators, as appropriate.	The efforts to promote the establishment and sustained operation and growth of environment and resource-based business enterprises will complement the initiatives to be undertaken through this TA.	The learning network will be based on the highly successful Micronesians in Conservation learning network, but in this case the advocates and experienced practitioners will focus on encouraging and supporting volunteer communities to demonstrate how they are enhancing their sustainability while at the same time providing improved quality of life for those living in the community. The network will also be used to encourage replication by other communities.	A community that is living sustainably will likely also have increased resilience to natural and other disasters and to health and climate-related risks. However, it is likely that additional assistance will be required to ensure that disaster preparedness plans are prepared and implemented, that there is increased community participation in public health care, and that coping and adaptation strategies are in place to reduce climate-related risks.	Projects will be implemented in more remote communities. The aim is to show how improvements in leadership and stewardship allow the participating volunteer communities to reduce their reliance on imported foods and other commodities, derive increased incomes from sustainable farming, fisheries and tourism, and benefit from improved practices in solid waste management, including waste minimization, reuse and recycling.
Enhancing Capacity of NGOs to Include Environmental Considerations in Community (including family) Development Projects	NGOs have a critical role to play in implementing the agreed strategy on how environment will support development.	NGOs can assist in negotiations regarding access to land for development of renewable energy resources, and especially hydropower, including compensation that might be paid to land owners and users; NGOs also have critical roles to play in increasing the appropriate use of biofuels and in energy conservation.	NGOs may be able to support a move away from using judicial processes to settle land disputes to using alternative forms of dispute resolution, such as mediation; NGOs also play a key role in assisting families and communities to adopt more sustainable land use practices.	NGOs play a key role in assisting families and communities to increase food production using environmentally sound practices.	Improved environmental management practices at community level will do much to reduce vulnerability and hardship.

Proposed Assistance	CEA Priority Action Areas for Mainstreaming Environmental Considerations				
	Environment for Development	Increased Supply of Renewable Energy	Land Management	Secure Supply of Nutritious Foods	Reduced Vulnerability
Building Capacity for Sustainable Land Use Planning and Management at National and Community Levels	Sustainable land use planning and management at national and community levels is likely to be a major focus of the agreed consensus; for this to translate into improved practices at community and family levels knowledge and skills must be strengthened at national level for land use planning and at community level for land use practices.	Major changes in land use will be required if biofuels are to make an increased contribution to national energy supplies; changes must be consistent with land capabilities and communities must have the capacity to meet the demand for biofuels in ways that are environmentally sound, economically beneficial and socially acceptable.	Given that major changes in land use will be required if biofuels are to make an increased contribution to national energy supplies, it will be important to ensure that national policies and plans reflect the need to the new land uses to be sustainable; communities must also have the capacity to ensure that their actions are consistent with the need for sustainable land use.	The knowledge and skills of staff working at national level will need upgrading if national policies and plans are to facilitate improvements in food security and diet; similarly, additional knowledge and skills will be required at community level if land use is to become more sustainable.	Sustainable land use planning and management helps to reduce both vulnerability and hardship, but for this to happen capacities in land use planning and management need to be strengthened at both national and community levels.
Upgrading Technical Early Warning Systems and Response Capabilities	Upgrading technical early warning systems and enhancing response capacities are already a high priority for ensuring the sustainable development of Samoa; the agreed consensus is therefore likely to highlight this important need.	Maintaining energy supplies during and immediately after a disaster or similar event is a high priority; early warning can help improve the resilience of energy supply and distribution systems.	People working in plantations, forests and other areas need to be given early warning of pending hazardous events, in order to reduce risks to lives and property.	Appropriate action can be taken to harvest crops and in other ways minimize adverse impacts on food supplies and diets, but only if adequate warning is provided.	Early warnings of sudden changes in hazard levels and socio-economic conditions can help reduce adverse impacts of such events.

D. Implications for the Government, Communities and People of Samoa

249. There is an urgent need to mainstream environmental and natural resource management considerations in Samoa's development planning processes. This is for three principal reasons: (i) such a move would provide a significant opportunity to improve on current management regimes – most indicators suggest that environmental quality is declining and natural resources are being consumed at unsustainable rates; (ii) the future of Samoa rests on its people, its environment and on its natural resources – if agriculture, tourism and fisheries are to play increasing roles in the national economies, and in community well-being, there will be growing pressures on these assets and thus a concomitant need to manage them to ensure their sustainability; and (iii) from 1986 the population growth rate has reversed the downward trend from the peak rates in the 1960s, and is now at levels which mean an addition of about 1,500 people to the population every year; while population growth rates are low relative to those in most neighbouring countries it still carries with it all the associated implications for the environment and natural resources if management practices are not improved dramatically.

250. Important population and economic planning decisions will have to be made. Moreover, environmental and resource management decisions made today will establish the quality of life of people tomorrow and, more importantly, in decades to come. People are already suffering the consequences of previous mismanagement of the environment and natural resources. For example, studies have highlighted the many detrimental impacts of the rapid deforestation of Samoa that took place in the 1970s to 1990s. Deforestation has affected: (i) the country's timber supply, with the level of remaining merchantable resource, the size of the sawmilling industry and overall timber production severely reduced – estimates suggest that the remaining indigenous forest will be depleted within five to six years; plantation forests are not expected to make up the shortfall until after 2020, and then only at the rate of 75% of current indigenous harvest volumes; thus for a time the country's sawn timber requirements will have to be met by imports; even now some 50% of sawn timber requirements are met by imports; (ii) watershed productivity, with the conversion of steep slopes into cultivation, poor practices in logging timber, poorly designed and constructed roads and lack of local awareness; the result has been increased siltation into reservoirs, loss of forest cover in areas above water intakes and increased peak runoff, resulting in increased flooding of downstream areas; (iii) biological diversity, given that deforestation has been identified as one of the key factors causing biodiversity decline in Samoa – several species of fauna and flora that are endemic to Samoa and therefore of global conservation significance are being threatened with extinction because of such threats as loss or degradation of habitats; birds are most vulnerable; and (iv) the livelihoods of people – while modern technologies, trade, religions and science have led to a reduced reliance on forests, for many Samoans forests continue to provide for subsistence and cultural needs.

251. People now prefer to buy food, rather than produce it, usually with a preference for imported processed convenience foods rather than more nutritious and often more expensive local foods. Catching reef fish and other marine resources, and selling them locally to fund the purchase of canned fish and similar imported foods, is not an uncommon practice. These observations indicate many of the challenges now being faced by those responsible for ensuring high standards of environmental quality, natural resource conservation and human health. Commercial exploitation of the in-shore fishery, albeit for predominantly local consumption, has placed immense pressure on the resource. Catch levels are declining rapidly, due to this unsustainable extraction. Food security and affordability have both declined, and there is a real risk that knowledge of traditional food production and processing will

be lost. Many human health indicators, especially those related to so called life style diseases such as diabetes, are showing worrying levels of change.

252. The complex nature of the issues, and the many dimensions to the solutions, highlight the need for greater cooperation between Government, the private sector, and civil society, including community leaders and members and NGOs. Figure 3 highlights the importance of partnerships. It shows two conflicting situations. The left hand portion of the diagram emphasises an important reality – over 80% of the land and other natural resources are under customary ownership and management. This is therefore where the greatest opportunities exist for using these resources in a sustainable manner to further the development of communities, and the country as a whole. However, at present the majority of customary landowners and users lack the capacity to make and implement decisions that will result in more productive and sustainable use of their resources.

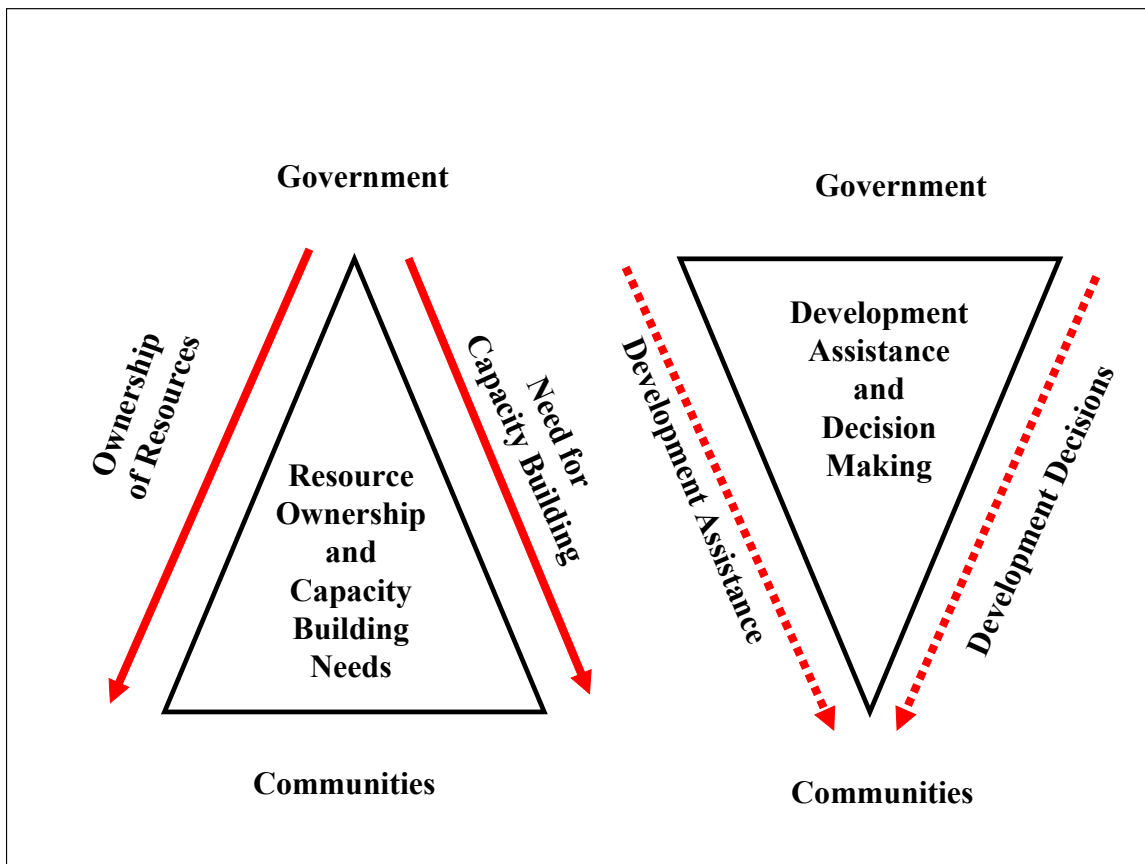


Figure 3. The inconsistency between community ownership and use of resources and the resulting need for capacity to make and implement sustainable resource management decisions (left hand diagram) and the Government as the source of both development assistance and decisions related to resource planning and utilization (right hand diagram).

253. But as shown in the right hand part of the diagram, national institutions are the source of development assistance (including expert advice, technologies and financial and other resources), or it must pass through them in the form of overseas development assistance. Similarly, development decisions are made at national level but their implementation is dependent on local resource owners and users being well informed, motivated and capable of taking the requisite actions. Another

reality is that Government mechanisms are inefficient and often ineffective at building capacity at community level. Moreover, few of the decisions made at national level reach those in whose hands successful implementation resides.

254. NGOs have demonstrated much greater success at supporting good environmental and development practices at community and family levels. They are being used increasingly as the conduit for delivering information and national and international assistance to communities.

255. The Government might best focus its efforts on initiatives that will assist local resource owners and users to make and implement decisions that result in more productive and sustainable use of their resources, including supporting the work of those who are efficient and effective in providing development assistance that will build the capacity and hence self reliance of needy families and communities.

256. The two key practical acts by Government that will help achieve these outcomes are strengthening the enabling environment for environmental management and working to ensure that the existing policies that integrate environmental considerations into current and new development plans, project implementation and development assistance are implemented in a timely and effective manner.

a. Enhancing the Enabling Environment for Improved Management of the Environment and Natural Resources

257. **Performance-based Budgeting.** The recent implementation of performance-based budgeting has yet to deliver the full range of benefits in terms of public sector management and service delivery. For example, performance-based budgeting should result in substantial improvements in environmental management, including incorporating environmental targets in all sector plans and in the management plans of line and other ministries and not just the MNREM. Such developments would in themselves represent a major step towards mainstreaming environmental considerations and would do much to elevate the status of the environmental management within Government operations. The environmental road map (Table 3) provides suggested targets for environmental performance, not only by Government but also by the private sector, largely in the form of environment- and natural resource-based small business enterprises. Government may wish to respond to the fact that sound environmental management is a profitable investment rather than an unproductive cost and in so doing redefine the core functions and the targets of agencies that have demonstrated, through performance-based budgeting, an ability to meet their performance targets. Allocating appropriate portions of Government revenues to these agencies could follow this.

258. **Enabling More Productive and Sustainable Use of Land.** This is a high priority, particularly for land, which is in customary ownership. Progress in this regard requires concerted action in at least three respects, namely: (i) increasing the timeliness, certainty and equity in resolving land disputes; (ii) ensuring land use is consistent with land capability and with adjacent land uses; and (iii) assisting land owners and users to make informed decisions and to implement them in a timely and successful manner. All three requirements are the current and proposed focus of ADB assistance. The challenges to secure cooperation from land owners and achieve compliance with land use plans and other regulations should not be underestimated. It is not only important to raise the awareness of landowners with regard to both their rights and responsibilities, but also to ensure that they are fully aware of the environmental and related consequences of non compliance. Tenure

issues related to the adjudication, survey, registration, and issuance of land titles need to be resolved in order to enhance access to land for development. Absence of a valuation methodology for determination of fair market assessment of transaction prices for land rights is a constraint that needs to be resolved with urgency.¹⁴

259. **Progressive and Enforced Legislation and Regulations.** Legislation and regulations should be reviewed to ensure that they are not providing perverse incentives that result in environmental degradation but are, on the contrary, encouraging decision making and actions that result in good environmental outcomes. For example, the Government could encourage the local production of healthy foods by not giving a tariff advantage to foods such as mutton flaps and turkey tails and encourage the uptake of environmentally sound technologies by reducing import tariffs. It could also further promote recycling through regulations that authorise refundable deposits on wider range of recyclable products and support the further engagement of the private in recycling activities.

260. The absence of effective controls on siting, design and construction of buildings has adverse consequences not only for the environment but also for human health, safety and well being. Some of these consequences can be avoided through full compliance with rigorous and comprehensive EIA regulations, backed by the required legislation. Certainty for developers and certainty of outcomes can result from improved enforcement of a building code that includes locally appropriate and meaningful requirements for building design, placement and construction.

261. **Institutional Strengthening.** Cooperation between Government agencies is far from optimal. Arguably the situation is worst for environmental and natural resource management. This is evident in the frequent movement of PUMA between two ministries. The incorporation of environmental targets and performance indicators in all sector and national plans would go a long way towards achieving greater coordination of environmental policy and management initiatives between Government agencies and with the private sector and NGOs.

262. **Upgrading Staff Knowledge and Skills.** Government, the private sector, communities and individuals will have to respond to the growing need for improved environmental and natural resource management, and seize the opportunities. Their initiatives will need to be supported by coordinated and continuing efforts to enhance the knowledge and skills of all the players. Roles of staff in Government agencies are changing rapidly, as are the demands being placed on the private sector and NGOs with the outsourcing of many services that have to date been provided by the public sector. These changing roles and responsibilities need to be reflected in training and other capacity building initiatives, including institutional strengthening.

263. **Supporting Environmental Advocates and Champions.** Opinion leaders in the community can play an important role in mainstreaming environmental management. This can be achieved as much by highlighting the widespread and diverse benefits of improving and maintaining environmental quality as by documenting systemic and specific failures that lead to environmental degradation and unsustainable use of natural resources. Samoa is fortunate to have NGOs which are highly professional and with well-regarded staff. While in recent years Government have been increasingly willing to involve such people in policy making

¹⁴ Addressing these priority issues is a major focus of current and planned work, funded by ADB, including Technical Assistance to Samoa for Capacity Building of Financial and Business Advisory Intermediaries and Facilitating Land Mobilization and Securitization

and planning there is a feeling among the NGO community that they are being used, rather than being treated as true partners. For example, they are often asked to help only when things seem to be going wrong rather than in the early stages of planning and development. And even when they are involved in the planning, they are frequently left out when the big decisions are made, such as those related to the preparation of the SDS. The Government can do much to ensure that the expertise available within the private sector and civil society is used productively to complement rather than substitute for the work of Government employees. In a true partnership there will be mutual respect and a shared vision for the management of Samoa's environment and natural resources.

264. Information Acquisition and Management Systems. Information management systems can be used to improve the quality and environmental outcomes of decision making, as well as contribute to environmental compliance and enforcement. Increasingly decision makers and managers are being provided with targeted information that allows them to be more successful in fulfilling their responsibilities. However, many information management systems suffer from a dearth of relevant data that can only be acquired through surveys, assessments and monitoring programs. Currently these needs are poorly resourced, managed and implemented. A major constraint on the successful mainstreaming of environmental considerations in development planning processes is the lack of the information required to demonstrate the need for Government interventions and the allocation of appropriate financial and other resources. Information is also required to determine the optimum nature and timing of the intervention, and to demonstrate the success, or otherwise, of the actions.

265. Integrated Approach. Greater certainty and quality in decision making, and in the application of laws and regulations related to environmental quality and conservation of natural resources, will result if the value of policy advice submitted to Government is improved and if decision makers show more commitment to heading this advice rather than being influenced by other factors. This requires a comprehensive knowledge base that is readily accessed by all stakeholders. Laws and regulations should be strengthened in ways that clarify the responsibilities, intentions, powers and procedures of Government. Such legislation can then serve as the basis for informing, and thereby engaging constructively with members of civil society as well as the private sector. State of the art awareness raising programs will correct false perceptions, identify mutually beneficial opportunities, and build mutual respect and confidence.

VI. CONCLUSIONS AND RECOMMENDATIONS

266. This CEA for Samoa focused on the general environment status and trends in the country, including the role of the environment and natural resources in the economy, the key environmental constraints and opportunities, the policy, legislative, institutional, and budgetary frameworks for environmental management, and the principal constraints on, and barriers to, improved environmental management. It has also identified priority areas in policy, institutional and legislative mechanisms, as well as programmes and projects that will help to mainstream environmental considerations into economic development planning. The main environmental opportunities associated with ADB's assistance to Samoa have also been identified. These include recommending incorporation of environmental considerations in programmes/projects in the pipeline as well as new priority actions and projects at national and community levels. The aim was to proactively incorporate, integrate and support sound environmental management practices, not only in the economic

development planning and policy-making for the Samoa, but also in specific project-level interventions.

267. Participatory consultations, supported by research of relevant policy and technical documents, resulted in identification of numerous key environmental concerns:

- environment not effectively mainstreamed in national development planning processes;
- shortcomings in environmental management practices;
- vulnerability to natural hazards;
- land and forest degradation;
- unsustainable use of living marine resources;
- solid waste;
- energy;
- chemicals usage; and
- sustainability of tourism.

268. Several opportunities for environmental and related improvements were identified as a result of both consultations and research. These would bring many benefits to the Samoan economy as well as to civil society, especially the poor and other marginal groups. However, a number of constraints on achieving these improvements were also recognized. All are resolvable with commitment and cooperation. A review of ADB's current investment portfolio was also undertaken.

269. Priority areas for action were identified and a road map for the environment sector was prepared. Consistent with the road map, specific recommendations were developed for mainstreaming the environment in projects in ADB's future investment programme for Samoa.

270. Five priority areas for action resulting in the mainstreaming of environmental considerations were identified, namely:

- environment for development;
- accessible, affordable, sustainable and renewable indigenous energy supplies;
- equitable and sustainable land management;
- secure and affordable access to nutritious foods; and
- reduced vulnerability to natural disasters and social and economic pressures.

248. A sixth cross-cutting priority area for action was identified, namely:

- ensuring the capacity for sustained and sustainable development.

Actions related to this priority area have been subsequently incorporated into the other five priority areas.

255. The ability of the planned ADB assistance was assessed with respect to the ability to address the need for action in each of the five priority areas. Based on this assessment a decision was made as to whether strengthening the currently planned assistance would make a sufficient, meaningful contribution to addressing each of the five priority action areas. The planned assistance would benefit from strengthening through the addition of the following activities:

256. The Power Sector Improvement project could be strengthened through addition of:

- Assessment of the environmental and related implications of renewable energy development in Samoa;
- Strengthening Samoa's national energy policy and planning; and
- Strengthening the capacity of the Electric Power Corporation in Renewable Energy Planning and Implementation.

255. Securitization of Land Leases could be strengthened through the addition of:

- Increasing the timeliness, certainty and equity in resolving land disputes.

257. Small Business Development could be strengthened through addition of:

- Strengthening family and small business support programmes aimed at enhancing food security and nutrition; and
- Increasing the opportunities for food producers to engage successfully in the cash economy.

257. Where the planned assistance was considered to be insufficient, even when strengthened as described above, the essential elements of the additional assistance were elaborated in concept briefs for the proposed projects. The additional projects proposed as a result of this analysis are:

- Developing an inclusive, participatory consensus on contribution of environment to development;
- Enhancing capacity of national government to mainstream environmental considerations;
- Building capacity of village mayors and women government representatives in development decision making and environmental leadership;
- Enhancing capacity of ngos to include environmental considerations in community (including family) development projects;
- Building capacity for sustainable land use planning and management at national and community levels; and
- Upgrading technical early warning systems and response capabilities.

258. It is recommended that the necessary actions be undertaken to implement the environmental road map and thereby address the five priority action areas. There is also a need to strengthen the enabling environment for environmental management and to integrate environmental management into existing and new development policies, plans and project implementation.

259. There is an urgent need to mainstream environmental and natural resource management considerations in the SDS. There are three principal reasons: (i) such a move would signal a commitment to improving on current management regimes - most indicators suggest that environmental quality is declining and natural resources are being consumed at unsustainable rates; (ii) the future of Samoa rests on its people and its environment and natural resources – if agriculture, tourism and fisheries play ever increasing roles in the state and national economies there will be growing pressures on these assets – there is thus a concomitant need to manage them to ensure their sustainability; and (iii) the population growth rate for Samoa is increasing, bringing with it serious implications for the environment and natural resources if management practices are not improved dramatically.