ABOUT THE EDITORS

Daniele Ponzi is Principal Environment Specialist, Environment and Social Safeguard Division, Regional and Sustainable Development Department, Asian Development Bank (ADB). Mr. Ponzi has 20 years’ work experience as staff and consultant for various international organizations, including ADB, the United Nations Environment Programme (UNEP) and the Organisation for Economic Co-operation and Development (OECD). He has worked in Europe, Asia, and Africa and his expertise is in environmental policy, planning and management; rural development; energy policy; and water resources management. With undergraduate training in Economics, Mr. Ponzi holds a master’s degree in Environmental Policy and Management. His e-mail is dponzi@adb.org.

David S. McCauley is an environmental economist and policy expert with long experience in Asia and the Pacific. A frequent consultant and advisor to international agencies such as ADB and to Asia-Pacific government and nongovernment bodies, he is Adjunct Senior Fellow at the East-West Center in Honolulu, Hawaii and Affiliate Graduate Faculty at the University of Hawaii, Department of Natural Resources and Environmental Management. Dr. McCauley’s undergraduate training was in the environmental sciences, and he holds a PhD in Agricultural and Resource Economics from the University of Hawaii. He may be contacted at mccauled@eastwestcenter.org.

Lope A. Calanog is a science research specialist of the Department of Environment and Natural Resources (DENR), Philippines. His field of expertise on sociodemographic studies, community-based forestry and natural resources management, biodiversity conservation, and protected area management. He has worked as consultant to various multilateral organizations, foremost of which are the European Union, through the EU-DENR funded project “National Integrated Protected Areas Programme” as National Director; and ADB, as Environment Specialist of the Regional Technical Assistance—Pacific Region Environmental Strategy. He holds a PhD in Community Development/Social Forestry from the University of the Philippines and may be contacted at lcalanog@laguna.net.
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<th>Abbreviation</th>
<th>Full Form</th>
<th>Description</th>
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<tbody>
<tr>
<td>ADB</td>
<td>Asian Development Bank</td>
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<tr>
<td>CAA</td>
<td>Conservation Areas Act</td>
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<tr>
<td>CACC</td>
<td>conservation area coordinating committee</td>
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<tr>
<td>CBD</td>
<td>Convention on Biological Diversity</td>
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<td>CCA</td>
<td>community conservation area</td>
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<tr>
<td>CLT</td>
<td>Customary Land Tribunal (Act)</td>
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<tr>
<td>COP</td>
<td>Council of Pilung</td>
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<tr>
<td>COT</td>
<td>Council of Tamol</td>
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<tr>
<td>CRP</td>
<td>Comprehensive Reform Programme</td>
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<tr>
<td>DESD</td>
<td>Department of Economic and Social Development</td>
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<tr>
<td>DoE</td>
<td>Department of Environment</td>
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<tr>
<td>DUD</td>
<td>Delap, Uliga, Darrit (villages, most urbanized area on Majuro)</td>
<td></td>
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<tr>
<td>EMC</td>
<td>Environmental Management and Conservation (Act)</td>
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<tr>
<td>EEZ</td>
<td>exclusive economic zone</td>
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<tr>
<td>EIA</td>
<td>environmental impact assessment</td>
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<td>EPA</td>
<td>Environmental Protection Agency/Authority</td>
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<tr>
<td>FCA</td>
<td>Funafuti Conservation Area</td>
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<td>FSM</td>
<td>Federated States of Micronesia</td>
<td></td>
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<tr>
<td>FTC</td>
<td>Funafuti Town Council</td>
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<td>FTIB</td>
<td>Fiji Islands Trade and Investment Bureau</td>
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<td>FVB</td>
<td>Fiji Visitors Bureau</td>
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<td>GEF</td>
<td>Global Environment Facility</td>
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<td>GDP</td>
<td>gross domestic product</td>
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<td>GIS</td>
<td>geographical information system</td>
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<td>GNP</td>
<td>gross national product</td>
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<tr>
<td>ICM</td>
<td>integrated coastal management</td>
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<td>IUCN</td>
<td>World Conservation Union</td>
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<td>IWP</td>
<td>[Strategic Action Programme for the] International Waters of the Pacific [Small Island Developing States]</td>
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<tr>
<td>LGCC</td>
<td>local government council</td>
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<td>MDF</td>
<td>medium-term development framework</td>
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<td>MOU</td>
<td>memorandum of understanding</td>
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<td>MPA</td>
<td>marine protected area</td>
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<td>MRCMP</td>
<td>Marine Resources and Coastal Management Plan</td>
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<tr>
<td>MRBH</td>
<td>Manta Ray Bay Hotel</td>
<td></td>
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<tr>
<td>MRMD</td>
<td>Marine Resources Management Division</td>
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<tr>
<td>NBSAP</td>
<td>national biodiversity strategy and action plan</td>
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<tr>
<td>NEMS</td>
<td>national environmental management strategy</td>
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<tr>
<td>NGO</td>
<td>nongovernment organization</td>
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<tr>
<td>NLTB</td>
<td>Native Lands Trust Board</td>
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<td>NRAC</td>
<td>Natural Resources Advisory Council</td>
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<td>NRIC</td>
<td>National Resource Information Centre</td>
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<td>NRSC</td>
<td>National Scientific Research Council</td>
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<tr>
<td>OAS</td>
<td>Organization of American States</td>
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<tr>
<td>PDMC</td>
<td>Pacific developing member country</td>
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<tr>
<td>PPA</td>
<td>physical planning area</td>
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<tr>
<td>Acronym</td>
<td>Full Form</td>
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<tr>
<td>PPU</td>
<td>physical planning unit</td>
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<td>PRES</td>
<td>Pacific Region Environmental Strategy</td>
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<tr>
<td>PWD</td>
<td>Public Works Department</td>
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<tr>
<td>REDI</td>
<td>Rural Economic Development Initiative</td>
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<tr>
<td>RETA</td>
<td>regional technical assistance</td>
<td></td>
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<tr>
<td>RMI</td>
<td>Republic of Marshall Islands</td>
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</tr>
<tr>
<td>Scuba</td>
<td>self-contained underwater breathing apparatus</td>
<td></td>
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<tr>
<td>SDP</td>
<td>Strategic Development Plan</td>
<td></td>
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<tr>
<td>SEA</td>
<td>strategic environmental assessment</td>
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<tr>
<td>SOPAC</td>
<td>South Pacific Applied Geoscience Commission</td>
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<tr>
<td>SPBCP</td>
<td>South Pacific Biodiversity Conservation Programme</td>
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<tr>
<td>SPREP</td>
<td>South Pacific Regional Environment Programme</td>
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<tr>
<td>SPTO</td>
<td>South Pacific Tourism Organisation</td>
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<tr>
<td>SWM</td>
<td>solid waste management</td>
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<tr>
<td>TCSP</td>
<td>Tourism Council of the South Pacific</td>
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<tr>
<td>TDA</td>
<td>tourism development area</td>
<td></td>
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<tr>
<td>TDP</td>
<td>Tourism Development Programme</td>
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<tr>
<td>TEKW</td>
<td>traditional ecological knowledge and wisdom</td>
<td></td>
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<tr>
<td>TEM</td>
<td>traditional environmental management (practices)</td>
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<tr>
<td>TRCMI</td>
<td>Tagabe River Catchment Management Initiative</td>
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<td>TRR</td>
<td>Traders’ Ridge Resort</td>
<td></td>
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<tr>
<td>TTF</td>
<td>Tuvalu Trust Fund</td>
<td></td>
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<tr>
<td>TVL</td>
<td>Telecom Vanuatu Limited</td>
<td></td>
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<tr>
<td>UGMS</td>
<td>urban growth management strategy</td>
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<tr>
<td>UNCED</td>
<td>United Nations Conference on Environment and Development</td>
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<tr>
<td>UNDP</td>
<td>United Nations Development Programme</td>
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<tr>
<td>UNEP</td>
<td>United Nations Environment Programme</td>
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<tr>
<td>UN ESCAP</td>
<td>United Nations Economic and Social Commission for Asia and the Pacific</td>
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<tr>
<td>UNFCCC</td>
<td>United Nations Framework Convention on Climate Change</td>
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<tr>
<td>USP</td>
<td>University of South Pacific</td>
<td></td>
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<tr>
<td>VANRIS</td>
<td>Vanuatu Resource Information System</td>
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<tr>
<td>VCC</td>
<td>Vanuatu Culture Centre</td>
<td></td>
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<tr>
<td>VCHSS</td>
<td>Vanuatu Cultural and Historical Sites survey</td>
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<tr>
<td>WAM</td>
<td>Waan Aelon in Majol (Canoes of the Marshall Islands)</td>
<td></td>
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<tr>
<td>WPZ</td>
<td>water protection zone</td>
<td></td>
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<tr>
<td>WTO</td>
<td>World Trade Organisation</td>
<td></td>
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<tr>
<td>WSDD</td>
<td>World Summit on Sustainable Development (Johannesburg Earth Summit)</td>
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<tr>
<td>WWF</td>
<td>World Wide Fund for Nature</td>
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<tr>
<td>WWF-SPP</td>
<td>World Wide Fund for Nature—South Pacific Program</td>
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<tr>
<td>YAPCAP</td>
<td>Yap Community Action Program</td>
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**NOTE**

In this report, “$” refers to US dollars.
FOREWORD

With many Pacific economies and societies heavily reliant upon management of their natural resource endowments, attention to environmental concerns is critical to achieving sustainable development in the region. In recognition of this, and consistent with its broader environment policy, the Asian Development Bank (ADB) has become an increasingly active partner in fostering improved environmental management capacity and performance at the local, sector, national, and regional levels in the Pacific.

In an effort to better understand current environmental issues and further improve the efficacy of its programs, ADB has undertaken the preparation of a Pacific Region Environmental Strategy (PRES). The PRES analysis was organized through a regional technical assistance activity funded by ADB and the Government of New Zealand and provides (i) a review of key environmental issues and main response strategies, (ii) an assessment of past environment-related assistance provided by ADB and other development partners in the region to draw relevant lessons, and (iii) identification and discussion of priority areas for intervention by mapping out future directions for ADB’s environmental assistance to the region.

This volume presents a series of case studies, carried out to add important field-level context to the overall PRES analysis and organized under the theme of “mainstreaming the environment in development planning and management.” The case study volume accompanies and complements the main PRES report, which presents the principal findings and lays out ADB’s new environmental assistance strategy for the Pacific. The PRES analysis and its recommendations are part of a broader strategic planning exercise covering ADB’s overall assistance to the region for the period 2005–2009.

The PRES exercise was directed by Daniele Ponzi, Senior Economist (Environment) in ADB’s Pacific Department, who designed and coordinated implementation of the regional technical assistance under the overall guidance of Peter King, Director Area B, Pacific Department. The PRES analysis was carried out by a team of ADB environmental consultants led by David McCauley and including Gerald Miles, Lope Calanog, and Ricardo Barba. This volume compiles the five case studies produced by individual authors or teams commissioned by ADB, and the many authors are fully recognized in each of the case study chapters. The volume’s editors prepared introductory and concluding chapters which, respectively, provide an overview to and lessons learned from the five cases. Special thanks also are due to Sara Collins Medina, who provided valuable insights and copy editing services on both volumes.

Regional consultation with Pacific stakeholders formed an integral part of the PRES analysis, and extensive consultations were held with government officials, private sector and civil society representatives, nongovernment and community-based organizations, and international and regional development agencies engaged in managing Pacific environment-related policies, strategies, and activities. Earlier PRES drafts—including preliminary case study findings—were discussed in various forums including a PRES consultation workshop in the Fiji Islands (21–22 March 2003), the Second High Level Climate Change Adaptation Consultation and the 3rd Round Table Meeting on Climate Change in the Fiji Islands (8–10 May 2003), and the 2003 Pacific Forum Economic Ministers’ Meeting in the Republic of Marshall Islands (9–13 June 2003).
We hope that this case study volume will result in a wider understanding of key issues affecting the mainstreaming of environmental considerations into the sustainable development process in the region, and we look forward to continued engagement with stakeholders in implementing PRES and improving environmental management in Pacific countries.

Jeremy H. Hovland
Director General
Pacific Department
Asian Development Bank
CHAPTER 1

Introduction

Toward Environmental Mainstreaming
Threats to the Pacific Environment

The vast region of the Pacific Ocean, dotted with its thousands of small islands and fringed in the West with the Australasian rim, constitutes one of the most diverse and fragile habitats on earth. As indicated in Figure 1, the region spans an area covering roughly one sixth of the planet's surface. It is home to some 8.5 million inhabitants, and 15 countries generally associate themselves with the community of Pacific nations. The region’s natural systems also support some of the richest and most unique biological diversity found on the globe—from forests to wetlands to coral reefs and ocean ecosystems.

Though sparsely populated on the whole, Pacific countries are facing increasing environmental pressures from a variety of sources, including land use changes leading to resource degradation, difficulties with the management of wastes, and vulnerabilities to global change. In the Micronesian countries of the Western Pacific, forests are being converted to agricultural and other uses at a rapid pace and with scant attention to their underlying ecological functions, especially the downstream benefits of well-managed watersheds. Generally scarce water resources across the region are being polluted or unsustainably exploited. Urban areas are expanding without adequate planning for the provision of solid or liquid waste collection, treatment, and disposal. Low-lying coral atolls vulnerable to extreme climatic events such as typhoons or droughts are concerned about the even higher risks they now face from the threat of sea-level rise and the greater frequency of extreme hydrological events as a result of global climate change.

Toward Environmental Mainstreaming

Although tentative progress has been achieved in recent years as Pacific countries responded to environmental challenges with new policies and programs, the almost categorical frailty of those institutions responsible for environmental management poses a critical constraint. Environmental legislation is rudimentary across the region, and its enforcement even weaker. The principal environmental policy applied has been to require the assessment of potentially adverse impacts from development activities, but there is neither political nor expert capacity to carry out such analysis effectively. Poor scientific understanding of and information on the Pacific’s natural systems—such as freshwater “lenses” underlying many islands or coral reef ecosystems—also hampers efforts to establish sustainable resource use practices.

This situation has led many to propose a greater integration of environmental thinking into the mainstream of sector development planning, policymaking and investment. Since environmental agencies seem destined to remain largely ineffective regulatory bodies until their capacity and corresponding political will can be significantly strengthened, it appears that more rapid progress can be made by incorporating environmental and natural resource management considerations into the fabric of development programs covering such areas as urbanization, rural development, coastal and water management, and energy supply.

Increasing attention also is being given to social and cultural traditions of the Pacific associated with sound environmental management, in the hope that these can be blended into current policy and program approaches to enhance their effectiveness. Prior to the rise of population densities and associated environmental pressures, as well as negative external forces such as the introduction of invasive species and Western notions of resource use, the Pacific peoples largely lived in harmony with their environment (albeit with relatively high rates of poverty). While retrogressive steps in the region’s social and economic development are not thereby suggested, the conviction is growing that many opportunities have been missed to emulate traditional patterns of conservation and natural resource management in the region’s development. Greater attention is now being given to documenting or even reviving such traditions.

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1 Fourteen of these are developing member countries of the Asian Development Bank: Cook Islands, Fiji Islands, Kiribati, Republic of Marshall Islands, Federated States of Micronesia, Nauru, Palau, Papua New Guinea, Samoa, Solomon Islands, Timor-Leste, Tonga, Tuvalu, Vanuatu.
ADB’S Pacific Region Environmental Strategy

Pacific economies and societies depend on healthy ecosystems. Tourism, fisheries, agriculture, freshwater supplies, and most other aspects of island economies in ADB’s Pacific developing member countries (PDMCs) rely heavily on a well-managed natural environment. Recognizing the pressures facing the Pacific’s environment—and consistent with ADB’s broader environment policy—ADB provides a wide range of environment-related assistance to PDMCs, and serves as an active partner in efforts to improve environmental management capacity and performance at the local, sector, national, and regional levels.

To refine and better target its assistance programs in the region, ADB embarked in 2002 on a study for the Formulation of an ADB Pacific Region Environmental Strategy (PRES) to develop an operational framework for environment-related assistance and to further the mainstreaming of environmental considerations into all aspects of ADB’s operations in the PDMCs. The strategy was developed in a consultative manner and covers the period 2005–2009.

The Case Studies

Rationale for Conducting the Case Studies

As a part of the PRES analysis, a set of five case studies was commissioned on current efforts in the region to better incorporate environmental considerations into local, sector, or regional development plans, policies, and programs. These cases were meant to add greater depth to ADB’s understanding of current trends in the region, as well as to identify promising approaches for improved environmental and natural resource management in the process of economic development and poverty reduction. They also were to serve as “ground-truthing” tools for PRES recommendations. The conduct and preparation of the cases has served these purposes reasonably well, and it is hoped that this is reflected in the main PRES document.

The purpose of this volume is to present the cases in their entirety so that they may reach a wider audience and also provide the basis for an analysis of some common lessons. Though the cases vary in their style and content, each offers a unique and up-to-date look at an important resource management issue—spanning the geographic and ethnic expanses of the Pacific. Several of the cases were prepared in partnership with nongovernment organizations (NGOs) in the region, including the South Pacific Regional Environment Programme (SPREP) and the World Wildlife Fund-South Pacific Program (WWF-SPP), and ADB anticipates wider use of such strategic partnerships for implementation of the new strategy.

Information on the organization and composition of each of the case study teams is given in the corresponding chapters, but the main thrusts and findings of each are presented below. The cases were conducted in Tuvalu, Fiji Islands, Federated States of Micronesia, Republic of the Marshall Islands, and Vanuatu. They dealt with tourism and resort development, waste management, and planning and policy formulation, as well as protected area management and biodiversity conservation.

Summary of the Cases

Chapter 2 presents a case analysis on the Funafuti Conservation Area, Funafuti Atoll, Tuvalu: Drawing Lessons for Future Marine Conservation Planning and Management. This study documents and analyzes experience from one of the Pacific region’s first and few marine protected areas (MPA). The Funafuti Conservation Area (FCA) was initiated in 1996 with assistance from SPREP and financial support from the United Nations Development Programme (UNDP)-supported South Pacific Biodiversity Conservation Programme. Through interviews, observations, reviews of secondary information, and gathering of primary data through field surveys and questionnaires, this case study evaluates the performance of the FCA and draws lessons regarding the mainstreaming of environmental management into government policymaking and economic planning.

4 Summaries of the cases appear as Appendix 2 of PRES Volume 1.
5 This case study volume is part of ADB’s Pacific Studies Series, and the full list of titles in this series may be found at: http://www.adb.org/documents/books/pacific_studies/default.asp.
6 Funded by the Global Environment Facility.
The case study finds that community members—most notably, the fisherfolk themselves, who are the primary resource users and beneficiaries—are generally supportive of the FCA. Many believe that fish populations as well as other forms of biological diversity have increased within the lagoon as a result of the conservation area’s establishment. The FCA also has provided the impetus for passage of the Tuvalu Conservation Area Act of 1998 and an associated Funafuti Town Council By-law of December 1999 providing for the area’s protection.

While these laws are significant steps toward institutionalizing the FCA, the case finds that an integrated and community-based FCA management plan is lacking. Likewise, the Government lacks the capacity to execute and implement a fully optimized national marine conservation program. The case generates recommendations for strengthening the management of the FCA that include improving the monitoring methodology; increasing public awareness; developing an integrated management plan for all of Funafuti lagoon; improving enforcement; building capacity, both within government departments and through strengthening of NGOs and other community-based groups; and developing mechanisms for sustainable financing, especially through promotion of ecotourism and ocean recreation.

The importance of mainstreaming conservation efforts, so that they are fully integrated into overall national development planning, policymaking, and economic budgeting, is strongly emphasized in the case. As demonstrated in the case’s cost-benefit analysis, improved protection of fish breeding stocks and related natural resources in MPAs—such as the FCA—can result in significant net economic benefits for the nation. This is deemed to require working in close collaboration with community stakeholders and securing the commitment of the government, in the form of legal, institutional, and financial support, to ensure that effective management is provided on an ongoing basis. Finally, the case suggests that elements of the FCA experience are replicable elsewhere in Tuvalu and similar atoll systems of the Pacific, and suggests that strong consideration should be given to determining how best to combine traditional and nontraditional management elements in the design of such MPAs.

Chapter 3 presents the Strategic Environmental Assessment (SEA) of the Fiji Islands’ national Tourism Development Programme (TDP). Like the Tuvalu case, it deals with the integration of conservation into the mainstream of development planning and policymaking. ADB formed a partnership agreement with WWF-SPP to carry out the case study, which was chosen because tourism is the fastest-growing industry in the Fiji Islands yet has potentially significant impacts on the natural and social environments. The SEA compares the current environmental, social, and economic baseline and likely trends under the TDP against objectives allowing for an assessment of the plan’s sustainability. The study finds particular areas within the Fiji Islands where tourist development already is causing serious environmental degradation. Many pressures caused by tourism activities, for example on coral reefs, are close to levels at which irreversible damage could occur.

The study suggests that the large-scale, high-investment tourism advocated in the TDP would likely tip the balance—not only in its impact on natural systems, but also contributing to current tensions among tourist developers, landowners, and the local communities. A cautionary approach to future tourism development is recommended, in which growth objectives and targets are set in terms of the likely benefits derived and concentration is given to encouraging activities—such as ecotourism, community-based tourism, and non-“packaged” travellers—that are more likely to enhance development of local economies. The recommendations also call for “bottom-up” planning at the provincial and tikina (a Fijian word for a cluster of villages) levels.

Chapter 4 presents a study on the Integration of Traditional and Modern Systems of Environmental Management and Potential Use of Public-Private Partnerships in Natural Resource Management and Tourism Development in the State of Yap, Federated States of Micronesia. This case offers an interesting assessment of preliminary attempts to incorporate customary land tenure and management practices into current tourism policies and programs in Yap, where both traditional and modern systems of natural resource management have been found increasingly unable to regulate the use of marine and terrestrial resources in a sustainable manner. Weakened traditional authority and loss of community cohesion are making it difficult to stop resource degradation. The case notes that certain fish species have now almost disappeared, while many marine resources are widely recognized as endangered.
The study was undertaken to explore how traditional and modern approaches to the management of natural resources might be integrated for greater positive effect, and how public-private partnership approaches have been and might be employed in this and the development of environmentally sustainable tourism. The study employed interviews in Yap with more than 50 leaders in government and the private sector concerned with both management of natural resources and tourism development. Interviews revealed that very little integration of traditional and modern systems of natural resource management has taken place. Traditional systems prevail by default, even in their weakened form, because the government is reluctant to confront traditional land and water use rights. Communications between the state government and the traditional leaders and communities are weak and sometimes clouded in mutual suspicion. Thus, lack of effective channels of communication has made it difficult for state agencies to reach understanding with leaders and communities on the common objectives and interests of traditional and modern approaches to management and how they can be beneficially integrated.

The case points out that while tourism in Yap is of limited current scale and little growth has taken place since the 1997 Asian financial crisis, the Yapese believe that their economic future is tied to development of this sector. Large-scale tourism is widely believed among the Yapese to lead to social and environmental problems so alternatives are being sought. Unfortunately, no current plan or strategy explores how current levels of tourism will be expanded to capture new markets.

One approach proposed is the use of public-private partnerships. While two attempts at public-private tourism partnerships have been made—in which private capital partners allied with a village or community—no existing tourist facilities involve any significant form of public-private partnership. Though the concept seems acceptable, no real test of it has occurred in practice in the State of Yap.

The study also observes that integrating traditional knowledge and modern approaches, plus active private and public participation, are critical conditions to attaining an effective environmental and natural resource management regime. It proposed that to accomplish this there is a need first to identify shared goals. As long as no open discussion of issues or general agreement on values and a future for Yap takes place, it will be very difficult to integrate traditional forms of natural resource management with modern management techniques. Second, the study suggests that effective channels of communication must be built between the community and the state government. Third, community cohesion must be strengthened to encourage its members to communicate often among themselves in order to understand their common needs and best interests. Finally, while public-private partnerships are relatively unknown at present, the concept fits well with traditional concepts of the role of the community or village in the management of natural resources, particularly in tourism development. To promote this partnership, the study notes that the institutional capability of the business sector and the community advisory and legal services must first be strengthened. In addition, traditional practices, particularly land tenure, must be addressed carefully but with some flexibility in order to allow access by outside private entrepreneurs.

A closely related case is given in Chapter 5 on the Application of Traditional Environmental Management Practices, Knowledge, and Values to Solid Waste Management (SWM) on Majuro Atoll, Republic of Marshall Islands. This case documents efforts to blend traditional and modern approaches to solid waste management in an island environment. The traditional way of life in the Republic of Marshall Islands (RMI)—prior to modern-day population and development pressures—of necessity has been an ecologically sustainable one. Environmental degradation is now becoming more visible in this island state, especially in urbanized areas where resource use and rapidly changing lifestyles are generating nonbiological wastes such as aluminum cans, plastics, and abandoned vehicles. Solid waste accumulation has become a major problem in the larger population centers, particularly Delap, Uliga, and Darrit on Majuro Atoll.

The study examines the SWM situation in the capital city of Majuro and current efforts to deal with this growing problem. It observes that the traditional approach to domestic solid waste disposal in Majuro, as elsewhere in RMI, was to bury it within family compounds. In the past, such disposal presented few ecological problems, but higher population densities and increased per capita production of waste—including both biodegradable and nonbiodegradable substances—means that such materials are accumulating both on the land and in marine waters, and at ecologically damaging levels.
To help find solutions to these problems, a project was initiated in 2001 (supported by ADB) to promote the adaptation of traditional environmental management (TEM) practices to improve SWM in Majuro. Information on traditional knowledge, practices, and values was compiled from both primary and secondary sources. Extension materials like videos, activity booklets, school presentations, radio spots, computer presentations, community meetings, and workshops were produced to raise the level of public awareness about the application of TEM in SWM.

On the basis of this project’s experience, the case study examines how TEM can be mainstreamed into environmental management endeavors like SWM. The TEM project appears to have been highly successful in raising the profile of traditional leaders of Majuro. It has clearly improved their status and morale, and the knowledge of both the leaders and the community has been enhanced as a result of the meetings, workshops, and presentations. It has also initiated discussions on how the role of traditional leaders may be integrated into the current decision-making systems with respect to SWM on Majuro. The study also notes that TEM-related considerations have been incorporated into SWM strategies in the latest 15-year RMI National Strategic Plan: Vision 2018. Though the case does not suggest that greater attention to TEM can, on its own, solve the problems of solid waste in Majuro, it concludes that any workable solutions can only come about with the active cooperation and leadership of traditional leaders.

Chapter 6 presents the final case study on Mainstreaming Environmental Considerations and Traditional Knowledge and Practices into Policies and Programs for the Mele Catchment Area in Vanuatu, which documents a new program seeking to establish an integrated and community-driven approach to land and water management in the Tagabe River area, a subcatchment of the greater Mele Catchment on Efate Island. The case provides a “situation analysis” of the Tagabe River Catchment Area and analyzes the various acts, institutions and policymaking bodies at the national, provincial, and local level that affect development planning and resource use management in Vanuatu.

The study finds that passage of the Environmental Management and Conservation Act in March 2003 set Vanuatu on a new path in its environmental planning and management practices, and that the Department of Environment has recognized that an approach based on catchment or watershed management has the potential to deliver desired environmental management and economic development outcomes. This approach is illustrated by the Tagabe River Catchment Management Initiative (TRCMI), which emphasizes community participation, especially in environmental impact assessment, and takes an integrated approach to decision making in the watershed. The study recommends that—based on the TRCMI experience—conduits for community appraisal be opened together with the early injection of TEM and knowledge into each level of governance/decision making. The case also finds that having access to adequate data and information on socioeconomic and environmental conditions is essential to good decision making. Based on experience in the case study area, it is found that the regulatory relationship between the national and provincial/municipal planning and environment offices needs strengthening through development of an integrated strategic planning structure that specifically allows for inputs of community and traditional knowledge at all levels of decision making.

Conclusion

The editors hope that this volume will enrich the currently available literature on Pacific environmental management and perhaps inspire emulation of the more promising approaches documented. In closing, Chapter 7 attempts to draw some lessons from this varied set of experiences and management efforts that may be more broadly applicable to the management of island environments in the Pacific and elsewhere. As noted, each of the cases was prepared by a separate author or team commissioned by ADB, and their work has been edited primarily to provide continuity of presentation and some measure of stylistic consistency. The views expressed herein do not reflect those of ADB or its member governments, and the editors retain full responsibility for the content of the introductory and concluding chapters of this volume, including any remaining misinterpretations or other shortcomings.
CHAPTER 2

The Funafuti Conservation Area, Funafuti Atoll, Tuvalu

Drawing Lessons for Future Marine Conservation Planning and Management

James T. Berdach
Executive Summary

Background

Marine protected areas (MPAs) have gained wide acceptance among coastal planners, managers, researchers, and scientists as an effective tool that can be utilized to protect threatened marine and coastal ecosystems. MPAs allow depleted breeding stocks of important food fish and invertebrate species to regenerate and become reestablished, providing a foundation for sustainable fisheries. Typically, the MPA model comprises a core “no-take” conservation area, within which harvest of fish and other consumable resources is strictly prohibited, and a surrounding “buffer zone” in which nonintensive fishing practices are permitted. The full commitment and participation of the local community in planning, design, and implementation can ensure the long-term viability of such projects.

An MPA project, the Funafuti Conservation Area (FCA), was initiated at Funafuti, the main atoll and lagoon system of Tuvalu, in 1996. The FCA was established with the support of the South Pacific Biodiversity Conservation Programme (SPBCP), and administered by the South Pacific Regional Environment Programme (SPREP), in response to reported increases in fishing pressure and the threat of deteriorating environmental quality in Funafuti lagoon. The FCA has been regarded as highly successful by local residents, but information about the project has not been widely disseminated outside Tuvalu. As part of the Asian Development Bank’s (ADB) Pacific Region Environmental Strategy (PRES), a case study was prepared to evaluate the performance of the FCA project. One of the primary objectives of the case study, and of the PRES, was to gather lessons learned that could be applied in other contexts, and to determine ways in which environmental management could be effectively mainstreamed into government policymaking and economic planning.

Information obtained through review of secondary literature sources provided the initial foundation for the case study. Intensive consultative activities were also carried out in Tuvalu, and included (i) interviews with key informants who were involved in establishing, monitoring, or managing the FCA; (ii) round-table discussions with key stakeholders from the community; and (iii) questionnaires that were distributed to determine sentiment and level of awareness within the community about the FCA and general conservation issues. In addition, direct observations of biophysical conditions in the FCA were made during a series of Scuba and snorkeling surveys. These field surveys were useful in providing an overview of relative resource abundance, biodiversity, and ecosystem health, and in drawing comparisons between prevailing conditions at sites within and outside the conservation area.

Findings

Based on the observations made and information gathered during the study, specific findings regarding the performance of the FCA project are as follows:

- Community members are generally supportive of the FCA. While acknowledging that there are certain weaknesses, they feel that it is producing beneficial results, and that it should be maintained as a no-take zone in which breeding populations of fishes and other organisms can be protected to sustain fisheries resources.
- Most respondents believe that fish populations have increased within the lagoon as a result of the establishment of the conservation area. Also, during field surveys, high biomass and biodiversity were observed at two of the three sites (Tefala and Fuafatu) visited within the FCA. Significant at these sites was the observation of large-sized individual fishes of highly prized target food species, such as groupers and snappers. The presence of so many large fish of desirable target food species appears to indicate that there is very low fishing pressure at these sites.
- While observations of high biodiversity and biomass were impressive at the FCA sites, these parameters also appeared to be roughly comparable at other sites outside the conservation area (South Fongafale and Tepuka). However, the sites within the FCA still appeared to have larger-sized individual fishes among the key target food species than at the sites outside the FCA.
- Two possible explanations for the fact that fish stocks at sites within and outside the FCA are almost the same in terms of abundance and diversity are that (i) the FCA is already functioning
effectively as a source of biomass, and is exporting “spillover” biomass to other parts of the lagoon; and (ii) fishing pressure is relatively low (i.e., below maximum sustainable yield) throughout the lagoon, even outside the FCA.

During FCA project implementation, intensive awareness-building activities were conducted, and were considered generally effective in improving local knowledge about conservation issues. However, these activities have all but ceased since the project ended in 2001.

Monitoring and survey activities conducted as part of the conservation project were helpful in establishing baseline data about species composition and diversity within the FCA. These activities also helped to develop skills among technical staff in the Funafuti Conservation Office and Fisheries Department. However, in the future, other parameters need to be included, and methodologies need to be improved, in order to strengthen the monitoring process to enable detection of changes brought about through the management of the FCA.

The FCA project provided an impetus for the passage of the Tuvalu Conservation Area Act of 1998 and of the Funafuti Town Council’s by-laws dated 16 December 1999. The national Act establishes a legal framework for declaring conservation areas nationwide, including possible future conservation sites on the outer islands. The bylaws establish the regulations and procedures that govern the use of resources within the FCA. While these are significant steps toward institutionalizing the FCA, an obvious deficiency is the lack of an integrated, community-based FCA management plan.

While respondents and interviewees indicated that the planning of the FCA was carried out with the involvement of the community, they also pointed out that greater community participation will be needed to manage the area effectively over the long term. Presently, two conservation officers are handling practically all responsibilities for the management of the area, with very little assistance from the community at large.

Voluntary compliance with restrictions on fishing within the FCA no-take area has been at a high level, but because enforcement efforts are weak, some violations continue to occur. Organized enforcement efforts are hampered by a lack of trained staff, inadequate funding, and anomalies in the legal and judicial system that make it difficult to prosecute violators. Recent incidents of “permitted catches” within the no-take area also undermine conservation efforts.

No practical mechanisms for sustainable financing were put into place as part of the project. As a result, conservation efforts were cut back severely once project funding from SPREP ceased, resulting in a feeling of frustration and disappointment among stakeholders.

For conservation activities to be sustainable, it is essential that government policymakers understand fully the significance of the resources being protected, and move toward mainstreaming conservation efforts into the national development and economic agenda. The Government’s commitment and support for such efforts can help in protecting resources of national importance for present and future generations.

Lessons Learned

Based on the findings of the FCA case study, a number of key lessons emerged. These are consistent with lessons learned from evaluating past MPA projects from other countries. The most significant are as follows:

- **An MPA such as the FCA, if successfully managed, can produce important tangible benefits.** Among these are increased awareness within the community about environmental and conservation issues, preservation of biodiversity, and actual increases in fish biomass, resulting in increased sustainable fishery yields.

- **Traditional systems of fisheries management can form the basis for developing an effective management framework.** However, each situation is unique and needs to be evaluated individually to determine how best to integrate traditional and nontraditional methods into a system that is most appropriate within any specific biophysical, socioeconomic, and cultural setting.

- **Community participation is crucial to ensuring the long-term sustainability of any marine conservation program, especially in the planning and design stages.** It is also critical in various
aspects of implementation, especially in monitoring and enforcement.

- Monitoring methods should be developed that can produce the most useful data for measuring changes over time, especially those changes that might be due to improved management and conservation within an MPA. Biomass and fish size distribution are two parameters that are especially important in this regard.

- A no-take zone cannot be managed in isolation. No-take zones are simply the “core” zones of MPAs. It is important to coordinate the management of these zones with the management of activities occurring in surrounding areas. An ecosystem approach should be used to define the management area (whether it be a lagoon, a small island ecosystem, a watershed, or other readily identifiable ecological unit). A comprehensive, integrated, community-based management plan should be developed to guide activities within the management area.

- Selecting an area that is not under intensive pressure, either from heavy fishing activity or from serious environmental impacts (e.g., from pollution or land transformation), increases the chances of successfully maintaining healthy marine biodiversity resources and breeding stocks for fisheries within an MPA. Proper management under these conditions can help to protect biodiversity for future generations.

- Sources for sustainable financing need to be identified early in the planning process, and mechanisms put in place to capture revenues that can support management efforts over the long term. Failure to secure sustainable financing can lead to frustration and disappointment, and can ultimately undermine the conservation effort.

- It is essential that the national and local government give full institutional support for conservation initiatives such as the FCA project, through “mainstreaming,” which requires inclusion of conservation objectives within overall national and local policymaking and economic planning. Specifically, this entails promulgation of appropriate laws and regulations, establishment of institutional structures that may be required for effective management, development of effective and comprehensive management plans, and identification of fund sources and allocation of funds where needed.

A rough calculation of expected costs and benefits for improved management of the FCA was undertaken. Capital costs and recurrent costs for improved management over a 5-year timeframe were estimated. The value of benefits was derived from past studies of similar conservation projects. Values such as increased fisheries productivity, the coastal protection function provided by healthy coral reefs, and improved opportunities for ecotourism, ocean recreation, and similar revenue-generating activities, were taken into account. The calculation showed an estimated net economic benefit of A$163,120/ year to be realized through more effective management of the FCA. The net benefits to the country could be further multiplied by increasing the size of the management area, or by replicating the conservation project at other sites on other atolls around the country.

Based on the case study findings, a series of recommendations is made for strengthening the management of the FCA. These include improving the monitoring methodology; increasing public awareness; developing an integrated management plan for all of Funafuti lagoon; improving enforcement; building capacity, both within government departments and through strengthening of NGOs and other community-based groups; and developing mechanisms for sustainable financing, especially through promotion of ecotourism and ocean recreation.

It is also recommended that possibilities for replicating conservation areas on the other atolls of Tuvalu be explored. On several other atolls where traditional management systems have been established, residents represented through their town councils have called for assistance in setting up formal conservation areas. In designing any such management system, consideration should be given to determining how best to combine traditional and nontraditional management elements. A similar approach should be taken if replication of the FCA model is considered for other Pacific island nations. Possibilities for establishing a regional network, which could link conservation areas in various countries, should also be investigated.

The importance of mainstreaming conservation efforts, so that they are fully integrated into overall national development planning, policymaking, and economic budgeting, cannot be overemphasized. As demonstrated in the cost-benefit analysis, improved
protection of fish breeding stocks and related natural resources in MPAs such as the FCA can result in significant net economic benefits for the nation. Working in close collaboration with community stakeholders, the Government must commit itself, in the form of legal, institutional, and financial support, to ensure that effective management is provided on an ongoing basis.

Cross-sector linkages provide opportunities to strengthen conservation efforts. In Tuvalu, conservation activities within MPAs can be linked to other activities of the Fisheries Department (for example, using these sites as restocking areas for giant clam and other mariculture products, and for research), to ecotourism development, and to outer islands development (among others).

At present the Government of Tuvalu does not have the capacity to fully execute and implement all the activities that are required for optimizing a national marine conservation program. For this reason, it is recommended that a team of specialists provide the required technical assistance to help prepare the community, train assigned personnel, and help coordinate a range of community-based planning, design, and management functions.

In summary, the FCA project has been relatively successful, and can provide a useful model for similar marine conservation projects at other sites within the country, around the region, and beyond. It should be noted that the generally low fishing pressure within Funafuti lagoon as a whole is probably a significant contributing factor to the successful results observed within the FCA. This is in sharp contrast to the case in more populous nations, such as the Philippines or Indonesia, where such results are much more difficult to achieve. The success of the FCA project in Tuvalu points precisely to the urgent need, in nations where fishing pressure is presently beyond sustainable limits, to consider all reasonable means to bring these pressures under control. Only if this is done soon will there be any hope of achieving sustainability of the fisheries resources that are so vital to providing the people of these nations with their basic sustenance.
Introduction

Technical assistance was provided by Asian Development Bank (ADB) to the Government of Tuvalu as part of the Pacific Region Environmental Strategy (PRES), a regional project for environmental strategic planning. Under the PRES, case studies were prepared to document a range of environmental and natural resources planning and management approaches in Pacific developing member countries that will be useful to gain improved understanding of such practices in the region.

The Tuvalu case study undertook to evaluate the management of the Funafuti Conservation Area (FCA) project, a marine and terrestrial conservation program initiated at Funafuti, the main atoll and lagoon system of Tuvalu, in 1996. According to local informants, the FCA project had, in the relatively short time since its inception, demonstrated a measure of success in establishing an effective management framework for the conservation and sustainable use of important fisheries and other coastal resources. A professional evaluation by a Coastal Resources Management and Protected Areas Specialist would, it was hoped, yield lessons that would be useful to the Government of Tuvalu for replication of the management model on other islands, since most of the country is heavily dependent on nearshore fisheries for subsistence and as a source of protein. It was also possible that the model, and the analysis here presented, would be useful, and the project replicable, in a wider regional and global context.

Broader Context: Marine Protected Areas as a Management Tool

Within the Pacific region, and throughout most of the world’s developing coastal countries, heavy reliance is placed upon nearshore fisheries resources for subsistence and as a source of nutritional protein. Mounting pressure on these fisheries as a result of increasing populations in coastal areas and associated impacts due to pollution, habitat destruction, and large-scale environmental effects (e.g., coral bleaching, tied to elevated temperatures believed to be associated with the El Niño Southern Oscillation phenomenon) have resulted in depletion of these resources in many coastal areas. These losses have had the greatest impact on the poor, who are most directly dependent upon such resources for their survival.

One of the interventions that has been applied in recent years in an effort to reverse the trend of declining fisheries resources is the establishment of marine protected areas (MPAs). The MPA is used to protect threatened marine and coastal ecosystems and allow depleted breeding stocks of important food fish and invertebrate species to regenerate and become reestablished. Ideally, following a preparation period that includes significant public awareness building, the MPA is planned, established, and managed with the full commitment and participation of the local community. Such commitment can ensure the long-term viability of such projects.

Over the last 2–3 decades, MPAs have gained wide acceptance among resource managers as an effective tool for conserving fragile marine ecosystems and ensuring the sustainability of important fisheries and other nearshore resources. MPAs established for protection of coral reefs and fisheries resources at Sumilon and Apo islands in the central Philippines, in the mid-1970s, are among the pioneering projects in this field.

As developed through these projects, the MPA model comprises a core “no-take” conservation area, within which harvesting of fish and other consumable resources is strictly prohibited, and a surrounding “buffer zone” in which nonintensive fishing practices are permitted. Usually the core zone should include the higher-quality coral reefs and other biodiversity resources contained within the MPA (e.g., areas of nondegraded reef of greater structural complexity, such as reef slopes vs. reef flats), and total about 20–30% of the total coral reef area. The early MPA projects in the Philippines, and similar projects conducted in the Caribbean, demonstrated the effectiveness of MPAs in preserving a breeding ground for fish and other economically important species in the core zone, which could then serve as a source area from which “spillover” biomass was exported beyond the core zone boundaries into the buffer zone, where it would then be available for harvest by nonintensive fishing methods (e.g., hook and line, but not net) (Russ and Alcala 1996a, 1996b; Roberts et al. 2001). Figure 2.1 presents a diagram of a “typical” MPA, adapted for the lagoon environment.
Tuvalu is a small Pacific island nation with only 26 square kilometers (km²) of land area distributed among nine island groups that span a distance of about 680 km, from Nanumea in the northwest (at 5°38'S, 176°07'E) to Niulakita in the southeast (at 10°45'S, 179°38'E) (Figure 2.2). In contrast to its small land area, Tuvalu's territorial waters include a vast open ocean area of 900,000 km². The islands are mostly low-lying coral atolls with land elevation generally less than 3 m above sea level (SPREP, 1997), poor, thin soils, and no permanent freshwater aquifers. As a result of these conditions, agricultural activity is quite limited. Pelagic fisheries resources, while still fairly abundant, are not fully exploitable by Tuvalu, which lacks its own commercial-scale deepwater fishing fleet. With its small land mass, limited resource base, and remoteness, Tuvalu faces a number of daunting environmental and economic challenges. Among the most immediate needs are to develop viable options for safe potable water production and to establish suitable areas for disposal of solid and domestic wastes, especially in the population center of Fongafale. In addition, sea and air transportation, both interisland and international, are very limited and will need to be expanded if the internal and external economy are to develop further.

Added to these more immediate concerns, due to the very low elevation of its islands, the country faces the long-term threat of loss of land area and possibly, total inundation, should predictions of rising sea levels due to global warming be fulfilled.

The total national population of Tuvalu is very small, fewer than 11,000 persons, and the population growth rate is declining overall. However, Fongafale, the main island of Funafuti atoll, the seat of government, and the site of most economic activity in the country, is becoming increasingly urbanized and is under severe population pressure. Due to limited employment opportunities on other islands, large numbers of outer-island Tuvaluans have migrated to Fongafale, which now has one of the highest population densities of any Pacific island (Table 2.1). The increased population on this island poses threats to the existing natural resource base of Funafuti atoll, especially its fragile coastal ecosystems and fisheries resources (Knapman, Ponton, and Hunt 2002; Lane 1993; Government of Tuvalu 1992). Such threats are thought to arise both from direct increases in pressure on fisheries and from environmental degradation associated with increasing pollution discharged into the lagoon from the burgeoning Fongafale population center.

Against this backdrop of reported increases in fishing pressure and the threat of deteriorating environmental quality, the ADB Fisheries Sector Study for Tuvalu (Berdach and Maynard 1994) recommended establishing marine sanctuaries to ensure the continuing viability of marine resources for sustainable use in the future. At around the same time, the South Pacific Regional Environment Programme (SPREP), the United Nations Development Programme, and the Global Environment Facility (GEF) initiated a regional South Pacific Biodiversity Conservation Programme (SPBCP). One of the core objectives of this program was to establish MPAs in some 14 nations in the Pacific region (SPREP 1993). The FCA project was begun in 1996 with SPBCP support.

Under the SPBCP and related assistance, an estimated total of about A$310,000 in technical support services, equipment, and facilities was provided over a 6-year period (1996–2001), toward establishing the FCA.²

² An estimate (based mainly on information from the Funafuti Conservation Office) was made of the value of assistance reaching beneficiaries through the FCA project. This included approximately A$20,000 annually (for 6 years) to cover operating costs; an estimated A$100,000 in technical assistance for monitoring surveys and related training activities; A$38,000 from New Zealand Overseas Development Assistance for a vessel; and A$52,000 from the Canada Fund for self-contained underwater breathing apparatus (Scuba) equipment, another vessel, and the Interpretive Center building.
Table 2.1. Tuvalu Population 1973–2001

<table>
<thead>
<tr>
<th>Year</th>
<th>Tuvalu</th>
<th>Density (persons/km²)</th>
<th>Fongafale (Funafuti)</th>
<th>Percent of total</th>
<th>Density (persons/km²)</th>
</tr>
</thead>
<tbody>
<tr>
<td>1973</td>
<td>5,887</td>
<td>229</td>
<td>871</td>
<td>14.8</td>
<td>312</td>
</tr>
<tr>
<td>1979</td>
<td>7,349</td>
<td>286</td>
<td>2,117</td>
<td>28.8</td>
<td>758</td>
</tr>
<tr>
<td>1991</td>
<td>9,043</td>
<td>353</td>
<td>3,843</td>
<td>42.5</td>
<td>1,377</td>
</tr>
<tr>
<td>2001 (est.)</td>
<td>10,276</td>
<td>401</td>
<td>4,518</td>
<td>44.0</td>
<td>1,619</td>
</tr>
</tbody>
</table>

Growth Rate (per annum)

<table>
<thead>
<tr>
<th>Period</th>
<th>Tuvalu</th>
<th>Fongafale (Funafuti)</th>
</tr>
</thead>
<tbody>
<tr>
<td>1979–1991</td>
<td>1.7</td>
<td>5.1</td>
</tr>
<tr>
<td>1991–2001</td>
<td>1.3</td>
<td>1.6</td>
</tr>
</tbody>
</table>

Sources: Central Statistics Division 1992; Fairbairn 1993; and Knapman et al. 2002.

Objectives of the FCA

The FCA is the first such MPA established in Tuvalu. As originally conceived, the stated overall objective was to conserve the terrestrial and marine biodiversity resources of Funafuti Atoll based on sustainable use principles, for the benefit of present and future generations. This includes the protection of valuable and productive habitats that contribute to the maintenance of biodiversity in the area; conservation of endangered species (such as turtles and giant clams); and improvement of the quality of fisheries resources. It was hoped that establishing an MPA in Funafuti Lagoon would reverse the overexploitation of fisheries resources: the MPA would serve as a refuge where important food fish and shellfish species could grow and reproduce, so that biomass could be exported outside the no-take boundaries for sustainable harvesting through traditional means in other parts of the lagoon.

The specific objectives of the FCA project:

- Conduct a thorough public awareness campaign on marine, coral, and atoll conservation, together with a continuous environmental conservation program;
- Develop institutions and strengthen local and community capacity to manage the conservation area;
- Develop a sustainable resource management plan to be implemented and monitored by village communities; and
- Develop sustainable income-generating activities for the Funafuti community and ensure sustainable financial support for conservation efforts.

Biophysical Characteristics of the Funafuti Conservation Area

The FCA encompasses some 33 km² of ocean area in the western portion of Funafuti Lagoon, including six small islets or motu that occupy a total land area of approximately 8 hectares. The boundaries of the conservation area have been defined as a line 50 meters (m) seaward from the ocean-side reef crest in the west, and to the 30-m depth contour on the lagoon side in the east. In the north-south direction, the conservation area extends from just north of Tepuka Vilivili to just south of Tefala islets (Figure 2.3).

The FCA’s boundaries encompass about 20% of the total coral reef area of the lagoon. At least 400 species of fish (Kaly 1997), and at least 36 species of corals (Sauni and Vave 2003) are known to be found in Funafuti Lagoon, with a large number of these reported within the FCA. Despite their small land area, the islets of the FCA are also significant for their rich biodiversity. About 40% of the total area of the atoll’s threatened native broadleaf forest is found on the islets within the FCA. Some 22 species of seabirds and shorebirds and 2 species of land birds are recorded as being found on the islets, and most of the bird species found here utilize the islets for nesting or roosting (Watling 1998). In addition, the indigenous
Figure 2.2. Map of Tuvalu
coconut crab is found here, and sea turtles are known to nest on the islet beaches. Tuvaluans traditionally exploit most of these species for food.

**Project Initiation and Management Framework**

As part of the SPBCP, activities initiated by SPREP for the establishment of the FCA included significant community preparation. Community awareness-building was carried out through the showing of a series of informational videos to about 275 community members. Follow-up meetings, discussions, and workshops, as well as publicity through local radio and newspapers, reinforced the message. Plans for an Interpretive Center were proposed, and funding was subsequently secured (from the Canada Fund) to construct a building to house this facility.

Training activities were aimed primarily at increasing the capabilities of a group of core technical professionals to carry out the biological monitoring program. The trainees were government personnel drawn from the Environment and Fisheries departments, and working with the Funafuti Town Council (FTC), who had or were interested in obtaining self-contained underwater breathing apparatus (Scuba) qualifications.

The training consisted of instruction and certification in Scuba, including dive safety, instruction in the use of global positioning system equipment, and instruction to help develop technical skills in survey methodologies, especially recognition and identification of a broad range of fish and invertebrate taxa. Baseline and follow-up monitoring surveys were carried out in late 1997 and from late 1998 to early 1999. Following the termination of SPREP-funded activities, another monitoring survey was conducted in 2002, with support from the Global Coral Reef Monitoring Network project. A reference collection of corals, algae, and invertebrates was started and deposited at the Town Council building.

The FTC is the executing agency for the conservation area, and it works in close collaboration with the traditional falekaupule (maneapa) system of elders or toeaina. Although the conservation area was initially declared under this traditional system, the FCA is now afforded protection and formal legal status under the Tuvalu Conservation Area Act of 1998 (Government of Tuvalu 1998), and under by-laws enacted in 1999 by the FTC (FTC 1999).

**The Case Study**

**Background and Rationale of the Case Study**

One purpose of the PRES project is to study environmental and natural resources management initiatives around the Pacific region and glean lessons that may be applied to improving the effectiveness of such activities both locally and regionally. Another PRES objective is to identify ways in which environmental considerations and the principles and practice of sustainable development can be mainstreamed into overall national policymaking and economic planning, in which they have heretofore rarely played much of a part.

As mentioned above, many Tuvaluans regard the FCA as a “highly successful” marine conservation project. However, little information about the project has reached beyond Tuvalu’s shores. Although the project is briefly noted in the United Nations List of Protected Areas (IUCN 1998), no mention is made of the marine protected area in Tuvalu in another comprehensive global survey on the status of coral reefs (Maragos 1998). This case study...
has been conducted to investigate and shed light on the current status of the FCA project in Tuvalu; to document lessons that may be learned from the project; and, based on the lessons, to make recommendations for more successful MPA management in the future.

Case Study Methodology

The case study was conducted over a period of approximately 5 weeks; for the Tuvalu case study, a Coastal Resources Management and Protected Areas Specialist was fielded to Tuvalu during the period 3–24 March 2003 to evaluate the performance of the FCA project. The specialist worked in close consultation with Tuvalu government counterparts, particularly within Foreign Affairs, the Conservation Office of the Funafuti Town Council, and the Fisheries Department. The main component activities and methodologies that were utilized are discussed below.

Background Research

Research based on secondary sources provided the initial information for the case study. Sources utilized included Tuvalu government statistics and relevant reports from the fisheries and environmental sectors. Core reference materials also included the reports describing the process of the establishment of the monitoring system for the FCA, and the implementation of the initial baseline and follow-up monitoring surveys. Research reports on other projects in marine conservation and protected area management from outside Tuvalu provided a basis for establishing a broader regional and global context.

Consultative Process

The Specialist, together with others, carried out a range of consultative activities to supplement the findings from the background research. This information proved valuable for understanding the perceptions of the local community regarding the project. The consultative activities that were utilized were as follows:

- **Informant interviews**: Interviews were conducted with key informants who have been involved in the process of establishing, monitoring, or managing the FCA. The informants shared their views about the accomplishments and successes that have been realized, as well as problems they have encountered, during the start-up and implementation of the FCA project. A list of persons contacted is presented in Appendix 1.
- **Round-table discussion**: A round-table discussion was held on 11 March 2003, drawing together approximately 10 key stakeholders from the community representing a range of interests. The group included conservation managers, fishers, government representatives, and nongovernment organization (NGO) participants. The open discussion format allowed a variety of views to be aired, and differing opinions to be expressed. Overall, a high degree of consensus was expressed regarding key issues. A report of the outputs of the round table discussion is presented in Appendix 2.
- **Questionnaires**: Questionnaires were prepared and distributed to various community stakeholders. This was done in two ways:
  - A set of questionnaires prepared for a target group of managers was distributed during the round-table discussion meeting, and completed and collected.
  - A second set of questionnaires, aimed at a general community target group, was prepared, and was administered with the assistance of personnel from the Conservation Office of the FTC and the Fisheries Department. This questionnaire was distributed to a representative sampling of respondents, including, among others, teachers, business people, school children, fishers, owners of property within the FCA, and other residents of Funafuti.

A total of about 35 questionnaires were distributed to and completed by respondents in the two groups. The information obtained from the questionnaires gave a good indication of overall knowledge and sentiment within the community about the FCA and general conservation issues. The two questionnaires, together with a tabulation and interpretation of responses, are presented in Appendix 3.

- **Presentation of case study findings**: Toward the end of the on-site work in Tuvalu, the Specialist organized a wrap-up meeting during which the initial findings of the study were presented. In the
round-table discussion that followed, members of the community, especially the managers and users of the FCA, had an opportunity to comment on the findings, to ensure greater accuracy and completeness of the information. The outputs of the wrap-up meeting are included in Appendix 2.

Field Surveys

Direct observation of biophysical conditions in the FCA was accomplished through a series of field surveys. For the evaluation purposes of this case study, it was not intended to replicate the detailed quantitative monitoring surveys that had been conducted previously. Rather, “semiquantitative” surveys were made by means of Scuba diving and snorkeling at selected sites within the FCA and at other sites outside the FCA. This made it possible to obtain an overview of relative resource abundance, biodiversity, and ecosystem health, and to draw comparisons between prevailing conditions at FCA and non-FCA sites. The detailed findings of the field surveys are presented in Appendix 4.

Major Findings

Overall Evaluation of Performance of the FCA Project

Through meetings, interviews, and distribution of questionnaires, a large amount of data was gathered that reflect the knowledge and opinions of local conservation managers and the community at large with respect to (i) marine ecology and conservation issues, (ii) the effects and benefits of the FCA project in protecting important fisheries resources and biodiversity, (iii) the capabilities of local institutions and personnel to carry out effective management of the FCA, (iv) the need for effective enforcement, (v) the need for community participation, and (vi) issues of financial sustainability. The responses to the questionnaires provide an overview of this state of knowledge, which is summarized in Table 2.2.

Firsthand observations made during physical surveys conducted at various sites complement the information obtained through the consultative process. This corroboration was especially important in confirming the community’s observations concerning the status of fisheries and biodiversity resources within the conservation area.

Cumulatively, all the data gathered provide a comprehensive picture of the strengths and weaknesses of the FCA project, as implemented to date. There was a strong consensus, among both managers and community members at large, that the conservation area should be maintained as a no-take zone to protect valuable biodiversity and fisheries resources. The general findings support the conclusion that the FCA project has been relatively successful, while recognizing that the project has some weaknesses that will need to be overcome, if continuing management of the FCA is to be effective and viable over the long term. A subjective rating of performance of various aspects of the project is presented in Table 2.3. Further discussion of these key elements or components follows in “Major Findings.”

Performance of the FCA Project, by Component

The following subsections present an analysis of the strengths and weaknesses of the various elements of the FCA project, as implemented to date. These elements are presented in sequence, starting with those judged to be most successful or effective, and progressing to those components that proved to be less effective.

Impacts of Conservation Efforts on Fisheries Resources and Biodiversity

Around 70% of those responding to the questionnaires indicated their strong belief that fish populations, as well as numbers of birds and coconut crabs, have increased as a result of the establishment of the conservation area in Funafuti lagoon. This opinion was also consistently expressed by most informants during interviews.

During the dive and snorkel surveys, high biomass and biodiversity were observed at two of the three sites visited within the FCA, Tefala, and Fuafatu. (At the third FCA site visited, Fualopa, the reef appeared to be in a more degraded condition, with fairly low biodiversity and biomass of fishes as well. More about this in Appendix 4.)

The “semiquantitative” method included a mixture of qualitative and quantitative observations. For example, in some cases, estimates were made of the percentage of live coral coverage, and actual counts were made of numbers of individual fishes. However, in other situations, these data could not be gathered accurately, and in those cases, simple visual estimates were recorded.
### Table 2.2. Summary of Findings Based on Questionnaire Responses

<table>
<thead>
<tr>
<th>Question/Issue (paraphrased from questionnaires)</th>
<th>No. of Responses</th>
<th>Percentage of Responses</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Mgr (n=10)</td>
<td>Comm (n=25)</td>
</tr>
<tr>
<td><strong>Biological Impacts/Benefits</strong></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Fish populations increasing as a result of the establishment of the Funafuti Conservation Area (FCA)</td>
<td>8</td>
<td>17</td>
</tr>
<tr>
<td>Numbers of coconut crabs and birds increasing as a result of the establishment of the FCA</td>
<td>7</td>
<td>17</td>
</tr>
<tr>
<td><strong>Awareness</strong></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Awareness of importance of coral reefs was improved by FCA project</td>
<td>10</td>
<td>21</td>
</tr>
<tr>
<td>Continuing awareness-building is required</td>
<td>9</td>
<td></td>
</tr>
<tr>
<td><strong>Management Framework and Capacity</strong></td>
<td></td>
<td></td>
</tr>
<tr>
<td>FCA is a good idea, the conservation area should be maintained</td>
<td>8</td>
<td>25</td>
</tr>
<tr>
<td>FCA should be community-managed</td>
<td>10</td>
<td>23</td>
</tr>
<tr>
<td>A traditional management system is best (vs. modern, scientific system)</td>
<td>2</td>
<td></td>
</tr>
<tr>
<td>Personnel need further training, and more people need to be trained, for management and enforcement of the FCA</td>
<td>8</td>
<td></td>
</tr>
<tr>
<td><strong>Participation</strong></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Volunteers should be encouraged to help with management of the FCA</td>
<td>10</td>
<td></td>
</tr>
<tr>
<td>Respondents willing to volunteer to help with management of the FCA</td>
<td>14</td>
<td></td>
</tr>
<tr>
<td>Respondents interested to obtain more information about the FCA</td>
<td>10</td>
<td></td>
</tr>
<tr>
<td><strong>Enforcement</strong></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Violators of FCA regulations should be fined or jailed</td>
<td>11</td>
<td></td>
</tr>
<tr>
<td>Violators should receive training and then made to do community service for conservation</td>
<td>14</td>
<td></td>
</tr>
<tr>
<td>Violators should be treated with leniency</td>
<td>0</td>
<td></td>
</tr>
<tr>
<td><strong>Financial Sustainability</strong></td>
<td></td>
<td></td>
</tr>
<tr>
<td>There is a clear need for further financial support for salaries, equipment and supplies, etc.</td>
<td>9</td>
<td></td>
</tr>
<tr>
<td>There is potential for the FCA to generate at least some of its own financial resources, e.g., through fees from ecotourism and recreation</td>
<td>22</td>
<td></td>
</tr>
</tbody>
</table>

*Mgr = responses on Managers’ Questionnaire (of total n = 10 respondents); Comm = responses on Community Questionnaire (of total n = 25 respondents).*
<table>
<thead>
<tr>
<th>Component or Element</th>
<th>Overall Performance Rating</th>
<th>Strengths</th>
<th>Weaknesses</th>
</tr>
</thead>
<tbody>
<tr>
<td>1. Impacts of Conservation Efforts on Fisheries Resources and Biodiversity</td>
<td>☀️☀️☀️</td>
<td>FCA appears to be functioning effectively as a sanctuary and breeding ground for fishes; fishing pressure is limited, ensuring sustainable productivity of fish stocks.</td>
<td>“Success” of the FCA may be due more to prevailing externalities than to actual protection and management.</td>
</tr>
<tr>
<td>2. Awareness Building</td>
<td>☀️☀️</td>
<td>Initially, efforts well-implemented and effective in increasing awareness.</td>
<td>Awareness activities not sustained.</td>
</tr>
<tr>
<td>3. Scientific Baseline and Monitoring</td>
<td>☀️☀️</td>
<td>Technical staff trained; baseline for monitoring established, and follow-up monitoring conducted.</td>
<td>Monitoring should include other parameters, should be structured to allow better time-series comparisons.</td>
</tr>
<tr>
<td>4. Formalization / Institutionalization of Conservation Area</td>
<td>☀️☀️</td>
<td>Conservation Area Act and FCA By-Laws enacted.</td>
<td>No integrated management plan developed; Conservation Area Coordinating Committee formed but not active.</td>
</tr>
<tr>
<td>5. Community Ownership and Participation</td>
<td>☀️☀️</td>
<td>Community voices their support in principle for the project.</td>
<td>Community has not shown tangible support through direct participation in planning and management process; volunteerism lacking.</td>
</tr>
<tr>
<td>6. Enforcement</td>
<td>☀️☀️</td>
<td>Conservation Office staff conducts regular patrols.</td>
<td>Limited enforcement capacity; violations occurring; legal inconsistencies; violators not prosecuted.</td>
</tr>
<tr>
<td>7. Economic and Financial Sustainability</td>
<td>☀️</td>
<td>Town Council has absorbed positions for two Conservation Officers.</td>
<td>Lack of adequate financing for recurrent costs and capital expenditures threatens long-term success of the project.</td>
</tr>
<tr>
<td>8. Mainstreaming</td>
<td>☀️</td>
<td>Conservation Area Act and FCA By-Laws enacted.</td>
<td>Conservation initiatives within the FCA are not well integrated into local or national budget/policy plans; lack of adequate financing for recurrent costs and capital expenditures threatens long-term success of conservation efforts.</td>
</tr>
</tbody>
</table>

Note: FCA = Funafuti Conservation Area.

Key: ☀️☀️☀️☀️ = excellent; ☀️☀️☀️ = very good; ☀️☀️ = good; ☀️ = fair; ☀️ = poor.

Source: Compiled from questionnaire responses.
4.) Also significant at these sites was the observation of large-sized individual fishes. Most of these fishes were highly-prized target food species, such as groupers and snappers. These fishes showed no wariness toward divers, were easily approached, and in fact sometimes actively approached divers, perhaps out of curiosity or in defense of territory. The presence of so many large fish that are choice target food species, and their uninhibited behavior, appear to indicate that there is very low fishing pressure at these sites. In addition, a large giant clam, transplanted by a conservation officer from outside the FCA several years ago to Fuafatu, was seen to be still in place and was observed to have grown significantly since being placed within the FCA. While giant clams are highly prized for food in Tuvalu and actively targeted for harvesting, fishermen apparently have respected the FCA regulations and have not harvested the transplanted giant clam from within the area. Thus, both direct and anecdotal observations indicate that the FCA is functioning as intended, as a no-take zone where fishes and other organisms can safely breed and reproduce.

At the same time, however, other observations outside the FCA make it more difficult to draw clear-cut conclusions concerning the effectiveness of conservation efforts within the area. During surveys at Tepuka and at South Fongafale (both located outside the FCA), it was observed that coral growth is excellent, with live coral cover approaching 100% over much of the reef area at both sites. In addition, fish biomass and biodiversity at both sites is fairly high. The only parameter for which the FCA sites appeared to have an advantage over these non-FCA sites was fish size: on average, when comparing the same or similar species, size distribution at the FCA sites (Tefala and Fuafatu) appeared to be higher than at the non-FCA sites surveyed (Tepuka and South Fongafale).

It could be reasoned that, if the conservation area was having a significant impact in effectively protecting fish and other fauna by restricting fishing pressure within its boundaries, then notable differences should be observable between fish populations in the FCA and non-FCA sites. However, this was not so clearly observed: some sites in the FCA were excellent and others degraded, while both of the sites outside the FCA that were surveyed were in excellent condition. Especially in the case of the South Fongafale site, it would be expected that fish populations might be vulnerable to higher fishing pressure resulting from the close proximity of fishermen to the main population center, and the quality of the reef might be degraded due to impacts from runoff and pollutants entering the water in the vicinity of the reef. Neither of these effects was noted.

Two plausible explanations may account for the apparent similarities observed in both FCA and non-FCA sites:

- It is possible that the FCA has already become successfully established as a fish breeding ground, and is functioning in exporting “spillover” biomass beyond the boundaries of the protected core zone into other parts of the lagoon, as the model predicts. In such a circumstance the large populations of fishes observed elsewhere in the lagoon could in part be accounted for as a direct, beneficial outcome of protection of source stocks within the FCA.
- The pressure on the Funafuti lagoon fisheries is less than has been asserted in the past (cf. Knapman, Ponton, and Hunt 2002; Lane 1993; Government of Tuvalu 1992). While the human population in Funafuti continues to increase, fish catch has remained at a fairly constant level (Figure 2.4), and the fisheries resources are still relatively abundant. Possibly, the carrying capacity and maximum sustainable yield for fisheries resources have not yet been reached. Also, the fact that the lagoon fisheries are primarily subsistence or artisanal (commercial fishing activities are for the most part conducted...
in the open sea, outside the lagoon), may contribute to maintaining fishing pressure within the lagoon at sustainable levels. Thus, viable standing stocks of fish are still found in many areas of the lagoon.

Due to certain weaknesses in the monitoring framework (these weaknesses are further discussed below, the impacts and benefits of the FCA, with respect to changing condition of fish stocks, cannot be clearly demonstrated or fully evaluated at this time. Nonetheless, with proper continuing management, the FCA can serve as a breeding ground that will help to maintain the “biological capital” of genetic diversity within the lagoon. This “capital” can then produce “interest”—the excess biomass that is exported beyond the boundaries of the FCA—that can help to support sustainable fisheries production throughout the lagoon over the long term. Thus, the important mechanism the FCA provides to guard against the loss of biodiversity can function in either a remedial or preventive way, depending on the state of the resources.

**Building Awareness**

An intensive awareness-building campaign was part of the initial activities funded under the SPREP-supported FCA project. The campaign included presentation of a series of informational videos to about 275 community members. Follow-up meetings, discussions, and workshops were conducted, and information was disseminated through the local radio station and newspaper. A series of informational brochures, which explain a range of topics relating to marine conservation, were produced both in English and Tuvaluan language versions. Funding provided by the Canada Fund was used to construct a building to house an “Interpretive Center.“ As conceived, the Center was intended to function as a focal point for continuing education and awareness-building activities within the community. The respondents to the questionnaires seemed to feel that their own awareness about marine conservation was improved significantly through these activities. However, respondents were ambivalent about the effectiveness of the project in raising awareness within the general community; about half the respondents felt that people in the community were not aware of the project.

Awareness-building activities were continued while the project provided funding. However, once the funding was terminated, awareness building activities all but ceased. To date, the Interpretive Center building is empty and not being utilized. The definite consensus among people interviewed is that awareness building activities need to be continued and strengthened.

**Scientific Baseline and Monitoring**

The project helped to create a basis for monitoring changes over time within the FCA by enabling government technical staff, especially in the Fisheries Department and the FTC Conservation Office, to successfully conduct baseline surveys and two subsequent monitoring surveys. The monitoring surveys were a mechanism for obtaining information and for fostering greater involvement and participation among government staff charged with the responsibility for conservation management. Case study interviewees and respondents to the questionnaires believe that the training programs should be continued to further develop skills among technical staff, and also to train others to help shoulder the responsibilities for future monitoring of the FCA.

While the data gathered for the baseline and monitoring surveys are exhaustive, the monitoring and survey protocols could be further improved. As designed, the monitoring program records mainly the diversity of species and numbers of individual fish observed at various sites. Obtaining estimates for other parameters, such as fish size distribution and biomass, could help to record shorter term fluctuations in resource abundance. In fact, this shortcoming was recognized during the second monitoring survey (Kaly et al. 1999). Further, establishment of permanent transect markers would make possible more accurate measurements, and thus make it easier to draw more meaningful data comparisons over time. These recommendations for strengthening the monitoring program are in “Recommendations: Improving the Monitoring Methodology,” below.

**Formalization/Institutionalization of the Conservation Area**

The main successes in institutionalizing and formalizing the establishment of the FCA came through the passage of the national Conservation Area Act of 1998 and of the Funafuti Town Council’s by-laws dated 16 December 1999. The national Act establishes a legal framework for declaring conservation areas nationwide,
including possible future conservation area sites on the outer islands. The by-laws establish the regulations and procedures that specifically govern the use of resources within the FCA.

While these are significant steps toward institutionalizing the FCA, several institutional deficiencies have resulted in some weaknesses in FCA management. The most obvious of these is the lack of an integrated, community-based management plan. It is not enough that the Act and by-laws specify the boundaries of the FCA, the permitted and prohibited uses within the FCA, and fines and punishments. A plan that presents a comprehensive vision for conservation and environmental improvement in Funafuti Lagoon as a whole is urgently needed. This recommendation had already been made in the first follow-up survey report for the FCA (Kaly 1997) but not acted upon. Further discussion of the details of developing such a plan are presented in “Recommendations: Developing an Integrated Master Plan,” below.

Community Ownership and Participation

In the early stages of promoting the concept of a conservation area for Funafuti, the consultants made a considerable effort to engage community stakeholders and foster a sense of ownership of the project and stewardship of important fisheries resources. Participatory activities included

- explanation of the importance of preserving the coral reef ecosystem, delivered to the community through videos and special presentations;
- transfer of skills for management of the FCA to selected community members, through intensive training programs; and
- establishment of a management hierarchy that attempted to place major management responsibility with the community, by working through the traditional “council of elders” (falekaupule) and creating a coordinating body, the Conservation Area Coordinating Committee, to represent the interests of various community stakeholders.

The community seems to have readily accepted the integration of a traditional management structure with some modern management methods. The concept of having a no-take area set aside for protection of fisheries resources is quite similar to a number of traditional Tuvaluan conservation practices. It was reported during interviews that, in the past, village elders initiated traditional restrictions, based on understandings built up out of long-term experience of fluctuating fish stocks. The traditional culture also recognized that restrictions on fishing at certain times, for certain species, or in certain areas would enable depleted fish stocks to recover. The motivation for implementing certain restrictions may not have been entirely based on ecological considerations: restrictions on harvesting certain preferred food species (e.g., clams or turtles) may have been motivated in part by a desire to reserve the use of these species for more privileged members of society, such as chiefs or elders. Nonetheless, the restrictions would have the effect of reducing harvesting pressure on these species.

More recently, village elders on the outer islands have utilized restrictions on certain types of gear (e.g., banning the use of nets in lagoons, while permitting pole-and-line fishing) as a management tool. Further comments by informants during interviews and group discussions indicated that, while the traditional practices had been effective in the past, the “modern” system introduced as part of the FCA project was more appropriate for management within Funafuti Lagoon under present-day conditions. This system, they felt, would provide a more effective management framework under the current conditions, for the following reasons:

- It is believed that, due to the growth of population in Fongafale, existing fishing pressures in the lagoon are too great to be effectively regulated through traditional restrictions. A modern system is potentially more effective in enforcing compliance.
- The “community” in Fongafale comprises people who come not only from Funafuti, but also from other outer-island communities. Members of other island clans living in Funafuti may be reluctant to abide by a traditional system of restrictions imposed solely by the Funafuti elders. Thus the new system is viewed as being more equitable to all residents who live in Fongafale and utilize the resources of the lagoon, regardless of their island of origin.
- The awareness-building activities undertaken as part of the FCA project improved understanding
of conservation principles among fisherfolk, further reinforcing voluntary compliance with fishing restrictions in the FCA.

It was notable that, among the various interest groups interviewed, fishermen voiced the strongest support for establishing the conservation area as a no-take zone, even though they were the ones who were being directly instructed to limit their activities. This strong acceptance and understanding of the MPA management concept may be based in part on familiarity with similar traditional management practices used for generations.

While respondents and interviewees indicated that the planning of the FCA was carried out with the cooperation of the community, they also pointed out that greater community participation is needed to continue to manage the area effectively. In reality, the two FTC staff presently assigned as conservation officers are handling practically all responsibilities for the management of the area. Neither the FTC nor the community at large is providing very much assistance. Volunteerism also needs to be encouraged, in order to contribute vital manpower to carry out various management, awareness building, and enforcement functions.

In addition, the formation of a Conservation Area Coordinating Committee (CACC), a community-based advisory body that decides on policies and procedures affecting activities in the FCA, is supposed to have institutionalized the flow of authority and decision making from the community to the conservation officers, who are the assigned implementers of the regulations and policies. Unfortunately, the CACC, while formally established, is not active. No CACC meetings have been convened for approximately 2 years. Thus, further institutional strengthening is required.

During consultative meetings for the case study, detailed discussions were devoted to strengthening the community-based structure for the flow of authority to manage the FCA. A schematic diagram illustrating this structure is presented in Figure 2.5. The diagram shows the management process, guided by an integrated management plan, and facilitated with the help of technical advisors. Funds from both internal and external sources may support management activities. Proposals regarding management originate with the community, as represented by the falekaupule. These are reviewed and approved by the CACC. Implementation is the responsibility of the conservation officers who work with the FTC, and assistance may be provided by community members and the relevant government agencies.

Enforcement

Based on anecdotal reports and direct observation of conditions within the FCA, strong evidence suggests a high level of compliance with the regulations restricting
fishing within the no-take area. At the same time, enforcement efforts are reported to be weak. From these seemingly contradictory statements, it may be concluded that compliance is largely voluntary, being based on a sense of cooperation and stewardship among most community members.

Despite this finding, some violations of fishing regulations are reportedly occurring, including poaching within the FCA, although at a relatively low frequency. Violations are reported to occur in those areas of the FCA that are more difficult to patrol, especially at night. The area around Fualopa islet is reported to be one of the sites where illegal fishing is occurring. Informants explained that this area has traditionally been a favorite fishing ground, partly because a deep channel runs close to the islet, permitting easier navigation than is possible around some of the other islets in the conservation area. Possibly as a result of continuing heavy fishing, the reef at Fualopa was seen to be quite degraded and fish populations, diversity, and biomass at this site were very low compared to the other sites surveyed.

At present, only one of the conservation officers, assisted occasionally by the second, is engaged in regular patrolling. Enforcement efforts are strongly recognized to be inadequate and to need strengthening.

The few violators who have been apprehended have incurred only minimal fines, despite provisions for stiff penalties in both the Conservation Area Act and the Funafuti Town Council by-laws: the conservation officer reports that to date about 15 violators have been apprehended for illegal activities in the FCA; of these, only two have paid “spot fines” of A$1,000 each. Thus far, no cases have gone to trial. Discrepancies exist between the Act and the by-laws in the level of punishment specified. Provisions in the Conservation Area Act call for a fine of A$5,000 or imprisonment up to 28 months for each violation, while the by-laws, the level of punishment is set at A$2,000 in fines or up to 12 months in prison.

More significantly, at present, cases cannot be brought before the local judiciary, because the jurisdiction of the Resident Magistrate (the judge presiding over the Island Courts) is limited to cases involving violations where the fines are set at or below A$1,000. For crimes where fines exceed A$1,000, cases must be heard by the Senior Magistrate of the High Court. The Senior Magistrate, based in Tonga, visits Tuvalu only once or twice a year, and gives priority to hearing cases involving more serious criminal matters. For these reasons, it is quite possible that cases involving violations within the FCA may not be heard for many years.

Besides the problems with enforcing regulations against illegal fishing activities, it has also been reported that occasional “permitted catches” have occurred within the FCA. One incident in particular is prominent: in late 2002, the Government put forward a special request to the falekaupule to open the FCA to fishing for 2 days, so that enough fish could be caught to provide for the immediate needs of feeding and entertaining a group of visiting dignitaries. While this request was granted, most respondents in case study interviews and on questionnaires indicated their strong opposition to such practices, and their feeling that making exceptions such as this is unfair to the community and undermines the conservation effort. The community appears to be strongly in favor of maintaining the FCA as a strict no-take zone.

Economic and Financial Sustainability

The findings of this case study highlight the fact that, in implementing the FCA project, not enough attention was paid to developing sources for sustainable, long-term financing of conservation efforts. Only a small part of project funds was committed to this critical element, (see Item D, Income Generation Projects in Table 2.4 and Table 2.5) and no practical mechanisms for sustainable financing were put into place. As a result, conservation efforts were cut back severely once SPREP project funding ceased in 2001. Key stakeholders experienced a feeling of frustration and disillusionment once the project funding was terminated.

To its credit, the FTC has managed to absorb two staff positions for conservation officers since then. The expenditures by the FTC to support the Conservation Office, and the revenues received for the conservation area, are summarized in Table 2.6.

As shown, funds allocated by the FTC to manage the FCA have been quite limited. Additional funds are needed to support essential recurrent operations such as patrolling, repair and maintenance of equipment, periodic biological monitoring, and continuing awareness-building activities. For implementation to be most effective, other capital expenditures can also be anticipated, for acquisition of additional vessels, purchase
of new diving equipment, installation of boundary markers and signage, and furnishing and equipping the Interpretive Center, among others. Regular in-kind contributions from the community (e.g., through volunteer labor, as mentioned above) would help to reduce the funding burden and thus contribute to long-term viability.

During the course of the case study, stakeholders identified the most likely sources of potential funding to support conservation activities, as follows:

- grants or loans from development institutions (e.g., bilateral finding institutions, SPREP, ADB, GEF, etc.);
- allocations from a regional “Conservation Trust Fund”;
- dedicated allotments for conservation from the Tuvalu Trust Fund;
- regular budget allotments in support of the FCA from the national annual budget;
- regular budget allotments in support of the FCA from the FTC annual budget;
- taxes assessed on revenues that accrue as a result of visitor activities in the FCA (ecotourism, research, recreational, and educational uses);
- fees directly collected for visitor use of the FCA;
- fees collected for visitor use outside the FCA, but which are based on benefits related to

Table 2.4. SPREP Annual Expenditures for the FCA Project, Years 1–3

<table>
<thead>
<tr>
<th>Component</th>
<th>Costs, US$</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Year 1</td>
</tr>
<tr>
<td>A. Project Management</td>
<td>99,053</td>
</tr>
<tr>
<td>B. Environmental Education</td>
<td>10,257</td>
</tr>
<tr>
<td>C. Resource Management Plan</td>
<td>51,327</td>
</tr>
<tr>
<td>D. Income Generation Projects</td>
<td>$12,915</td>
</tr>
<tr>
<td>Total</td>
<td>173,552</td>
</tr>
</tbody>
</table>

Note: Amounts converted from Australian dollars to US dollars (US$1.00 = A$1.3699). FCA = Funafuti Conservation Area; SPREP = South Pacific Regional Environment Programme.
Source: SPREP.

Table 2.5. SPREP Expenditures for the FCA Project, by Funding Source

<table>
<thead>
<tr>
<th>Component</th>
<th>Contributions by Funding Source, US$</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>SPBCP</td>
</tr>
<tr>
<td>A. Project Management</td>
<td></td>
</tr>
<tr>
<td>Investment</td>
<td>58,349</td>
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<tr>
<td>Recurrent</td>
<td>88,757</td>
</tr>
<tr>
<td>B. Environmental Education</td>
<td></td>
</tr>
<tr>
<td>Investment</td>
<td>9,855</td>
</tr>
<tr>
<td>Recurrent</td>
<td>3,249</td>
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<tr>
<td>C. Management Plan</td>
<td></td>
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<tr>
<td>Investment</td>
<td>39,355</td>
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<tr>
<td>Recurrent</td>
<td>8,359</td>
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<tr>
<td>D. Income Generation Projects</td>
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</tr>
<tr>
<td>Investment</td>
<td>13,119</td>
</tr>
<tr>
<td>Recurrent</td>
<td>0</td>
</tr>
<tr>
<td>Total rounded</td>
<td>221,042</td>
</tr>
</tbody>
</table>

Note: Amounts converted from Australian dollars to US dollars (US$1.00 = A$1.3699). FCA = Funafuti Conservation Area; FTC = Funafuti Town Council; SPBCP = South Pacific Biodiversity Conservation Programme; SPREP = South Pacific Regional Environment Programme.
Source: SPREP.
effective management of the FCA (e.g., fees for fishing or Scuba diving in other areas of Funafuti Lagoon that benefit by increased populations of fish generated from the FCA); and fines collected for violations occurring in the FCA.

Recommendations for exploring a number of these funding options are more fully discussed in “Recommendations: Development of Mechanisms for Sustainable Financing,” below.

Most funding that might come from external sources is usually time bound, and thus inherently less sustainable (e.g., the SPREP funding for the FCA) than other funds that might be internally generated on a continuous basis. Since internal funding mechanisms are considered to be more stable over the long term than funds coming from outside sources, all possibilities to further develop sustainable revenue-generating activities relating to the use of the FCA should be fully investigated.

Mainstreaming

The potential for mainstreaming conservation efforts in Funafuti Lagoon has thus far not been realized. Mainstreaming implies that the Government will embrace the important environmental and conservation objectives of the FCA initiative as an integral part of its overall national economic and development policy framework. That this has not occurred is evidenced by the fact that many core activities relating to the proper functioning of the FCA have come to a near standstill following the withdrawal of external support.

For conservation efforts to be sustainable, it is essential that government policymakers understand fully the significance of the resources being protected within the FCA (and the importance of other resources that might be protected in the future by establishing similar MPAs at other locations around the country). The FCA is intended to safeguard vital biodiversity and fisheries breeding stocks that have the potential to produce nutritional protein for Tuvalu’s citizens on a sustainable basis. In addition, coral reefs in the FCA form a physical barrier that protects the low-lying atoll islets from inundation and erosion due to storm waves. The biodiversity resources of the reefs also have the potential to support a variety of economic activities (still to be developed), including ecotourism, mariculture, and bioprospecting. For these reasons, the resources being protected within the FCA (and similar resources in other locations around the country) are of national significance, and efforts aimed at their conservation should be fully integrated into national economic and policy planning.

Economic valuation of the resources of the FCA can provide a yardstick that will enable policymakers to better appreciate the significance of the resources. Further information about the economic valuation of these vital marine resources is provided in “Costs and Expected Benefits of Management,” below, while additional mechanisms for linking MPA management with other government initiatives are discussed in “Recommendations: Mainstreaming Environmental Concerns in the Development Process.”

Lessons Learned

General Lessons Learned From Marine Protected Areas

In the years since MPA projects were first started, many valuable lessons have emerged that can be applied toward the successful establishment and
management of new MPAs in other areas. The key lessons:

- MPAs should be established according to a well-articulated process that includes community participation and fosters a sense of local responsibility or “ownership.”
- Close collaboration between community members and local government is necessary.
- Multiple local stakeholders, representing a wide range of interest groups, as well as higher-level government and aid provider agencies, should all be involved in planning and management; such an integrated planning process is essential in helping to reconcile the divergent interests of all the various stakeholders.
- Plans based on reliable information (e.g., environmental profiles and baseline data) are more likely to succeed; baseline information, generated with the assistance of academic institutions and using participatory coastal resource assessment, is a prerequisite for management planning and permitting comparative analyses of “with project” and “without project” scenarios for present and future learning.
- Financial mechanisms (incentives and disincentives, revenue-generating activities) should be utilized in creative ways to support management and conservation efforts, so that these become self-supporting and sustainable over the long term.
- MPA management should be broadly integrated, both ecologically and socioeconomically, in order to achieve the greatest benefits.
- Active participation of community members engenders learning and the basic level of awareness and commitment that is a prerequisite to ensure long-term sustainability of MPA management.

While most conservationists, scientists, and resource managers would agree that the MPA concept is sound in theory, in practice many MPAs established in a wide variety of biophysical, socioeconomic, and cultural settings have demonstrated only limited effectiveness in reversing the trend to resource depletion. Turning again to the Philippines (which arguably has the most extensive experience in MPA management of any tropical island nation), for some 439 recorded MPAs, only 44 are being effectively managed, i.e., showing full enforcement of regulations (Pajaro, Olano, and San Juan 1999). Thus, in the Philippines, the overall level of effectiveness of management within MPAs is estimated at only 10–25%, with the lower figure probably being more accurate (Schuttenberg no date). Indonesia reports a similar situation: of some 106 proposed or legislated marine parks and protected areas, only 13 had some form of management, and an even smaller number were considered as “properly protected and managed” (White, Courtney, and Tobin 1998). These observations suggest that considerable room for improvement exists and further lessons can still be learned, especially from relatively successful models, to guide more effective MPA implementation and management. The FCA may serve as one such model, and provide useful lessons for marine conservation initiatives being attempted elsewhere in Tuvalu and around the Pacific.

**Lessons from the Funafuti Conservation Area**

In many respects, the lessons gathered during this case study of the FCA mirror quite closely the general lessons learned from experiences in managing MPAs elsewhere:

- The establishment of a MPA can yield tangible benefits in terms of improved community awareness, increased fish biomass, and sustained viability of biodiversity resources. The MPA set up in Funafuti Lagoon demonstrates these benefits.
- The utility of traditional management systems depends on community acceptance, and these systems may not be appropriate in all situations. Traditional fisheries management systems have been utilized in Tuvalu for centuries. However, interviewees recognized that purely traditional systems may not be applicable in cases where significant societal change has occurred. Funafuti Atoll is such a case. Due largely to the influx of immigrants from outer-island communities, the composition of the community in Funafuti’s main population center of Fongafale is now a mixture of clans from various islands. Traditional management, based on procedures dictated by a council of elders and enforced largely through peer pressure, works well within smaller, homogeneous community
groups. In more heterogeneous and populous communities, a more “modern” management system, such as the one initiated under the FCA project, where a formal legal framework establishes regulations and sanctions based on scientific information, may be more effective than the traditional system. It should be noted that traditional systems may still be relevant for Tuvalu’s outer island communities, and elements of traditional management may be incorporated into any management system, as long as these concepts are supported by the community as a whole.

- The establishment of an MPA has to be part of an overall management program for an integrated ecosystem. The FCA is in fact only one element of a typical MPA: it is the core no-take zone, but no buffer zone has been delineated. No such program has been effected in Funafuti Lagoon. A community-based, integrated coastal management program for the Funafuti Lagoon ecosystem is urgently needed to define permitted uses and a management framework for the entire lagoon and atoll.

- Selecting an area that is not under intensive pressure, either from heavy fishing activity or from serious environmental impacts (e.g., pollution or land transformation), increases the chances that an MPA will successfully maintain healthy marine biodiversity resources and breeding stocks for fisheries. In such cases, the MPA serves mainly a preventive, rather than a remedial, function (it preserves existing stocks, rather than restoring depleted resources). Proper management under these conditions can help to protect biodiversity for future generations and maintain areas of outstanding biological quality, which can then be utilized for ecotourism, research, educational, and other nonextractive purposes.

- If an MPA is to be viable over the long term, it is critical that realistic sources for sustainable financing be identified and developed to support management and conservation efforts. Failure to establish a framework for financial sustainability can seriously undermine the conservation initiative. This is the most pervasive problem affecting management and long-term viability of the FCA.

### Costs and Expected Benefits of Management

In order to ascertain the value in real terms of maintaining the FCA, it is necessary to make reasonable estimates of existing or projected costs and benefits. A rough calculation is presented here. A starting point for cost projections can be found in the current budgetary expenditures committed to the management of the FCA. Counting salaries for the two conservation officers, and incidental expenses, it is estimated (based on information from the FTC Conservation Office) that the Funafuti Town Council is committing roughly A$20,000 annually to support management of the conservation area. This level of commitment is inadequate to properly sustain the conservation initiative. In order to bring support up to the level needed for more effective implementation, additional funds must be committed for other recurrent and capital expenditures. Rough estimates for these expenditures are summarized in Table 2.7 and expressed on an annualized basis. Projected costs for more effective management of the FCA on a sustainable basis are thus estimated at around A$71,000 a year for an initial 5-year period. Presumably, total annual costs would drop after this initial 5-year period, since it would not be necessary to replace many of the capital expenditure items every 5 years.

Over the past decade, considerable analysis has established economic valuations for various natural resource systems and ecosystems, including coral reefs. It has been estimated that typical coral reefs in the Philippines produce benefits (annual net revenues) ranging from US$29,400 to US$113,000 per km² per year, or approximately A$43,500 to A$167,200 per km² per year (White, Ross, and Flores 2000). This calculation takes into account the varied biophysical, sociocultural, and economic functions, or “services,” performed by coral reefs, including serving as a source of genetic biodiversity; providing a physical barrier to preserve valuable coastline and attenuate the destructive impacts of storm waves; harboring breeding stocks of important species of fish, shellfish, and other species used for food and other purposes; providing an environment that can support ecotourism, ocean recreation, and other economic activities; and providing for other possible future benefits as a result of new discoveries through scientific research, bioprospecting, and similar activities.
Taking this figure as a starting point, it can be estimated that within the 33-km² area of the FCA, perhaps 30% of the total area, or some 10 km², are covered by coral reefs. Since biodiversity values in the Philippines would be expected to be inherently higher than in Tuvalu (because the Philippines is at the epicenter of global marine biological diversity, while Tuvalu lies outside this richest zone), it would be appropriate to reduce the valuation figure for Tuvalu’s coral reefs, say, by about 25%. An estimated value of Tuvalu’s coral reefs can thus be calculated as follows:

\[
\text{A}\$105,380/\text{km}^2/\text{yr} \text{ (median economic value per year of coral reefs in the Philippines;)}
\]

\[\times 30\% = \text{A}\$79,040/\text{km}^2/\text{yr} \text{ (adjusted estimated economic value of Tuvalu coral reefs;)}
\]

\[\times 10 \text{ km}^2 \text{ in the FCA} = \text{A}\$790,400/\text{yr} \text{ of potential annual economic benefits for coral reefs in the FCA.}
\]

Assume that effective management of the FCA results in a 30% increase in the reefs’ total productivity over a 5-year period:

\[\text{A}\$790,400/\text{yr} \times 5 \text{ yrs} = \text{A}\$3,952,000 \text{ net revenues for 5 years;}
\]

\[\times 30\% = \text{A}\$1,185,600 \text{ gross productivity increase for 5 years or, on an annualized basis, x } 20\% = \text{A}\$237,120 \text{ per year.}
\]

Subtracting the annualized costs calculated earlier,

\[- \text{A}\$71,000/\text{yr management costs} \]

yields the net economic returns from improved management of coral reefs within the FCA:

\[\text{A}\$237,120 - \text{A}\$71,000 = \text{A}\$166,120/\text{yr net economic return from improved coral reef management.}
\]
= A$163,120/yr net economic benefit to be realized through more effective management of the FCA.

On the basis of this rough calculation, it is evident that significant benefits can accrue to the community and the nation through the continued operation of the FCA. It should be noted, also, that these calculations do not include the added benefits that are realized as a result of conserving other nonmarine resources within the FCA, such as bird life and terrestrial flora. The overall benefits to the nation and the community can be further increased by improving the effectiveness and management efficiency of the FCA, and also by increasing the total area under management, possibly both within Funafuti lagoon and on the outer-island atolls as well.

**Recommendations**

This section presents a series of recommendations for applying the lessons learned, both from experiences of managing MPAs elsewhere, and from the specific experience of management within the FCA. These recommendations can be applied for improving the FCA project itself; for replication at other locations within Tuvalu; and for use in furthering marine conservation objectives in other countries within the region, and beyond.

**Strengthening the FCA Project**

**Improving the Monitoring Methodology**

The monitoring program that was initiated with SPREP support achieved some important targets, and helped to characterize the biological and fisheries resources of the FCA more clearly. However, a number of aspects of the monitoring methodology could be improved, in order to gather more useful data to help determine changes over time in the condition of living resources within the FCA and other parts of Funafuti lagoon. This information could then be used to analyze, for example, whether or not the FCA was contributing to the export of “excess biomass” and thus helping to support higher levels of sustainable fishing throughout the rest of the lagoon. The following key recommendations could improve the effectiveness of monitoring within the FCA:

- **Set up permanent stations (transects or quadrats) for long-term monitoring.** Under the FCA project, transect sites were identified by use of GPS, and were then relocated, again using GPS, for subsequent monitoring actions. However, the degree of accuracy in pinpointing the exact site of prior monitoring surveys is less than could be achieved through the use of permanent stations. By using permanent transects or quadrats, it would be possible to follow the growth of specific coral colonies and other sessile organisms over time. Combining permanent transects with photographic or video documentation would further improve the utility of the data, and would have the added advantage that information captured through these media could be used for public education and awareness-building purposes.

- **As part of the monitoring protocol, include parameters to measure fish biomass and size distribution.** While differences in fish size and biomass have been noted at different sites, the observations are mainly qualitative; no quantitative comparisons for these indicators have yet been made, either among different sites or over time at the same site. In well managed MPAs, these parameters have been observed to change dramatically over relatively short time periods, and may provide definitive evidence of reduced fishing pressure and of establishment of fish breeding populations.

- **Include control sites among the sites being monitored,** to obtain a more comprehensive picture of conditions throughout the lagoon. For example, the site at South Fongafale that was informally surveyed for the case study could be included for future monitoring activities. This site is especially significant, since it is believed that it is one of the areas in the lagoon that is most vulnerable, due to its close proximity to the main population center, both to fishing pressure and to possible impacts from environmental effects such as pollution.

**Strengthening Public Awareness**

Awareness building is a core activity that must be included for effective and successful management of any MPA. Many opportunities exist for strengthening the conservation awareness of the public in Funafuti. Among the most important steps:
• **Operationalize the Interpretive Center.** A new building has been constructed to house an interpretive center for marine conservation, but has stood vacant since it was erected. The building is well situated, being located directly behind the main school in the middle of the town center in Fongafale, and directly fronting the lagoon. Thus it is easily accessible to school-children, and at the same time, being located on the shore, it provides ready access to the marine and coastal environment. Funds are needed to equip, furnish, and staff the Interpretive Center. Among the priority items needed to properly provision the center are:

- directional and informational signage to identify the location of the Interpretive Center from the main road;
- desk, tables and chairs; display cabinets;
- circulating seawater system and aquarium; computer;
- library and reference materials, teaching aids; basic laboratory equipment; and
- exhibit materials.

Other optional equipment that could be acquired after the Center is operational might include a slide projector, videotape machine and monitor, and digital camera.

One part-time staff person should be assigned from the Conservation Office to serve as an interpretive specialist for the Center. Regular hours of operation (say, 2–3 hours per day, 5 or 6 days per week) should be established and the Interpretive Specialist should be present during these hours.

The Interpretive Center offers tremendous potential as a focal point and gathering place for members of the community and visitors to Tuvalu to learn more about the FCA and the marine environment in general. Many activities and special events designed to improve public awareness and foster community participation could be organized through the Center. Visitors’ donations and participants’ fees for special events could help to defray some of the operating costs.

• **Incorporate conservation lessons into the school curriculum.** Materials could be developed to teach students important basic lessons about marine biology and the need to conserve vital marine resources. This should be done both at the primary and secondary school level. Such school programs will have the greatest relevance and impact if the content is as site-specific as possible (e.g., students in Fongafale should study the Funafuti Lagoon and its biological resources). Such programs should also feature field outings to give students firsthand experience in interacting with the natural environment. Field trips to the FCA could be coordinated with the Conservation Office. Students could also participate in environmental improvement or research activities (e.g., beach cleanup, reef and fish monitoring, bird census), as part of the field study.

• **Link conservation lessons to traditional ecological knowledge and wisdom (TEKW) as practiced in Tuvalu.** By drawing comparisons and contrasts between modern conservation concepts and traditional Tuvaluan practices, beneficiaries will more readily come to understand the need for ongoing marine conservation activities. The target community will be able to relate the need for conservation to their own personal experiences, and will be able to draw the best elements from different management systems when providing input into local management planning.

• **Mobilize the community to assume greater responsibility for managing its own resources.** Many opportunities exist for organizing community-based marine conservation and management programs in Tuvalu. Different groups within the community, e.g., businesses, church and school groups, and NGOs, could become involved and assume responsibility for carrying out basic environmental improvement and awareness-building activities at different geographic sites, through such vehicles as “Adopt-a-Reef,” “Adopt-an-Islet,” or “Adopt-a-Beach” programs. As part of an integrated community-based management program, community members should also become involved with the overall resource management planning process. Community-based resource mapping is one activity that can help to stimulate direct community participation in the management process. Participation in programs...
such as ReefCheck, an internationally recognized program for community-based monitoring of coral reefs, can also generate enthusiasm and help to promote long-term commitment among community members for self-management of resources.

**Development of an Integrated Management Plan**

The lack of a management plan treating the entire Funafuti Lagoon as an integrated ecosystem, and addressing a wide range of interconnected land, water, and natural resources management issues, is a shortcoming that makes effective management difficult. The following steps are recommended in order to develop such a plan:

- **Initiate an integrated, community-based, participatory planning process.** The existing CACC, although presently inactive, is already a body representing the interests of various stakeholders within the community, and could be revitalized to take the lead in developing a management plan. Efforts should be made to convene regular meetings of the CACC that are open to all interested individuals. At least initially, CACC activities should be facilitated by an experienced community development specialist and a coastal resource management or protected areas specialist. The matters to be discussed and decided upon at the meetings should include:
  
  - broadening the area of coverage: defining the FCA to include the entire lagoon, and establishing zones, in addition to the conservation area, for other uses;
  - exploring mechanisms to mobilize the community: establishing/strengthening NGOs, awareness-building activities, training programs, etc.; and
  - exploring possible financing mechanisms.

- **Integrate the management of the FCA into an overall management plan for the larger lagoon and atoll area.** Ideally, such a management plan should be prepared with the full participation of the community, and should reflect the views of a broad range of stakeholders. Participatory community mapping activities and input from the CACC could help to develop a plan that fulfills the requirements for conservation and accurately reflects the community’s desires and priorities. The plan should encompass responses to the varied natural and manmade processes that are occurring in the larger lagoon and atoll ecosystem as a whole (e.g., pollution, impacts of global warming, human settlement, water utilization, fishing practices throughout the lagoon, tourism development, etc.).

- **Validate the plan.** Once formulated, the plan should be formally adopted by the community. This may be accomplished through resolutions of the FTC and revisions to the by-laws for the FCA, if required.

**Improving Enforcement**

With technical support from SPREP, considerable progress was made in establishing a legal framework for the FCA through the passage of the Conservation Area Act and the relevant by-laws of the FTC. Less attention was paid, however, to determining how these regulations would actually be enforced and implemented. As a result, enforcement is presently one of the weakest areas in FCA management. Several steps are recommended to strengthen enforcement capabilities:

- **Survey, delineate, and mark FCA boundaries.** Fishermen have mentioned that it would be helpful if the boundaries of the FCA were clearly marked so that they could be certain of the limits of the permitted fishing area. (Buoy markers had been deployed in the past to delineate the ECA boundaries, but these are no longer in position. It is not clear whether the markers were intentionally removed by vandals or possibly lost in strong storms.) This would require that the boundaries first be surveyed and correctly located. The Lands and Survey Division has the necessary capabilities to assist with this task. Once the survey is completed, markers would need to be installed. The buoys to be used as markers should be designed and selected to be affordable, clearly visible, durable, and tamper-resistant. Anchoring devices should be strong enough to hold the buoys in place even under...
strong storm conditions. A number of the marker buoys in the most strategic locations could also have attached informational bilingual signage that explains the regulations within the no-take area.

- **Establish a community-based patrol force.** At present, the manpower available for patrolling and other enforcement activities within the FCA is very limited. One of the conservation officers, with occasional assistance from the second conservation officer, conducts regular patrols, but violators poaching within the waters of the FCA can easily elude detection. Poaching is especially frequent around Fualopa Islet, and is often conducted at night. Occasionally, fishermen who are passing by the FCA make voluntary reports of observed illegal activities occurring in the area. However, it would be more effective if wardens from the community could be recruited and trained specifically for the purpose of increasing patrolling activities within the FCA and enforcing regulations. Such a program could be modeled after similar ones that have been set up in other countries. In the Philippines, for example, the bantay dagat (sea guards) are recruited from the community and trained to patrol and report. In some communities, they are sworn in as deputies, and have the authority to arrest violators. A number of different incentive arrangements could be made to compensate the community wardens for their efforts.

In addition to wardens working as part of a mobile patrol force, the idea of permanently posting FCA guards or wardens on one or more of the islets within the management area has received some consideration. This would require setting up basic living accommodations and communications equipment. The constant presence of personnel tasked to conduct surveillance and report violators would be an effective deterrent that would help to curtail illegal activities in the FCA.

- **Harmonize the legal framework for enforcement.** The discrepancies in the levels of fines and punishments for violations in the FCA, as set forth in the Conservation Area Act and the by-laws, described above, must be resolved and the Act and by-laws made consistent. More importantly, the levels of fines and punishments should be set at a level that allows cases to be heard in the local island courts, so that violators can be seen to receive justice. These matters should be reviewed by a legal specialist, and any necessary changes drafted to the Act and/or by-laws.

### Capacity Building

Interviewees and questionnaire respondents indicated that, although the personnel working on the FCA project had been well trained and are highly motivated and quite capable, they could still benefit from further training in conservation management techniques and concepts, monitoring and survey techniques, and Scuba diving methods and safety procedures. Also, it was reported that the two assigned conservation officers cannot on their own handle all the tasks required for effective management of the FCA. In order to meet the needs for a larger pool of trained personnel, and in order to ensure that they are well prepared to assume their responsibilities, it will be important to provide a range of training programs. These requirements can be met by implementing the following actions:

- **Expand the training of technical personnel** (for monitoring, enforcement, management). A good start has been made to develop a core group of capable people to be involved with the management of the FCA. However, their skills need to be broadened. More in-depth training should be provided to help develop knowledge and skills in
  - community mobilizing,
  - monitoring and survey techniques,
  - patrolling and enforcement, and
  - business management and fund raising.

- **Strengthen NGOs to lead community mobilization efforts for environmental improvement.** At present, a single small NGO, Island Care, has environmental advocacy as its focus. Efforts need to be undertaken to increase the membership of this NGO, and possibly, to facilitate establishment of other environmental NGOs. Such organizations have a large role to play in helping to disseminate knowledge about conservation issues; stimulating community participation in special environmentally oriented events and
activities; and conducting training to build capacity at the grassroots level.

- **Conduct cross-visit training programs with other countries.** Because the FCA is the first and only such managed area in Tuvalu, it is necessary to look toward other countries to find examples of successful MPAs that can serve as models for cross-training purposes. Possible visitation sites should be selected based on similarities in biophysical conditions and social and economic setting (e.g., small island ecosystem, moderate fishing pressure, opportunities to develop revenue-generating activities for sustainability). Cross-visit training offers the unique advantage that trainees have the opportunity to meet with peers who share their management experiences, rather than being instructed by “experts.” Trainees should be carefully selected as being hands-on implementers, rather than bureaucrats or administrators who are separated from day-to-day management activities.

**Development of Mechanisms for Sustainable Financing**

The feasibility of implementing all of the foregoing recommendations depends upon identifying sources of funding to sustain management activities over the long term. Lack of funds was consistently named as the major obstacle to effective management of the FCA. The potential sources of funding have already been identified by community informants. Each of these possible sources is briefly discussed here.

- **Grants or loans from development institutions** (e.g., bilateral funding institutions, SPREP, ADB, GEF, etc.): Funds from these types of donors or lenders have traditionally been used to support start-up conservation efforts, in Tuvalu and in many other developing countries. The problem with this type of support is its finite nature: interviewees involved in the FCA project reported feeling disappointed once the funding from SPREP was terminated. Such support is most beneficial if part of it is used to establish a system for sustainable financing, so that a smooth transition can be made, once the aid provider funding ends. Ideally, conservation activities initiated with aid provider funds can later on be supported over the long term through use of sustainable, internally generated funds.

- **Allocations from a regional conservation trust fund:** With support from the SPBCP, efforts were recently made to investigate the feasibility of establishing a regional “Pacific Island Conservation Trust” to provide long-term support for community-based conservation initiatives in the Pacific island countries. The proposal for such a trust fund was first presented at the Sixth Pacific Island Conference on Nature Conservation and Protected Areas in 1997. The intent was to structure the proposed trust fund as an Association of Pacific National Conservation Trusts, with a central governing council overseeing a common capital fund. Each member nation would establish its own semi-autonomous statutory conservation trust, which would be responsible for disbursing funds to support various community-based conservation initiatives in the country (Conservation Area Live Link Newsletter No. 9, 2001). A potential advantage of such a regional structure would be to encourage cross-pollination of ideas among various Pacific island countries and cooperation in developing a regional environmental strategy for biodiversity conservation. Despite these considerations, and four reports produced over 6 years expressing support for the formation of a regional trust fund, the proposed executing agency has not been receptive to the concept of setting up such a fund, and instead has suggested that separate national trust funds would be more appropriate. Thus the possible availability of funds through a regional trust appears remote.

- **Funding from National Government sources:** Several sources of funds are available to the Tuvalu Government, from which money could be obtained to support conservation efforts. A Tuvalu Trust Fund (TTF) was established in 1987 with principal contributions from Australia, New Zealand, and the United Kingdom. The Trust Fund was set up to help the Government meet its basic financial obligations (TTF Advisory Committee 1997; Knapman, Ponton, and Hunt 2002). The fund consists of two components: an “A” account that contains the principal used for investment, and a “B” account that contains distributions from the A account that may be reinvested into the A account, held as a buffer, or withdrawn by the Government as required to
meet budgetary needs. Throughout most of its existence, the fund has yielded high returns, and the B account has been an important tool for the Government in managing its cash flow. Over the last few years, however, due to difficult economic conditions globally, returns of the Trust Fund have been poor. Nonetheless, with prudent planning, the TTF might be reliably tapped to fund ongoing conservation efforts in most years. Perhaps backup arrangements could be made with various donor or lending institutions, to support conservation efforts in those years when TTF earnings were insufficient due to unfavorable macroeconomic conditions.

The Government also receives a minimum of US$2.2 million annually as part of a licensing arrangement for the use of its Internet domain name extension, “DotTV.” The Government could at its discretion stipulate that a certain amount of funds coming either from the TTF or DotTV account be earmarked as dedicated financing to support marine conservation in the FCA (and in any other conservation areas that may be established in the future).

- **Generating revenues through tourism and ocean recreational activities:** At present, annual tourist arrivals in Tuvalu are extremely limited but increasing (Table 2.8), and the few nonresidents who do arrive make a significant contribution to the local economy (Table 2.9). Further development of tourism, especially dive tourism and ecotourism, has the potential to generate increased revenues for the country. This potential revenue stream, which is virtually untapped at present, offers a possible source of sustainable financing for continuing conservation efforts. The excellent condition of the reefs and associated marine life within the FCA, and especially the presence of large fish that are easily approached by divers, are an outstanding attraction for dive tourists. This attraction is further enhanced by excellent water clarity, as well as the scenic beauty of the small islets of the lagoon. Additional ecotourism opportunities may be focused around special marine or coastal “flagship” species, such as sea turtles or coconut crabs. In other countries (e.g., Sri Lanka, Malaysia), “turtle tourism” attracts many visitors and generates revenues; similar revenues in Tuvalu could be used to support conservation efforts. Sunken World War II airplanes and vessels at easy diving depths within other parts of the lagoon provide additional attractions to round out the experience for divers visiting Tuvalu. Other opportunities for ocean recreational activities in the lagoon could also be promoted: sport fishing, windsurfing, ocean kayaking, and sailing are among the many activities that could enhance visitors’ experience in Tuvalu.

At present, recognition of Tuvalu’s dive potential outside (and even inside) the country is virtually nil: only a single article, in a Scuba-diving newsletter, is known to have been written about Tuvalu for an international Scuba diving audience (Undercurrent, February 2002). One major constraint to developing such an industry, the need for better accommodations, may soon be adequately addressed with the planned construction of a new addition to the Vaiaku Lagi hotel.

The increased revenues that would be generated by attracting dive tourists through a tourism development campaign could be captured in a number of ways:

- Fees could be directly collected as part of the charges for visitor use of the FCA (e.g., part of the cost of boat trips and guides);
- Other fees could be charged as part of the cost of tourist activities outside the FCA, but which are based on benefits related to management of the FCA (e.g., fees for fishing or scuba diving in other areas of Funafuti Lagoon that benefit by increased populations of fish generated from the FCA); and
- Taxes could be assessed on proceeds from sales or services provided to tourists by private businesses.

A portion of these funds could be recycled into supporting stepped-up conservation efforts, which would have both ecological and economic benefits. For these reasons, all avenues should be explored for promoting and developing a sustainable tourism industry in Tuvalu, with a focus on dive tourism and ecotourism in the FCA. The requirements for developing dive tourism in Tuvalu are discussed below.
Table 2.8. Nonresident Arrivals in Tuvalu, by Purpose of Visit, 1997–2001

<table>
<thead>
<tr>
<th>Year</th>
<th>Holiday</th>
<th>Business</th>
<th>Visiting Friends/Relatives</th>
<th>Transit/Stopover</th>
<th>Other Purposes</th>
<th>Total</th>
</tr>
</thead>
<tbody>
<tr>
<td>2001</td>
<td>435</td>
<td>1,187</td>
<td>529</td>
<td>399</td>
<td>263</td>
<td>2,813</td>
</tr>
<tr>
<td>2000</td>
<td>139</td>
<td>460</td>
<td>178</td>
<td>354</td>
<td>147</td>
<td>1,278</td>
</tr>
<tr>
<td>1999</td>
<td>83</td>
<td>252</td>
<td>159</td>
<td>9</td>
<td>26</td>
<td>529</td>
</tr>
<tr>
<td>1998</td>
<td>213</td>
<td>475</td>
<td>192</td>
<td>36</td>
<td>90</td>
<td>1,006</td>
</tr>
<tr>
<td>1997</td>
<td>164</td>
<td>483</td>
<td>218</td>
<td>101</td>
<td>72</td>
<td>1,038</td>
</tr>
</tbody>
</table>

Source: Knapman et al. 2002.

Table 2.9. Nonresident Arrivals by Market Area; Expenditures and Receipts, 1991

<table>
<thead>
<tr>
<th>Market Area</th>
<th>Arrivals 1991</th>
<th>Avg. Expenditure, per capita (US$, figures rounded)</th>
<th>Total Tourist Receipts (US$)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Australia</td>
<td>130</td>
<td>261</td>
<td>33,922</td>
</tr>
<tr>
<td>New Zealand</td>
<td>67</td>
<td>291</td>
<td>19,524</td>
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<tr>
<td>Pacific Islands</td>
<td>543</td>
<td>296</td>
<td>160,779</td>
</tr>
<tr>
<td>North America</td>
<td>73</td>
<td>247</td>
<td>18,022</td>
</tr>
<tr>
<td>Europe</td>
<td>97</td>
<td>330</td>
<td>32,055</td>
</tr>
<tr>
<td>Other</td>
<td>66</td>
<td>312</td>
<td>20,573</td>
</tr>
<tr>
<td>TOTAL</td>
<td>976</td>
<td>292</td>
<td>284,875</td>
</tr>
</tbody>
</table>


Replicating the FCA Model

Replication at Other Sites in Tuvalu

A number of the outer islands have already established their own fishery management systems, which follow a more or less traditional structure. Three conservation areas, including at least one that predates the FCA, were established on outer islands: Vaitupu (earliest of the three, in being since sometime in the 1980s), Nukulaelae (2001), and Nui (2002). All of these were self-initiated by the communities, and have not received any outside assistance. On Nukulaelae, by-laws have been enacted thru the Town Council for a traditional system of management that involves seasonal closures and restrictions on methods—the use of spears and nets is banned in the lagoon. As a result, an obvious improvement in fish stocks has been reported in the lagoon. These conservation areas are more easily managed and patrolled than the FCA, because their sites are in closer proximity to the main population centers. Despite their general success, some violations still occur.

Due to the relative success of establishing the FCA as an effective sanctuary for protecting breeding stocks of important target species of fish, residents of other islands, notably Nui, Vaitupu, and Nukufetau, have requested assistance to set up similar conservation areas. The Funafuti model may need to be modified for application at other sites around the country to incorporate site-specific local TEKW into the management structure at each new location. Because traditional systems have persisted in these islands, any new management system being introduced should be designed in harmony with traditional practices. In fact, in these cases, it is likely that traditional systems can provide an excellent basis for the formulation of usable regulations aimed at conserving valuable fisheries and other marine resources. The long-standing acceptance by the community of the traditional management regulations can help to ensure a high level of acceptance of a comprehensive conservation program.

Technical assistance for the outer islands would probably be most useful if it were applied in helping to set up awareness-building programs, develop
enforcement procedures, and generally facilitate community-based planning and management activities. Final decisions about the substance and structure of the management system, however, should be left to the communities concerned.

Replication Elsewhere in the Region

The principles of building a conservation program around TEKW could also be applied in many countries around the region. Traditional conservation practices are still found in the region: in the Cook Islands the ra’ui, a traditional type of marine reserve, is found (Ponia 2001); in Niue, periodic restrictions called fono that are applied from time to time to allow recovery of exploited resources in temporary reef “reserves” (Wells and Jenkins 1988a); and in Tokelau, community-based turtle and giant dam management practices (Wells and Jenkins 1988b), among others. Such traditional practices may serve as cornerstones for integrated conservation programs, and also should help to win acceptance within the community.

In other areas where traditional management methods are no longer practiced, it may be necessary to depend to a greater degree on a more “modern” system of management (similar to that which has been developed for Funafuti). In each specific situation, design of a management system that is appropriate to the needs of the resource users can be ensured by involving a broad range of community stakeholders in the planning process from the early stages.

Regionally, it is also important to consider various ways in which MPAs could be linked together into cohesive networks for management. One common theme that may link various conservation areas is based on the ecological interrelationships that may exist among them. For example, based on location and prevailing water currents, one MPA could serve as a source area of fish and coral larvae that may be transported to depleted reefs in other “downstream” MPAs and help repopulate them. Management efforts for such a cluster of MPAs could therefore emphasize preserving this biophysical connection between the MPAs in the group. Opportunities for regional coordination and cooperation in management should also be explored. As an example, cross-visit training activities could be established among different countries within the region, to encourage the exchange of ideas as a means of generating effective solutions to common management problems.

Mainstreaming Environmental Concerns in the Development Process

As discussed, the failure to mainstream conservation as an integral part of Tuvalu’s national economic and development policy framework has resulted in a somewhat weak structure for conservation efforts. Successful mainstreaming requires the following steps:

- Decision makers must recognize the significant economic, social, and environmental benefits to be derived through conservation of important marine biodiversity and fisheries resources (as analyzed above). Awareness building and training should be provided to ensure that key policymakers have the requisite knowledge to make informed decisions.
- Any funding framework that is established must ensure that conservation efforts always receive adequate support. Regular funding allocations are needed from both the national government and town council budgets. Because of its importance to the national interest, funding for conservation should be prioritized, and not reduced or eliminated due to political considerations.
- Action needs to be taken to modify, update, or create necessary legislation to strengthen conservation efforts. Laws need to be harmonized and made enforceable through the island judicial system.
- Conservation must be linked to activities in other sectors, so that these activities can develop synergistically and so that cross-sector coordination is improved. This can also create new avenues for funding support. Specific suggestions for strengthening cross-sector linkages as part of the mainstreaming process are discussed in greater detail in the next subsection.

By taking these steps to mainstream and integrate conservation into the national planning and economic agenda, the government can demonstrate its commitment to improving food security, providing for the basic needs of Tuvaluans, and preserving a valuable resource that can help to stimulate greater economic growth.
Coordinating Marine Conservation with Activities in Other Sectors

A number of important activities across various sectors would not be viable without a healthy environment and natural resource base. In particular, tourism development and fisheries in Tuvalu cannot be sustained in the absence of productive marine ecosystems and associated resources. It is important to consider these interdependencies and develop a framework that can capitalize on and promote such cross-sector synergies. Some examples are presented here.

In the fisheries sector, one relatively new development is the establishment by the Fisheries Department of a giant clam hatchery. The intention of the project is to produce clams that can then be used to restock the depleted giant clam populations in the lagoon. A similar effort was made several years ago, before the FCA, with trochus, a mollusk of economic importance primarily for its mother-of-pearl shell, used in making buttons. In that case, a large quantity of trochus were purchased and were scattered around various sites in the lagoon, in an effort to seed the reef so that ultimately trochus populations would multiply and the shells could be harvested on a sustainable basis. Unfortunately, despite an information campaign advising residents not to collect the trochus from the reef, most of the shells were harvested soon after being planted. Thus the goals of this project were never realized. For the giant clam, and in fact, for other, similar marine products that might be cultured in the future, the FCA sanctuary provides an area where the organisms could grow, reach reproductive maturity, and spawn to reestablish clam populations throughout the lagoon.

The potential to develop dive-oriented ecotourism in Tuvalu has already been discussed. While the concept is appealing, a great many things would have to happen in order to make this a reality. The main requirements:

- Lower the airfare for visitors to Tuvalu;
- Provide more comfortable accommodations;
- Provide for easier access to foreign currency exchange services;
- Ensure that diving can be done safely, by providing safe boats, air compressors, and dive equipment, and well-trained and competent dive crews; and
- Explore the best ways to market Tuvalu as a dive destination.

In addition, a full survey of potential dive sites should be conducted, and the sites mapped and described. Mooring buoys can be placed strategically at selected sites, to allow easier mooring and to minimize anchor damage to coral reefs.

Other activities could be developed to complement marine ecotourism and bring in increased revenues. For example, cottage industries could be developed to produce handicrafts, to be offered for sale to this new tourism segment, and businesses could be set up to offer tour guide services.

One ambitious scheme that is presently under consideration by the Government (and of which tourism development is a part), involves outer-island development in Nukufetau. A, World War II-era runway is located on Nukufetau which, at 2.6 km, is twice the length of the runway on Funafuti. The strategy being considered proposes that this runway could be rehabilitated at relatively low cost and used to bring in larger aircraft, possibly 737s. If this happened, it would enable Tuvalu, for the first time, to export its own fresh fish, primarily yellowfin tuna for the sashimi market, to Japan. It is envisioned that this development would also bring about the following benefits:

- Opening up new possibilities for air transportation would enable tourists to visit Tuvalu more economically and to travel among the islands more readily;
- Attracting a portion of the people now living in Funafuti to move to Nukufetau because of new job opportunities (perhaps most likely, those who originally came from Nukufetau), would reduce population pressure on Fongafale; and
- Reducing the population pressure on Fongafale would bring about net environmental benefits (reduced pollution, reduced fishing pressure).

This scheme is being presented here simplistically. For the scheme even to be considered seriously, it will be necessary to undertake a number of in-depth studies, not the least of which is a market analysis for sashimi-grade tuna. Other obstacles, such as transportation costs and high fuel prices, may make it impossible to consider this option at this time.
Coordination with Global Programs

A number of global programs have relevance for the FCA project, and for the establishment of other MPA in Tuvalu and in the region. The Global Environment Facility (GEF) provides funding to cover the incremental costs of achieving globally significant environmental benefits. Biodiversity conservation is one of the focal areas supported by GEF. As a signatory to the international Convention on Biological Diversity (signed June 1992, ratified February 2003), Tuvalu has indicated its willingness to subscribe to the policies recommended under the Convention, and at the same time may qualify for GEF funding for eligible conservation efforts.

The ReefCheck program is a relatively new program but one that is already being implemented in many countries worldwide. ReefCheck is intended to foster community awareness and community management of coral reefs and other coastal resources, by training and engaging community stakeholders to participate in periodic reef monitoring activities. Support from these and similar global institutions can help to strengthen and maintain conservation programs in Funafuti and elsewhere in Tuvalu.

Implementing the Recommendations

The key recommendations presented here may be considered as an integrated package of targeted actions that can help to improve MPA management. Most of the recommendations pertain specifically to improving the management and operation of the FCA, while a few pertain to initiating management efforts on the outer islands or in other nearby nations.

As to those recommendations specifically for Tuvalu, the Government does not yet possess the capability to fully carry out these actions on its own; technical assistance will be required to help to prepare the community, train assigned personnel, and help coordinate a range of community-based planning, design, and management functions.

Implications Beyond the Region

Perhaps the most important finding of this case study is that the FCA presents tangible observed evidence that MPAs can help to protect breeding stocks of fish and important biodiversity resources. Reports from local fishermen corroborate these observations. After about 6 years under management, fishermen have already reported that they are experiencing the benefits from the MPA: that fish are larger and more plentiful now than they were before the establishment of the FCA, even outside the boundaries of the MPA itself, due to the predicted effect of export of excess biomass. As a result, fishermen find it easier to catch fish in the permitted fishing areas of the lagoon, and they are among the staunchest supporters of maintaining the FCA as a no-take zone.

This is important, because in many developing countries, especially in such populous nations as Indonesia and the Philippines, neither commercial and artisanal nor subsistence fishermen fully recognize the importance of maintaining zones where breeding stocks are left untouched; continuing violations of fisheries laws are commonplace. To be fair, fishing pressure in some of these nations is much, much higher than in Tuvalu, and fishers in these countries often must resort to drastic measures (including destructive fishing practices that do irreparable damage to coral reefs and the fisheries resource base itself), in order to provide for the basic food needs of their families. The dilemma is that, as fishing pressure increases, maintaining the integrity of MPAs, sanctuary areas, and no-take zones becomes ever more critical. As long as it is properly managed, the FCA can serve as an important model to demonstrate how lowering fishing pressure can increase the resource base, and how protected areas can function to preserve or replenish fisheries resources in order to allow continuous sustainable harvesting to occur. It is hoped that lessons from Funafuti may eventually have an impact in changing the patterns of destructive fishing practices in other countries.
References


FTC (Funafuti Town Council) (No Date). Funafuti Conservation Area Project Information Sheets, Nos. 1–7. Fongafale.


Appendixes
Appendix 1
Persons Consulted

Rt. Hon. Saufatu Sopoanga, O.B.E., Prime Minister
Rt. Hon. Bikenibeu Paeniu, Minister of Finance
Mr. Panapasi Nelesone, Secretary to Government
Mr. Paani Laupepa, Assistant Secretary, Foreign Affairs
Mr. Iakoba Italeli, Attorney General
Mr. Semese Alefaio, Conservation Officer, Conservation Office, Funafuti Town Council
Mr. Nikolasi Apinelu, Fisheries Research and Development Officer, Fisheries Department
Mr. James Conway, Special Advisor, Office of the Prime Minister
Ms. Annie Homasi, Project Coordinator, Tuvalu Association of NGOs
Mr. Solomona Ielemia, President, Funafuti Town Council
Mr. Simeona Iosia, (former) Secretary, Funafuti Town Council
Mr. Teleke Lauti, (former) Conservation Area Support Officer

Mr. Panapasi Nelesone, Secretary to Government
Ms. Kilita Nokisi, Conservation Officer, Funafuti Town Council
Mr. Talakatoa O’Brien, Secretary, Funafuti Town Council
Mr. Soloseni Penitusi, President, Funafuti Fishermen’s Association
Mr. Satalaka Petaia, Director of National Fishing Corporation of Tuvalu
Mr. Samasoni Sauni, Secretariat of the Pacific Community (Noumea, New Caledonia)
Ms. Fuli Siaosi, Aquaculture Officer, Fisheries Department
Mr. Mataio Tekinene, Director of Environment
Mr. Malaki Tihala, Deputy Director of Fisheries
Ms. Olioliga Iosua, Assistant Secretary of Natural Resources
Mr. Eti Esela, Businessman
Appendix 2
Outputs of Group Discussions and Meetings

11 March 2003
Round-Table Discussion, Tuvalu Youth Center Building, Vaiaku, 2:30-5:30 pm

AGENDA

i. Introductory Remarks — Mr. Paani Laupepa
ii. Explanation of the Asian Development Bank (ADB) Pacific Region Environmental Strategy (PRES) Project and the Tuvalu Case Study — Mr. James Berdach
iii. Meeting Schedule and Commitment
iv. Distribution of Questionnaires
v. Round-Table Discussion on Key Issues (topics to be discussed may include perceptions on impacts or benefits of the Funafuti Conservation Area (FCA); requirements for long-term management; public awareness-building and education; traditional vs. modern management system; financial and budget considerations)
vi. Closing Remarks — Mr. Talakatoa O’Brien

The round-table meeting was convened at 2:30 p.m. It was attended by some ten participants (see list of participants, Box A2.1). The meeting was opened by Mr. Paani Laupepa, who explained the purpose of the PRES. Mr. Berdach then gave further background about the PRES project and how the Tuvalu case study would fit into the overall project. Agreement was solicited from the attendees regarding the agenda for the discussion.

Participants next completed questionnaires that explored their perceptions about the FCA project (the questionnaire is presented in Appendix 3). The questionnaire helped to stimulate and focus participants’ thoughts on certain key issues.

A round-table discussion followed. The discussion targeted several topical areas. These subjects, together with the main findings, are presented here.

• **Perceived impacts or benefits of the FCA**: Despite some initial questions about the real benefits to be derived from the FCA, there was general consensus that the FCA is functioning well in protecting fish and should remain as a protected area—the concern is that an effective management system be instituted to ensure that the area continues to function as it is intended. If the management is ineffective (e.g., with frequent violations going unpunished), it defeats the entire purpose of the FCA.

• **Requirements for long-term management**: The community needs to be fully involved with the management of the FCA. Although there is a structure for community involvement (a diagram depicting the flow of community involvement in the management process was developed during the discussion; see Figure A2.1), the management process has not functioned properly. For example, the Conservation Area Coordinating Committee (CACC), a body representing community interests in the management structure, has not met in about 2 years. Also, although rules were formulated for controlling activities in the FCA, no overall management plan has been developed. The concept of volunteerism is relatively unknown: people prefer getting paid for their efforts. Technical training for management of the area is also needed. In addition, it was mentioned that managers should lead by example and not abuse their authority.

• **Public awareness building and education**: Awareness-raising and educational activities need to be continued. Teaching children is especially important, since they are often the effective carriers of information to their parents. Awareness-building efforts should include radio programs, information brochures, etc. The last organized information-dissemination activities were over 2 years ago.

• **Enforcement**: Some fishermen help in enforcement by reporting observed violations and conducting informal patrols. However, sometimes they expect that they should be paid a fee if they file a report. Most feel that present enforcement efforts are not adequate; violations
continue to occur. The fishermen present at the discussion were especially concerned about this. Stationing an FCA warden permanently on one of the small islets is being considered. Buoy markers to delineate the area would also be useful, so that fishermen and enforcers can easily identify the FCA boundaries (buoys were installed in the past, but they were either lost in storms or vandalized).

- **Traditional vs. modern management**: Traditional management systems are practiced on the outer islands, especially Nukulaelae, Vaitupu, and Nanumanga. In those places, village elders decide if temporary closures or other restrictions are needed to allow depleted fish stocks to recover. It was felt that a traditional system would not function too well in Funafuti, however, because it is a mixed community (many people living in Funafuti come from other islands), and a larger population. A more rigorous, “modern” management framework might be more effective in controlling the increased fishing pressure found here. The FCA model might also provide useful lessons that could be applied to management on the outer islands as well.

- **Financial and budget considerations**: A recurrent theme was that lack of continuous financial support was severely hampering conservation activities, and threatening the long-term viability of the FCA. Support is needed for ongoing awareness-building and educational activities, for formulation of a management plan, for various enforcement activities, for materials and equipment; and for support of staff, among others. Possible sources of funding that were identified include outside aid providers; licensing fees for fishing (fishermen currently pay both licensing fees and fees based on their sales of fish); revenues that could be generated through tourism development (especially dive tourism); and operation of the Interpretive Center. Fishermen indicated that they would be willing to pay (or provide in-kind services) for being allowed to participate in a “safety at sea” program whereby the Conservation Office would assist fishermen by providing weather information, search and rescue services, and sales of safety equipment.

- **Other comments**:
  - The importance of equitably distributing benefits from the use of the FCA was pointed out; so far there is no mechanism for this.
  - Extensive discussion was devoted to an occurrence in 2002, when, at the request of Government, the FCA was opened to fishing for a period of 2 days to provide fresh fish for visiting dignitaries. It was strongly voiced that such “special exceptions” undermined the integrity of management efforts in the FCA. While a provision for such exceptions apparently exists, they should be made (if ever) with the full knowledge and consent of the community (as represented by the CACC), and with fair compensation paid in return for such privileges.

The meeting was adjourned at 5:30 p.m.

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**Box A2.1. List of Participants—Round-Table Discussion**

<table>
<thead>
<tr>
<th>Name</th>
<th>Affiliation</th>
<th>Position/Title</th>
</tr>
</thead>
<tbody>
<tr>
<td>Mr. Paani Laupepa</td>
<td>Foreign Affairs</td>
<td>asst. secretary</td>
</tr>
<tr>
<td>Ms. Kilita Kaitu</td>
<td>Conservation Area Project</td>
<td>conservation officer</td>
</tr>
<tr>
<td>Ms. Pepetua Latasi</td>
<td>Department of Environment</td>
<td>assistant environmental officer</td>
</tr>
<tr>
<td>Mr. Talakatoa O’Brien</td>
<td>Funafuti Town Council</td>
<td>secretary</td>
</tr>
<tr>
<td>Mr. Soloseni Penitusi</td>
<td>Funafuti Fisherman Association</td>
<td>president</td>
</tr>
<tr>
<td>Mr. Pasefika P.</td>
<td>Funafuti Fisherman Association</td>
<td>member</td>
</tr>
<tr>
<td>Mr. Setusa T.</td>
<td>Funafuti Fisherman Association</td>
<td>member</td>
</tr>
<tr>
<td>Mr. Nikolasi Apinelu</td>
<td>Fisheries Department</td>
<td>fisheries R&amp;D officer</td>
</tr>
<tr>
<td>Ms. Siuila Toloa</td>
<td>Island Care NGO</td>
<td>primary school teacher</td>
</tr>
<tr>
<td>Ms. Temukisa Hauma</td>
<td>Island Care NGO</td>
<td>head teacher—primary school</td>
</tr>
<tr>
<td>Mr. James Berdach</td>
<td>ADB</td>
<td>coastal resources management/protected areas specialist</td>
</tr>
</tbody>
</table>
A wrap-up meeting was held to present the preliminary findings of the case study to community members and CA managers. The participants are listed in Box A2.2:

**Box A2.2 List of Participants—Wrap-Up Meeting**

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<tr>
<td>Semese Alefaio</td>
<td>Funuafuti Town Council Conservation Office</td>
<td>conservation officer</td>
</tr>
<tr>
<td>Kilita (Nokisi) Kaitu</td>
<td>Funuafuti Town Council Conservation Office</td>
<td>conservation officer</td>
</tr>
<tr>
<td>Pepetua Latasi</td>
<td>Department of Environment</td>
<td>assistant environmental officer (primary school teacher)</td>
</tr>
<tr>
<td>Siuila Toloa</td>
<td>Island Care NGO</td>
<td>president</td>
</tr>
<tr>
<td>Soloseni Penitusi</td>
<td>Funafuti Fisherman Association</td>
<td>member</td>
</tr>
<tr>
<td>Pasefika P.</td>
<td>Funafuti Fisherman Association</td>
<td>head teacher—primary school acting manager</td>
</tr>
<tr>
<td>Temukisa Hauma</td>
<td>Island Care NGO</td>
<td></td>
</tr>
<tr>
<td>Fatulolo Vave</td>
<td>NAFICOT</td>
<td></td>
</tr>
<tr>
<td>James Berdach</td>
<td>ADB</td>
<td>Coastal resources management/Protected Areas Specialist</td>
</tr>
</tbody>
</table>

Following introductory remarks, Mr. Berdach gave a brief presentation of some of the in-progress findings of the case study, especially based on preliminary results of returned questionnaires, and field surveys. The findings reported were as follows:

- **Results of questionnaires:** it was noted that only those questionnaires distributed at the round-table meeting had so far been tabulated. The community questionnaires had not all been returned yet. However, based on the managers’ questionnaire distributed at the round-table meeting, it was observed that (i) the opinion of respondents was almost evenly divided regarding the effectiveness of the FCA project in building greater awareness; (ii) respondents expressed strongly the need for more technical training and capacity building of personnel to help to monitor and manage the FCA; (iii) better enforcement is required in the FCA; (iv) the FCA was functioning effectively as a fish sanctuary; (v) the FCA should continue to exist as a conservation area; (vi) greater community support was needed for the long-term viability of the FCA; and (vii) a high degree of uncertainty existed among the respondents about how best to sustain the FCA especially as regards financing.

- **Observations made during the field surveys:** A number of areas within the FCA (Tefala, Fuafatu) supported high biomass and high biodiversity.
The large size of fish at these sites was particularly notable. These and other observations support the idea that the FCA appears to be functioning effectively as a sanctuary and breeding ground for fish and other organisms. At the same time, however, it was observed that at least at one location within the FCA (Fualopa), coral coverage is degraded and fish biomass and diversity are low. The reasons for this are not clear but may be due to natural differences in community structure, coral bleaching, and/or poaching, and continuing fishing pressure (this area is reported by the conservation officer to be a favored fishing site historically, and a likely poaching site). Other possible anomalies are seen in the fact that the two sites surveyed outside the FCA (Tepuka and S. Fongafale) also support relatively high biomass and good biodiversity (although sizes of fish noted at these sites were somewhat smaller, compared to the best sites within the FCA).

Following the presentation of these findings, a general discussion was opened to obtain further feedback from the participants. Items discussed included:

- **Integrated management plan:** The absence of a management plan was noted. The question was put to the conservation officer about how he managed the FCA in the absence of a well-defined plan. Management, it seems, is mostly on an ad hoc basis, with the conservation officer using his best judgment to try to effectively manage the area. The need to develop a plan that integrates management within and outside the FCA (i.e., in the rest of the lagoon, including management of land-based activities on Fongafale and the other islets) was discussed. This concept was generally endorsed by the group.

- **Awareness building:** The participants recalled that in the early stages of the SPREP-supported project, a vigorous program took place for education and awareness building, which was very much appreciated by the community. However, those activities have since ceased due to lack of funds. It was agreed that this is an important component that needs further promotion and support. The possibility of utilizing the existing Interpretive Center (which at present is a vacant building) was discussed. Such a center would have the potential to serve as a physical focal point for all awareness-building programs and activities within the community.

- **Legal inconsistencies:** Inconsistencies in legal requirements and enforcement matters were discussed. The levels of fines and imprisonment specified in the Conservation Areas Act (CAA) and the Town Council’s by-laws for the FCA are inconsistent. Also, the local courts have no jurisdiction over violations of the CAA and the by-laws (since the penalties in both sets of regulations exceed those allowed for adjudication in local courts). This effectively makes it impossible to get timely convictions, even if violators are caught and arrested.

- **Sustainable financing:** The biggest management challenge facing the FCA is identifying viable mechanisms to provide for sustainable financing of conservation activities. Options discussed included external assistance funding, support by Government through annual budget allocations, support from a trust fund (either Tuvalu Trust Fund or a special conservation trust fund), and new economic activities (such as ecotourism). Sustainable financing is needed to support ongoing staffing, awareness building, training, and enforcement.

Discussion of the above issues led to consideration of the framework for management of the FCA, the authority of various entities with respect to FCA management, and how authority is passed to the Conservation Office as the ultimate responsible management entity. This discussion resulted in refinement of the flow chart that was developed at the round-table meeting (Figure 2.5).
Appendix 3
Results of the Questionnaire Surveys

Presented here are two questionnaires that were circulated among two groups of respondents within the Funafuti community. Questions differ from one to the other, and were tailored with the intent of gathering as much useful information from each respective group of respondents. One questionnaire was circulated among “managers,” those having a high level of knowledge about and involvement with the Funafuti Conservation Area. The second set of questionnaires was circulated among the general population of Funafuti. Cumulatively, representation within these groups included teachers, schoolchildren, business people and professionals, landowners of islets within the FCA, civil servants, members of NGOs, and fishers, among others. Responses to both of the questionnaires are tabulated, and the answers are briefly interpreted here. Interpretation of the answers includes consideration of additional comments that were written-in on some of the questionnaire forms.

Questionnaire for Managers' Round-Table Discussion, Funafuti Conservation Area—Case Study

Please circle the LETTER in front of the statement that you agree with the most.

<table>
<thead>
<tr>
<th>QUESTIONS / STATEMENTS</th>
<th>RESPONSES</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Question #1:</strong></td>
<td></td>
</tr>
<tr>
<td>A. As a result of the FCA project I became aware of the importance of coral reefs.</td>
<td>5</td>
</tr>
<tr>
<td>B. I already knew all about coral reefs before the FCA project.</td>
<td>0</td>
</tr>
<tr>
<td>C. I knew a little about coral reefs, but the FCA project helped improve my knowledge.</td>
<td>5</td>
</tr>
<tr>
<td>D. I don’t think coral reefs are very important—corals are just rocks.</td>
<td>0</td>
</tr>
<tr>
<td><strong>Question #2:</strong></td>
<td></td>
</tr>
<tr>
<td>A. Most people in Funafuti know about the Conservation Area.</td>
<td>5</td>
</tr>
<tr>
<td>B. Only a few people in Funafuti know about the Conservation Area.</td>
<td>5</td>
</tr>
<tr>
<td><strong>Question #3:</strong></td>
<td></td>
</tr>
<tr>
<td>A. A resource center has been put up where people can go to obtain more information about the FCA if they want to. The center is open to all citizens and visitors to Funafuti.</td>
<td>1</td>
</tr>
<tr>
<td>B. There was a plan to put up a resource center, but so far it has not been established.</td>
<td>1</td>
</tr>
<tr>
<td>C. There is not yet a proposal to establish a resource center.</td>
<td>1</td>
</tr>
<tr>
<td>Unanswered</td>
<td>2</td>
</tr>
<tr>
<td><strong>Question #4:</strong></td>
<td></td>
</tr>
<tr>
<td>A. There is a definite need to establish a resource center to share more information about the FCA and about conservation issues. It should have a library, computer, and other learning materials.</td>
<td>9</td>
</tr>
<tr>
<td>B. A resource center is not necessary.</td>
<td>0</td>
</tr>
<tr>
<td>Unanswered</td>
<td>1</td>
</tr>
<tr>
<td><strong>Question #5:</strong></td>
<td></td>
</tr>
<tr>
<td>A. There are many people in Funafuti who have the skills and knowledge needed to continue to manage the FCA effectively in the future.</td>
<td>0</td>
</tr>
<tr>
<td>B. There is a need to have more training to help more people in Funafuti gain the skills needed to continue to manage the FCA effectively in the future.</td>
<td>9</td>
</tr>
<tr>
<td>Unanswered</td>
<td>1</td>
</tr>
</tbody>
</table>

continued next page
Questionnaire for Managers’ Round-Table Discussion, Funafuti Conservation Area—Case Study (cont’d.)

Please circle the LETTER in front of the statement that you agree with the most.

<table>
<thead>
<tr>
<th>QUESTIONS / STATEMENTS</th>
<th>RESPONSES</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Question #6:</strong></td>
<td></td>
</tr>
<tr>
<td>A. The available manpower is adequate for patrolling the FCA, apprehending violators, and enforcing the regulations.</td>
<td>1</td>
</tr>
<tr>
<td>B. More manpower is needed for adequate patrolling and enforcement in the FCA.</td>
<td>8</td>
</tr>
<tr>
<td>Unanswered</td>
<td>1</td>
</tr>
<tr>
<td><strong>Question #7:</strong></td>
<td></td>
</tr>
<tr>
<td>A. A number of people received training in scientific survey methods, and they are capable of continuing this task in the future. No additional training of personnel for survey work is needed.</td>
<td>0</td>
</tr>
<tr>
<td>B. Although some people were trained for survey work, they could use more training to improve their skills, and also new people should be trained to help with this task.</td>
<td>6</td>
</tr>
<tr>
<td>C. No one is properly trained to conduct survey work in the FCA.</td>
<td>2</td>
</tr>
<tr>
<td>Unanswered</td>
<td>2</td>
</tr>
<tr>
<td><strong>Question #8:</strong></td>
<td></td>
</tr>
<tr>
<td>A. There are enough boats, radios, and other equipment (for example, scuba gear) that can be used in patrolling, monitoring, and surveying of the FCA.</td>
<td>1</td>
</tr>
<tr>
<td>B. There is a need for more or better equipment to be used in patrolling, monitoring, and survey activities for the FCA.</td>
<td>9</td>
</tr>
<tr>
<td><strong>Question #9:</strong></td>
<td></td>
</tr>
<tr>
<td>A. As a result of the establishment of the FCA, it seems that the numbers of coconut crabs and birds on the islets are increasing.</td>
<td>7</td>
</tr>
<tr>
<td>B. I don’t think there are more coconut crabs and birds now, than there were before the FCA.</td>
<td>0</td>
</tr>
<tr>
<td>Unanswered</td>
<td>3</td>
</tr>
<tr>
<td><strong>Question #10:</strong></td>
<td></td>
</tr>
<tr>
<td>A. As a result of the establishment of the FCA, it seems that the number of fish in Funafuti Lagoon has increased, the fish are larger, and it is easier now to catch fish than before.</td>
<td>8</td>
</tr>
<tr>
<td>B. Because people are not allowed to fish inside the FCA, it is more difficult to catch fish now.</td>
<td>1</td>
</tr>
<tr>
<td>C. The number of fish is still the same, they are the same size, and it is just the same catching fish as it was before.</td>
<td>0</td>
</tr>
<tr>
<td>Unanswered</td>
<td>1</td>
</tr>
<tr>
<td><strong>Question #11:</strong></td>
<td></td>
</tr>
<tr>
<td>A. Fishermen of Fongafale should be allowed to fish wherever they want to in the lagoon. There will always be plenty of fish in the lagoon.</td>
<td>0</td>
</tr>
<tr>
<td>B. Fishermen of Fongafale should realize that it is important to protect a part of the lagoon, so that the fish have a place where they can survive long enough to reproduce, so there will always be plenty of fish in the lagoon.</td>
<td>10</td>
</tr>
<tr>
<td><strong>Question #12:</strong></td>
<td></td>
</tr>
<tr>
<td>A. Most people in Fongafale think the conservation area is a good idea.</td>
<td>8</td>
</tr>
<tr>
<td>B. Only a few people in Fongafale think the conservation area is a good idea—most people think it is a waste of time.</td>
<td>2</td>
</tr>
</tbody>
</table>

continued next page
**Interpretation of Responses**

The responses from the “managers’ group” offer a number of interesting insights regarding the perceived effectiveness of the FCA project. The responses are interpreted here, with respect to a number of key issues.

**Awareness Building:** The respondents seem to generally feel that their own awareness about marine conservation was improved significantly through exposure to the project. However, they are ambivalent with respect to the effectiveness of the project in raising awareness within the general community—about half the respondents feel that many people in the community are not aware of the project. There is a definite consensus that awareness-building activities need to be continued and strengthened.

**Training and Capacity-Building:** The respondents believe that, while some personnel received technical training, there is a definite need to improve their skills, and also for others in the community to be trained to help shoulder the responsibilities for management of the FCA.

**Community-Based Planning and Management:** While the respondents feel that the planning of the FCA was carried out with the participation of the community, greater participation is needed to continue to manage the area effectively. Volunteerism needs to be encouraged. There was some ambivalence about the management system—

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### Questionnaire for Managers’ Round-Table Discussion, Funafuti Conservation Area—Case Study (cont’d.)

Please circle the LETTER in front of the statement that you agree with the most.

<table>
<thead>
<tr>
<th>QUESTIONS / STATEMENTS</th>
<th>RESPONSES</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Question #13:</strong></td>
<td></td>
</tr>
<tr>
<td>A. The establishment of the FCA was done with the full cooperation and support of the people of Funafuti.</td>
<td>7</td>
</tr>
<tr>
<td>B. Some people came to Tuvalu and told us that it would be a good idea to have a conservation area, so we just did what they told us to do.</td>
<td>3</td>
</tr>
<tr>
<td><strong>Question #14:</strong></td>
<td></td>
</tr>
<tr>
<td>A. The management of the FCA is being carried out by paid staff only, but it would be a good idea if volunteers from the community also participated.</td>
<td>10</td>
</tr>
<tr>
<td>B. The management of the FCA is being carried out by paid staff and community volunteers.</td>
<td>0</td>
</tr>
<tr>
<td>C. The management of the FCA is being carried out only by community volunteers.</td>
<td>0</td>
</tr>
<tr>
<td><strong>Question #15:</strong></td>
<td></td>
</tr>
<tr>
<td>A. A management plan was prepared for the FCA with the full participation of the community.</td>
<td>2</td>
</tr>
<tr>
<td>B. A management plan was prepared for the FCA, but without the participation of the community.</td>
<td>2</td>
</tr>
<tr>
<td>C. No management plan has yet been prepared for the FCA.</td>
<td>2</td>
</tr>
<tr>
<td>Unanswered</td>
<td>4</td>
</tr>
<tr>
<td><strong>Question #16:</strong></td>
<td></td>
</tr>
<tr>
<td>A. Revenues have increased since the establishment of the FCA, through increased ecotourism, collection of permit fees, and other economic activities.</td>
<td>6</td>
</tr>
<tr>
<td>B. No additional revenue has yet been generated as a result of establishing the FCA.</td>
<td>4</td>
</tr>
<tr>
<td><strong>Question #17:</strong></td>
<td></td>
</tr>
<tr>
<td>A. The management of the FCA is the responsibility of the Funafuti Kaupule (Town Council) and it is a traditional system of management. This is the appropriate way in which the FCA should be managed.</td>
<td>2</td>
</tr>
<tr>
<td>B. The management of the FCA is the responsibility of the Funafuti Kaupule. It is not a traditional management system, but it is working well and should be continued this way.</td>
<td>3</td>
</tr>
<tr>
<td>C. The management of the FCA is done in a modern, nontraditional way, which is not well accepted by Tuvaluans. A traditional system set up by village elders would be better.</td>
<td>2</td>
</tr>
<tr>
<td>Unanswered</td>
<td>3</td>
</tr>
</tbody>
</table>
in the opinion of the respondents it is not clear whether or not the system employed (working through the kaupule (town council), but using modern scientific methods) should be considered a modified traditional system, but about 50% feel the system is working reasonably well. Another 20% question this framework and believe that a more purely traditional system would be better.

**Enforcement:** There is a strong consensus that enforcement efforts are inadequate and need to be strengthened. The FCA should continue to be operated as a no-take zone.

**Tangible Benefits:** Respondents indicate their strong belief that fish populations, as well as birds and turtles, have increased as a result of the FCA project.

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**Questionnaire for Community Members, Funafuti Conservation Area—Case Study**

A study is being done about the Funafuti Conservation Area (FCA). Your answers to the following questions will help us to know if the project has been successful. It will only take about 5–10 minutes to complete this questionnaire—we appreciate your taking the time to answer these questions. THANK YOU!

---

**INFORMATION ABOUT RESPONDENT**

| NAME (optional): | — |
| MALE OR FEMALE: | M: 15 / F: 10 |
| ISLAND OF ORIGIN: | Funafuti: 14 / Other: 11 |
| EDUCATION (grade level): | none or no answer: 7 / primary or secondary: 11 / college: 7 |
| OCCUPATION: | see description in text |
| ANNUAL SALARY OR INCOME: | mostly unanswered |

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**Interpretation of Responses**

Respondents in the community group included teachers, schoolchildren, business people and professionals, landowners of islets within the FCA, civil servants, members of NGOs, and fishermen, among others. More of the respondents were male (n = 15) than female (n = 10), and more came from Funafuti (n = 14) than the outer islands (n = 11). Age distribution was fairly homogeneous from teen-age to elderly respondents. The responses from this group provide useful information about the effectiveness of the FCA project, as perceived by the general community. The responses are interpreted here, with respect to a number of key issues.

**Awareness:** Almost all the respondents stated that they were aware of the FCA project. Awareness-building activities under the project helped to improve their understanding of the importance of coral reefs. One hundred percent of respondents correctly understood the conservation purpose of the FCA, and supported the concept.

**Community-Based Planning and Management:** The majority of respondents felt that the FCA project had been conducted with a high level of community participation, and felt that the management of the FCA needed to be undertaken largely by the community itself. Nearly all stated that they are either interested in finding out more about the FCA, or becoming more involved through volunteer activities.

**Enforcement:** All respondents thought that it was important to enforce the FCA as a no-take zone. About half felt that fines should be assessed against violators. The other half felt that violators should be given further awareness training and then perform conservation-related community service. None of the respondents supported the idea that violators should be treated with leniency, or that restrictions should be relaxed.

**Management Issues:** Several questions were posed regarding the possibility of opening the FCA to periodic fishing. Some respondents declined to choose one of the multiple-choice answers offered, and instead wrote in that they disagreed that the FCA should ever be opened to fishing.

Most respondents felt that there was a possibility to generate revenues through sustainable, managed use of the FCA, for example, for ecotourism.

**Tangible Benefits:** Nearly all respondents felt that there were tangible increases in the numbers of fishes, birds, and turtles since the establishment of the protected area.
For each of the following questions, please circle the LETTER in front of the statement that you agree with the most. There are no right or wrong answers but we want to know your thoughts and opinions about these questions.

<table>
<thead>
<tr>
<th>QUESTIONS / STATEMENTS</th>
<th>RESPONSES</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Question #1:</strong></td>
<td></td>
</tr>
<tr>
<td>A. I have already heard about the Funafuti Conservation Area (the FCA).</td>
<td>23</td>
</tr>
<tr>
<td>B. This is the first time for me to hear about the FCA.</td>
<td>1</td>
</tr>
<tr>
<td>No answer</td>
<td>1</td>
</tr>
<tr>
<td><strong>Question #2:</strong></td>
<td></td>
</tr>
<tr>
<td>A. As a result of the FCA project I became aware of the importance of coral reefs.</td>
<td>7</td>
</tr>
<tr>
<td>B. I already knew all about coral reefs before the FCA project.</td>
<td>4</td>
</tr>
<tr>
<td>C. I knew a little about coral reefs, but the FCA project helped improve my knowledge.</td>
<td>14</td>
</tr>
<tr>
<td>D. I don’t think coral reefs are very important—corals are just rocks.</td>
<td>0</td>
</tr>
<tr>
<td><strong>Question #3:</strong></td>
<td></td>
</tr>
<tr>
<td>A. The purpose of the FCA is to prevent fishermen from fishing.</td>
<td>0</td>
</tr>
<tr>
<td>B. The purpose of the FCA is to protect fishes and other creatures in the area, so that there will always be enough fish for people to catch in other parts of the lagoon.</td>
<td>25</td>
</tr>
<tr>
<td>C. I do not understand the purpose of the FCA.</td>
<td>0</td>
</tr>
<tr>
<td><strong>Question #4:</strong></td>
<td></td>
</tr>
<tr>
<td>A. Since the FCA was established, it seems that the number of fish in Funafuti Lagoon has increased, the fish are bigger, and it is easier now to catch fish than it was before.</td>
<td>17</td>
</tr>
<tr>
<td>B. Because people are not allowed to fish inside the FCA, it is more difficult to catch fish now.</td>
<td>2</td>
</tr>
<tr>
<td>C. The number of fish is still the same, they are the same size, and it is just the same catching fish as it was before.</td>
<td>4</td>
</tr>
<tr>
<td>No answer</td>
<td>2</td>
</tr>
<tr>
<td><strong>Question #5:</strong></td>
<td></td>
</tr>
<tr>
<td>A. As a result of the establishment of the FCA, it seems that the numbers of coconut crabs and birds on the islets are increasing.</td>
<td>17</td>
</tr>
<tr>
<td>B. I don’t think there are more coconut crabs and birds now than there were before the FCA.</td>
<td>6</td>
</tr>
<tr>
<td>No answer</td>
<td>2</td>
</tr>
<tr>
<td><strong>Question #6:</strong></td>
<td></td>
</tr>
<tr>
<td>A. The FCA was set up with the full cooperation and support of the people of Funafuti.</td>
<td>21</td>
</tr>
<tr>
<td>B. Some people came to Tuvalu and told us that it would be a good idea to have a conservation area, so we just did what they told us to do.</td>
<td>2</td>
</tr>
<tr>
<td>No answer</td>
<td>2</td>
</tr>
<tr>
<td><strong>Question #7:</strong></td>
<td></td>
</tr>
<tr>
<td>A. I agree that the FCA is a good idea. It is important to protect a part of the lagoon so that fish and other animals can breed and reproduce, so there will always be enough fish.</td>
<td>25</td>
</tr>
<tr>
<td>B. I do not agree that the FCA is a good idea. Fishermen of Fongafale should be allowed to fish wherever they want to in the lagoon. There will always be plenty of fish in the lagoon, so it is not fair to stop them from fishing.</td>
<td>0</td>
</tr>
<tr>
<td><strong>Question #8:</strong></td>
<td></td>
</tr>
<tr>
<td>A. The FCA should be managed by scientists who understand the best way to do it.</td>
<td>2</td>
</tr>
<tr>
<td>B. The FCA should be managed by local people. If they need assistance in managing the FCA, some advisers can also be asked to help.</td>
<td>23</td>
</tr>
</tbody>
</table>

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<table>
<thead>
<tr>
<th>Questions / Statements</th>
<th>Responses</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Question #9:</strong></td>
<td></td>
</tr>
<tr>
<td>A. I would like to find out more about the FCA.</td>
<td>10</td>
</tr>
<tr>
<td>B. I would be willing to help to work on the management of the FCA as a community volunteer.</td>
<td>14</td>
</tr>
<tr>
<td>C. I am not interested in the FCA.</td>
<td>0</td>
</tr>
<tr>
<td>No answer</td>
<td>1</td>
</tr>
<tr>
<td><strong>Question #10:</strong></td>
<td></td>
</tr>
<tr>
<td>A. If fishermen agree not to go into the FCA, and then they are caught going into the FCA to catch fish, then they should pay a fine or go to jail.</td>
<td>11</td>
</tr>
<tr>
<td>B. Fishermen should not be harshly punished for violating rules about fishing in the FCA, because they are only trying to feed their families. The rules need to be changed.</td>
<td>0</td>
</tr>
<tr>
<td>C. Fishermen who violate the FCA regulations need to be better informed so that they understand why they should not fish inside the protected area. Therefore these fishermen should be given some lessons on conservation, and should then be required to do community service to help promote conservation.</td>
<td>14</td>
</tr>
<tr>
<td><strong>Question #11:</strong></td>
<td></td>
</tr>
<tr>
<td>A. If there are plenty of fish in the FCA, fishermen should be willing to pay a fee to get a license, so that they can fish inside the conservation area.</td>
<td>20</td>
</tr>
<tr>
<td>B. Fishermen should be allowed to fish inside the conservation area for free, without a license, anytime they want to.</td>
<td>0</td>
</tr>
<tr>
<td>No answer / Disagree</td>
<td>5</td>
</tr>
<tr>
<td><strong>Question #12:</strong></td>
<td></td>
</tr>
<tr>
<td>A. Fishermen should not be permitted to fish inside the conservation area under any circumstances.</td>
<td>12</td>
</tr>
<tr>
<td>B. If there are plenty of fish in the FCA, then fishermen should be permitted to fish at special times, so that they can fulfill their community obligations (for example, during feasts).</td>
<td>13</td>
</tr>
<tr>
<td>C. The FCA should be opened up for fishing at all times, with no limitations.</td>
<td>0</td>
</tr>
<tr>
<td><strong>Question #13:</strong></td>
<td></td>
</tr>
<tr>
<td>A. If the FCA is opened for fishing on special occasions, it should be limited only to one fishing day every 3–5 years. Each fisherman must agree to stop once he has caught a certain number of kilograms.</td>
<td>7</td>
</tr>
<tr>
<td>B. If the FCA is opened for fishing on special occasions, it should be limited to no more than 1–2 days per year. Each fisherman must agree to stop once he has caught a certain number of kilograms.</td>
<td>13</td>
</tr>
<tr>
<td>No answer</td>
<td>5</td>
</tr>
<tr>
<td><strong>Question #14:</strong></td>
<td></td>
</tr>
<tr>
<td>A. The kaupule may be able to raise money in the conservation area by charging fees for fishing licenses and through the development of the tourism business</td>
<td>22</td>
</tr>
<tr>
<td>B. It will not be possible for the kaupule to raise money in the conservation area.</td>
<td>2</td>
</tr>
<tr>
<td>No answer</td>
<td>1</td>
</tr>
</tbody>
</table>

**Write any additional comments, or explain your answers here:**
Appendix 4

Field Survey Reports

Presented here are reports of the underwater surveys and transects conducted at five sites within Funafuti Lagoon: Tefala, Fualopa, Fuafatu, Tepuka, and South Fongafale. Of these, three sites (Tefala, Fualopa, and Fuafatu) are within the Funafuti Conservation Area (FCA). Another site, Tepuka, was a designated control site that is situated just north of the FCA. The last site, at South Fongafale, was not one of the original control sites, but was added to provide a comparison between sites that are distant from the main population center (all of the FCA sites and controls) and sites that are close to the main settlement (the South Fongafale site is directly adjacent to the most heavily populated islet in Tuvalu).

Findings have been summarized and are presented in narrative form. In addition, the semi-quantitative data recorded for all sites is tabulated and presented in Table E-A4.1, which follows the narrative descriptions and discussion.

Site Visit, 12 March 2003, Tefala Islet, Funafuti Conservation Area (Accompanied by Kilita Nokisi, Conservation Office, and Fuli Siaosi, Fisheries Department)

A Scuba survey was conducted on a lagoon-side reef at Tefala Islet. Tefala Islet had been reported as a site where fishing pressure was quite low since the establishment of the FCA (Kaly et al. 1999). Maximum dive depth was 10 meters (m) (30 feet). Substrate was a mix of large coral outcrops (“bommies”), patch reef, and sand bottom. Although a transect survey was intended, problems with the transect line led to abandonment of that effort. An informal survey, with nonquantified visual observations of fish and corals, was conducted. No attempt was made at relocating the exact site in which prior monitoring activities had been conducted, but both accompanying divers, who had participated in prior monitoring events, indicated that the site selected was in the same general area as those prior surveys. Seas were generally calm and water clarity was excellent, with visibility estimated at well over 30 m (100 ft).

Coral cover ranged from 0% in sand-bottom areas to 85-100% on coral reef outcrops and areas of patch reef. Dominant growth forms for corals were tabular and branching acroporas. Corals were generally in good and healthy condition, but noticeable algal turf and “scuzz” was observed growing on corals in some areas. This may indicate some stress on corals from exogenous factors (possibly bleaching or disease). Only a few other non-coral invertebrates were noted (e.g., a large sea cucumber [Holothuria scabra] and occasional mollusks).

Large, breeding-size individuals of important food fish species were common to abundant, and in fact were the dominant element of the reef fish community at this site. (This contrasts sharply to nearshore reefs adjacent to Fongafale, where smaller damsels, angels, chromids, wrasses, parrots, and surgeons are dominant, and larger predatory species are only seen occasionally.) Among the notable species observed during the 30-minute dive (with some size estimates) were:

i. a school of about 10–15 big-eye emperors (Monotaxis grandoculis)
ii. large (60–70 cm) long-nose emperors (Lethrinus olivaceus), often in small groups of 4-5 individuals
iii. a school of 20–25 humpback snappers (Lutjanus gibbus)
iv. a medium-size (55 cm) humphead parrotfish (Bulbometopon muricatum)
v. a large individual (110 cm) napoleon wrasse (Chelinus undulatus)
vi. several large individuals of an unidentified species of sweetlips (Family Haemulidae, local name fangamea, up to 85 cm), apparently guarding breeding territory
vii. peacock groupers (Cephalopholis argus) of varying size (up to about 45 cm)
viii. a large marbled grouper (Epinephelus polypehakoid, 100 cm)
ix. a large red snapper (Lutjanus bohar, 75 cm)
x. several large vermiculated rabbitfish (Siganus vermiculatus)
xi. a black-tipped reef shark (Carcharinus melanopterus; 190 cm) with attached Remora (Echeneis naucrates)

In addition to the larger species noted above, smaller reef fishes that were observed included juveniles
of the Greasy grouper (Epinephelus tauvina), Moorish idols, angels, surgeons, butterflyfishes (Chaetodon spp.), bannerfish (Heniochus sp.), puffers, butterfish (Pentapodus sp.), fusiliers (Caesionidae), banded sergeant-majors, chromids, damselfishes, and cardinalfishes (Apogon spp.), among others.

As is to be expected in this region, the observed reef area did not show extremely high overall diversity in fishes, corals, and other invertebrates (for example, as compared to reefs of Southeast Asia). However, the observed dominance of large predatory fishes at the site was remarkable. These fishes showed no wariness toward divers, were easily approached, and in fact sometimes actively approached divers, perhaps out of curiosity or in defense of territory. The presence of so many large fish that are choice target food species, and their behavior, seems to indicate that there is very low fishing pressure at this site.

Site Visit, 17 March 2003, Fualopa Islet, Funafuti Conservation Area (Accompanied by Semese Alefaio, Conservation Office)

A Scuba survey was conducted on a lagoon-side reef at Fualopa islet. Fualopa had been reported as a site where fishing pressure was high, even after the establishment of the FCA (Kaly et al. 1999). Maximum dive depth for the survey was around 6–7 m (20 feet). Substrate was a coral reef slope, and sand bottom with interspersed smaller coral heads. Two 30-m (100 ft)-long transect lines were set in the area. The first was along the margin of a shallow reef slope, running from about 2–7 m (6–20 feet) depth. The second traversed some smaller coral outcrops and sand bottom at a depth of about 5–6 m (15–19 ft). Seas were calm and underwater visibility was less than 15m (50 ft).

Two passes were made along each transect line by two divers, observing first for fishes and then for corals and other invertebrates. Rather than attempting to replicate the more detailed monitoring surveys that had been conducted by earlier survey teams, the present transects were used simply to ‘spot check’ the overall condition of the reef, and get a sense of the relative abundance and diversity of major groups of fishes, corals, and other invertebrates. For each taxon observed along each of the transects, the higher of the two numeric values recorded by the two divers was used for the final data set (except for categories recorded as percentages, which were averaged).

The overall quality of the reef at Fualopa was much poorer than at Tefala. The reef slope was mostly covered with algae (algae accounted for about 60–80% of total area along the transects). The green alga, Microdictyon, was the dominant life form on the reef. Halimeda was also plentiful, and crustose red algae were also present. Scuzz also covered a significant area of the reef. Dominant corals were primarily small colonies of massive growth form, rather than the branching types that were found at Tefala. Live hard coral cover on the reef slope areas was only in the 15–25% range. The small conch, Strombus luhanus, was quite common, especially in sand-bottom areas. Only two small individuals of giant clam (Tridacna squamosa) were seen.

Fishes were generally small in size and not especially plentiful. Some larger food fishes, including a pair of blue trevally (Caranx melampygus), and a group of about 10 green jobfish (Aprion virescens, Lutjanidae), all in the size range of around 40–70 cm, were observed in relatively open water along the second transect line. Several medium-sized (30 cm) peacock groupers, Cephalopholis argus, were seen. Apart from these few fish of larger size, the remainder of fishes observed were typical smaller-size coral reef-dwelling species, including surgeons, wrasses, goatfishes, angels, fusiliers, juvenile groupers and emperors, damsels, chromids, and butterflyfishes, among others. Total fish biodiversity and biomass for this area was relatively low.

Conditions at Fualopa suggest that the area is under continuing fishing pressure. Local residents explain this as being a result of the fact that Fualopa is considered a traditional fishing ground, thus, it is more difficult to convince people to give up fishing there, despite the existing regulations. The site is also readily accessible and more easily navigable than some other areas within the FCA, due to the presence of a blasted and dredged channel near the islet. These factors, in combination with the fact that policing of the area, especially at night, is minimal, may have led to increased poaching and the current depleted condition of the fisheries resources here.

Site Visit, 21 March 2003, Fuafatu Islet, Funafuti Conservation Area (Accompanied by Semese Alefaio, Conservation Office)

A snorkel survey was conducted at a lagoon-side coral reef site at Fuafatu Islet within the Conservation Area. The survey was conducted during an extreme low
tide, in calm seas, with water visibility of about 16 m (50 feet). Depths in the area surveyed ranged between 1 m and 7 m. Overall, the site was perhaps the richest of those surveyed in terms of biodiversity, coral health, and the presence of large individuals of upper-tier predatory fish species. A transect line was not used for the survey; rather, two snorkelers recorded their field-of-view observations while moving slowly over various sections of the reef.

Overall reef structure was more complex than at any of the other sites visited, with steep walls and ledges on the coral outcrops descending to the sand-bottom lagoon floor. Total live coral coverage on coral outcrops was about 85% (60% branching acroporids, 15% table acroporids, and 10% massive corals). About 10% of the reef area was occupied by crustose algae, algal turfs, and scuzz, and the remainder of the reef (5%) was abiotic (dead coral and rubble).

Dominant target food fish species observed included the following:

i. two very large (100 cm) marbled groupers (Epinephelus polyphekaidon)
ii. a very large (85 cm) plus several medium-sized (50-60 cm) peacock groupers (Cephalopholis argus)
iii. numerous large (over 70 cm long) red snappers (Lutjanus bohar)
iv. a school of about 100 humpback snappers (Lutjanus gibbus)
v. two large napoleon wrasses (Cheilinus undulatus)
vii. a large bluespine unicornfish (Naso unicornis) and several orangespine unicornfishes (N. lutturatus)
viii. several large schools of rabbitfishes (mostly Siganus argenteus)
ix. several large (65 cm) humphead parrotfish (Bulbometopon muricatum)
x. a black-tipped reef shark (Carcharhinus melanopterus)

A variety of other smaller reef fish species (butterflyfishes, angelfishes, damsels, chromids, wrasses, cardinalfishes, among others) were also noted. In addition to the fishes, a small green sea turtle (Chelonia mydas) swam across the snorkelers’ path during the survey. Several very large (50 cm length x 12 cm diameter) holothurians and a number of giant clams (T. maxima and T. squamosa) were seen. It was reported by the Conservation Officer that several sea cucumbers had been transplanted to the site from deeper waters, so possibly the ones observed were these transplanted individuals. One of the T. maxima observed was an individual that had been transplanted 3 years prior, and had reportedly grown considerably since transplantation (present size about 30 cm maximum valve length).

The abundance of very large individuals of prime food fish species appears to indicate that very little or no fishing pressure is occurring at this site. This is further supported by the observation that a large-sized giant clam (another highly desirable food species) that had been transplanted to the site has been left undisturbed there for several years.

Site Visit, 21 March 2003, Tepuka Islet, Funafuti Lagoon (Accompanied by Semese Alefaio, Conservation Office)

A snorkeling survey was conducted at a lagoon-side coral reef site at Tepuka Islet, one of the areas outside the Funafuti Conservation Area that was selected as a “control” site for the previous monitoring surveys. The survey was conducted during an extreme low tide, in calm seas, with water visibility of about 14 m (40 feet). A transect line was not used for the survey; rather, two snorkelers recorded their field-of-view observations while moving slowly over various sections of the reef.

The site consisted mostly of dense patch reef of branching acropora growing to within a few centimeters of the water surface at low tide. Patches of coral were interspersed over the sandy lagoon floor. The survey area was shallow, ranging from about 1 m to 3 m maximum depth. Overall condition of the reef was excellent, though less diverse than at Tefala or Fuafatu—nearly 100% of the live coral at this site is branching acropora.

Fish fauna were fairly diverse and abundant. Among the principal target species noted were:

i. several medium-sized (30-40 cm) peacock groupers (Cephalopholis argus)
ii. a small group of medium-sized (30 cm) emperors (Lethrinus sp.)
iii. several blue-lined snappers (Lutjanus kasmira)
iv. a school of about 60 Forktail rabbitfishes (Siganus argenteus)
v. several large (65–75 cm) Humphead parrotfishes (Bulbometopon muricatum)

vi. a large (90 cm) Napoleon wrasse (Cheilinus undulatus)

Among the interesting reef fishes seen here (in addition to the more frequently observed inhabitants) were longnose butterflyfishes (Forcipiger flavissimus; during these surveys, observed only at this site), Titan triggerfish (Balistoides viridescens), Bicolor angels (Centropyge bicolor), Sailfin surgeonfish (Zebrasoma veliferum), Longnose filefish (Oxymonacanthus longirostris), and porcupinefish (Diodon hystrix).

Site Visit, 22 March 2003, South End, Fongafale Islet, Funafuti Lagoon

A snorkeling survey was conducted at a lagoon-side coral reef site at the south end of Fongafale Islet, the main inhabited islet of Funafuti Atoll. The area is outside the Funafuti Conservation Area, and while this was not one of the areas selected as a “control” site for the previous monitoring surveys, it was felt that a survey here would be useful in drawing comparisons regarding overall biomass and biodiversity as seen at sites within and outside the conservation area, and in close proximity to, vs. distant from, the main population center.

The survey was conducted at high tide by taking two passes over an unmarked transect approximately 50 m in length. The alignment of the transect ran approximately parallel to the shoreline in a north-south direction. Corals and other sessile biota, and fishes within the field of view, were noted. Water depth averaged from 3–4 m. Seas were calm and visibility was about 12–13 m (40 ft).

In structure, the reef is a nearly continuous fringing reef. The living coral reef community at the site (about 85% of total area) consists largely of branching acroporids (80% of reef area), with occasional interspersed table acroporids and massive corals (about 5% of area), some of which attain fairly large diameter (up to 1.5 m or more). Growing deep among the coral branches are fairly thick algal turfs comprising a number of different types, including green, red and brown algae (Halimeda spp., Asparagopsis taxiformis, and Dictyota sp., respectively). Corals are in fairly healthy condition, with little evidence of bleaching or abnormal algal overgrowth. Algae and abiotic patches account for the remaining 15% of the total reef area.

Among the target fish species observed at the site:

i. several large schools (up to 100 individuals) of forktail rabbitfishes (Siganus argenteus)

ii. very large schools (several hundred individuals) of convict tang or manini (Acanthurus triostegus)

iii. large aggregations of small to medium-size surgeonfishes and parrotfishes (various species, Acanthuridae and Scaridae)

iv. large schools of fusiliers (Caesio sp.)

v. several medium sized peacock groupers (Cephalopholis argus) up to 35 cm length

vi. a number of large size (to 45 cm) big-eye emperors (Monotaxis grandoculus)

vii. a group of 5 subadult napoleon wrasses (Cheilinus undulatus; up to 65–70 cm length)

viii. long-jawed squirrelfishes and soldierfishes (Sargocentron spiniferum, and Myripristis spp.) occurring individually or in small groups

ix. numerous rudderfishes (Kyphosus cinerascens)

x. two large (about 50 cm) bluefin trevallies (Caranx melampygus)

xi. an unidentified species of large (35 cm length) goatfish (Parupeneus sp.), with distinctive blue-violet coloration on the dorsal area

xii. a rainbow runner (Elagatis bipinnulatus) moving through open water above the reef

In addition to these food fishes, other reef-associated fishes noted here included needlefishes (Belonidae, occurring near the surface in groups of several dozen individuals), a large school of white-bellied damsels (Amblyglyphidodon leucogaster), Moorish idol (Zanclus cornutus), lemonpeel angels (Centropyge flavissimus) quite common at this site), regal angel (Pygoplites diacanthus), small wrasses (Labridae), flagfish (Heniochus sp.), chromids (Chromidae), Longnose filefishes (Oxymonacanthus longirostris), and various butterflyfishes (Chaetodontidae).

Certain human impacts are evident here, as opposed to the other sites surveyed on the far side of the lagoon: at the Fongafale site, there is quite a bit of litter and refuse (e.g., plastic, discarded pieces of metal and machine parts) both along the shore and, to a lesser extent, in the water and among the corals. Levels of nutrients and other pollutants may be higher here due to runoff from the nearby urban center (although no water quality tests were conducted to confirm this). In
addition, this site is regarded as a favored fishing spot, and access to the site from the town center is easier than at any of the other more distant sites surveyed. Despite these conditions, this site presents a very rich reef habitat. The abundance (biomass) of fish at this site is comparable to or possibly even higher than at the best sites within the conservation area. The diversity of fishes is also relatively high. However, for the more desirable target species, the average size of fishes at this site appears to be somewhat smaller than at the best sites within the conservation area. Diversity of corals and invertebrates is relatively low.

**Discussion**

The general condition of reefs and fisheries resources at most of the conservation sites surveyed ranged from very good to excellent. Particularly at Tefala and at Fuafatu, the abundance of fish (biomass), together with the large size of the individuals present, suggests that fishing pressure at these sites is very low. Corals were also quite complex and generally in good health at these sites. However, this contrasted sharply with conditions observed at Fualopa, where corals were heavily overgrown with algae (mostly the green alga, *Microdictyon*). Fish biomass and diversity of species was extremely low here. These observations suggest that the biota at Fualopa are under stress, but it is not clear what the cause of this is. It has been suggested that this site is favored by poachers, and is being heavily fished. If that is so, it would explain the low fish biomass and diversity.

Possibly, damage due to dragging of anchors has had an impact on the sessile reef organisms at the site. Other possible causes of the poor reef condition could be bleaching or disease.

Interestingly, the condition of reefs surveyed outside the conservation area is also very good to excellent. Fish fauna and coral reef condition at Tepuka were roughly comparable to that observed at the best FCA sites, Tefala and Fuafatu. Even at South Fongafale, despite its proximity to the main settlement, the variety and abundance of fish was very high (South Fongafale has perhaps the highest fish biomass of any of the sites surveyed), and corals on this long fringing reef are in very good condition. The only parameter that appeared to be different at non-FCA sites was fish size—at South Fongafale, on average, the sizes of individual fishes is smaller than the same species seen at Tefala or Fuafatu.

These observations appear to indicate that fisheries resources in most of the FCA are in good condition and breeding populations of several important food fish species are established. However, pressures are still adversely affecting fisheries resources and corals in some sites within the FCA, pointing to the possibility of continuing poaching activities. The high fish biomass and diversity observed at sites outside of the FCA points to two possibilities: (i) that the FCA may already be exporting fish biomass to other parts of the lagoon, and/or (ii) that fishing pressure throughout the lagoon may be lower than previously believed.
### Table A4.1 Summary of Transect Survey Data

<table>
<thead>
<tr>
<th>Locations/Transects (T) or Surveys (S)</th>
<th>Tefala</th>
<th>Fualopa</th>
<th>Fuafatu</th>
<th>Tepuka</th>
<th>S. Fongafale</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>CORALS-ALGAE-SPONGES</strong></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Branching Acropora</td>
<td>45%</td>
<td>6 colonies</td>
<td>3 colonies</td>
<td>55%</td>
<td>75%</td>
</tr>
<tr>
<td>Table Acropora</td>
<td>30%</td>
<td>—</td>
<td>—</td>
<td>20%</td>
<td>10%</td>
</tr>
<tr>
<td>Other Corals</td>
<td>20%</td>
<td>7 colonies</td>
<td>3 colonies</td>
<td>15%</td>
<td>10%</td>
</tr>
<tr>
<td>Porites</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Other massive</td>
<td>20%</td>
<td>7 colonies</td>
<td>3 colonies</td>
<td>15%</td>
<td>10%</td>
</tr>
<tr>
<td>Foliose coral</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td><strong>Other sessile biota</strong></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Sponge</td>
<td>6</td>
<td>13</td>
<td>20%</td>
<td>10%</td>
<td>3%</td>
</tr>
<tr>
<td>Halimeda</td>
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<td>15%</td>
<td>2%</td>
<td></td>
<td></td>
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<tr>
<td>Microdictyon</td>
<td>35%</td>
<td>35%</td>
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<tr>
<td>Caulerpa</td>
<td>3</td>
<td>2 clumps</td>
<td>8%</td>
<td>8%</td>
<td></td>
</tr>
<tr>
<td>Crustose red algae</td>
<td>5%</td>
<td>15%</td>
<td>10%</td>
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<td></td>
</tr>
<tr>
<td>Scuzz</td>
<td></td>
<td></td>
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</tr>
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<td><strong>OTHER INVERTEBRATES</strong></td>
<td></td>
<td></td>
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<td></td>
</tr>
<tr>
<td>Giant clam</td>
<td>2</td>
<td>—</td>
<td>—</td>
<td>1 lg. transplanted</td>
<td></td>
</tr>
<tr>
<td>Strombus</td>
<td>3</td>
<td>18</td>
<td>few in sand</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Urchins/Cucumbers</td>
<td>1</td>
<td>—</td>
<td>—</td>
<td>3-4 large</td>
<td>—</td>
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<tr>
<td><strong>FISHES</strong></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Jacks</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td>2 large</td>
</tr>
<tr>
<td>Groupers</td>
<td>argus, various sizes lg. marbled</td>
<td>2 small 3 small</td>
<td>1 medium marbled</td>
<td>2 x-large argus 1 large argus 85cm few medium</td>
<td>sev. medium</td>
</tr>
<tr>
<td>Emperors</td>
<td>school of big-eye, group of longnose</td>
<td>3</td>
<td>1</td>
<td>group of medium-sized emperors</td>
<td>group of lg. big-eye</td>
</tr>
<tr>
<td>Snappers/Jobfish</td>
<td>school of gibbus sev. lg. bohar</td>
<td>—</td>
<td>7 lg jobfish</td>
<td>numerous lg. bohar; lg. school gibbus</td>
<td>blue-lined</td>
</tr>
<tr>
<td>Rabbitfish</td>
<td>vermiculated</td>
<td>—</td>
<td>—</td>
<td>lg. schools argenteus</td>
<td>school of argenteus</td>
</tr>
<tr>
<td>Parrotfishes</td>
<td>1 humphead</td>
<td>27</td>
<td>8</td>
<td>lg. humpheads</td>
<td>lg. humpheads</td>
</tr>
<tr>
<td>Wrasses</td>
<td>1 napoleon&gt;1 m</td>
<td>4</td>
<td>20</td>
<td>2 lg. napoleon 90 cm</td>
<td>1 napoleon</td>
</tr>
<tr>
<td>Sharks</td>
<td>1 black tip</td>
<td>—</td>
<td>—</td>
<td>black tip</td>
<td></td>
</tr>
<tr>
<td>Angels</td>
<td>present</td>
<td>7</td>
<td>3</td>
<td>bicolor</td>
<td></td>
</tr>
<tr>
<td>Butterflyfishes</td>
<td>present</td>
<td>—</td>
<td>3</td>
<td>approx. 8-10 Chaetodon spp., Forcipiger</td>
<td></td>
</tr>
<tr>
<td>Surgeons</td>
<td>present</td>
<td>15</td>
<td>10</td>
<td>lg. unicornfish</td>
<td>abundant</td>
</tr>
<tr>
<td>Fusiliers</td>
<td>present</td>
<td>—</td>
<td>40</td>
<td>x-large school</td>
<td>lg. schools</td>
</tr>
<tr>
<td>Goatfishes</td>
<td>present</td>
<td>25</td>
<td>5</td>
<td>numerous, large sp</td>
<td>very large species</td>
</tr>
<tr>
<td>Other reef fish/vertebrates</td>
<td>60</td>
<td>80</td>
<td>1 sea turtle</td>
<td>rainbow runners</td>
<td></td>
</tr>
</tbody>
</table>

*Numbers indicate actual estimated counts of individuals or colonies; percentages indicate estimated percent cover for total transect (T) or survey (S) area.*
CHAPTER 3

Strategic Environmental Assessment of Fiji Islands National Tourism Plan

Roger Levett
Richard McNally
Manoa Malani
Executive Summary

Background

The Asian Development Bank (ADB), in cooperation with the Government of New Zealand, is formulating the Pacific Region Environmental Strategy for 2005–2009. This will review major environmental challenges in the region and put forward strategic objectives and activities for ADB assistance.

To help in achieving this, case studies are being conducted to develop and test—in cooperation with partners in the Pacific—various kinds of tools and approaches and methodologies for policy integration. These case studies are intended to guide ADB on appropriate strategies for mainstreaming environmental dimensions into its economic and social development interventions.

The World Wide Fund for Nature–South Pacific Programme (WWF-SPP) and ADB formed a partnership agreement to carry out a “Strategic Environmental Assessment of the Fiji Islands’ Tourism Development Plan.” This case study was chosen because tourism is the fastest-growing industry in the Fiji Islands and is having potentially significant impacts on its natural and social environment. In addition, the project coincides with a mid-term review of the Fiji Islands’ Tourism Development Plan (TDP) planned for 2003.

The Case Study

The basic objectives of the study were to

- inform the 2003 midterm review of the TDP by assessing the environmental and sustainable development impacts of the current Plan in order to help the Ministry of Tourism and its partners make future plans as sustainable as possible; and
- test the usefulness of strategic environmental assessment (SEA) as a tool for improving the sustainability of strategies and plans in the Asia and Pacific region, with a view to using it more widely.

WWF-SPP formed a project team, which carried out the assessment in March and April 2003. A consultation strategy was devised to ensure full stakeholder participation. As a first step a Memorandum of Understanding (MOU) was drawn up between WWF-SPP and the Ministry of Tourism. The two parties agreed that the SEA would provide the environmental and social elements of the midterm review. An Advisory Group, made up of key players within the tourism sector in the Fiji Islands, was formed to help guide the process.

Fiji Islands’ Tourism Development Plan

The TDP calls for “step change” growth in tourism. The strategy argues that the Fiji Islands must move away from “bumbling along” much as before, with a modest increase in the accommodation stock, to a large-scale increase in its tourist industry. This growth is viewed as critical to compensate for foreign-exchange losses in the ailing sugar industry. The plan suggests a number of policies to assist the Fiji Islands in achieving this change.

The Strategic Environmental Assessment Process

An SEA was carried out to understand the likely environmental and social impacts of the plan. This was achieved by comparing the current environmental, social, and economic baseline and likely trends under the TDP against sustainability objectives. This allows an assessment to be made of whether or not the TDP is sustainable.

The Main Findings from the SEA

- At the aggregate level, the environmental impacts of tourism have not been all that significant. However, there are particular areas where it is causing serious environmental degradation. Here the situation is extremely precarious. Many environmental pressures, for example on coral reefs, are close to levels at which irreversible damage could occur. Further pressures could tip the balance, resulting in long-term environment damage.
- Tourism is currently providing considerable economic benefits to the Fiji Islands. However, these economic benefits are far smaller than the gross tourist spending figures suggest: some estimates indicate that over 60% of the money coming in leaks back out of the country.
Moreover, the loss of earnings from other sectors, especially the sugar industry, leaves the Fiji Islands’ economy highly dependent on the tourism sector.

- The kinds of step-change large-scale, high-investment tourism advocated in the TDP would tip the balance. This type of development is highly demanding of the natural environment in terms of resources used and pollution generated. In fact, seeking step change in tourism development is likely to cause problems affecting a number of sustainability objectives; in particular it is likely to lead to growing tensions between tourist developers, landowners, and local communities.
- While a lot of tourism developments are following good practice, the Fiji Islands lacks the frameworks to enforce it. Much of the policy, legislation, and regulation needed to ensure such enforcement already exists, on paper. However, much necessary legislation has not been enacted, or if enacted, has not been implemented or applied.

**Conclusions and Recommendations**

In the Fiji Islands, a cautionary approach to future tourism development is required: that is, weight should be given to safeguarding the benefits and advantages the country currently has, given the resources and constraints it possesses, and any actions that could cause serious environmental harm or create further social tension should be avoided.

**The Recommended Direction for Tourism in the Fiji Islands**

- Set growth objectives and targets for tourism in terms of benefits to the Fiji Islands rather than as gross volume of traded activity, and treat (and evaluate) expansion in tourism activity as a means to increase the benefits for the Fiji Islands, rather than as an end in itself.
- Concentrate support on those kinds of tourism that put more into local economies and have lower leakage, such as ecotourism, community-based tourism, and non-“packaged” travelers.
- Establish effective “bottom-up” planning of tourism at the province and tikina level, and permit only tourism developments that are approved through such a process. A prerequisite for this is to build the capacity of local communities to understand the options available to them and make informed decisions.
- Design and successfully implement programs to substantially reduce economic leakage from resort-based tourism. A prerequisite for this would be a rigorous study establishing the real economic leakage from different kinds of tourism activities in the Fiji Islands.

**Recommended Steps**

- The Government of the Fiji Islands must implement and enforce the environmental policy, assessment and management framework that already largely exists on paper. In particular, the Sustainable Development Bill should be enacted as soon as possible and fully implemented, including the necessary budgets and resource allocations. This will provide much of the machinery required.
- Many of the detailed policies and proposals in the TDP should also be fully implemented.
- All tourism development should be required to meet minimum impact standards unless a properly specified environmental impact assessment identifies any “headroom” for impacts.
- An environmental fund should be established from user fees charged to visitors.

These directions may appear inconsistent with the TDP’s policy of “step change.” In fact, many of the detailed policies in the TDP would further the kinds of activities that would help promote sustainable tourism. However, much of this has not been enacted, or if enacted, has not been implemented or applied.

By following the above guidelines the Fiji Islands will be able to develop tourism at a pace and scale that is more in line with the resources and constraints that exist within the country and that will bring long-lasting benefits to the country.
**Lessons Learned**

The SEA process provided a robust and logical structure to assess the environmental and social impacts of the TDP. The project raised important points about emphasis and use, which should be reflected in future SEA applications in the South Pacific, as well as any guidance produced:

- The assessment benefited considerably from the existence of a number of related studies carried out in the region, and a large number of local experts who were able to advise and guide the project. However, where information was lacking, the assessors were able to make judgments based on the best available information. Important issues should not be discounted because of data unavailability.
- The assessment shows the importance of looking at social and economic issues together with environmental issues. This proved vital for gaining a good understanding of the situation and formulating practicable and achievable recommendations.
- SEA guidance assumes that once a strategy or policy is duly adopted, or laws or regulations enacted, that they will be enforced. In the Fiji Islands, however, much of the policy is not implemented. Therefore, the assessment of current policies must ask both what is “officially” stated and what is really happening on the ground. Assessments must avoid making recommendations for which implementation capacity does not exist.
- A critical component of the SEA process is the consultation strategy. In the assessment, a highly able and effective group of people representing a range of stakeholder interests took an active part in the advisory group meetings. Without their participation and full support, any recommendations from the report would be unlikely to be taken forward. Sufficient time must be set aside to communicate and work with key stakeholders. If there are sceptical stakeholders, a concerted effort should be made to work with them and find common ground.
- In terms of SEA management, having a locally based project champion once the consultants depart is a critical element. Members of the advisory group must be expected to champion the work and help push through the recommendations.
- It is important that the role of the consultant be constructive, build local knowledge and expertise, and give local organizations and people ownership and capacity. The short time scale of the project meant that more of a top-down approach was adopted—the consultants producing and then trying to “sell” a package of recommendations—than was desired. It also meant that the project hardly achieved any transfer of skills or capacity to local people. Such capacity building needs to be built into the project before its inception.
- Working through an NGO proved effective, as it can act as an arbiter between groups that have divergent viewpoints.
- How ADB (and other potential aid agencies) respond to the recommendations of the report will make a big difference to its effectiveness.
- ADB should consider commissioning guidance on applying SEA in the specific circumstances of the Pacific. The experience of the Fiji Islands tourism pilot provides a valuable starting point, but any guidance derived should be tested on a range of plans and countries to determine its breadth of applicability.
- Provided the lessons are taken on board, ADB should promote SEA as a valuable tool for sustainable policy development in the Asia and Pacific region.
Rationale of the Case Study

The Asian Development Bank (ADB), in cooperation with the Government of New Zealand, is currently carrying out a regional technical assistance (RETA) to formulate a Pacific Region Environmental Strategy (PRES). The aim of the RETA is to produce a strong, well-articulated regional environmental strategy that will review major environmental challenges in the region and clearly formulate strategic objectives and activities for ADB’s assistance for 2005–2009.

The focus is on developing a clearly defined operational strategy detailing specific modalities for ADB intervention, both through country or regional environmental assessments and lending programs, and through the inclusion/mainstreaming of environmental priorities into overall economic and development planning. This strategic framework with its various components will constitute an important thematic assessment and key input to the new ADB Pacific Regional Strategy (2005–2009) being prepared in 2004.

To achieve its objectives, the PRES RETA provides for the conduct of several case studies to develop and test—in cooperation with partners in the Pacific development and environmental management community—various kinds of tools, approaches, and methodologies for policy integration. These case studies are intended to guide ADB on appropriate strategies for mainstreaming environmental considerations into its economic and social development interventions.

The World Wide Fund for Nature—South Pacific Program (WWF-SPP) is a regional nongovernment organization (NGO) working in Pacific island countries with a mandate to develop and direct a strategic program of conservation activities in the Pacific Islands region on behalf of the WWF network. WWF-SPP’s activities currently encompass six program areas: forest conservation, marine conservation, freshwater management, climate change, species conservation, and capacity building. WWF and ADB executed a Memorandum of Understanding (MoU) in September 2001 encouraging an active partnership between them.

WWF, identified as a strong partner in the region with experience and capacity to work on policy issues, was approached to supervise a case study. WWF and ADB agreed on carrying out a Strategic Environmental Assessment (SEA) of the Fiji Islands’ Tourism Development Plan (TDP). This case study was chosen for two reasons: 1) tourism is the fastest-growing and one of the largest sectors within Fiji, impacting on all facets of the country’s natural and social environment; and 2) a mid-term review of the Fiji Islands’ TDP was coming up. With the backing of the Ministry of Tourism, it was agreed that the assessment would form the environmental and social component of the mid-term review.

The Case Study

Objective and Scope

The basic objectives of the study were to

- Inform the mid-term review of the TDP in 2003 by assessing the environmental and sustainable development impacts of the current Plan in order to help the Ministry of Tourism and its partners make future plans as sustainable as possible; and
- Test the usefulness of SEA as a tool for improving the sustainability of strategies and plans in the Asia and Pacific region, with a view to using it more widely.

The Project Team

As the project coordinating agency, WWF SPP had overall logistic responsibility for project implementation, organizing meetings and workshops, housing the project, and reporting to ADB.

WWF-SPP formed a project team consisting of a team leader and SEA expert, a socio-economist, and a tourism specialist. The project team was responsible for carrying out and writing up the assessment. It was supported by a student from the University of the South Pacific (USP) as well as a number of technical experts from the region.

The project team was responsible for performing a number of tasks, including compiling the relevant data,
conducting public meetings and consultations, and writing the SEA reports. Based on their findings, the team put forward a number of recommendations to the Government and the industry on tourism development within the Fiji Islands.

The assessment was carried out in March and April 2003. It drew heavily on earlier research and reports. The authors have aimed to identify and acknowledge all these in the references, and apologize in advance if any have inadvertently been missed.

Consultation and Partnerships

SEA is a consultative and iterative process. Dialogue and exchange among a range of stakeholders are viewed as critical elements to the success of any SEA. A World Bank study examining the experience of applications of SEA to date states, “The quality of consultation processes have [sic] often been decisive in determining the usefulness of SEAs in influencing outcomes” (World Bank 2002). A consultation strategy was devised early on to ensure that stakeholders could partake in the assessment in a meaningful way.

As a first step toward building partnerships, WWF approached the Ministry of Tourism to collaborate on the project. An MoU was subsequently drawn up between the WWF-SPP and the Ministry (Appendix 1) in which the two parties “agree that the SEA will provide the environmental and social elements of the mid-term review and [that] the results of the assessment are integrated into the Tourism Plan as well as into other national and sector development policy, plans and programs.” The tourism specialist’s time was made available to the project by the Ministry of Tourism under this MoU.

A critical part of the consultation strategy was the formation of an Advisory Group, which has had overall responsibility for reviewing the major activities of the project team and giving due guidance, and providing a transparent and participatory process for analyzing sustainability issues within the tourism sector. It includes representatives from WWF-SPP, the tourism industry; the Ministry of Tourism and Transport; the Ministry of Local Government; Housing and Environment; USP; and the Fiji Visitors Bureau (FVB).³

The group met three times during the assessment. At the first meeting the proposed project was discussed; at the second its provisional conclusions were reviewed. The group has agreed to meet once more to review the final report and to help take forward the recommendations coming out of the study.

Application of the Findings

The MoU between WWF and the Ministry of Tourism confirms the Ministry’s intention to take account of the SEA’s results in taking forward the TDP. It is hoped that it will also be of early, direct, practical use to

- ADB, in guiding future projects and setting conditions on financial support for tourism related developments;
- other international donors and partners with potential interests in tourism, who may find it helpful in guiding projects in the Fiji Islands—and elsewhere in the region—toward sustainability;
- WWF and other environmental NGOs in developed countries for use in encouraging prospective tourists to make more sustainable decisions and informing policies on outbound tourism.

Above all it is hoped that it will be helpful to all the organizations involved in tourism in the Fiji Islands (including but not limited to those represented on the advisory group) in developing their own businesses and activities sustainably.

³ Members of the Advisory Group: Tevita Kuruvakadua, Office of the Auditor General; Tevita Dawai, National Planning Office; Peter Erbsleben, Tourism Consultant; Ratu Osea Gavidi, President of the Fiji Resource Owners Association; Napolioni Masirewa, Permanent Secretary, Ministry of Tourism; Bill Gavoka, FVB; Tracy Berno, Coordinator for Tourism Studies, University of the South Pacific; Kesaia Tabunakawai, WWF Fiji Office; and Olivia Pareti, Fiji Hotel Association. All members are located in Suva.
The Methodology

Strategic Environmental Assessment

SEA is a tool for integrating environmental considerations into decision making by ensuring that significant environmental effects of a plan, policy or program are taken into account (Levett-Therivel 2002). The term has been in common use for over a decade, but without any universally agreed definition or standard.

In 2001, the European Union adopted Directive 2001/42/EC “on the assessment of the effects of certain plans and programmes on the environment” (Commission of the European Communities 2001) setting out an approach to SEA and requiring Member States to apply it to all plans and programs started after July 2004. Its purpose is “to provide for a high level of protection of the environment and contribute to the integration of environmental considerations into the preparation and adoption of plans... with a view to promoting sustainable development” (Article 1 of the Directive).

Of course, this Directive has no legal force in the Fiji Islands. It has been taken as the basis for the project because

- it provides an explicit codification of what SEA is and how it should be carried out;
- it is written in a very general way that should be suitable for plans and strategies for a wide range of topics anywhere in the world;
- as the first standard adopted and given statutory force by a large and influential group of nations, it is likely to become a de facto world standard or benchmark (it has already been applied or adopted in many countries outside the European Union, and some non-European Union members are using it as the basis for their own SEA standards); and
- it will be the tool familiar to and expected by European investors and aid partners.

Critical Elements of an SEA

Some aspects of the appraisal likely to be of particular importance in designing a more sustainable tourism strategy for the Fiji Islands are summarized in this section.

Cumulative, Indirect, and Synergistic Effects

These have often received insufficient attention in environmental impact assessments (EIAs) of single projects or decisions in isolation. Examples of each of these could be

- cumulative effects: e.g., the total effect of a whole series of tourism developments on, say, freshwater resources in a catchment area;
- indirect effects: e.g., if taking prime land for tourism development pushes farmers onto erosion-prone slopes, or if the presence of more foreigners erodes young peoples’ appreciation/ respect for traditional ways of life;
- synergistic effects: e.g., if a combination of individually small and apparently separate effects—for example, increases in nutrient loading from sewerage, seepage from landfill, more boat movements, more contact from divers, and warming of the sea due to climate change—might in combination cause enough stress to corals to kill reefs.

Outcomes

It is important to distinguish between outcomes or results that a plan may seek to achieve and the means or inputs that may be applied to achieve them. Assessment can perform a valuable role in helping check whether policies that may appear “obvious” or conventional wisdom may actually be the best way to achieve desired ends. For example:

- If a plan included actions such as protected area designations and management programs for the sake of nature conservation, assessment could consider whether these were effective in maintaining and enhancing the health and extent of fragile habitats or species populations.
- An objective implicit in all tourism policy is to bring benefits to the Fiji Islands and Fijians. Assessment should test how well policies are actually doing so, and not simply assume that “input” measures such as visitor arrivals or tourist spending are valid proxies for benefits.
Integrating Environmental, Social, and Economic Aims

Sustainable development entails integrating or reconciling environmental, social, and economic objectives, rather than balancing or trading them off. Sustainable tourism should be seen not as deciding how much environmental damage is worth accepting in return for economic benefits, but finding forms of tourism that bring quality of life benefits for the Fiji Islands without undermining the environment. This SEA has elected to include the full range of sustainability objectives.

Options/Alternatives

The SEA Directive requires that assessment compare the environmental effects of the plan with those of “reasonable alternatives” to the plan. Generating and giving fair and serious consideration to an adequate range of options and alternatives is therefore seen as an essential part of good plan making. The directive also requires that the reasons for the choice of alternatives used must be stated. This is to ensure that a sufficiently wide range of realistic options has been considered, and to guard against any risk that only weak or bad “straw man” options are put up to avoid genuine consideration of whether the plan’s chosen approach is the best one possible for sustainability.

Consultation

The Directive emphasizes that relevant stakeholders should have opportunities to comment on the assessment. During preparation of the report, engagement was maximized through the Advisory Group.

The SEA Process

Table 1 summarizes the SEA process.

The assessment process was adapted slightly, primarily due to time constraints. The first step was to identify and examine the different policies, plans, and programs and how they relate to the plan under review. The Fiji Islands’ TDP, the focus of this assessment, is discussed at length in “Major Findings and Analysis.”

The next step was to draft SEA objectives, indicators, and targets. The sustainability objectives were devised by the project team and discussed, amended, and agreed on at the first Advisory Group meeting. The assessment objectives were based on the overall aim of achieving sustainable development measured in terms of improving the quality of life within environmental carrying capacities. With the objectives decided upon, the targets and indicators could be devised. The likely effects of the TDP could be compared against these to see whether they are sustainable. This process is set out in “Objectives”.

To assess the likely impacts of the TDP, baseline data, including data on likely trends, had to be collected. The environmental, social, and economic baseline data are summarized in “Environmental, Social and Economic Baseline”. The data were collected from secondary sources, either past studies or personal communications. With this information it was possible to assess the environmental, social, and economic effects of the TDP and compare them against the sustainability objectives. The findings are in “Assessing the Impact of the TDP”.

This comparison allowed the critical issues and constraints to be identified. “Sustainable Options for Dealing with Key Issues” discusses these key issues and looks at some possible sustainable options for dealing with them. Conclusions and recommendations are presented in the chapter of that name; and finally the lessons learned from the study are put forward in the last chapter.

The European Union Directive presents SEA as an orderly, linear, stepwise process. However, on this occasion, different streams of work were carried out in parallel because of time constraints.

Major Finding and Analysis

Relevant Plans and Programs

The first step of the SEA process is to identify the main points of the plan under assessment. Related plans and strategies, which may have a bearing on the one under review and its achievement of sustainable development, must also be examined. For convenience, plans and programs have been grouped as follows:

- the TDP,
- social and economic development policies and strategies,
<table>
<thead>
<tr>
<th>SEA/SA Stage</th>
<th>What to decide</th>
<th>What to record</th>
</tr>
</thead>
<tbody>
<tr>
<td>A. Identify relevant plans and programs and their relation to the plan.</td>
<td>What other plans and programs influence the plan in question</td>
<td>List of relevant plans and programs and their requirements</td>
</tr>
<tr>
<td>B. Devise draft SEA objectives, indicators, and targets; collect baseline data, including data on likely future trends; issues and constraints.</td>
<td>What are the sustainability objectives, targets and/or indicators to test the plan options and policies against; what sustainability issues and constraints to consider during plan-making</td>
<td>List of SEA objectives, and indicators and targets where relevant; data on baseline environment; list of relevant sustainability issues and constraints</td>
</tr>
<tr>
<td>C. Identify (more sustainable) options for dealing with the plan issues.</td>
<td>What options to consider for each issue identified</td>
<td>List of options for each plan issue</td>
</tr>
<tr>
<td>D. Prepare Scoping Report; consult.</td>
<td>What to include in the Scoping Report</td>
<td>Results of Stages A–C; agreed written statement of how to proceed with Stages E–H</td>
</tr>
<tr>
<td>E. Assess the plan options’ effect on the SEA objectives, and their consistency with other relevant plans and programs; choose preferred options; propose mitigation measures.</td>
<td>What are the preferred (mitigated) options from Stage C, using the objectives, indicators, and targets developed in Stage B</td>
<td>List of preferred (mitigated) options; explanation of why these are preferred; effects of these options; mitigation measures proposed</td>
</tr>
<tr>
<td>F. Screen the plan policies and proposals; assess their effect on the SEA objectives; propose mitigation measures, including links to EIA.</td>
<td>What policies and proposals to assess; what the effects of those policies and proposals are on sustainability; how effects can be minimized/enhanced</td>
<td>Summary of effects of plan policies and proposals; mitigation measures proposed, including links to EIA and lower-level plans and programs</td>
</tr>
<tr>
<td>G. Propose SEA monitoring.</td>
<td>How to measure actual effects of plan on sustainability</td>
<td>Proposed monitoring measures</td>
</tr>
<tr>
<td>H. Prepare the Environmental Report to accompany the draft plan; consult.</td>
<td>How to present the data from stages A–G; how to consult the environmental and other authorities and the public</td>
<td>Environmental Report, amended if necessary in response to consultation</td>
</tr>
<tr>
<td>I. Take consultation results into account.</td>
<td>How to respond to consultation results</td>
<td>How consultation results were addressed</td>
</tr>
</tbody>
</table>

EIA = environmental impact assessment; SA = Sustainability assessment; SEA = strategic environmental assessment.

Source: Adapted from Levett-Therivel 2002.

- investment support programs relevant to tourism, and
- environmental policies and strategies.

In this section the Tourism Development Plan is outlined. A discussion of related plans and programs can be found in Appendix 2.
The Tourism Development Plan

The key document and subject of this appraisal is the Fiji Islands Tourism Development Plan (TDP). The strategy’s dominant argument:

- Tourism is already the Fiji Islands’ biggest foreign exchange earner. It is one sector where the country’s remote, small island character—an impediment to most export industries—is instead a competitive advantage.
- Sugar production, formerly the largest export industry, is facing sharp decline for a combination of reasons. Tourism is the only industry that has any hope of making up for the foreign exchange losses from this decline.
- The tourist industry is currently vulnerable for various reasons:
  ◆ development has occurred mainly in locations dictated by freehold land availability rather than market logic;
  ◆ an older accommodation stock is becoming “tired” and falling behind competitor standards through lack of investment;
  ◆ the range of “things to do” is restricted;
  ◆ the Fiji Islands lacks a unique selling point or “must-see” icon to differentiate it from other “tropical paradise” island destinations; and
  ◆ the tourism industry overrelies on a generic “sun, sea, sand” offer on which other countries can compete.
- The present level of air traffic supports only a small number of carriers and a small scale marketing effort, thus the tourism industry is vulnerable to changes by any one of them. (Ministry of Tourism 1998).

The strategy poses a choice between “bumbling along... much as before, with some new development leading to a modest increase in accommodation stock [while] the remaining product becomes steadily more tired and less competitive internationally... and a modest growth in ecotourism, community and adventure-based holidays” and a “step change” that would achieve a total of 500,000–600,000 visitors by 2005, up to 2,500 new rooms, up to 22,000 new jobs, and an additional F$325 million in foreign exchange (implying a total of F$775 million), for the Fiji Islands (Ministry of Tourism 1998).

- The strategy argues strongly that the “step change” is needed to achieve the critical mass to
  ◆ pay for the level of renewal, upgrading, and reconfiguring of provision needed to remain internationally competitive;
  ◆ provide the extra foreign exchange necessary to offset sugar industry contraction; and
  ◆ anchor the existing air services more securely, and if possible support a wider range, thus reducing vulnerability to problems with any one of them.

To achieve this step change, the strategy calls for

- a dramatic improvement in the investment climate and in investment procedures, making it easier for both Fijians and foreigners to invest in the industry;
- a substantially increased marketing budget for the Fiji Visitors Bureau (FVB) to give an impetus to increased visitor numbers and expenditure;
- a push for the development of quality hotels and resorts, with quality ranging from three to five stars;
- a fiscal and taxation regime that also encourages the refurbishment of existing hotels and the improvement of other elements of the tourism product;
- the continued development of small, environmentally sensitive “boutique” resorts, which enhance the image of the country;
- new visitor attractions and the improvement of existing ones;
- continued expansion of Air Pacific, with other airlines also playing a vital role;
- much closer collaboration within Government, especially between the Ministry of Tourism and Transport, the Ministry of National Planning, the Native Lands Trust Board (NLTB), the Ministry of Fijian Affairs, the Department of Town and Country Planning, and the Fiji Trade and Investment Board.

Main Policies of the TDP

To implement this strategy, the following main policies are advocated. The numbers are the section numbers in the strategy where each main policy starts, these are used to refer to these policies later in this appraisal:
\[\text{(7.1)}\] An overall planning policy differentiating three classes of areas:

- **“type A” areas**—in fact only one area: the south and west coast of Viti Levu (from Lautoka to Suva) and part of the Mamanucas—where "physical planning policy should provide for the improvement and expansion of the existing main tourism areas including the provision of appropriate infrastructure, and encourage the range of activities and attractions in the terrestrial hinterland";

- **“type B” areas**—the north coast of Viti Levu (from Ba to Korovou) with Ovalau, and the south of Vanua Levu with Taveuni, for selective development “conserving the character and environment”;

- **“type C”**—everywhere else, including all the more remote islands, most of Vanua Levu and inland Viti Levu—where “only small developments of quality” should be allowed, and “development control procedures should be applied to ensure that tourism developments are in a suitable location”;

\[\text{(7.2)}\] Designation of demarcated “tourism development areas (TDAs)” where landownership and lease problems are resolved in advance, and infrastructure provision, design quality standards, land use arrangements, and tax breaks are all coordinated to provide the confidence for investment in major resort centres. Nadi Bay is proposed as the first pilot, with other candidates at Natadola (although other parts of the strategy express doubts as to whether large-scale resort development is appropriate there), Korolevu, Korotogo, and part of the Mamanucas. These candidates are all within the “type A” area earmarked for expansion by policy 7.1;

\[\text{(7.7)}\] Detailed development guidelines covering:

- architectural, design, and landscaping standards, with emphasis on maintaining a distinctive Fijian tradition, quality, and use of local craft skills;

- **(8.2)** Coastal zone protection and integrated management;

- **(8.5)** Encouragement of “ecotourism” (understood as community-based tourism);

- **(8.6)** A system of designated protected areas, including potential National Parks, Marine Parks, Marine Protected Areas, Terrestrial Parks, and World Heritage Sites;

- **(8.7)** More development of cultural heritage tourism;

- **(8.8)** Legislation and funding (especially collection of user fees, costs for pollution, and external assistance) to put better environmental management of tourism in place;

- **(9.1)** Changes in institutional arrangements and responsibilities, especially at the Ministry of Tourism and FVB, to provide a more coordinated and proactive public sector engagement with the tourism industry and issues;

- **(9.8)** More classification, licensing, and user charges;

- **(10)** Concerted action on human resource development at all levels, from basic skills training to academic teaching and research on tourism;

- **(11)** Promoting small and medium enterprises;

- **(12)** Simplifying investment and permitting procedures, and switching from a reactive, bureaucratic approach to one that encourages, supports, and facilitates investment;

- **(13)** An integrated support framework bringing together public and private funding, including five specific technical assistance projects:

  - To set up TDAs;
  - Human resource development and institutional strengthening at the Ministry of Tourism and Transport;
  - Helping the Government create a more attractive investment package;
  - A “Bula host” customer care program to change attitudes and enhance customer service skills; and
  - Marine awareness workshops to raise understanding and commitment to marine conservation by both traditional owners and tourism operators.
The strategy concludes with proposals for implementation and monitoring, including an “outline implementation timetable.” The brochure A vibrant and sustainable tourism industry: Ministry of Tourism Corporate Plan 2003–2005 (Ministry of Tourism 2003) endorses the TDP and sets out programs and activities relevant to delivering it.

Implementation

At the time of writing (April 2003), very little of the TDP appeared to have been implemented. In particular:

- Some discussion has taken place with local communities about the acceptability in principle of establishing a pilot TDA at Nadi. However, no solution has emerged to the problems of funding the infrastructure improvements local communities would seek, and the Government does not have a clear sense of direction or sequence of steps that would need to be carried out to move toward implementation. It has not proved possible to fund the technical assistance project proposed to help with this.
- No significant changes have been made to encourage or expedite investment in new or refurbished infrastructure or facilities. Some new infrastructure has been built, but piecemeal and incrementally, in response to either pressure from current operators (e.g., Korotogo bypass) or to encourage new ones (e.g., Natadola access road, built as a contribution to new resort development which, however, has not proceeded).
- FVB has not received the proposed budget increase.
- Institutional arrangements and responsibilities remain overcomplicated, tangled, and unclear.
- Only one of the five technical assistance projects, number 4 (the “Bula host” program) has been implemented.

It appears neither the political will nor the administrative capacity to implement the strategy is there. What has actually happened since 1998 has been much closer to the “bumbling along” option warned against in the strategy than to the “step change” it advocated.

In any appraisal of the strategy, it would therefore be misleading to assume either that its provisions have been implemented, or that alternative or additional policies or actions of the same sort or level of ambition, difficulty, or complexity had been implemented.

Objectives

Objectives, Indicators, and Targets

The next step of the assessment is to draft sustainability objectives, indicators, and targets. These are used to assess whether or not the TDP is sustainable. The first column of Table 3.2 shows the objectives provisionally agreed on by the Advisory Group, with a few “tidying” changes.

The second and third columns suggest possible topics for indicators and targets to monitor and test progress towards these objectives. It must be emphasized that these are topics on which indicators would be desirable, not specifications of actual indicators.

The second column suggests outcome indicators of the kind advocated for SEA. The third column suggests indicators of inputs, outputs, and/or processes that might help achieve these outcomes. They are often easier to measure than the outcome indicators, and can help guide action. But they must not be treated as ends in themselves, only as potential means to achieve the outcomes.

Outcomes are generally the cumulative result of lots of different activities and influences, so the outcome indicators often do not refer specifically to tourism. In contrast, inputs, outputs, and/or processes are usually specific to particular sectors or activities. This table concentrates on inputs, outputs, and processes related to tourism, and does not attempt to cover the full range of indicators for all sectors that might be relevant to the outcomes. The indicators are described in ways that make clear the desirable direction of change.
Table 3.2: Sustainability Appraisal Objectives and Possible Topics for Indicators

<table>
<thead>
<tr>
<th>Objective</th>
<th>Outcome Indicator Topic</th>
<th>Tourism-Related Input/Output/Process Indicator Topic</th>
</tr>
</thead>
<tbody>
<tr>
<td>1. Maintain and enhance the Fiji Islands’ environmental quality</td>
<td></td>
<td></td>
</tr>
<tr>
<td>1.1 Protect, enhance, and restore special ecosystems, especially mangroves, coral reefs, and forests.</td>
<td>Area and quality of ecosystems (e.g., absence of coral bleaching; diverse age structure of forest trees); large areas intact; avoidance of fragmentation</td>
<td>Tourism development complying with management regimes — e.g., Managed Marine Area network; logging controls; bans on mangrove clearing</td>
</tr>
<tr>
<td>1.2 Maintain and where possible increase populations of species under threat.</td>
<td>Populations of these species</td>
<td>Tourism developments avoiding stress on these populations</td>
</tr>
<tr>
<td>1.3 Protect archaeological, historical, and cultural assets.</td>
<td>Assets maintained</td>
<td>Tourism access constrained to avoid damage; funding conservation/interpretation programs</td>
</tr>
<tr>
<td>1.4 Protect sites of geological interest.</td>
<td></td>
<td></td>
</tr>
<tr>
<td>2 Keep the Fiji Islands beautiful</td>
<td></td>
<td></td>
</tr>
<tr>
<td>2.1 Maintain tranquil unspoiled areas.</td>
<td>Large areas free from conspicuous development</td>
<td>Planning system that identifies and prevents development in particular areas</td>
</tr>
<tr>
<td>2.2 Avoid visual, aesthetic, noise pollution.</td>
<td>Proportion of residents and visitors’ outlooks spoiled by inappropriate development; noise levels</td>
<td>Permit system that enforces design, noise standards</td>
</tr>
<tr>
<td>2.3 Minimize traffic and congestion.</td>
<td>Traffic levels; congestion</td>
<td>Traffic generation from tourism development, e.g., vehicle miles per visitor day</td>
</tr>
<tr>
<td>2.4 Avoid overdevelopment.</td>
<td>Areas where density and type of development cease to have recognizable local character; separation between different settlements/developments</td>
<td>Application of appropriate regulations on density of development, including refusal of permission where density is already near limits</td>
</tr>
<tr>
<td>2.5 Promote, sensitive, high quality, distinctive design.</td>
<td>Proportion of built areas with recognizable Fijian style</td>
<td>Application of high design standards to all tourism development</td>
</tr>
<tr>
<td>2.6 Keep unobtrusive infrastructure.</td>
<td>Lack of obtrusive roads, pipes, power lines, A/C installations</td>
<td>Standards (e.g., roads following existing terrain; undergrounding of pipes and cables) applied whenever infrastructure built or upgraded</td>
</tr>
<tr>
<td>2.7 Avoid litter, dumping.</td>
<td>Volume and locations affected by litter, dumping</td>
<td>Existence of adequate waste collection and disposal systems (including separation and recycling); incentives and education to use them</td>
</tr>
<tr>
<td>3 Develop within environmental resource carrying capacities</td>
<td></td>
<td></td>
</tr>
<tr>
<td>3.1 Maintain freshwater resources.</td>
<td>Water supply meeting human needs (e.g., drinking, washing, food growing) without breaching environmental capacities (e.g., flow rates in streams, maintenance of freshwater lenses, salinity in lagoons within ecological tolerances)</td>
<td>Water efficiency and reuse measures in resorts and tourism developments; freshwater collection and storage either on- or off-site</td>
</tr>
<tr>
<td>3.2 Prevent soil loss/erosion/sedimentation through, e.g., agriculture, dredging.</td>
<td>Amount of soil loss from vulnerable areas and in rivers/coastal areas</td>
<td>Careful soil management to prevent loss during construction of tourist developments and infrastructure serving them. Avoidance of tourism development that would displace existing uses (e.g., farming) onto erosion-risk soils</td>
</tr>
<tr>
<td>3.3 Keep nutrient and pollution levels (e.g., chemical pollution, agrochemical runoff, sewage) within carrying capacities of receiving ecosystems.</td>
<td>Extent of ecosystems (e.g., area of reefs, lagoons, mangroves, forests) showing nutrient and pollutant-related stress; degree of stress (especially whether irreversible damage taking place)</td>
<td>Application to tourism developments of rules preventing emissions that (taking into account all other emissions) could breach carrying capacity limits</td>
</tr>
</tbody>
</table>

continued next page
### Table 3.2: Sustainability Appraisal Objectives and Possible Topics for Indicators (cont'd.)

<table>
<thead>
<tr>
<th>Objective</th>
<th>Outcome Indicator Topic</th>
<th>Tourism-Related Input/Output/Process Indicator Topic</th>
</tr>
</thead>
<tbody>
<tr>
<td>3 Improve the quality of life of Fijians</td>
<td></td>
<td></td>
</tr>
<tr>
<td>3.4 Minimize solid waste for disposal.</td>
<td>Minimum quantities of waste going for disposal; disposal methods (e.g., sanitary landfill or low-emission incinerator) able to handle waste</td>
<td>Separation and composting/digestion of organic waste; avoidance of nonreclaimable wastes, e.g., bans on packaging that cannot be reused or recycled; reuse/refilling schemes e.g., deposit-return schemes on drinks containers; separate collection and reprocessing of recyclable materials</td>
</tr>
<tr>
<td>3.5 Minimize climate change impacts.</td>
<td>Minimum greenhouse gas emissions per tourist day/tourist dollar (including those from air travel)</td>
<td>Longer stays, closer origins, fuller, more fuel-efficient planes, low-energy accommodation, renewable energy production (on- or off-site)</td>
</tr>
<tr>
<td>4 Make decisions in ways that reconcile different needs and demands</td>
<td></td>
<td></td>
</tr>
<tr>
<td>4.1 Maximize retention of benefits within Fiji Islands.</td>
<td>Amount of each dollar of tourist spending that stays within Fiji Islands/creates multipliers within Fiji Islands</td>
<td>Minimum payments going overseas: e.g., loan interest/repayment, profits, dividends, goods and services imported</td>
</tr>
<tr>
<td>4.2 Increase resilience and stability of the Fijian Islands’ economy.</td>
<td>Ability of the economy to contain and compensate for any kind of external economic change/shock</td>
<td>Minimum percentage of economic activity and employment that is dependent on any one economic sector or vulnerable to any one kind of disruption; tourism sector diversified to appeal to a range of tourist types and seasonality of tourism minimized, thus dividing market for greater stability</td>
</tr>
<tr>
<td>4.3 Reduce poverty and give benefits to the less well off.</td>
<td>Reduction in the number of people unable to obtain basic necessities of decent life</td>
<td>Degree to which tourism income increases the number of people who can obtain basic necessities (i.e., corrected for any effects tourism might have on raising prices, or making people have to buy things they previously obtained through subsistence activities displaced by tourism)</td>
</tr>
<tr>
<td>4.4 Share benefits with people in areas not developed for tourism (e.g., remote islands, interior areas).</td>
<td>Amount of tourism income (or other benefits) reaching people outside the areas where tourism development has taken place</td>
<td>Mechanisms for redistributing tourism benefits to other areas</td>
</tr>
<tr>
<td>4.5 Maintain local people’s access to environmental resources.</td>
<td>Number of people deprived of (e.g.) farming land, fishing rights, or beach access; whether they consented to the loss because of gains in return</td>
<td>Existence of fair and transparent process for negotiating compensation, ensuring that majority of all residents (not just wealthy ones) consent to deals</td>
</tr>
<tr>
<td>4.6 Do not disrupt or undermine underlying cultural life, norms, and meanings.</td>
<td>Continuity of (desired aspect of) village/community life</td>
<td>Process for identifying social carrying capacities and constraining tourism development within them</td>
</tr>
</tbody>
</table>

Source: Fiji Tourism Development Plan SEA Advisory Group.
Environmental, Social, and Economic Baseline

In order to assess the likely impacts of the TDP it is first necessary to look at the Fiji Islands’ current environmental, social, and economic baseline. In this section an overview is presented of the current state of the environment and the socioeconomic situation as a result of tourism activities.

Overview of the Fiji Islands

The Fiji Islands consists of over 300 islands spread over a large area of the South Pacific, thousands of miles from the nearest large land masses (Figure 3.1). The total land area is 18,272 km², of which about 16,000 km² is made up of the two largest islands, Viti Levu and Vanua Levu. The country has a large exclusive economic zone of 1.26 million km².

The population of the Fiji Islands was estimated (by the United Nations Economic and Social Commission for Asia and the Pacific) at 814,000 in 2000, with the majority of people living on the two main islands. This population is made up of two main ethnic groups: indigenous Fijians and Fijian-Indians. The remaining population (accounting for approximately 5% of the total) consists of Rotumans, Chinese, Europeans, part-Europeans, and others.

These basic factors have the following environmental consequences:

- Life is highly dependent on the sea. The Fiji Islands is characterized by a “tropical maritime” climate; high dependency on the sea for food; and the vulnerability of large proportions of the population and settlements to storms, storm surges, cyclones, and any long-term changes in sea level or conditions.
- The two main islands are small ecosystems with minimal resilience and scale. The situation is even more extreme on the smaller islands.
- Carrying capacities are often highly localized, with little scope for spreading “source” or “sink” pressures over a wider catchment. This may make environmental damage more likely, but it also has the advantage that—if there is the political will to do so—it may be easier to identify and quantify carrying capacity limits and set conditions for development to comply with them.
- The terrain is young and mountainous, unstable, and prone to erosion and landslides.
- Several fragile ecosystems are interrelated, especially on coasts: coral reefs are dependent on clean water with low nutrients, absorb a lot of wave energy, and protect the coast; mangroves scavenge nutrients (improving offshore conditions for coral) and further protect coastlines; both support high marine productivity, providing food. Disruption of any of these (e.g., cutting mangroves and allowing more nutrients to seep out; damaging coral by fishing or harvesting for aggregate; allowing more sediment to flow down rivers) can easily break the set of mutually supportive effects and tip the ecosystem into a different state (dead and disintegrating coral reefs, shoreline erosion, sedimentation) far less supportive of either local subsistence livings or tourism.

The socioeconomic implications of the basic environmental facts are as follows:

- Traditional ways of life and community structures are still very strong and influential. More than 85% of the Fiji Islands’ land area is still under traditional ownership, meaning that developers cannot buy native land outright but must negotiate for time-limited (leased) permission to develop.
- The division between indigenous Fijians and Fijian-Indians is a central fact of Fijian life.
- Local markets are small; consequently, it is difficult to develop internationally competitive businesses, but conversely, openness to imports is very high.
- The number of significant export industries is very small; consequently, vulnerability of the economy to fluctuations in any one of them is great. The prospect of major loss of earnings from the sugar industry is prompting the proposed rapid expansion in tourism to offset the losses.

State of the Environment

Watling and Chape’s state of the environment report (1992) is still the most thorough statement of environmental status and problems in the Fiji Islands. While emphasizing caution and gaps in data, it nevertheless points to a series of major issues:
Figure 3.1. Map of The Fiji Islands
• loss and degradation of important and characteristic ecosystems, especially mangroves and forests;
• coral reefs under multiple pressures;
• species populations under threat;
• freshwater shortages/ inadequate management; and
• climate change vulnerability.

The best available evidence on these is summarized in the following subsections.

Mangroves and Forests

Mangroves provide natural protection against storms, tides, cyclones, and storm surges. Their cutting back is likely to lead to reduced resilience to sea-level rise and wave surges and affect the traditional uses of mangroves for wood, building materials, and medicine. They also regulate nutrients and act as filters against introduction of pests. The estimated value of mangroves in the Fiji Islands to the national economy is F$100.88 million (Sisto 1997).

It was estimated in 1992 that of an original resource of about 45,000 ha of mangroves, approximately 42,000 ha remain. The state of mangroves is seen as a significant environmental issue in the Fiji Islands (Watling and Chape 1992). Although no recent nationwide surveys have been carried out, evidence suggests that land reclamation and infrastructure development associated with tourism is having a negative impact on mangroves. However, examples exist of hotels, working in partnership with local groups, establishing mangrove nurseries.

The creation by resorts and hotels of artificial coastal “buffer zones” such as sea walls adds to environmental problems: walls do not absorb wave energy and can lead to the degrading of beaches.

Since 1967, an estimated 90,000–140,000 ha (11-16%) of the Fiji Islands’ forests have been converted to nonforest land use. The most significant losses have been on the western half of Viti Levu, particularly the Sigatoka and Ba river valleys, and on the smaller islands of Beqa and Kadavu (Watling and Chape 1992).

Most tourist facilities are built along the coast to take advantage of the Fiji Islands’ sun, sea and sand. As a result, tourism has so far had little impact on forests. However, with the promotion of adventure tourism, such as trekking and white-water rafting into the interior of Viti Levu, tourism is likely to have a growing influence on the state of the forests.

Deforestation can lead to the buildup of sediment in rivers, affecting freshwater supplies, habitats, and the aesthetic environment. In one case, upland erosion as a result of poor logging practices in the catchment along the Coral Coast led to the siltation of a resort’s water supplies. It also diminished secondary tourism opportunities such as bushwalking and freshwater swimming in the rainforest (Watling and Chape 1992). This underlines the need for integrated management of resources in such areas.

Coral Reefs

Mosley and Aalbersberg (2002) studied the effects of nutrient releases on coral reefs:

Nutrient (nitrate and phosphate) levels potentially damaging to coral reefs have been detected at several sites along the Coral Coast of Viti Levu... The mean nitrate level was $1.69 \mu M$ and the mean phosphate level was $0.21 \mu M$, which exceeded levels considered to be harmful to coral reef ecosystems ($>1.00 \mu M$ Nitrate $>0.1 \mu M$ Phosphate)... Nutrient levels were highest at sites located near hotels and other populated sites. At sites not significantly influenced by human activity, levels were comparable to levels in nonpolluted sites elsewhere in the [Fiji Islands].

Mosley and Aalbersberg noted that

Increased nutrient levels have led to a “phase shift” to algal dominated reefs in the Coral Coast area... Algal dominated reefs in other parts of the world have been noted to be lower in fish stocks, have less tourism appeal and coral biodiversity... The elevated nutrient levels in the coastal water are of concern given the importance of the Coral Coast for the local communities and as a tourist destination. A large number of tourists come to Fiji to see tropical reefs, colourful fish and to swim in clear, clean water (not floating algae). If the reef ecosystems and biodiversity contained there are degraded further the income and image of the resorts will
suffer. The local villagers will also be affected as tourism is the major source of employment in this part of Fiji, and many still rely on fish caught from the reefs for their daily food. In addition, coastal erosion along the Coral Coast is likely to increase as the reefs are broken down by wave action and not regenerated.

The report cautions that “more intensive sampling is needed to try to determine the major sources of these nutrients...” and notes that levels varied with tide level but points out that “some of the highest levels of nitrate were found at sites... located in one of the most intensively developed areas on the coast with one very large resort, several smaller resorts and guest houses, a couple of local villages and a number of private dwellings.”

It points out that the nature and quality of waste discharge from the resorts is variable. Some discharge partially treated effluent direct into the ocean, some discharge to land and others to municipal sewage treatment plants. The local villages, many of which use pit latrines or septic tanks for treatment of their waste, are also likely to be discharging nutrients in groundwater to the ocean. There are also a number of small pig farms situated near the rivers or on the coast, and when the pens are washed down they are likely to discharge high levels of nutrients.

The report’s recommendations include the following:

- “A tertiary and biological treatment plant is necessary for all areas on the Coral Coast with a population density greater than 500 people per 100 m of shoreline [figure based on Jamaican research] and particularly at resorts... One resort (Shangri-La Fijian) is using biological treatment ponds with aquatic plants present that uptake significant amounts of nutrients from the resort’s sewage effluent... This approach is one that could be more widely adopted, as it is relatively low cost.”

- Other practical options to consider may be a ban on the use of phosphate detergents in the area, the use of composting toilet systems in the villages and small resorts, and establishing more marine protected areas.

- “On a government level, water quality standards specific for coral reefs should be developed into legislation and effluent charges made to conform to them.”

A similar study by this team in Kadavu, a popular tourist island, also showed background ambient levels already close to tolerable, so very little “headroom” remains for more development.

It is clear that current levels of nutrients appear to jeopardize the future of the reefs along the Coral Coast. Until discharges are substantially reduced, any increase in tourism provision on the Coral Coast would be economically risky as well as environmentally irresponsible. Therefore actions to reduce discharges are urgently necessary. The example of the Shangri-La Fijian indicates that relatively low-technology, low-cost methods are available and can help address multiple environmental problems synergistically.

Freshwater Shortage/Management

The Fiji Islands’ freshwater supplies are relatively plentiful, although localized deficiencies occur, particularly in the heavily populated sugar-cane growing areas in the dry zones of Viti Levu and on low-lying, smaller, and outer islands. However, in areas subject to frequent shortages, conservation is sometimes lacking and water is lost through leaking pipes and faulty storage facilities. No effective legislation or management is occurring, yet development and exploitation of the resource is proceeding rapidly (Watling and Chape 1992).

Tourist developments put extra strain on the resource, particularly as many hotels and resorts are based in the dry zones of western Viti Levu and the small low-lying islands of the Mamanucas and Yasawas, where the supply comes from wells and rainwater collection. Further, the larger resorts, such as Sheraton Denaru, which has its own golf course, demand considerable quantities of water. All future large-scale tourist developments are planned for the west and southwest of Viti Levu, which will put further demands on freshwater in this problematic region.

Water shortages have also been experienced in the wetter east coast of Viti Levu. This is due to poor and decaying infrastructure that needs upgrading. Water shortages in the Lami area of Suva in February 2003 saw
guests checking out of the Raffles Tradewinds Hotel, because they were unable to shower.

Species Populations under Threat

The tourist industry in the Fiji Islands relies on an abundant marine environment; visitors come to see species such as turtles and a large variety of fish, as well as birds and plants that are endemic to the islands.

Due to a lack of adequate environmental planning and management, however, the sector is disturbing such species, for example, by cutting back mangroves, which serve as an important habitat and breeding ground for fish. The red prawn pools, a famous tourist and cultural site on the island of Vatulele, have been subjected to habitat disturbance by visitors (Watling and Chape 1992).

Resorts and hotels have also been working since the 1970s on the establishment of coastal-marine conservation sites, however. The first of these was set up by Beachcomber and Treasure Island in the Nadi Waters area.

Effects of Climate Change on the Fiji Islands

The draft Assessment of Vulnerability and Adaptation to Climate Change and Sea Level Rise in Fiji: National Statement (Feresi and Limalevu 1999) uses a range of results from two climate models to predict changes. The report rightly emphasizes the continuing uncertainty in all climate modelling, and this is reflected in wide ranges between “high” and “mid-range” estimates. With this caveat, the results suggest the following possible changes by 2100 (with roughly linear trends between now and then—i.e., about a quarter of the change could happen by 2025 and half by 2050):

- overall temperature rise of up to 3.6 degrees;
- either increases or decreases of precipitation of up to 22% (depending on how climate change moves the South Pacific Convergence Zone; the two climate models diverge on this point);
- increases in extreme weather events, including cyclones, floods, and droughts; and
- sea level rise of up to 94 cm.

Feresi and Limalevu (1999) include an integrated assessment of effects. Those particularly relevant to tourism include:

- bleaching of coral, coastal erosion and inundation, sedimentation of shoreline and coral reefs, all of which could spoil the coastal environments that are the Fiji Islands’ main tourist “drawing card”;
- increased vulnerability to flooding and storm damage to tourism facilities, especially those on or near shorelines;
- more frequent disruption to tourist travel and restrictions on enjoyment due to extreme weather events;
- increased health risks to tourists (from, e.g., contamination of water, increased risk of dengue outbreaks and waterborne diseases);
- greater competition and conflict over access to natural resources (e.g., clean water, fishing, land suitable for food growing, forestland) as nontourism sector demands (e.g., food for a growing population) increase at the same time as change erodes the resource base (e.g., by inundation and salinization of cropland).

Valuation of Ecosystems

Monetary valuation of ecosystem services and other environmental services is contentious (see McNally and Shahwahid 2002). The main source of information for the valuation of the Fiji Islands’ resources (Sisto 1997) emphasizes a range of problems and limitations with valuations and states that its estimates are “very conservative”—the numbers arrived at must be regarded as lower bounds of values that might be much higher, and a large number of important environmental benefits are not given values at all because of lack of data or reliable methodology.

With these caveats, the report arrives at a total figure of F$973 million (at 1994 prices) for the total value of the Fiji Islands’ ecosystem services. This excludes an estimate of F$24,253 million for the value of climate regulation of the country’s sea area. The sea area climate regulation figure is extremely large in comparison to all the other numbers, for the simple reason that the Fiji Islands’ sea area is so large relative to its land area.

F$973 million at 1994 prices would be worth over F$1 billion at 2003 prices. In other words, the value of ecosystem services to the Fiji Islands already exceeds the value of the “billion dollar tourist industry” aspired to, even on the basis of very conservative figures for
environmental benefits and the optimistic assumption that all the billion dollars of income from tourism would be of benefit to the Fiji Islands. Of particular interest to tourism is the paper’s estimate of the recreational benefits from coral reefs, lagoons, and beaches: F$336 million.

As an SEA of the tourism industry is considered, the key is perhaps not just in the valuation itself but in the influence that new or changing tourism development can and will have on these values. The values of the coral reef are dependent on tourism numbers and their related “spend.” However, further use and insensitive expansion of the tourism industry, without sufficient controls to limit or stop all damage to the reefs, will clearly deter use, and thus the value to the economy and the people of the Fiji Islands will fall. This discussion emphasizes that economic development that significantly undermines these benefits is likely to be a very bad deal for the Fiji Islands in the longer run, however commercially lucrative it may appear in the short term. This is the key point that should be kept in mind in any discussion of the pros and cons of tourism development.

Conclusions: Environmental Impacts of Tourism Development

Aggregated Impacts

Evidence at the aggregate level shows that economic development is damaging environmental carrying capacities. Tourism is not solely responsible, but tourism-related development is intensive in many of the most serious pressures: damage to coastal ecosystems (especially coral reefs and mangroves), consumption of fresh water, aggregates, high-quality (low, flat, stable, fertile) land, and production of nonbiodegradable solid waste.

Individual Impacts

Evidence from some specific locations indicates that tourism-related development is a major contributor to breaches or near breaches of carrying capacity limits. Studies have focused on the Coral Coast of Viti Levu, because it has the largest concentration of tourism-related impacts. This is not necessarily typical of other islands or the less developed parts of Viti Levu. However, such evidence as is available suggests that smaller ecosystems may be even more vulnerable to change.

The Fiji Islands’ environment still looks beautiful and for the most part healthy and unspoiled. But the research reviewed for this report suggests that margins of environmental resilience and security—that is, the environment’s reserves of ability to absorb change—have already been breached in some places, are generally dangerously thin, and will be further eroded and possibly breached if subjected to more pressures.

Many of the studies consulted emphasize the need for further work to fill gaps and complete the picture. But this should not be an excuse for inaction. There is no reason to assume that these studies, carried out using a range of techniques by a number of highly qualified and experienced independent scientists, tend to overstate rather than underestimate the problems and risks. Indeed, because of the gaps in the coverage, it is more likely that further serious problems have not yet been identified, because the relevant research has not been done. This again highlights the urgent need for a careful and cautionary approach to be taken in the encouragement and planning of further tourism development in the Fiji Islands.

Socioeconomic Trends and Pressures

Background: Tourism in the Fiji Islands

Tourism is often viewed as an engine of economic growth that can generate considerable amounts of foreign exchange for host countries. As a result, many poorer countries are putting emphasis on the promotion and development of this industry for future economic prospects. This is particularly the case in small island nations, which tend to have the natural and cultural environment that tourists seek and very few significant export industries. However, the economic impacts of tourism, particularly certain types of tourism, are far from clear-cut and many of the negative consequences are understated.

Tourism is a critical pillar of the Fiji Islands’ economy. Since 1989 it has generated more foreign earnings than any other sector. In 2001, it led to gross receipts of F$521.1 million, compared to F$319.9 million for the second largest earner, garments. It is a large employer of people, providing employment directly and indirectly for 40,000 people in 1999.

Visitor arrivals had been increasing steadily since 1996 until the political unrest of 2000 caused a
considerable drop in numbers. Visitor arrivals in 2002 were 397,859, a 14.3% increase from the previous year. Projections are that visitor numbers will increase considerably in 2003, surpassing the highest annual number (409,955) recorded in 1999 before the coup.

Current expectations are the tourism sector will grow. How much and how fast depends on many factors, both internal and external. Australia and New Zealand have so far been the Fiji Islands’ major markets, accounting for over 47% in 2001. However, markets further afield, such as the United States (US) and Europe, are also significant. The vast majority of visitors (80%) come on vacation.

The Spread of Tourist Activities

The distribution of tourist expenditure is shown in Table 3.3. The bulk of tourist activities and expenditure (84%) in the Fiji Islands is concentrated in the southern and western side of Viti Levu and its islands. The other large island, Vanua Levu, accounts for only 3.6% of total expenditure. Clearly, the economic benefits from tourism are unevenly dispersed. Further, many of the poorest areas of the country are those with the least tourist expenditure. This uneven distribution of benefits will be further reinforced under the TDP, which aims to concentrate future tourist development in the same regions.

Table 3.3: Estimated Total Overseas Visitor Numbers by Area of Stay

<table>
<thead>
<tr>
<th>Zone/Area of Stay</th>
<th>No. of Visitors</th>
<th>Ratio (%)</th>
</tr>
</thead>
<tbody>
<tr>
<td>North and Eastern Viti Levu</td>
<td>5,220</td>
<td>1.5</td>
</tr>
<tr>
<td>Lautoka (cruising)</td>
<td>7,656</td>
<td>2.7</td>
</tr>
<tr>
<td>Nadi Area</td>
<td>104,753</td>
<td>30.1</td>
</tr>
<tr>
<td>Mamanuca/Yasawa</td>
<td>83,534</td>
<td>24.0</td>
</tr>
<tr>
<td>Coral Coast</td>
<td>99,184</td>
<td>28.5</td>
</tr>
<tr>
<td>Deuba</td>
<td>8,700</td>
<td>2.5</td>
</tr>
<tr>
<td>Suva</td>
<td>23,665</td>
<td>6.8</td>
</tr>
<tr>
<td>Vanua Levu</td>
<td>2,436</td>
<td>0.7</td>
</tr>
<tr>
<td>Outer Islands</td>
<td>9,396</td>
<td>2.7</td>
</tr>
<tr>
<td>Unknown</td>
<td>1,740</td>
<td>0.5</td>
</tr>
<tr>
<td>Total</td>
<td>346,284</td>
<td>100.0</td>
</tr>
</tbody>
</table>


In order to spread benefits more evenly across the islands, greater emphasis needs to be placed on carefully developing those areas which need the economic benefits most. However, it is not only the tourist dollar that bypasses these areas; public services are also less likely to be available. As in places like Natadola, developers are requiring the Government to improve the basic infrastructure before they move in. This diverts public money to upgrade public services away from where it is required most.

Leakage of Economic Benefits

Leakage refers to the loss of tourist expenditure as a result of goods and services being brought in from outside the area. These may be the import of foods and other hotel requirements, outside managerial expertise, repatriation of profits by owners, overseas marketing costs, transport, and other services from the tourist source country. According to UNEP, “about 80% of travellers’ expenditures on all-inclusive package tours leak out of the country. Most of the money goes to airlines, hotels, and other international companies and not to the local areas where the tourist facilities are located” (UNEP 2003).

Another study on tourism leakage found that “70% of all money spent by tourists ends up leaving Thailand (via foreign-owned tour operators, airlines, hotels, imported drinks and food, etc). Estimates for other countries range from 80% in the Caribbean to 40% in India” (UNEP 2003). A 1990 study looking at the economic impacts of tourism in the Fiji Islands found that the total import leakage at direct, indirect, and induced levels of impact amounts to over 60% (TCSP 1990).

Although some hesitation is natural about using data 12 years old, the various coefficients derived from the study will not have changed much, so long as no structural changes have taken place in the economy or the makeup of the tourist industry. Since 1990, the changes have been minimal, so the findings can still be used as a useful guide. However, the economic impact analysis needs updating.

In terms of where the money is being spent, the recent visitors’ survey showed that accommodation (board and lodgings) accounted for 70.2% of all tourist expenditure. Of the accommodation, 89% of visitors used hotels. These are most likely to have all-inclusive packages providing everything the visitor needs, leaving fewer opportunities for local businesses to prosper (Ministry of Tourism 2001).
Total tourist expenditure on accommodation has continued to increase throughout the 1990s despite efforts to develop “secondary tourist activities” as outlined in the 1989 tourist development plan. Such activities were promoted to encourage local participation in the tourism sector and increase the visitors’ length of stay.

The large hotel chains are particularly prone to leakages. This is because they tend to supply common standards across all their hotels. In countries with small domestic markets that may not supply or meet international standards for particular goods, the hotels will import equipment, food and drink, and other goods. Therefore much of the tourist expenditure ends up abroad. Such hotels, particularly when they are part of international chains, are also prone to “export leakages,” which result when the overseas investors repatriate profits.

A survey of the Jamaican tourist industry was carried out by the Organization of American States comparing all-inclusive holidays with other types of accommodation. The study concluded that all–inclusive developments import more goods and employ fewer people per dollar generated (OAS 2003).

Certain types of accommodation are less prone to leakage. In Samoa, for example, where smaller-scale community-based tourism dominates, reliance on local goods and services is nearly complete. Although hotel operators are entitled to duty relief on imported goods, only one hotel has taken advantage of the offer.

Ecotourism allows more benefits to be captured locally. As a result of the Fiji Islands’ ecotourism program established in 2000, 750 people were directly employed in such ventures by the end of 2002. This type of tourism has closer links to the local economy, not only through the use of local entrepreneurs, but also through indirect employment. An estimated 1,040 have been indirectly employed.

Social Impacts

On the positive side, tourism creates employment, and Government revenues that can be reinvested into public services. The considerable improvements in the basic facilities in villages along the Coral Coast are testimony to this. On the negative side, social stress has been caused by conflicts between tourist developers and local communities.

Land Conflicts

Land issues are a central part of Fijian life. Native lands owned by communities can be leased to foreign investors, but not sold. Uncertainties surrounding the renewal of leases are a cause for concern to tenants. Even with security of tenure purportedly provided for under the terms of the lease, people leasing native land are still insecure about their occupation and use of these lands. The increasing number of illegal takeovers of these lands, including tourist resorts, by the native landowners, is testimony to this fact (The Fiji Times 1992, 2000a, 2000b; Lea 1996). Some of these conflicts are discussed in Box 3.1).

Such conflicts tend to be as a result of one of the following factors (Patterson 2002):

- The terms of the lease are not clear to one or both parties (landowners and investors).
- Landowners are not permitted to be stakeholders in the new development.
- Whole landowner clans are misinformed by the investors.
- The investors try to speed up the process by informing certain landowners, leaving the remainder in the dark.
- Both parties (landowners and investors) do not involve or formally inform government agencies or ministries that deal with tourism.
- Decisions are made about the use of land by persons unauthorized to do so.
- Returns and benefits from agreed use of land are not received by all who are entitled to them.
- Leases do not provide avenues of landowners to seek review and fair remuneration within the lease period.
- Disputes occur between custom chiefs that have implications for the management and use of land.

These case studies emphasize that the current system of leasing native land can be confusing to the parties involved, can be noninclusive, and can involve an asymmetry of information between the negotiating parties. The fact that the bulk of future tourism developments must take place on native lands implies that efforts must be made to ensure that such conflicts are avoided. Under the TDP, TDAs are proposed to resolve rights in advance. However, TDAs basically view traditional owners’ interests as an obstruction to be bought out in advance, rather than an opportunity to
Box 3.1. Land Conflicts in the Fiji Islands

**Tavarua Case**

The dispute at Tavarua has been ongoing for more than a decade now, although it has somewhat subsided. It involves fishing rights. The Island of Tavarua is owned by the chiefly clan of Cuvu village.

A tourism lease exists over the island and the main attraction and activity at Tavarua is surfing over its surrounding waters. All waters over the high water mark in the country are owned by the Government, but the usufruct (in this case, fishing rights) rests with the indigenous Fijian people. Fishing rights in waters surrounding Tavarua Island are jointly owned by villagers of Solevu in Malolo and Nabila on Viti Levu.

The respective fishing right holders have persistently complained to the authorities that the use of their fishing grounds for recreational purposes scares away the fish and they ought to be compensated. The two authorities involved in this matter are the Government as owner of the sea/water and the Native Land Commission, the agency responsible for the determination of fishing rights. Past Governments have tried but failed to resolve this issue.

**Vulani Tourism Project Case**

The multimillion-dollar Vulani tourism project has been put on hold as a result of a court injunction instituted by the Native Lands Trust Board (NLTB) and Fijian landowners of Sabeto Vulani, an island a few kilometers from Nadi Airport. The island was granted a tourism lease by the Lands Department, as it is state land. The people of Sabeto have claimed that although it is state land, legal processes are underway to have the land reverted to them. They are of the view that the Lands Department should not have granted the tourism lease in the first place.

**Turtle Island Case**

This case featured prominently in the news immediately after the military coup of 19 May 2000; Turtle Island is situated on freehold property.

In this instance, villagers of Naisisili, Yasawa, forcefully took control of the destination and locked up the resort owner for five days, used the resort boat to transport people from one island to another, and used farm animals to cart goods from one point to another ([The Fiji Times], 2000a). The villagers had a long-standing claim of ownership over the island. They have stated that the land was originally theirs, but because of a deal made many years ago, the island became a freehold property without their receiving adequate compensation. The people took advantage of the uncertain situation prevailing in the aftermath of the coup to take action.

A court case over the incident ensued, and the wrongdoers received jail sentences ranging from 3 to 18 months.

**Lako Mai Resort case in the Mamanuca Case**

In this case, the Fijian landowners were directed by the NLTB to take over the running of the Lako Mai Resort in Mamanuca Islands, off the West Coast, because, among other things, the owners had not paid their land rent since 1998 ([The Fiji Times], 2002c). Other breaches included

- failure to produce audited accounts since the operation began;
- failure to comply with other conditions of the lease, for example, providing training to landowners and giving landowners employment in jobs they are capable of doing; and
- failure to comply with health and safety requirements.

As a responsible time-share partner, Lako Mai Resort should have abided by the conditions of the lease. The NLTB should all along have insisted that the company abide by the terms of the lease, rather than having to step in in December 2002 when, for example, rent had already not been paid for 4 years.

involve resource owners actively in the development process. This is likely to cause more tensions.

Other Sociocultural Problems

A background paper prepared for the Fiji National Workshop on Integrated Coastal Management (Thaman 2002a) identifies another negative social impact along the Coral Coast: “The level of crime along the Coral Coast has increased over recent years, especially in the areas between Maleveu Village and the Korotogo area. As a result of increasing crime a police post was built in Korotogo.”

The paper also identified other social changes along the Coral Coast “including changes in cultural attitudes, reliance on hotel employment rather than pursuing education, and new diseases. In Cuvu tikina (cluster of villages), the increase in the number of villagers employed at the hotel has led to a change in diet as a result of people buying food from the store as compared to the past where food was obtained from the ocean and forests.”

If tourism is allowed to develop unchecked, it can cause profound social and cultural changes. A push for large-scale tourism development, as proposed under the TDP, could be the catalyst to such negative changes. Lessons should be learned from other countries that have gone down this path (see Box 3.2).

What is clear from these case studies and others contained in the Shah and Gupta report is that the simple assumption that the large-scale tourism growth will necessarily be good for the host country is not true. The evidence indicates the contrary; that mass tourism can have significant negative social impacts on local communities. Nicholson (1997) found that this type of intervention does not tend to reduce poverty, but is likely to be exploitative and leave the poor worse off in economic terms.

McElroy and Albuquerque (1998) developed a Tourism Penetration Index to assess the environmental and socioeconomic impacts of tourism on countries. According to the Index, the Fiji Islands was a low- to medium-impact destination. A later study by McElroy (2003) noted that “the key challenge facing intermediate destinations [such as the Fiji Islands] is controlling growth and the expansion of a facility scale that usually accompanies international visibility within insular socio-economic and environmental limits.”

Uncertainties in the Practicability of Strong Growth

The TDP advocates “step change.” The “situation analysis” in the Ministry of Tourism’s Corporate Plan (Ministry of Tourism 2003) highlights forecasts for strong growth in visitor arrivals in East Asia and the Pacific until 2020. The “headline” statement is that “As compared to 1995 figures, East Asia and the Pacific can expect a 500% increase in visitor arrivals by 2020.” The situation analysis also states that “more people will travel long distances to obtain the experiences they want.”

Forecasts are always uncertain. The potential danger of relying too much on a single forecast of this kind is acknowledged in the TDP itself: “The 1973 Tourism Development Programme... failed to anticipate developments in aircraft technology which enabled trans-Pacific carriers to overfly Fiji. The history of tourism planning in Fiji suggests that it is easy to be overoptimistic, to put ideas and visitor projections down on paper, but much more difficult to realize them... it is probably fair to say there has been more misguided investment in Fiji than in any other similar destination.”

Given this history and warning, it would be prudent to consider carefully whether the “headline” assumption of growth potential just quoted might be vulnerable to changes. There are possible short-term and long-term risks that need to be accounted for.

Short-Term Risks

The dramatic reductions in transatlantic travel after the terrorist attacks on the US, in tourist travel to Indonesia after the Bali bomb, and to South Asia because of Severe Acute Respiratory Syndrome (SARS) show how vulnerable tourism can be. The Fiji Islands’ own experience after the unrest of 2000 underlines the message. Crises like these can easily have follow-on effects on both general confidence and willingness to travel, and on the ability of airlines to sustain services. Such events have forced some airlines into bankruptcy and many others to seek state handouts to survive (e.g., United Airlines).

These events could happen anywhere at any time, for either domestic or international reasons. Even if arrivals bounce back afterwards, damage will be done, and tourism businesses operating at the margins of
Box 3.2. Sociocultural Impact of Large-Scale Tourism Development

**Boracay Island, Philippines: The Erosion of Local Benefits**

This case study demonstrates how local benefits from tourism can be eroded by the uncontrolled expansion of the industry. Tourism initially had a beneficial effect on the local population, stemming outmigration and creating jobs. As the area became increasingly popular, however, things began to change.

In 1986, when tourism was already a major activity, the island's population was about 3,000, but it increased to about 9,000 by 1996 as a result of people coming into the region. The local population was outnumbered two to one, and largely displaced from their traditional occupations of farming and fishing. During the same period, tourist arrivals increased from 27,000 to 150,000. By 1996, 18 operators owned 30% of the accommodation registered at the Department of Tourism, and only six of them were Boracaynons. In the last few years, approximately a quarter of the island has been bought by outside corporations. Nonlocals now own the largest units with the best facilities, which tend to have good business throughout the year. This is also indicative of the ownership of other assets such as restaurants, boats, karaoke bars, and boutiques.

The majority of foreign tourists to the island are now Asians, particularly Koreans, who tend to travel in groups, stay only for short periods, and demand high standards in amenities. This has resulted in custom shifting from the smaller to the larger resorts, with many small businesses only attracting guests in the peak season when larger facilities are fully booked. Disparities in resource ownership have become stark, and many small resort owners struggle to survive or have joined those who never owned land to become a part of the service sector. As new tourism demand is concentrated in larger hotels which demand higher educational standards than smaller resorts, skilled staff continue to be recruited from outside the island. A tourist skills training scheme, part of the earlier development plan for Boracay, has not been implemented. The spin-off benefits of tourism in terms of infrastructure and environment have been minimal. The utility needs of large new projects are enormous and have brought to a head the island’s chronic problems of sanitation and water supply.

*Source: Excerpts from Shah and Gupta 2000.*

**Bali: Growing Social Problems Case**

In the “tourism triangle” of Kuta-Denpasar-Sanur... major resorts such as the 2,500-room complex at Nusa Dua are built with large investment inputs; generally require imported technology, materials and foreign-trained staff; occupy areas of valuable farmland and consume vast amounts of water. Gains to the local community from employment generated by the industry are limited, particularly compared with losses: displacement can arise as a major issue when access to farmland and irrigation water is reduced, and the ability to earn a living from a shrinking natural resource base is limited. The island has also witnessed a gradual erosion of cultural values around these resorts...

A number of studies report that water availability for local communities is reduced by diversion to the tourism industry, especially for luxury resorts. This has now become an important environmental issue in Southeast Asia. In Serangan, near Bali, development plans include a luxury cruise terminal, a marina, a gold resort, and numerous other tourist facilities, and environmentalists predict water shortages on the island. Although the developers promise to recycle wastewater to maintain the golf course and other grounds, the project will still require 5,000–7,000 cubic metres of water daily... equivalent to the domestic daily consumption requirements of a population of around a quarter of a million... Building golf courses in Indonesia is one of the most blatant transfers of land and water resources from the poor to the rich...

A survey that analyzed the attitude of villagers towards tourism in different regions of Bali demonstrates that villages located near luxury and mass tourism complexes were less enthusiastic about the advantages of tourism than those who had been less exposed to the impacts of mass tourism.

*Source: Excerpts from Shah and Gupta 2000.*
commercial viability might not recover. For tourists coming to the Fiji Islands for the sun, sea and sand, it only takes a small hint of possible inconvenience or uncertainty to make them choose not to go there, because they only had weak and marginal motivations to choose it in the first place.

This has a paradoxical message for the Fiji Islands. The more successful its tourism industry (and supporting public agencies) become in competing for visitors—that is, attracting visitors who do not have any overriding reason to come to the Fiji Islands rather than alternative holiday destinations—the more vulnerable the industry becomes to any disturbance or uncertainty. And the more dependent any local economy is on tourism income, the more vulnerable that area will be to any disturbance.

Geopolitical uncertainty will also affect people’s ability and willingness to spend money on luxuries. For example, the current economic downturn has greatly reduced the value of many pensions invested on stock markets, especially in the United Kingdom. This is likely to influence people’s retirement age and therefore the opportunity to travel overseas.

Longer-Term Trends

World events since 2001 have brought into question the assumption that henceforth, liberal democracy and free trade would advance steadily and incrementally across the whole world. It would now seem more prudent to plan for the possibility that, as has happened many times before in history, international trade and freedom of movement may decrease as a result of shifting political events.

As already mentioned, the Fiji Islands has ratified the United Nations Framework Convention on Climate Change. So have many of its major potential tourism markets. Air travel has very large climate change impacts. A round-trip flight from Los Angeles to the Fiji Islands (about 9,000 km each way) emits more than (1.2 times) an individual’s entire annual entitlement of carbon dioxide, even in favorable circumstances, i.e., a direct “great circle” route, 95% full Boeing 747 (Chooseclimate 2001). There are several different climate calculators available on the Web; they vary in detail, but produce results comparable in scale.)

Demand management for air travel may become an integral part of international climate change reduction policies. Long-haul holiday flying would be an obvious target for reduction efforts.

Such risks will make potential investors seek to structure deals in ways that reduce their exposure to risk (e.g., by expecting government to provide or underwrite infrastructure provision, and/or increase their rate of return if the development is commercially successful). The first option puts risk on the Fijian Government (and thus ultimately the people of the Fiji Islands) of sinking substantial money in infrastructure and other support. The second means that even if and when development is successful, little of the benefit will be left for the Fiji Islands. In other words, the more uncertain the world becomes, the more likely that the concessions needed to make tourism a good deal for external investors will make it a poor deal for the Fiji Islands.

Conclusions and Issues

Tourism in the Fiji Islands is growing rapidly. With other sectors in the Fijian economy ailing, particularly the large sugar industry, there is a greater reliance on tourism to prop up the economy. The TDP calls for “step change” and incentives to attract external investment in large-scale tourist resorts. However, greater dependence on one sector and one type of visitor, who is likely to have the weakest motivation to visit the Islands in the face of growing risks and uncertainties, puts the Fiji Islands in a highly vulnerable situation.

The kind of tourism needed to meet the TDP’s step-change aspirations is the kind that will generally bring fewer benefits to the Fiji Islands than other types of tourism and more of the larger, less tangible social and environmental costs. A number of countries have followed this route and the local populations are now paying the costs. Lessons can and should be learned.

The fast expansion envisioned under the plan is likely to meet difficulties and be problematic. A critical issue is tourist development on native lands and the potential for conflict. The TDP treats traditional owners’ interests as an obstacle to surmount. Such an approach is unlikely to put a stop to future conflicts.
Assessing the Impact of the Tourism Development Plan

Drawing on the information from the previous chapter, it is possible to assess the likely social and environmental impacts of the TDP and compare them against the sustainability objectives. This makes it possible to determine whether or not the plan is sustainable.

First, in Table 3.4 the likely impacts of the TDP under a scenario of "step change" or accelerated growth as advocated in the TDP, in isolation from any mitigation measures, is examined (including those specified in the plan).

Table 3.4 reveals a major conflict. The kinds of large-scale, high-investment tourism development advocated in the TDP, and the decision-making processes and financial packages needed to secure it, would undermine many of the sustainable development objectives. This is further illustrated in Table 3.5. Table 3.5 compares the SEA objectives to the current policy position, as well as to the policies under the TDP relevant to achievement of the objective, whether positively or negatively (the numbers refer to paragraphs in the TDP). A column outlines the conditions under which tourism development would support the SEA objectives.

The key messages that can be drawn from Table 3.5:

- It is not hard to identify conditions under which tourism development can be compatible with all the appraisal objectives. As will be examined in the next chapter, good practice on many of them has already been developed and demonstrated at the individual level in the Fiji Islands;
- However, many of them require strong and thoroughly enforced policy and/or regulation at the national level, for one or more of the following reasons:
  - to ensure that all relevant players meet common standards (without "free riders");
  - to define consistent standards, methods, and processes;
  - to allocate responsibilities, rights, and resources fairly among different communities and parts of the Fiji Islands;
  - to build and share expertise and capacity;
  - to provide common infrastructure; and
  - to coordinate and reconcile tourism’s requirements with those of other economic and social sectors.

Many impressive documents and statements of government policy already exist that would go a long way toward achieving this (albeit with gaps that need to be filled.) But very little of this policy or regulation is actually operative. For example, the Sustainable Development Bill could provide a large amount of what is needed, notably an effective and consistently implemented environmental impact assessment (EIA) process and a national resource management plan. But 6 years after an earlier version of the Bill was first published, it has still not been enacted.

The TDP is a case in point. Many of its detailed policies would be highly valuable in achieving sustainability objectives. But few seem to be applied.

Sustainable Options for Dealing with Key Issues

In this section the key issues that have come out of the assessment are examined and suggestions to address them put forward. Case studies, mainly from the Fiji Islands, of good practices on particular issues are attached to act as role models.

Issue 1: The Fiji Islands must give greater priority to managing its resources sustainably.

The state of the environment and the abundance of natural resources are vital for the sustenance and growth of any country. However, for small island nations such as the Fiji Islands, which are highly vulnerable to environmental threats, this is especially the case. The existing institutional arrangements are not adequate to ensure sustainable development. It is therefore of utmost importance that greater prominence be given to environmental issues within the Fiji Islands.

Much of the policy, legislation, and regulation needed already exists on paper—in particular, in the SDB, which focuses on EIA, codes of environmental practice, natural resource management, and the establishment of a National Council for Sustainable Development. The Bill now needs to be passed by Parliament.
<table>
<thead>
<tr>
<th>Objective</th>
<th>Score</th>
<th>Comments</th>
</tr>
</thead>
<tbody>
<tr>
<td>1. Maintain and enhance the Fiji Islands’ environmental quality.</td>
<td>–</td>
<td>Further development (concentrated in areas already developed) will tend to increase pressure on these ecosystems, especially reefs and mangroves.</td>
</tr>
<tr>
<td>1.1 Protect, enhance, and restore special ecosystems, especially mangroves, coral reefs and forests.</td>
<td>–</td>
<td>Further development will tend to increase disturbance of these species and their habitats.</td>
</tr>
<tr>
<td>1.2 Maintain and where possible increase populations of species under threat.</td>
<td>–</td>
<td>Higher visitor pressures will hasten erosion.</td>
</tr>
<tr>
<td>1.3 Protect archaeological, historical and cultural assets.</td>
<td>–</td>
<td>Higher visitor pressures will hasten erosion.</td>
</tr>
<tr>
<td>1.4 Protect sites of geological interest.</td>
<td>–</td>
<td>Further development (concentrated in areas already developed) will tend to increase pressure on these ecosystems, especially reefs and mangroves.</td>
</tr>
<tr>
<td>2. Keep the Fiji Islands beautiful.</td>
<td>0/–</td>
<td>Concentration of development in already-developed areas will generally protect currently tranquil areas, though proposals for more secondary attractions may encroach.</td>
</tr>
<tr>
<td>2.1 Maintain tranquil unspoiled areas.</td>
<td>–</td>
<td>Development is likely to add to intrusion (although damage will be limited, because it will be concentrated in areas already developed).</td>
</tr>
<tr>
<td>2.2 Avoid visual, aesthetic, noise pollution.</td>
<td>–</td>
<td>Development will generate more visitor traffic, concentrated on corridors (especially Nadi-Suva) that already have relatively high traffic.</td>
</tr>
<tr>
<td>2.3 Minimize traffic and congestion.</td>
<td>–</td>
<td>Concentration of development in already-developed areas risks overheating them.</td>
</tr>
<tr>
<td>2.4 Avoid overdevelopment.</td>
<td>?</td>
<td>It is unclear whether developers will see this as necessary for attractiveness, or an unnecessary extra cost.</td>
</tr>
<tr>
<td>2.5 Promote sensitive, high quality, distinctive design.</td>
<td>–</td>
<td>An emphasis on high-capacity infrastructure is likely to cause damage (e.g., Nadi-Suva road).</td>
</tr>
<tr>
<td>2.6 Make infrastructure unobtrusive.</td>
<td>–</td>
<td>More development will generate more waste. Currently much of this will be littered and/or dumped.</td>
</tr>
<tr>
<td>2.7 Avoid litter, dumping.</td>
<td>–</td>
<td>Large-scale resort development is extremely thirsty, for example, because of golf courses.</td>
</tr>
<tr>
<td>3. Develop within environmental resource carrying capacities.</td>
<td>–</td>
<td>Large-scale resort development is extremely thirsty, for example, because of golf courses.</td>
</tr>
<tr>
<td>3.1 Maintain freshwater resources.</td>
<td>–</td>
<td>Possible effects could occur due to river sand dredging or bad land management during construction.</td>
</tr>
<tr>
<td>3.2 Prevent soil loss/erosion/ sedimentation through, e.g., agriculture, dredging.</td>
<td>–</td>
<td>Nutrients from concentration of development are a threat to reefs.</td>
</tr>
<tr>
<td>3.3 Keep nutrient and pollution levels (e.g., chemical pollution, agrochemical runoff, sewage) within carrying capacities of receiving ecosystems.</td>
<td>–</td>
<td>Waste will increase.</td>
</tr>
<tr>
<td>3.4 Minimize solid waste for disposal.</td>
<td>–</td>
<td>Long-haul flying is highly fuel-intensive.</td>
</tr>
<tr>
<td>3.5 Minimize climate change impacts.</td>
<td>–</td>
<td>Fast growth would entail tourism being given priority over other resource uses.</td>
</tr>
<tr>
<td>4. Improve the quality of life of Fijians.</td>
<td>–</td>
<td>Fast growth would require a relatively crude “buying out” approach to resource rights in certain areas. This is the antithesis of the continuing partnership implied by the objective.</td>
</tr>
<tr>
<td>4.1 Maximize retention of benefits within the Fiji Islands.</td>
<td>–</td>
<td>The risk is that volume and intensity of tourist activity will displace local uses, though effects would be contained in certain areas.</td>
</tr>
<tr>
<td>4.2 Increase resilience and stability of the Fijian economy.</td>
<td>–</td>
<td>Concentration of tourism and money is likely to worsen erosion of traditional cultural norms.</td>
</tr>
<tr>
<td>4.3 Reduce poverty and give benefits to the less well-off.</td>
<td>0</td>
<td>Investors are likely to require fast and high returns to make tourism investment worthwhile; large-scale resorts have higher leakage of benefits.</td>
</tr>
<tr>
<td>4.4 Share benefits with people in areas not developed for tourism (e.g., remote islands, interior areas).</td>
<td>–</td>
<td>Intensive development will further increase dependence on tourism (already the largest foreign exchange earner).</td>
</tr>
<tr>
<td>4.5 Maintain local people’s access to environmental resources.</td>
<td>0/–</td>
<td>Some job opportunities will increase for less skilled people, but in areas where the most opportunities already exist.</td>
</tr>
<tr>
<td>4.6 Do not disrupt or undermine underlying cultural life, norms and meanings.</td>
<td>0</td>
<td>Benefits are concentrated in areas that already benefit from tourism.</td>
</tr>
<tr>
<td>5. Make decisions in ways that reconcile different needs and demands.</td>
<td>–</td>
<td>The rest of this table indicates that the rate of opening up of development opportunities required would be incompatible with an evidence-based approach.</td>
</tr>
<tr>
<td>5.1 Manage resources in a coordinated way.</td>
<td>–</td>
<td>Fast growth would require a relatively crude “buying out” approach to resource rights in certain areas. This is the antithesis of the continuing partnership implied by the objective.</td>
</tr>
<tr>
<td>5.2 Resolve any competition for resources between different activities fairly and accountably.</td>
<td>–</td>
<td>The rest of this table indicates that the rate of opening up of development opportunities required would be incompatible with an evidence-based approach.</td>
</tr>
<tr>
<td>5.3 Promote a reciprocal, respectful relationship between resource owners and tourism developers.</td>
<td>–</td>
<td>The rest of this table indicates that the rate of opening up of development opportunities required would be incompatible with an evidence-based approach.</td>
</tr>
<tr>
<td>5.4 Make negotiations and decisions demonstrably fair, free from corruption and evidence based.</td>
<td>–</td>
<td>The rest of this table indicates that the rate of opening up of development opportunities required would be incompatible with an evidence-based approach.</td>
</tr>
</tbody>
</table>
### Table 3.5. Comparing SEA Objectives with Current Policy Positions and the TDP

<table>
<thead>
<tr>
<th>Objective</th>
<th>Conditions for Tourism Development to Support</th>
<th>Current Policy Position</th>
<th>Relevant TDP Policies (scored +/!/− for effect on objective)</th>
</tr>
</thead>
<tbody>
<tr>
<td>1. Maintain and enhance the Fiji Islands’ environmental quality.</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>1.1 Protect, enhance, and restore special ecosystems, especially mangroves, coral reefs, and forests.</td>
<td>Systematic appraisal of current states and pressures on any fragile ecosystems potentially affected by tourism development; mechanism for setting and enforcing constraints and conditions on development to ensure that development is within carrying capacities.</td>
<td>No universal mechanism. Some individual developments voluntarily take initiatives to protect the environment, but this is piecemeal and dependent on individuals’ commitment and ability to pay. SDB’s provisions for resource inventory, designated areas, and SEA could (depending on implementation detail) achieve this.</td>
<td>+7.7 require EIA +8.2 coastal zone protection and integrated management+8.6 system of designated protected areas+8.8 user fees (etc.) to pay for better environmental management+13.5 marine awareness workshops</td>
</tr>
<tr>
<td>1.2 Maintain and where possible increase populations of species under threat.</td>
<td>Systematic appraisal of current states and pressures of species at risk and possible contribution of tourism to either pressures or conservation measures; mechanism for securing contributions (practical or money) from tourism for safeguarding these populations</td>
<td>Biodiversity strategy provides a base of knowledge about threatened species and habitats (though it emphasizes that knowledge is incomplete). Some tourism businesses are careful to protect species under threat and support conservation initiatives, but this is piecemeal and dependent on individuals’ commitment and ability to pay, while competitors do not. SDB’s provisions, especially for designated areas and a trust fund, could (depending on implementation detail) achieve this.</td>
<td>+7.7 require EIA +8.6 system of designated protected areas+8.7 more development of cultural heritage and tourism+8.8 user fees (etc.) to pay for better environmental management</td>
</tr>
<tr>
<td>1.3 Protect archaeological, historical, and cultural assets.</td>
<td>Systematic inventory of important assets and their significant attributes/qualities, statutory obligation on owners to manage them to conserve these attributes/qualities, and provide reasonable public access; an agency with adequate funding, skills, and statutory powers to monitor and enforce these</td>
<td>This was the intended role of the National Trust, but papers suggest that vicious circle of poor performance and inadequate government funding prevented this.</td>
<td>+7.7 require EIA +8.6 system of designated protected areas+8.7 more development of cultural heritage and tourism+8.8 user fees (etc.) to pay for better environmental management</td>
</tr>
<tr>
<td>1.4 Protect sites of geological interest.</td>
<td></td>
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</tr>
<tr>
<td>2. Keep the Fiji Islands beautiful.</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>2.1 Maintain tranquil unspoiled areas.</td>
<td>Land use planning system to designate tranquil areas and prevent disturbing development in them</td>
<td>No current complete land use plan. Planning controls would be triggered by application to develop in currently undeveloped areas, but because no stated principle of tranquillity is on record, this would not necessarily be taken into account. Complete land use plan promised by 2010.</td>
<td>+7.1 selective / small scale development only in “type B” and “type C” areas+7.1 “encourage range of activities in the terrestrial hinterland,” i.e., currently tranquil areas+8.6 system of designated protected areas</td>
</tr>
<tr>
<td>2.2 Avoid visual, aesthetic, noise pollution.</td>
<td>Design code and design appraisal process (involving qualified architects, landscape professionals, and planners) integral to consenting process, and with teeth—bad designs not allowed to be built. Noise standards applied to all development and associated infrastructure</td>
<td>Planning process could require design appraisal but no systematic, entrenched process.</td>
<td>+7.7 detailed development guidelines including design</td>
</tr>
</tbody>
</table>
### Table 3.5. Comparing SEA Objectives with Current Policy Positions and the TDP (cont’d.)

<table>
<thead>
<tr>
<th>Objective</th>
<th>Conditions for Tourism Development to Support Objective</th>
<th>Current Policy Position</th>
<th>Relevant TDP Policies (scored +/− for effect on objective)</th>
</tr>
</thead>
<tbody>
<tr>
<td>2 Keep the Fiji Islands beautiful (cont’d.)</td>
<td>2.3 Minimize traffic and congestion. Demand management measures to constrain total traffic within road capacity</td>
<td>No policy on traffic numbers</td>
<td>+7.7 ‘adequate utilities and services’</td>
</tr>
<tr>
<td></td>
<td>2.4 Avoid overdevelopment. Limits on concentration of development (taking into account design quality)</td>
<td>Density standards appear in the planning system; not clear they would have desired effect.</td>
<td>+7.1 calls for revised density standards</td>
</tr>
<tr>
<td></td>
<td>2.5 Promote sensitive, high-quality, distinctive design. Design code and design appraisal process (involving qualified architects, landscape professionals, and planners) integral to consenting process, and with teeth—bad designs not allowed to be built</td>
<td>Planning process could require design appraisal but no systematic, entrenched process.</td>
<td>+7.7 detailed development guidelines including design</td>
</tr>
<tr>
<td></td>
<td>2.6 Make infrastructure unobtrusive. Requirements for services to be underground, roads fitting contours</td>
<td>No general rules at present</td>
<td>+7.7 detailed development guidelines partly cover</td>
</tr>
<tr>
<td></td>
<td>2.7 Avoid litter, dumping. Effective antilitter and antidumping rules applied at all tourism sites; cleanups when necessary</td>
<td>Sporadic antilitter initiatives</td>
<td>+7.7 detailed development guidelines could cover</td>
</tr>
<tr>
<td>3 Develop within environmental resource carrying capacities.</td>
<td>3.1 Maintain freshwater resources Requirement that developments avoid abstracting water beyond locally sustainable limits (taking account of other current and future uses in the catchment), if necessary building or contributing to additional collection or storage. (Existing developments also need to move toward this standard.)</td>
<td>No current general rule or requirement for new developments, or mechanism for requiring or giving incentives for existing ones</td>
<td>+7.7 detailed development guidelines could cover</td>
</tr>
<tr>
<td></td>
<td>3.2 Prevent soil loss/erosion/sedimentation through, e.g., agriculture, dredging. Requirement that developments avoid destabilizing soil or beaches in construction or use (including indirect effects of displacing crops or sourcing aggregates)</td>
<td>No current general rule or requirement for new developments, or incentives for reversing past damage</td>
<td>+7.7 detailed development guidelines could cover.+8.2 integrated coastal zone management.</td>
</tr>
<tr>
<td></td>
<td>3.3 Keep nutrient and pollution levels (e.g., chemical pollution, agrochemical runoff, sewerage) within carrying capacities of receiving ecosystems. Requirement that new developments achieve zero nutrient release to watercourses or the sea, and that existing developments be similarly retrofitted</td>
<td>No current general rule or requirement for new developments, or mechanism for requiring or giving incentives for existing ones, though some operators have taken enlightened approach voluntarily</td>
<td>+7.7 detailed development guidelines could cover.+8.2 integrated coastal zone management.</td>
</tr>
<tr>
<td></td>
<td>3.4 Minimize solid waste for disposal. Requirement that industry compost or digest all biodegradable wastes, minimize use of materials and packaging that cannot in practice be reused or recycled, and maximize recovery of materials</td>
<td>No national policy on waste minimization, reuse, recycling, and composting. New sanitary landfill being built on Viti Levu. Waste collection standards vary. Only a little tokenistic recycling.</td>
<td>+8.2 integrated coastal zone management refers, but without clear recommendations.</td>
</tr>
</tbody>
</table>

continued next page
Table 3.5. Comparing SEA Objectives with Current Policy Positions and the TDP (cont’d.)

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</tr>
</thead>
<tbody>
<tr>
<td>3.5 Minimize climate change impacts.</td>
<td>Need to reduce “climate change intensity” of tourism, especially by reducing air travel impacts in proportion to tourism benefits</td>
<td>Fiji Islands has signed international conventions, but has undertaken little practical action.</td>
<td>+7.7 good guidance about energy efficiency in developments.</td>
</tr>
<tr>
<td>4 Improve the quality of life of Fijians</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>4.1 Maximize retention of benefits within the Fiji Islands.</td>
<td>Development with highest possible local ownership, investment, sourcing of goods and services within the Fiji Islands</td>
<td>Grant and loan schemes favor larger, more capital-intensive investments likely to be foreign financed.</td>
<td>-7.2,12: support for (by implication largely foreign) investment;+7.7 encourage use of local craft skills;+8.7 support for ecotourism;+11 support for smaller enterprises</td>
</tr>
<tr>
<td>4.2 Increase resilience and stability of the Fijian economy.</td>
<td>Diverse tourism markets; maximizing visitors with specific reasons to come to Fiji Islands; avoiding overdependence on generic sun-sea-sand market; spreading tourism nationally; minimizing investment risk to the Fiji Islands if development fails.</td>
<td>National policy of fast expansion will increase reliance on tourism (already a high proportion of foreign exchange) and will rely on the kind of investment-intensive, concentrated, generic development that is most risky.</td>
<td>“step change” philosophy-7.2,12: support for (by implication largely foreign) investment;+8.7 support for ecotourism;+11 support for smaller enterprises</td>
</tr>
<tr>
<td>4.3 Reduce poverty and give benefits to the less well-off.</td>
<td>Standards to ensure that poorer local people have full and effective engagement in decisions, that employment opportunities for local people at all skill levels are maximized, that infrastructure and services provided for tourism benefit rather than exclude local people on lower incomes.</td>
<td>Traditional land and fishing rights should ensure that local people can reject development if not satisfied it will provide sufficient benefits. However, it is not clear this always takes adequate account of needs of the poor or marginalized groups. Establishment of Resource Owners Association and increase in consultative/joint management approaches are improving the situation.</td>
<td>!7.2 TDAs aim to resolve rights in advance; depending on details this could either safeguard or exclude rights of poor.</td>
</tr>
<tr>
<td>4.4 Share benefits with people in areas not developed for tourism (e.g., remote islands, interior areas).</td>
<td>Sustainable tourism developed in other areas; mechanism initiated (e.g., trust fund) to redistribute monies from environmental user fees; compensatory projects commissioned in areas with fewer benefits from tourism</td>
<td>No current mechanism proposals in SDB</td>
<td>+8.8 mechanisms to collect and allocate funding for environmental management;+9.8 more user charges</td>
</tr>
<tr>
<td>4.5 Maintain local people’s access to environmental resources.</td>
<td>Standards to ensure that tourism developments never exclude local people from subsistence activities (e.g., fishing, farming) or displace them without providing full substitutes.</td>
<td>Traditional land and fishing rights should ensure that local people can reject development if not satisfied it will provide sufficient benefits. However, confusion over lease agreements has created conflicts. Establishment of Resource Owners Association and increase in joint management approaches are improving the situation.</td>
<td>!7.2 TDAs aim to resolve rights in advance; depending on details this could either safeguard or exclude rights of poor. +8.2 integrated coastal management to recognize traditional uses.</td>
</tr>
</tbody>
</table>
Table 3.5: Comparing SEA Objectives with Current Policy Positions and the TDP (cont’d.)

<table>
<thead>
<tr>
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</tr>
</thead>
<tbody>
<tr>
<td>4.6 Do not disrupt or undermine underlying cultural life, norms, and meanings.</td>
<td>Volume of tourism and tourist development limited to levels that do not undermine local communities</td>
<td>No explicit “social carrying capacity” assessment</td>
<td>+7.1 Zoning seeks to restrain development in sensitive areas.</td>
</tr>
<tr>
<td></td>
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<tr>
<td>5 Make decisions in ways that reconcile different needs and demands.</td>
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</tr>
<tr>
<td>5.1 Manage resources in a coordinated way.</td>
<td>Tourism development guided by a national process of assessing and allocating resources; integrated coastal management</td>
<td>No current process. SDB proposes National Resource Management Plan. Program of work on integrated coastal management.</td>
<td>No specific reference. EIA at level of individual projects (+7.7) could—if done well enough—partially address this.</td>
</tr>
<tr>
<td>5.2 Resolve any competition for resources between different activities fairly and accountably.</td>
<td>Thorough consultative process in which all traditional and commercial interests/users are represented to resolve resource conflicts before any project commitment is made</td>
<td>Consultation of traditional owners provides a basis, but needs to ensure that all interests fairly reflected. Some voluntary consultative processes are helping, but without statutory backing.</td>
<td>-7.2: TDA idea sees traditional owner interests as a potential obstruction to be bought out in advance rather than actively involved in development.</td>
</tr>
<tr>
<td>5.3 Promote a reciprocal, respectful relationship between resource owners and tourism developers.</td>
<td>Active engagement of local communities in cooperative management of resources, not only as employees or agents of developers</td>
<td>Some good examples of partnerships, but not entrenched or given much support by current formal structure of lease negotiations.</td>
<td>-7.2: TDA idea sees traditional owner interests as a potential obstruction to be bought out in advance rather than actively involved in development.</td>
</tr>
<tr>
<td>5.4 Make negotiations and decisions demonstrably fair, free from corruption, and evidence based.</td>
<td>All relevant social and environmental impact information “on the table” and open to comment before decision process in which all stakeholders have a say.</td>
<td>Decision and permit processes generally opaque; evidence base varies.</td>
<td>+7.7: supports social and environmental impact assessments.</td>
</tr>
</tbody>
</table>

EIA = environmental impact assessment; SDB = Sustainable Development Bill; SEA = strategic environmental assessment; TDA = tourism development area; TDP = Tourism Development Plan. Score (from best to worst): ++, +, 0, -, ---; *= unsure; = complex effects.

However, it is clear from numerous previous reports that the Fiji Islands has a serious “implementation gap.” Many impressive statements of policy and intent are made, but they do not reflect what is actually happening, which is very little. While national legislation is important, therefore, local-level initiatives must receive greater appreciation and adoption. Two examples, currently taking place within the Fiji Islands, are the Fiji Locally Managed Marine Area Network (Box 3.3) and Integrated Coastal Management (Box 3.4).

**Issue 2: The Fiji Islands must develop tourism within its environmental carrying capacity.**

The assessment indicates that many environmental pressures are near, and possibly over, levels at which, if action is not taken soon, irreversible damage could result. The “step change” called for in the TDP will result in large-scale development and, unless very carefully managed, will tip the balance.

Many examples of good practice on particular issues have been noted. General guidelines for more sustainable tourism developments exist (Box 3.5). Although the guidelines are specifically for reducing impacts of small-scale resorts, they could be applied to larger ones. Specific guidelines for larger resorts may be produced in the near
Box 3.3. The Fiji Islands Locally Managed Marine Area Network

The experience of the Fiji Locally Managed Marine Areas (FLMMA) network provides an illustration of how to mainstream community-based resource management that began with local communities, and were in turn supported by a Government that has witnessed the success of community-based intervention. To improve the success level of conservation in the communities and attract attention to its approach, FLMMA formed a learning portfolio. This is a network of projects that use a common strategy to achieve a common end and agree to work together to collect, test, and communicate information about the conditions under which the strategy works. The learning portfolio enhances collaboration and also ensures that lessons learned are shared widely with people in the network. FLMMA is working to increase the effectiveness of conservation and to ensure that the involvement of people in the management of their marine resources is both satisfying and meaningful.

Modern science is an important part of the FLMMA approach, because it is used to demonstrate the effects of the use of traditional resource management practices. Using simple biological, social, and economic monitoring methods, the villagers are collecting impressive results on resources and habitat recovery and the associated social and economic improvements in living conditions.

The success of community-based conservation in different parts of the Fiji Islands has resulted in long-term support from the communities. It has also facilitated the articulation of government fisheries development policies. The Government has set up a new conservation unit and has formalized its support, and adopted the FLMMA method of involving local community units in the sustainable use of their marine resources. Under FLMMA, the success and combined experiences of conservation practitioners are being used to mainstream resource conservation and influence policy development in the Fiji Islands.


Box 3.4. Integrated Coastal Management in the Fiji Islands

In many coastal areas of the Fiji Islands, people are not benefiting from development and resources are continuing to be degraded. This is due to the current approach to managing coastal and marine resources. Current practice combines government sector policies and local-level initiatives. Although this approach is in some cases achieving significant results, it is not seen as sufficient. The absence of cross-sector planning often leads to conflict among coastal resources uses and users. A program supported by the Packard Foundation and carried out by the University of the South Pacific is looking at the viability of integrated coastal management (ICM).

ICM is a continuous and dynamic process that combines government and the community, sciences and management, sector and public interest in preparing and implementing an integrated management plan for the protection and development of coastal ecosystems and resources.

It was felt that although multiple small-scale coastal management projects in the Fiji Islands have succeeded (such as FLMMA), mechanisms to sustain and expand these approaches are insufficient due to lack of a cohesive policy framework at either the national, district, or local level. In the first stage of the program, a meeting was held to look at joint planning and the implementation of appropriate resource management schemes along the Coral Coast, combining input from the national Government, local communities, nongovernment organizations, and the private sector. The project is currently looking for further funding to take the findings from the first workshop forward.

This guide provides simple ideas for actions that small hotel owners can take to save energy and minimize damage to the environment while operating a hotel.

**Construction and Building Design**

A lot of damage can be caused during the building phase of the project: there is not much point in planning an environmentally friendly resort and then destroying your environment during construction. Environmentally sustainable tourism starts before construction. Designing buildings with environmental considerations from the start will avoid many problems later on.

**Minimizing Energy Use**

More efficient use of energy and fuel reduces air and water pollution and also keeps your costs down— it makes sense all round! Many hotels waste a lot of power because they have never looked closely at how it is being used.

**Minimizing Water Use**

Water is a scarce resource in the Pacific— scarce on many outer islands, and expensive on the main ones. Water conservation should be a very important environmental goal. In addition, freshwater running into the sea from hotel drains can kill corals and impact your coral reef.

**Minimizing Rubbish And Garbage**

Rubbish and litter are a huge problem in the Pacific. They can totally spoil a tourist’s stay, ruin the natural look of the environment and often cause harmful pollution. Waste disposal is a major problem, especially in outer islands, and needs to be properly and seriously managed.

**Minimizing Discharges And Emissions**

All hotels and small resorts produce a number of discharges that have the potential to pollute air, land, and water. Know what these are and how to prevent them from ruining your resort.

**Landscape Management**

Gardens and neat landscapes are important to hotels and resorts. However, too many times people cut down the local trees and plants and bring in plants that are not native to the area.

**Suppliers and Contractors**

As well as your own environmental management, you must look at who you buy your products from. If you are buying from firms that damage the environment, you are partially responsible for the damage they do. Look for firms who have good environmental management policies and records of their own.

**Staff and the Local Communities**

The resort environment cannot be separated from its surrounding environment. You cannot keep your grounds clean and beautiful if the area around you is polluted and littered. Therefore, it is in the interests of all operators to take part in efforts to improve the surrounding local environments and to educate and assist the local communities to make their own improvements.

For each of these issues advice on what to do and how to do it is given.

Source: Aalbersberg et al. 2003.
future. Some hotels have introduced their own schemes; for example, nutrient capture by artificial wetlands at the Shangri-La Fijian Resort (Box 3.6).

It is clear that considerable expansion could be environmentally sustainable. This does not require any novel ideas, only thorough and consistent application of the best methods already being practiced by some parts of the industry.

Issue 3: The Fiji Islands needs to develop tourism at a pace and scale that equates more closely with its resources, constraints, and risks.

To develop tourism as set out in the TDP requires large amounts of investment finance and technical know-how, and the ability of areas to absorb large numbers of people and use large quantities of natural resources. The issues of environmental carrying capacity, such as lack of investment finance, lack of capacity, and lack of access to customary land, remain persistent and pervasive. The fact that efforts toward “mass tourism” will expose the Fiji Islands to greater external risks implies the need for the careful development of tourism.

The Fiji Islands is more suited to a smaller-scale, slower pace of development. This would be more aligned to the resources it possesses, as well as allowing the country to utilize its comparative advantages—the stunning environment and strong community structure—without eroding the distinctiveness of what it has to offer. Such an approach will reap greater rewards for more Fijians far into the future.

Lessons can and should be learned from tourist development in other Pacific Island countries. The example of Samoa (Box 3.7) is interesting. In the early 1990s, efforts were made to develop large-scale tourism. The past 10 years has shown that tourist development has taken place at a slower pace, more in line with the existing resources and constraints.
Issue 4: The Fiji Islands needs to spread the socioeconomic benefits of tourism and reduce leakage.

Tourism needs to develop so that the economic benefits it generates stay within the country and are more evenly spread across it, particularly to the poorest parts of the Islands. Such a pattern of tourist development is more aligned to small-scale community-based “ecotourism,” run or jointly owned by local populations. This type of tourism is more reliant on local expertise as well as local products.

At present, there seems to be some confusion in the Fiji Islands about what actually constitutes “ecotourism.” It is therefore vital that before ecotourism projects are supported, clear guidance is available on what it is and what is expected from potential ecotourist lodges. In some areas, tourist operators have worked together and have agreed to implement and be bound to codes of conduct (see Appendix 1). The Nacula Tikina Tourism Association covers the Nacula district in the Northern Yasawas. One of the lodges established is Oarsman’s Bay (Box 3.8).

As a national priority, any development activities should spread economic benefits to all parts of the country and target those areas most in need. Tourism in the Fiji Islands is very concentrated. The TDP proposes to concentrate the industry even further. Efforts are needed to promote pro-poor tourism. One project proposed by Dive Fiji to spread the tourism dollar are Liveaboard operations. Liveaboards are small cruise boats specifically designed to carry divers from one dive site to another. The idea is to train communities in nontourist areas of the Fiji Islands to take ownership of the boat while a dive company is contracted to run the
Box 3.8. Cases of Socioeconomic Benefits Derived from Ecotourism

Ecotourism: Oarsman’s Bay Lodge, Yasawas

Located on the southwestern tip of Nacula Island in the Yasawa Group, this resort was initiated by the Tui Drola, paramount chief of the island, to provide a permanent source of income for his people. He sought the assistance of Richard Evanson, the owner of Turtle Island Resort, regarding the development of a resort. Evanson agreed to put up the money for this lodge and another. The resort has six double bure (a traditional Fijian house), three family units, and the main center (office/reception, restaurant, and kitchen). Two more family units will be built. Estimated cost of the project is F$0.5 million. The resort is mid-market and has been built on unleased land.

From development to operation, the management of the resort has totally been in the hands of Evanson/Fairley. Evanson chairs the board. Members include, among others, Tui Drola and Andrew Fairley (a Melbourne lawyer who is responsible for the marketing of Turtle Island Resort). Tui Drola is the Managing Director. No cash changes hands on the island, as all payments are either by credit cards or vouchers.

Funding was provided by Evanson as an interest-free loan. Repayment varies according to monthly performance. All of Tui Drola’s families are involved in the resort. Resort ownership is 30%, Tui Drola, and 70%, Mataqali (clan). All the money made is fairly distributed among this group.

The success of the resort has been due to a number of factors: the stunning setting of the lodge, unique funding arrangements, involvement of the community in the resort, the hands-on approach, and the realization of benefits (employment and increased income) by the villagers.


An Example from St Lucia: Pro-poor Tourism

The European Commission and the Government of St Lucia developed and funded a tourism program to promote pro-poor tourist development, because it was clear that the poor were receiving few benefits from the tourist industry. The program had two aims: to improve the distribution of benefits from the existing tourism sector and to establish heritage tourism as a viable and sustainable component of St Lucia’s tourism product.

The program’s emphasis was on enhancing the impact of tourism on communities. It worked simultaneously in five areas: policy, product development, public awareness, capacity building, and niche marketing.

The program, as of the time of writing, is in its second year and some conclusions can already be drawn. Most importantly, it has generated a new conception of tourism within the country and the need to transform the tourist product. It has also illustrated the link between the social institutions on one hand and the capacity to stimulate economic growth on the other. Communities better understand and want a stake in tourism development, with projects based on using their traditional skills. It was also found that branding and marketing is central to the success of the program.

The program emphasizes that national-level initiatives toward pro-poor tourism need to be guided by a clear vision and objectives such as environmental sustainability, social cohesion, and cultural integrity. This vision must be backed up by strong commitment from the national Government, particularly in forming policy and establishing institutional structures.

Another conclusion emphasizes that pro-poor tourism requires an established tourism industry and associated infrastructure, which more easily provides the conditions to develop initiatives to reduce poverty.

A partnership agreement is established with the hope of bringing benefits to both parties. A more ambitious program has been undertaken in St. Lucia to promote pro-poor tourism. This is briefly described in Box 3.8.

**Issue 5: An improved, bottom-up process is necessary for processing tourism development on native lands.**

The current system of tourist development on native land involves a range of government bodies, resource owners, and developers. This makes it confusing to all parties involved. As highlighted, misunderstanding about leases can cause tensions between communities and tourist operators as well as within and among communities. Moreover, such processes often lack the appropriate participation of all stakeholders, who may not be adequately informed. Decisions pertaining to tourist development urgently need to take place in a more transparent and participatory manner. For the industry to prosper now and into the future, resource owners have to play a crucial role.

A critical issue for the future of tourism development in the Fiji Islands is the leasing of native land. As stated throughout this report, if tourism development is wanted in the Fiji Islands, most of it will have to happen on native lands, with the backing of the resource owners. They, in turn, want a greater say about how development proceeds on their land and about the returns they receive. Lease agreements between developers and landowners need to be more than bargaining between two parties about what economic benefits the communities should receive. Closer, working relationships between the two groups, now and into the future, are needed to actively involve communities in development and ensure that no conflicts will arise. A case where these groups have worked well together is Rivers Fiji (Box 3.9).

The resource owners must play a more active role, both during lease negotiations and in the overall strategic direction of tourism within the Fiji Islands. At present, the direction of tourism is being decided independently of the people whose land will have to be used to develop it.

Communities must be properly informed of potential impacts on their land, now and into the future. The actual decision-making process needs to be made more participatory, to ensure that all decisions between developers and landowners are widely understood and supported. To this end, when the developers outline their plans to the community, input and consultation is needed from independent advisors, for example groups in the FLMMA network or WWF. This will ensure that decisions made are based on the best available information.

The Ministry of Tourism needs to play a more active role in the process. A dedicated staff member should be created who can act as a conduit between the two groups and ensure that tourist development is aligned with the Ministry’s vision. This person would be able to help developers work through any land issue. The NLTB must work closely with the Ministry of Tourism.

**Issue 6: User fees are lacking to pay for sustainable tourism.**

Greater attention needs to be given to the use of economic instruments and disincentives to pay for sustainable tourism. Countries around the world have introduced various economic instruments to capture some of the value of their biodiversity and ensure that those who enjoy it pay for it. The Fiji Islands is missing a real opportunity to receive revenue from visitors for its biodiversity that can be used to help ensure its long-term survival.

In 2001, an economic valuation of the terrestrial and marine resources of Samoa was carried out (Shahwahid and McNally 2001). This valuation identified where user fees could be introduced so that Samoa could capture some of the value of its own natural resources. The process has helped with the establishment of an environmental fund.

Fees can also be levied indirectly on the users of biodiversity amenities and earmarked for conservation purposes: for example, on fishing or diving equipment. They can also be levied on tourists arriving or departing the country. Such a tax was successfully introduced in the Cook Islands (Box 3.10).

The user fees can take many different forms. A Pacific Island country that has successfully introduced diver fees is the Island Republic of Palau. Here divers pay a weekly user fee of US$15 to the local authorities; 50% of the collected fee is used to ensure the protection and preservation of the area, while the other 50% is used to compensate the local population for resource restrictions. The dive fees amount to an average of US$40,000 a year,
This venture started in 1997 and operates adventure tours to the rural highlands and coastal areas of Navua. The villages involved are: Nabukelevu, Naboutini, and Nakavika. The project was established in the Upper Navua Conservation Area (UNCA), which is a 17-km conservation corridor. The company involved was able to convince landowners and the Native Lands Trust Board (NLTB) not to allow the area to be logged and was granted a 50-year lease. This is the first such lease for conservation in the Fiji Islands. In return for the lease, landowners and NLTB receive lease monies, user fees, employment, and income from other activities. The business is founded on a comprehensive and reinforcing partnership to protect the environment between the American shareholders of the company, landowners, and guests.

The company believes that cooperation with local communities will make its “programs” successful. The following practices have therefore been incorporated into its daily operations:

- Guiding priority is given to those who live within the project area;
- Direct payment of lease monies and part of guest fees is made to each Mataqali (clan) and village after each trip;
- Assistance is given to village fundraising; and
- The best available training is provided to employees, including 3-month guide school, swiftwater rescue, and first aid.

Several mechanisms are also in place to allow landowners to participate in the long-term sustainability of the company:

- The Mataqali are responsible for approving lease/operational management plans for UNCA, and for the hiring process, using traditional selection systems;
- River trips are mounted for children as a means of gaining long-term support for UNCA;
- Regular meetings are held with Mataqali to discuss project benefits, UNCA management, etc;
- Awareness campaigns and international events are mounted; and
- The Mataqali appoint a liaison officer who participates in meetings on UNCA and its operations.

The company regards meetings with local communities as highly important, and feedback is incorporated into its decisions. Indeed, the company has implemented several strategies incorporating feedback from community meetings. All decisions with cultural and environmental implications are brought to the guides and Mataqali for consultation before implementation. The result of all these efforts is that the overall response from the community is very positive.

Guides also share “leave no trace” and minimum impact techniques with guests to help protect the environment. Guests also get briefed on culture and tradition: protocol re dress and behavior, kava ceremonies, etc. Guests are also advised not to give to individual families and instead make educational and monetary contributions to the community as a whole.

Success factors include extensive consultations with landowners before and during the project. Consultations are treated seriously and incorporated into business strategies. A deliberate policy action was taken by the company to ensure that benefits of the project are maximized to landowners. There is also high-quality guide training and involvement in operations of the business, as well as high motivation of guests to observe environmental practices on tours.


which has helped bring environmental and social improvements to the area. Diver fees were also introduced in the Bonaire Marine Park in the Dutch Antilles (Box 3.11).
The Bonaire Marine Park in the Dutch Antilles has a total of 2,600 hectares of coral reefs, unspoiled seagrass beds, and mangroves. Initially, many different funding options were considered for the park, including a system of franchises for local dive operations, a general "nature tax," and a system of admission fees for selected users. In 1992, a diver admission fee was introduced: this was set at US$10 per diver per calendar year.

Divers pay the admission fee as part of their standard check-in procedure. The monies are channelled directly to the Marine Park. The funds are used for maintenance, information and education, research and monitoring, and law enforcement. Park users therefore have the assurance that the monies they pay in admission fees are used for nature conservation.

In the beginning, the dive industry was sceptical about the introduction of admission fees for divers, as they felt divers were being unfairly targeted and that Bonaire as a destination would be less competitive. In fact, the US$10 fee is now used as a positive marketing tool, demonstrating Bonaire's strong commitment to marine environmental protection. Divers have never expressed concern at the US$10 fee and in fact, according to a 1991 survey, they said they would be willing to pay up to US$25 per year in admission fees.

Bonaire Marine Park is one of the first marine parks to become entirely self-financing. The scheme has also been successful in virtually eliminating destructive activities, such as spearfishing and coral collecting, and has helped secure the long-term future of its reef ecosystem. It has become so popular, however, that diver numbers continue to increase and are close to the carrying capacity of the area.


Conclusions and Recommendations

Main Findings

At the aggregate level, the environmental impacts of tourism on the Fiji Islands have not been significant. However, there are particular areas where serious environmental degradation is being caused. In these areas, the situation is extremely precarious. Many environmental pressures, for example on coral reefs, are close to levels at which irreversible damage could occur. Further pressures could tip the balance, resulting in long-term environmental damage.

Tourism is currently providing considerable economic benefits to the Fiji Islands. However, these economic benefits are far smaller than the gross tourist spend figures suggest; some estimates indicate that more than 60% of the money coming in leaks back out of the country. Also, the loss of earnings from other sectors, especially the sugar industry, leaves the Fiji Islands' economy highly dependent on the tourism sector.

The kinds of “step-change,” large-scale, high-investment tourism advocated in the TDP would tip the balance. This type of development is highly demanding of the natural environment in terms of resources used and pollution generated. Seeking “step change” in tourism development is likely to cause problems for a number of sustainability objectives; in particular, it could lead to growing tensions between tourist developers, landowners, and local communities.

Adopting a Cautionary Approach to Tourism Development

All concerned are urged, therefore, to take a cautionary approach to future tourism development: that is, to give great weight to safeguarding the benefits and advantages the Fiji Islands currently has, and avoiding any action that could undermine them.

Conclusion 1: Seeking “step change” in tourism development is likely to cause problems for a number of sustainability objectives. Therefore, a different direction for tourism within the Fiji Islands is suggested. Accordingly, it is recommend that the Government should
Set growth objectives and targets for tourism in terms of benefits to the Fiji Islands rather than as gross volume of traded activity, and to treat (and evaluate) expansion in tourism activity as a means to increase the benefits for the country rather than as an end in itself.

Concentrate support on those kinds of tourism that put more into local economies/have lower leakage, such as ecotourism; community-based tourism; special-interest tourism; and travellers who are not “packaged” and are more likely to use and support local transport, markets, and lower-capital, locally owned facilities.

Establish effective “bottom-up” tourism planning at province and tikina level, and permit only tourism developments that are approved through such a process. A prerequisite for this would be building the capacity of local communities to understand the options available to them and the potential benefits as well as disadvantages of tourism, to enable them to make informed and intelligent decisions about the kinds and scale of tourism development they would wish—and not wish—to see. Tourism development projects

Box 3.11. Environmental Protection Fund in the Cook Islands

In 1994, the Government of the Cook Islands set up its Environmental Protection Fund (EPF). The fund is made up of the proceeds from part of the country’s departure tax (in 2000, it amounted to NZ$5 of a total departure tax of NZ$25). It was felt that most tourists visited the country to experience its beautiful environment and would not object to paying this additional amount. The funds are earmarked specifically for the conservation and protection of the country’s natural environment, more specifically the protection of the reef and foreshore, soil conservation, and protection from pollution to land, sea and air. In 1999 the fund captured approximately NZ$225,000.

An EPF Committee was established to oversee the fund and to assess and evaluate grant proposals. This fund initially had problems: the monies were collected and controlled by the Treasury and there was little transparency to the use of the receipts. The committee collapsed, principally as a result of the lack of clear leadership and the fact that it did not have clear control over the fund.

With pressure from the Environmental Council and environmental NGOs, the issue of where the EPF was going came to a head in 1998. This resulted in a dedicated EPF account being established in a local bank controlled by the Government’s environmental institutions. In 1999, these bodies received NZ$297,000 from the EPF. The EPF Committee has not been reestablished; the Environmental Council now approves grant proposals.

It could be argued that the Government is still using the monies for general revenue purposes and simply using this money to replace what would have been committed to these bodies anyway. However, spending on environment-related projects in the Cook Islands has increased as a result of the fund.

The major lessons from establishing the trust fund is the need to stipulate from the outset that the funds be placed into an account earmarked for conservation purposes. The allocation of funds should be made transparent and be closely monitored, and not used to replace existing expenses on the environment. An independent board of trustees should be established to oversee the fund.

At present, no advertisement is made of the fact that part of the departure fee goes toward protecting the island’s environment. Most visitors come to the islands to experience a pristine environment and have paid significant travel expenses to get there. It is likely they would be more willing to pay a tax if they knew it was going to meet environmental objectives.

should go ahead only when such a process supports it.

- Design and successfully implement programs to reduce economic leakage from resort-based tourism substantially. A prerequisite for this would be a rigorous study establishing what is the real leakage from different kinds of tourism activities in the Fiji Islands.

These directions may appear inconsistent with the TDP’s growth objectives. However, they may be more likely to achieve lasting benefits than an emphasis solely on maximizing the rate of growth of the tourism economy measured in visitor arrivals or contribution to GNP.

These directions define forms of tourism that may provide more net benefits to the Fiji Islands and Fijians than a push for conventional development. The reasons:

- They are generally less intensive in infrastructure and capital, thus reducing the amount of earnings that must be “clawed back” to pay for investment;
- The kinds of facilities and infrastructure they require are more capable of being produced and managed within the Fiji Islands, thus increasing retention of earnings in the economy;
- They have potential for fairer distribution between different locations, and therefore spread benefits more widely among different Fijian communities (i.e., they are not all concentrated on coral-reef coastlines);
- They have greater potential for integrating with traditional ways of life, both contributing to cultural continuity and providing a “fallback” in case of failure of the tourism industry (another form of resilience);
- They are likely to impose smaller costs on public infrastructure providers.

It is therefore suggested that these directions should be seen not as a second-best, to be reluctantly accepted by the Fiji Islands because of global uncertainties, but rather as “no regrets” policies that can yield important benefits anyway, as well as helping safeguard the Fiji Islands’ tourism future against multiple risks and uncertainties. Moreover, they are entirely consistent with a great many of the detailed actions and objectives of the TDP, although they would imply some changes.

Environmentally, the cautionary principle calls for very simple tests to be applied to all tourism development. A simple rule of thumb is suggested: tourism developments should be required not to add to pressures on any of the environmental resources that have been identified as under pressure at the national level or in any individual areas.

All the foregoing recommendations tend to point consistently toward a general set of directions for tourism:

- Limiting the scale of tourism to environmental and social carrying capacities;
- Using local produce, skills, and investment as much as possible;
- Basing tourist activity on what is identified as special and distinctive about the Fiji Islands, and reaching people who will have a strong motivation to come to Fiji for that, rather than on competing in a generic “sun, sea, sand” market;
- Maintaining the Fiji Islands’ distinctiveness while maintaining good standards in all aspects of service provision; and
- Diversifying tourism into interior areas of the islands.

They also point to specific technical standards and approaches to the construction and design of tourism resorts and other facilities:

- Minimizing consumption of energy, water, and nonlocal materials and products, through, for example, design of passive ventilation, solar panels, and the collection and reuse of rainwater on-site;
- Fully reprocessing wastes (especially sewage, wastewater, putrescible wastes) back to a state that causes no environmental pressure—in particular, achieving zero release of nutrients or pathogens to groundwater or watercourses; and
- Not damaging or disrupting natural habitats, especially forests, mangroves, and coastlines.

Impact assessments must guide tourism development. This calls for an ambitious standard of appraisal of projects. EIA would have to

- Identify any aspects of the environment that could be significantly affected by the
development, including cumulative, indirect, and synergistic effects;

- Assess the importance of each of these, including which people or social groups are potentially affected, how trends compare with target levels, and whether anything could substitute or make up for the environmental damage; and
- Derive constraints or conditions under which development would be acceptable.

This assessment goes beyond more conventional EIA practices. The emphasis on cumulative, indirect, and synergistic effects would be necessary to ensure that individually acceptable projects do not lead to incremental degradation. This would mean that on occasion, a project would need to be turned down despite being as good as—or perhaps even better than—another project already accepted, because the cumulative result would be to exceed some environmental capacity.

A system for carrying out assessments is the easy part, and is of very little use unless there is also a fully effective system for enforcing conclusions. While a lot of developments are following good practice, the Fiji Islands lacks the framework to enforce them. Much of the policy, legislation, and regulation needed to ensure this enforcement framework exist on paper. In particular, most of the detailed policies in the TDP would further the kinds of activities that would help promote sustainable tourism. However, much of the necessary legislation has not been enacted, or has not been implemented or applied.

Conclusion 2: In order for tourism expansion to become sustainable, full implementation of institutional and regulatory frameworks for environmental assessment and management, including capacity building and enforcement, must occur. The following recommendations support this conclusion:

- The Government of the Fiji Islands should implement and enforce the environmental policy, assessment, and management framework that already largely exists on paper in the form of many statements of government policy and reports endorsed by the Government over the years.
- In particular, the SDB should be enacted as soon as possible and fully implemented, including the necessary budgets and resource allocations. This will provide much of the machinery required. Passing and then fully implementing this legislation would be the single action that would do most to “mainstream” sustainable environmental management and signal the Fiji Islands’ environmental commitment to the rest of the world.
- Many of the detailed policies and proposals in the TDP (as identified in the detailed appraisal matrices in section IV) should also be fully implemented.
- All tourism developments should be required to meet the minimum impact standards set out above unless a properly specified EIA identifies any “headroom” for impacts.
- Government and other stakeholders should support partnerships between tourism developers and local communities to manage environmental resources for the common benefit of all.
- An environmental fund should be established from user fees.

By following the above guidelines, the Fiji Islands will be able to develop tourism at a pace and scale more in line with the resources and constraints that exist within the country and while bringing long-lasting benefits to the country.

Lessons Learned
Usefulness of SEA as a Tool

The SEA process provided a helpful structure and “road map” for assessing the environmental impacts of the TDP. It justified the time required to complete several steps that were essential to achieve the objectives of the project. SEA is a generic tool; it was hoped and expected that it would prove applicable and useful in circumstances very different from those where it originated, and this proved to be the case.

Adaptation of SEA to the South Pacific Context

The project raised important points about emphasis and application, which should be reflected in future use of SEA in the South Pacific and any guidance produced.
Environmental Baseline

An environmental baseline—collecting and collating the available information about environmental states and pressures—was essential to understanding the way tourism is affecting the environment. Substantial literature was uncovered and numerous individuals were found to be working in this area that provided us with good insights into environmental states and pressures. This project provided a body of knowledge that enabled clear and robust conclusions to be drawn. The presence of the regional University with an Institute of Applied Science was a great benefit.

Lesson 1: The existence of studies carried out in the region and a large pool of local expertise was crucial in drawing robust conclusions. Universities, NGOs, government agencies, and consultancies based in the region are all important sources of information.

Relevant up-to-date information was harder to obtain on many key social and economic questions. The danger of discounting the weight given to these areas because of relatively poor information was real.

Lesson 2: Where “hard” information is not available, assessors should make estimates or judgments, based on the best available information (including information from other countries). Important issues should not be discounted because of data availability.

Combined Environmental, Economic, and Social Appraisal

The option of looking at social and economic issues together with environmental issues proved essential for getting a coherent understanding and formulating practicable recommendations. It proved possible to formulate an argument that the same approaches to tourism that are necessary for environmental protection would also be beneficial for social and economic objectives that made it possible to get beyond confrontation and suggest a future path that (on the evidence so far) a wide range of interests will support.

Lesson 3: Assessments should always consider social and economic aspects as well as environmental ones.

Outcome Objectives

Plans and policies often formulate objectives in input or output terms (especially in the economic sphere). SEA objectives will not necessarily be the same as plan or policy objectives, but should be based on “outcomes” in terms of the overall sustainable development aims of “improving the quality of life within the carrying capacities of a sustainable ecosystem.”

Lesson 4: Emphasizing outcome objectives is essential to formulating the proposed future path.

Review of Current Policies

SEA guidance assumes that once a strategy or policy is duly adopted, or laws or regulations enacted, that they will be enforced—i.e., that what is written in official documents generally happens. This is seriously misleading in the Fiji Islands, which has lots of impressive policy, much of which is not implemented.

Lesson 5: The assessment of current policies must ask both what is “officially” stated (in laws, regulations, government plans, strategies, policy statements, and the like) and what is really happening, and to seek to understand the reasons for discrepancies between the two.

Assessments must avoid making recommendations for which implementation capacity does not exist.

Lesson 6: The SEA’s recommendations must, wherever possible, be consciously designed to be within the capacity (including political, cultural, skill, time, and money) of the “target” organization(s) to implement. If recommendations must be made that are beyond current capacities to carry out, “second-order” recommendations should be made as to how the necessary capacities could be developed.

Parallel and Overlapping Activities

The European Directive presents the SEA as an orderly, linear, stepwise process. On this occasion, on the other hand, four different streams of work were carried out in parallel:

- collecting and analyzing background data;
- formulating ideas (initially intuitions, hunches, and speculations about problems and solutions);
testing the views and reactions of stakeholders; and
drafting project outputs, including sections of the final report.

These often overlapped. For example, most stakeholder interviews were a mixture of obtaining factual information, getting a feel for “where people were coming from,” and testing ideas; some material was written for the purpose of discussions with particular stakeholders and then was used in the draft report, and so on. This “parallel processing” was necessitated by the short timetable for the work. But a certain amount of parallel processing was actually helpful and appropriate.

Lesson 7: It should be acknowledged that SEA can work in this way. In fact, short, simple interim outputs, e.g., notes of emerging messages and draft conclusions, are important tools of consultation, negotiation, and communication, and should be encouraged.

Stakeholder Engagement

A highly able and effective group of people representing a range of stakeholder interests and kinds of expertise were identified and took part in the advisory group meetings. Without their active participation and full support, any recommendations from the report would be unlikely to be taken forward. Therefore, more time than we first envisioned was put aside to communicate and work with key stakeholders.

Lesson 8: Stakeholder engagement is pivotal to the success of the SEA. Considerable time and effort needs to go into working closely with this group. It is particularly important to identify and involve opinion leaders and other influential individuals (who are not necessarily people with formal positions of authority). Local knowledge and contacts are essential for this.

Two senior figures from the tourism industry did not attend the second advisory group meeting where the main conclusions and recommendations were presented, debated, and (by those present) unanimously agreed upon. This opened up a dangerous possibility of a split developing and the industry feeling that the SEA was being done “to” these individuals rather than “with and for” them. One of the most important and valuable activities we carried out during the project was some “shuttle diplomacy” with those two individuals and some other potentially sceptical stakeholders who were not in the advisory group: relaying messages back to them and offering and negotiating changes to the emphases and nuances of messages to try to secure “buy-in” from the widest range of people. This seems to have been successful in keeping potentially dissenting voices in harmony. Whether it is fully successful remains to be seen, but the project could certainly not have succeeded without it. However, we were unable to talk to as many industry players as we hoped. This is a priority for the follow-up activity.

Lesson 9: “Shuttle diplomacy”—individual discussions with key stakeholders—should be emphasized as an important activity to help keep all necessary interests engaged in the process.

Management of the SEA Process

Follow-Through

“In and out” consultants risk failing to achieve “buy-in” and implementation. The Fiji Islands has amassed a number of excellent reports that have had a negligible influence because they were not connected to any process of “follow-through”: after the consultant had left, it is nobody’s job to push for implementation.

It was unfortunate that the project manager was also on a short-term contract; it is not clear how much time WWF has to pick up and implement the recommendations from the report. The risk is that this will falter, and that the money sunk into the external consultancy will not achieve its full benefit because of a lack of funding for follow-up.

Lesson 10: Projects like this SEA should always have a “champion” who is a permanent staff member of the local organization, if at all possible a local person who should have time allocated to following up and ensuring implementation of the results. Project proposals and budgets should provide for this as an integral element before any external consultancy is contemplated.

Role of Outside Consultants

It is important that the role of the consultant be constructive and worthwhile, build on and extend rather than displace local knowledge and expertise, and
give local organizations and people ownership and capacity.

The advisory group ensured that the technical/detailed work was driven by discussions between the various players (government, tourism industry, NGOs including WWF, and regional agencies such as ADB). However, the short time scale meant that more of a top-down approach was adopted—the consultants producing and then trying to “sell” a package of recommendations—than was desired. It also meant that the project hardly achieved any transfer of skills or capacity to local people. More of the consultants’ time should have been used to support and build the capacity of officers of Fijian agencies to appraise the sustainability implications of the tourism strategy and suggest improvements.

**Lesson 11:** Have lower-key, more flexible and interactive input from the external consultants, geared as much as possible to helping the Fijian agencies and stakeholders involved use SEA techniques to find their way to the most sustainable tourism strategy, over a less compressed time scale. Such a process is also likely to be less costly.

It was good to work through an NGO, as they can often act as an arbiter between groups that have not traditionally seen eye to eye.

**Lesson 12:** NGOs have an important role to play in SEAs, as they can bring together parties with quite different viewpoints and help forge common solutions.

How ADB (and other potential aid agencies) respond to the recommendations of the report will make a big difference to its effectiveness.

**Lesson 13:** Aid provider agencies have an important role to play, as they should follow assessment recommendations as criteria for funding.

**Overall Lessons**

This section above on adopting SEA to the South Pacific context argues that several of the features of SEA are extremely important for success in a Pacific context, and also that several further features are necessary to make SEA work effectively in the region.

- **ADB should consider commissioning guidance on applying SEA in the specific circumstances of the Pacific region.**

The experience of the Fiji Islands tourism pilot could provide a valuable starting point for this, but it would be necessary to test any guidance on a range of plans and countries to test its breadth of applicability. Given the likelihood of the European SEA Directive becoming a de facto world standard, guidance tailored to the region’s circumstances and needs could be a useful investment in reducing the risk of inappropriate and unhelpful techniques being applied.

The section on managing the SEA process argued that the framework within which an SEA is carried out, and the way agencies such as ADB itself respond to the results, will be crucial for success.

- **Any guidance on SEA should include firm recommendations about provision for follow-through and for application of results by agencies including ADB.**
- **Finally, provided the previous lessons are taken on board, ADB should promote SEA as a valuable tool for sustainable policy development in the Asia and Pacific region.**
References


National Tourism Forum Investment Sub-Committee. 2001. Recommendations: It is easy to state problem; The challenge is to give solutions. Suva.


________. 2002b. Initiating Integrated Coastal Resources Management in Fiji. Suva and Providence, RI: Institute of Applied Science, University of the South Pacific, in collaboration with the Coastal Resources Centre, University of Rhode Island.


Appendixes
Appendix 1


The Asian Development Bank and World Wide Fund SPP in cooperation with the Ministry of Tourism in Fiji, have agreed to undertake a “Strategic Environmental Assessment (SEA) of the Fiji Tourism Development Plan (TDP) (1998-2005)”. This Plan provides a common vision for the development of tourism in Fiji. Current projections for the industry are for it to grow from F$485 million (and more than 25% of GDP) to a F$1 billion by the year 2007. Given that a healthy environment is necessary to attract tourists, the protection of the environment is fundamental to reaching these growth targets.

To date, there has been no strategic assessment of the likely impact of tourism development on Fiji’s natural and social environment. Strategic Environmental Assessment (SEA) is a tool for mainstreaming environment and social considerations into policies and plans. It is therefore critical that a SEA of the TDP is performed in order develop sustainable tourism in Fiji.

A mid-term review of Fiji’s TDP (1998–2005) is planned to be undertaken this year. In this regard, The World Wide Fund and the Ministry of Tourism agree that the Strategic Environmental Assessment-SEA will provide the environmental and social elements of the mid-term review and the results of the assessment are integrated into the TDP as well as into other national and sector development policy, plans and programs.

The assessment will not only help to ensure that more sustainable tourism is promoted in Fiji—bringing greater rewards now and into the future—it will also help other countries in the South Pacific on planning and developing their tourist industries in a sustainable manner.

The Study

The assessment requires the establishment of partnerships with government departments, civil society groups and the tourism industry to provide both a transparent and participatory process for analysing sustainability issues within the sector. This will help in developing constructive partnerships for addressing specific issues that result from the SEA.

As the Project coordinating agency, World Wide Fund (WWF-SPP) will take overall logistic responsibilities for project implementation, organizing meetings and workshops, housing the project and reporting to Asian Development Bank. A Project Team (PT) consisting of a team leader with field specialization in SEA, a tourism specialist, and a socio-economist will be recruited to conduct the case study. This team is expected to perform specific tasks like: compiling of relevant data and information; conducting public meetings and relevant consultations; and writing the SEA reports. Based on their findings, they will put forward a number of recommendations to the Government and to the tourism industry (particularly in reorienting the Fiji Tourism Development Plan (1998–2005) in 2003 to make it more viable and responsive to the environment) as well as to ADB, on measures needed to ensure sustainable tourism in Fiji Islands.

A Project Coordination Team (PCT) will act as an advisory group and will backstop all relevant tasks to be undertaken by the PT. The PCT will be composed of representatives from the WWF–SPP itself, the Tourism industry, the Ministry of Tourism and Transport, the Ministry of Local Government, Housing and Environment, NGOs, the University of the South Pacific, and the Fiji Visitors’ Bureau.

As part of the close collaboration between WWF-SPP and the Ministry of Tourism, Mr. Manoa Malani will be part of the Project Team responsible for all aspects of the assessment related to Tourism. Mr. Malani will be guided by the Team Leader. Together with the other team members, Mr. Malani will also need to liaise closely with WWF, ADB, and the Project Coordinating Team.
Specific tasks will include:

1) As a member of the project team, help carry out the Strategic Environmental Assessment of Fiji Tourism Development Plan (1998–2005) (TDP);

2) Examine the Government’s regulatory framework and institutional set-up, particularly the strengths and weaknesses of the planning process relative to tourism, and ascertain its impacts on sustainable tourism development. Initially assess the likely development of the tourism industry in the country without the TDP (1998-2005);

3) Identify [if necessary] possible changes needed in existing tourism policies and strategies, as well as their application to ensure maximization of tourism industry potentials, now and into the future; and outline reasons why these changes are needed; and

4) Formulate recommendations on policy and planning measures that need to be incorporated into the TDP (1998–2005) and associated development and sectoral plans, policies and programs.

Time Frame:

The specific tasks outlined above will be carried out intermittently over 15 calendar days of consultant time, particularly on tourism aspects. The study will take place between March 17th and April 22nd 2003.

Napolioni Masirewa
Permanent Secretary for Tourism,
Ministry of Tourism, Fiji Islands

Kesaia Tabunakawai.
Acting Representative World Wide Fund-South Pacific Programme

Aporosa Draunibaka
Witness
Appendix 2

Relevant Plans and Programs

Socioeconomic policies

Ecotourism strategy

In 1995, a task force was established to set out a coherent policy and strategy on ecotourism and nature based tourism for the Fiji Islands. This identifies five overarching principles to guide ecotourism:

- Complementarity: ecotourism cannot replace conventional tourism but can supplement it and add new dimensions to visitor experience and spread the benefits of tourism to rural areas;
- Environmental conservation: parts of the Fiji Islands are so vulnerable to tourism development that tourism in such areas must be banned or restricted;
- Social cooperation: the different organizations involved in village–based nature tourism should collaborate on a regular basis;
- Centralized information: any information pertaining to ecotourism must be collated, continually monitored, and updated;
- Strong and effective institutions: a strong, effective, and well supported formal organization that coordinates ecotourism activities within the Fiji Islands must be developed.

In 2000, an Ecotourism program was established in an effort to employ more Fijians directly in small-scale tourist enterprises. Awareness raising, training, and grants are offered under the program.

Although the program has had some teething problems, it has led to a growing number of people involved in the tourism industry. By the end of 2002, it was estimated that 750 people were directly employed as a result of the program. The areas that have benefited the most are the Yasawas and Nadroga—both established tourist destinations. Efforts are underway to target areas off the main tourist routes.

However, there are concerns that the grants are not being strictly administered so that they promote tourism that is both community-based and responsible toward the environment.

As well as Government-sponsored efforts, tourist operators have worked together and have agreed to implement and be bound to codes of conduct. The Nacula Tikina Tourism Association covers the Nacula district in the Northern Yasawas (Appendix 3). The code, which covers both environmental and social aspects, aims to promote locally owned responsible tourism in the area. Some of the lodges have been established with the financial and technical assistance of the owners of the exclusive Turtle Island resort. Their aim is to create 300 jobs in the district.

Strategic Development Plan 2003–2005

The strapline of this plan is “Rebuilding Confidence for Stability and Growth for a Peaceful, Prosperous Fiji” and its central preoccupation is to move on from the coup of 2000 and “forge a unified Fiji ...” Its background is the division between indigenous Fijians and Indo-Fijians.

This raises three particular issues for tourism. First, the coups in 1987 and 2000 caused significant damage to the industry. Both caused short-term collapses in visitor numbers and consequent crises for many businesses in or dependent on tourism. Both times, numbers recovered quickly, although they never fully caught up with the rising trends predicted before each coup. Obviously any further unrest could damage the Fiji Islands’ attractiveness as a holiday destination, as well as causing further damage to the general investment climate and confidence of both local and international business in the country’s long-term planning.

Second, native land and fishing rights are a symbol of the rights of indigenous Fijians. Any pressure to compromise or constrain these rights for the sake of tourism would be extremely politically sensitive. But for
as long as development depends entirely on traditional owners’ free and voluntary agreements with developers, there can be no guarantee that resources will be made available in locations or ways that would be needed to fulfil any national policy objectives, and the constraint of land availability on tourism development noted in many policy papers is likely to continue.

Third, the SDP and the more detailed 20-year development plan for the enhancement of participation of indigenous Fijians and Rotumans in the socioeconomic development of Fiji (50/50 by year 2020) (Government of Fiji 2000) aim to increase indigenous Fijian involvement in business and enterprise. This implies a need for tourism to develop in ways that provide more business opportunities for indigenous Fijians. A tourism industry that gives more opportunities for relatively small, simple, low-capital businesses in rural areas would help achieve this goal. Accordingly the SDP calls for “promoting sustainable ecotourism development”:

Ecotourism is considered the most viable means of spreading the tourist dollar beyond the industry’s traditional areas of concentration and of increasing the retention of the tourist dollar. Ecotourism also provides enormous potential for the involvement of indigenous Fijians and Rotumans.

However, the Plan also endorses strong expansion of “mainstream” tourism including “up-market accommodation and airline capacity” even though these are by implication not supportive of social and redistributive objectives.

Land Use Planning System

Government of Fiji (2002) states that “a land use plan is expected to be completed for the whole country by 2010.” Meanwhile no Fiji-wide spatial strategy guides development. Plans are required only for large settlements and certain kinds of development (including all large-scale tourist developments) to be referred to the Director of Planning, who can ask for information and set conditions for acceptance. The lack of rural land use plans is a major constraint for the sustainable use and management of natural resources in rural areas.

The existing system would appear in principle to provide wide enough powers to apply sustainable development conditions to tourism developments. For example, they could require production of independent EIAs. But evidence suggests these powers have not been applied in anything like the way needed to do this.

A Policy Statement on Rural Land Use was published with endorsement from the Minister of Agriculture, Sugar and Land Resettlement in 2002 (Leslie and Ratukalou 2002a) based on a comprehensive Review of Rural Land Use in Fiji (Leslie and Ratukalou, 2002). This includes a set of “policy principles” highly supportive of sustainable development, and “proposed national policies” covering

- increased public awareness that land resources are interdependent and must be managed in an integrated way, and
- a regulatory framework for the protection and management of rural land resources.

Investment incentives for the Tourism Sector

Foreign investors have historically played a major role in tourism development in the Fiji Islands. Tourism is dominated by the private sector, controlled mainly by international hotel chains, such as the Sheraton, Warwick, and Shangri-la. Investors are viewed as pivotal to achieving the objectives laid out in the TDP. To this end a range of incentives and concessions are provided to lure them. These include

- The Hotels Aid Act that contains provisions offering 55% investment allowance. This allows the hotel owner to offset 55% of the initial capital expenditure against profits derived over the next 5 years. In 1999, this Act introduced an additional incentive package—the Short Life Investment Package (SLIP) to encourage construction of up-market hotels and resorts.
- Duty-free shopping and duty concessions on imported materials, machinery, and furniture. For materials and furniture, assistance will be provided only if they are not produced locally.
- Accelerated depreciation allowance.

The investment incentives are very much geared to attract outside capital for large-scale resort accommodation. The 1999 amendments to the Hotels Act are a direct response to the TDP’s call for step change. Although
such incentives were meant to be available for only 5 years there is pressure for them to be extended.

There continues to be a lack of incentives for the lower- and middle-income market segments. This was noted in the recommendations from an investment subcommittee meeting to the National Tourism Forum Planning Committee (2001):

Backpacker visitor arrivals are on the rise and because they spend longer, more is spent. Concessions in terms of custom duties and capital cost write-offs are not offered for development of motels, backpacker dwellings and guesthouse because they do not fall under the provisions of the Hotels Aid Act. Government could therefore explore incentivising such investments which will also contribute to the building of additional rooms.

The report goes on to recommend that further efforts are needed to get resource owners engaged in the tourism industry, as well as making the investment climate more attractive to foreign firms through less responsibility and requirements on their part.

**Investor Approval Process: Tourism Leases**

Land and water ownership is a critical issue within the Fiji Islands and has an enormous impact on tourism development: 86% of all land is “native land” owned by indigenous Fijians, while the remainder tends to be private or state-owned. Sometimes ownership is blurred. Rivers and streams, for example, belong to the state while resource owners have only a right of usage through traditional fishing grounds. This has been a source of tension between tourism operators and neighboring local communities.

The Native Lands Trust Board (NLTB) is part of the central Government that works with the tribal chiefs in managing native lands on behalf of the mataqalis [clans or village groups]. Leases can be arranged for different lengths of time depending on use, but native land cannot be sold. Acting as a trustee for the villagers, the NLTB is also responsible for development. While there are numerous types of leases, commercial, residential, and tourism leases are the most common.

The procedure for a hotel developer wishing to lease land to build a resort varies. The suggested route is for them to register interest with the Fijian Islands Trade and Investment Bureau (FTIB). FTIB then helps the developer identify landowners if the developer has a particular site in mind. The NLTB will negotiate on behalf of the villagers and process the applications for the lease. Signed agreement from 50% of the landowners is needed for the development to go forward, as well as permission from the Department of Town and Country Planning and possibly other government departments. The Ministry of Tourism has an advisory role reviewing the viability of potential projects.

This complex system has been a major impediment to tourist development on native land. Tourism operations on government or freehold land face far fewer difficulties. This has influenced tourist development in the past. For example Pacific Harbour—deemed by many a bad location in terms of climate and distance from the international point of arrival—was developed in part to avoid having to negotiate on native lands. The fact that there is little scope to develop on remaining private land means that if tourism is to prosper in the Fiji Islands it has to be with the backing of the native landowners.

The TDP has tried to address this issue with the establishment of tourism development areas, where native land leases are bought up so as to clear the area of potential land disputes making it more attractive to investors. However, the fact that the TDP is in its fifth year and none of these areas have been established clearly highlights the difficulties in this approach.

There is general agreement that Fijian land ownership and customary rights and their future management are central to sustainable development and sound environmental management (Leslie and Ratukalou 2002).

**Environmental policies**

**Fijian Environmental Legislation**

Over the past decade, the Fiji Islands has made some real strides in environmental legislation, through the creation of the Department of the Environment and steps taken towards enacting a SDB.

For a small country, it has a quite staggering number of ministries and departments that deal with the environment. Table A4.1 briefly describes the role of the different agencies. Environmental responsibilities tend
<table>
<thead>
<tr>
<th>Ministry</th>
<th>Agency</th>
<th>Responsibility</th>
</tr>
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| Ministry of Agriculture, Sugar and ALTA | Agriculture Department | • Expansion of commercial agriculture  
• Promotion of appropriate forms of agriculture  
• Land resource planning |
| Ministry of Fisheries and Forestry | Fisheries Department | • Development of fisheries in EEZ  
• Management of fisheries area  
• Prosecution for illegal practices |
| | Forestry Department | • Development of forest sector  
• Promotion of sustainable logging and plantation practices |
| Ministry of Lands, Mineral Resources and Energy | Dept. of Lands and Survey | • Administration of state-owned land and water below high tide mark  
• Approval of projects involving reclamation and dredging of foreshore and foreshore leases |
| | Dept. of Mineral Resources | • Regulation of exploitation and extraction mineral resources |
| Ministry of Housing, Urban Development and the Environment | Dept. of Town and Country Planning | • Planning of multiple land use and development |
| | Dept. of the Environment | • Advice to other government departments on environment-related issues (e.g., EIAs)  
• Environmental policy  
• Environmental education and awareness |
| Ministry of Public Works, Infrastructure and Transport | Public Works Department | • Advice to other government departments on buildings and engineering construction works  
• Provision of potable water and sewage treatment in major populated areas.  
• Household and industrial waste disposal |
| | Marine Department | • Implementation of international conventions dealing with the marine environment.  
• Certificates of seaworthiness |
| | Ports Authority of Fiji | • Provision and maintenance of adequate and efficient port services  
• Regulation of pollution in ports |
| | Native Lands Trust Board | • Management and leasing of native land on behalf of landowners |
| Ministry of Fijian Affairs | Fijian Affairs Board | • Policies aimed at promoting welfare and good government of indigenous Fijians |
| Ministry of Tourism | Dept. of Tourism | • Promotion and regulation of tourism industry development |
| Ministry of National Planning | Central Planning Office | • Strategic development plans  
• Budget proposals for various ministries |
| Ministry of Health | | • Polluted harbours, air pollution, drinking water quality  
• Disease vector control |

Note: ALTA = Agricultural Landlord and Tenancy Act; EEZ = exclusive economic zone; EIA = Environmental impact assessment. Adopted from Thamin, B. (2002).
to be left to the different departments. The fact that these agencies often lack the capacity or technical know-how to deal with them means that they are not properly addressed. The Interministerial Environmental Management Committee, established in 1980 to develop a coordinated cross-sector approach to environmental planning and management, has proved to be ineffective and plays only a advisory role.

In 1998, the United Nations Economic and Social Commission for Asia and the Pacific (UN ESCAP) carried out an analysis of Fiji Islands institutions. It remarks that “the almost insignificant Government funding of the Department of the Environment clearly shows that the environment still holds a rather minor position in national development priorities.”

This point is elaborated elsewhere.

The paper on Fiji clearly illustrates the dilemma that small island countries face in terms of environmental issues. While small countries like Fiji are not facing the same demographic and economic pressures as many parts of the world and hence there is a general overall lack of environmental concern among both the policy makers and the community at large, these small countries cannot be complacent for too long. This is because the traditional modest conservation and sustainable resource utilisation are tending to give way to active exploitation for cash of land and other natural resources. The general lack of environmental awareness in Fiji in part is explained by the current lack of of an appropriate administrative and institutional framework (Nicole and McGregor 1992).

The UN ESCAP report recognized “The major weakness of the Department of the Environment is the apparent lack of significant influence on the economic planning process.” Vital decisions continue to be made in the economic committees, such as the “economic strategy committee” and the “macro economic committee.” Neither of these has any systematic means for integrating environmental concerns. If environmental issues are to be integrated into the economic decision-making process a central Government body will be needed to deal with such issues. The National Council for Sustainable Development, which has been proposed under the Sustainable Development Bill, would have the role of coordinating environmental policy across departments (see next section).

A critical issue is implementation of legislation. This is acutely lacking. This point is picked up by Nicole and McGregor (1999): “Fiji’s environmental legislation is not very effective. Current laws are old, fragmented and uncoordinated.” They are mostly command and control, and have not been kept up to date to reflect changing needs and circumstances, or been adequately enforced. Nunn (1998) agrees: “The effectiveness of environmental legislation is hampered by lack of enforcement.”

The National Environment Strategy Fiji

The National Environment Strategy Fiji (Watling and Chapel, 1993) included recommendations for a range of detailed policies and commitments. The Sustainable Development Bill [see next section] was subsequently introduced as the means for implementing them.

The Sustainable Development Bill

A Sustainable Development Bill was first published in 1997. This was “found to be too cumbersome and too ambitious in scope and it has never been introduced into the parliament” (Government of Fiji 1999). A smaller and more limited Bill was produced in 1999 (Government of Fiji 1999). Government of Fiji (2002a) describes it as “a comprehensive and integrated piece of legislation that focuses on Environmental Impact Assessments, Codes of Environmental Practice, Natural Resource Management and the establishment of a National Council for Sustainable Development to provide effective and coordinated decision making on sustainable development planning, policies and implementation of programs.”

Elements that would be particularly valuable for sustainable tourism include the following:

- A requirement for all development proposals with potentially significant environmental impacts to undergo environmental impact assessment; for the assessment to be taken into account in the decision whether the development should be allowed and any conditions to be imposed; and for failure to meet those conditions to be an offence. If fully enacted and enforced, and provided the EIA methodology required was broad and rigorous enough, this would provide...
a substantial safeguard against environmentally damaging development.

- A requirement to produce a National Resource Management Plan to "determine the carrying capacity of the natural resources of the Fiji Islands and the most appropriate uses for them." Again provided it was fully researched and its conclusions and their consequences systematically applied to individual development decisions, this could be a powerful tool for ensuring that tourism development took place within carrying capacity limits.

- The establishment of administrative machinery throughout government to "mainstream" environmental awareness and good practice. This includes the National Council for Sustainable Development, which would fulfil the role of coordinating national environmental policy across departments.

- Establishment of an environmental trust fund to receive various user fees and charges, and to apply them to various environmental management and protection purposes. Though currently framed more narrowly, this could be a valuable vehicle for mediating the creation of "shadow projects" to substitute for loss of environmental resources.

If the Bill is enacted it will lead to a real strengthening of environmental legislation within the Fiji Islands. Among other things, it will result in better coordination between the various ministries and agencies and, critically, the incorporation of environmental considerations by policymakers into their macroeconomic decisions.

However, the Bill’s most serious shortcoming is that at the time of writing (April 2003) it has still not been passed into law. Several members of this project’s advisory group and a number of civil servants expressed optimism that it would soon be enacted. However, given that 6 years have now elapsed since it was first published, and the general recurrent problems about enacting and implementing environmental and other policies, it would be unwise to assume that any of the Bill’s provisions will come into effect in their present form.

Regional and International Agreements

The Fiji Islands is a member of numerous regional and international conventions and treaties that relate to the environment. It is an active member of the South Pacific Regional Environment Programme (SPREP) and a party to the "Apia Convention (1989)" on the conservation of representative ecosystems and the "SPREP Convention (1989)" to implement effective environmental management procedures. The Fiji Islands has also participated in environmental meetings and conferences in the Asia-Pacific region organized by UN ESCAP.

The Fiji Islands is party to a number of multilateral environmental agreements, most notably the UN Convention on the Law of the Sea (1982), UN Convention on Biodiversity (1992), and the UN Framework for Climate Change (1992). The country’s involvement with bilateral and multilateral aid providers is having a growing influence on environmental planning and management practices, as aid providers require the environmental assessment of many types of potential projects as a precondition for funding.

Most of the agreements place a legal requirement on the Fiji Islands to adhere to its articles and put in place the appropriate activities, at the national and international level. However, as with domestic environmental regulation, real implementation is lacking. One reason, it is argued, is that the “agreements are not understood by the management-level people in the Government or the private sector. Fishers, Loggers, Miners or Public Works employees, for example, will seldom have any understanding of the relation between their actions and Agenda 21 or the Biodiversity Convention.”

The Fiji Islands has trade agreements with other Pacific Island countries and Australia and New Zealand under the South Pacific Regional Trade and Economic Cupertino Agreement. Economic integration is set to increase with the Pacific Agreement on Closer Economic Relations and the Pacific Islands Countries Trade Agreement. It also enjoys a bilateral agreement with the European Union (the Lomé Convention) and is a member of the World Trade Organisation (WTO).

The Fiji Islands has benefited considerably in terms of volume of trade from its regional agreements and its bilateral agreement with the EU. This gave sugar producers preferential access to European sugar markets. However, since the EU and the Fiji Islands are members of the WTO, such preferential agreements are being outlawed. This is set to have a devastating impact on the country’s economy and has shifted emphasis toward the
tourism sector. One of the sectors covered under the General Agreement on Trade-related Services is tourism. Ongoing negotiations are likely to have future impacts on the industry.

The Implementation Gap

If all the statements of environmental and sustainable development ideals, principles, aims, and objectives to be found in Fijian national policies and laws were fully implemented, the Fiji Islands would be adhering to sustainable development. The way that many environmental and sustainability indicators seem to be continuing to drift in the wrong direction indicates a big gap between aim and reality.

It would therefore be unwise for the SEA to frame its conclusions in terms of new laws without also considering the realistic prospects for their implementation.
Appendix 3

Nacula Tikina Tourism Association

**Code of Conduct and Practice**

Properties in this brochure have agreed to and adopted the following Code of Conduct and Practice, and have agreed to implement and be bound by its principles in their Resort operations.

1. **Waste Management**
   - To implement recycling programs in each property by separating waste and returning bottles, tins and plastics to town monthly;
   - To ensure each property has installed best practice sewage disposal facilities;
   - To educate staff on what is biodegradable and compostable and to establish a composting program; and
   - To have a weekly clean-up of all litter on beaches, in the sea, and around property generally.

2. **Fijian Culture**
   - To educate guests on Fijian customs important to the villages and Yasawas including appropriate dress, sevusevu, ceremonies and mekes;
   - To train staff members to provide interpretation of local Yasawa history, and to explain operations of village social structure and cultural protocols;
   - To respect privacy of Fijian villages and to visit Fijian villages only on Sunday to attend church after permission has been granted; and
   - To use beaches and other islands only where permission has been obtained.

3. **Protection of Ecology and Environment**
   - To stop selling shells and precious marine resources and to substitute this income with sales of woven baskets, coconut oil, and fruit;
   - To educate guests and staff on the fragility of marine resources and encourage responsible usage;
   - To minimize impact of buildings and structures on the natural and visual environment;
   - To have concern for the environment of other properties, other beaches, and other islands in Nacula Tikina;
   - To observe proper practices in marine resource management, including not catching undersize fish;
   - To implement program for de-sexing unwanted dogs and cats to eradicate stray and malnourished animals around properties; and
   - To use only cleaning and chemical products that do not damage or harm the environment.

4. **Guest Safety and Care**
   - To ensure that all boats used for guest transportation are seaworthy and contain all necessary safety equipment;
   - To educate staff on safety procedures in the event of fire or cyclone and to provide written safety instructions for guests;
   - To provide sufficient drinking water storage for both guests and staff to go through a dry spell;
   - To train all staff in provision of basic first aid assistance, and to have essential first aid equipment at the properties;
   - To maintain high standards of hygiene in food management and in bar and dining areas.

5. **Education and Training**
   - To educate all key staff members on which products in the resorts can be used safely for specific purposes; to train key staff members to deal calmly but firmly with difficult circumstances including dissatisfied guests, emergencies, and cyclones.

6. **Communication**
   - To utilise V.H.F. radio frequency between NTTA members to maintain communication about guests and safety issues;
   - To regularly attend NTTA meetings to share information and experiences.

7. **Self Improvement**
   - To implement a system of incentive rewards for NTTA properties that continually improve their performance towards best practice.
CHAPTER 4

The Integration of Traditional and Modern Systems of Environmental Management


Richard S. Stevenson
Executive Summary

Objective

As part of the preparation of the Pacific Region Environmental Strategy (PRES) the Asian Development Bank (ADB) funded a field study in Yap State, Federated States of Micronesia (FSM), of traditional approaches to the management of natural resources and their relationship to modern resource management and to the development of tourism. It is intended that this study contribute to PRES guidelines for environmental sustainability and be of general use to other Pacific island members of ADB.

The objectives of the study are to evaluate (i) how traditional systems have played a role in natural resource management and in development, (ii) how traditional systems could be productively integrated with contemporary approaches to resource management, and (iii) how public-private partnerships have been employed in the development of tourist destinations in a Pacific island nation and could be employed in future development.

The study examines, through interviews with locally involved persons, the decision-making processes employed for the development of four resorts. Two are small locally owned facilities using traditional island design and two are larger, more complex and internationally or expatriate-owned and -operated facilities. Through the same interview process, the study examines the traditional methods of natural resource management, how the traditional and modern state approaches have conflicted with or complemented each other, and how they can be better integrated in the future for more sustainable environmental management.

Background

Government

Yap is one of four states in the FSM (Figure 4.1). Within the federation, Yap State is a constitutional democracy with great independence to set its own policies and operations.

Respect for tradition is incorporated into the constitution of Yap State, into the legal code, and into the very structure of the government where, in addition to the normal executive, legislative, and judicial branches, a fourth branch comprises two councils of traditional leaders.

Traditional Leadership

Respect for the traditional culture and for the traditional leaders in Yap is still strong, though the observance of traditional practices and rights is weakening as Yap progressively enters the cash economy and adopts modern technology.

The traditional method of natural resource management in Yap is based on very complex systems of both traditional leadership and land tenure. In the traditional culture of Yap, a geographic area does not normally have just a single leader or “chief.” Any single village and its lands are governed by complex hierarchies of village and family structure, and by multiple leaders of different rank, each with specific cultural and operational responsibilities and authority. One of the leaders, not necessarily the most senior, has responsibility for the stewardship of the land, and another has responsibility for stewardship of the water or marine resources.

As part of the system of multiple and specialized leadership roles, decisions are normally taken consensually, through community discussion, from which the responsible leader gauges the consensus and announces it as the decision of the community. The Yapese culture is very nonconfrontational, and it is often difficult for individuals to speak their opinion.

Decisions are taken for the overall welfare of the community, whether at the village or regional level. As much of the work in the past was done communally (e.g., fishing and building fish traps, building boats or houses, and repairing the stone paths that connected communities), members of the community were able to discuss issues with deliberation, and usually a consensus emerged without confrontation.

Land Tenure

Land tenure is extremely complex and has significant implications for future development and management of natural resources. Some land or water may be held communally, but for most the right to use the resource is owned by individuals and is inherited in...
an equally complex hybrid matrilineal/patrilineal system. While the “owner” enjoys the exclusive use of the resource, the nature of that use is subject to the guidance or limitation of the traditional leader who has responsibility for stewardship of the resource. The owner has the right to take resources from the area for the welfare of his own family, but more extensive use, such as fishing by net or agriculture for sale, is subject to the decision of the appropriate traditional leader.

Because of its importance, land has been divided through inheritance until most of it is in small parcels. Less than 10% of land in Yap has been surveyed and titled. Many disputes over boundaries occur, and because several persons may be named as owner it is often difficult to title the land. Tourism facilities have thus far been built on small footprints of land owned by the entrepreneur or on land in Colonia that is or was owned by the state. Any future development of tourism, especially dispersed ecotourism outside Colonia, will face significant barriers in acquiring clear title or access to land that will be acceptable to investors. Foreigners and foreign companies are not allowed to own land in Yap.

**Findings**

**Natural Resource Management**

The traditional systems of natural resource management are extensions of the very complex systems of traditional leadership, community cohesiveness, and landownership. The objective in the traditional system of stewardship of the natural resources was to assure sufficient food and shelter materials. Achieving that objective of course required sustained yield and productivity from the natural systems, but the system contained no distinct concept of the sustainable use of natural resources. The consensual manner in which decisions were made and the ownership and authority patterns over the land and marine areas served to limit who could use the resources and how they could be used to meet a complex set of community needs and obligations. The available technology (e.g., stone fish traps and heavy hand-made nets) was such that its use within the ownership system could not easily exhaust the resources, and marine populations and land fertility remained stable. It was not necessary to plan for the management of natural resources, and such planning was not part of the traditional culture.

These traditional systems of natural resource management have been increasingly unable to regulate the use of either marine or terrestrial resources in the sustainable manner that they once did. Weakened traditional authority and loss of community cohesion make it difficult to stop widespread poaching in violation of individual fishing rights, and technological changes allow an individual or small group to overfish an area where previously the entire community fishing together and limiting the entry of other communities did not deplete the stocks. Certain fish species have almost disappeared, and it is widely recognized that marine resources are endangered.

The greatest single impact on the marine resources has been the introduction of the small-mesh monofilament nylon net that has made lagoon fishing so easy that fish stocks inside the reef are being decimated. The traditional leaders recognize that this is a problem, but the traditional system of stewardship seems unprepared to deal with the issues and unable to stop the process.

Increasing variability in weather conditions has produced more extreme storm conditions, causing substantially increased erosion and saltwater intrusion into coastal agricultural lands. The loss to saltwater intrusion of important taro-producing land at the coastal fringes has caused interior land to be cleared for garden patches, with resulting steady increase in loss of already diminished forest cover. Traditional methods for the multiple use of agricultural land for higher productivity and sustainable yield have been largely lost, and the weakened traditional authority and community cohesion apparently prelude either reintroducing traditional agricultural methods or stemming the continual clearing of more land.

The state government has organizational units to plan and manage both agriculture and marine resources, but these units lack sufficient trained staff and funding to undertake effective outreach programs. The state management units meet resistance from the traditional system that sees state government as intruding on traditional usage rights, while the traditional system is itself unable or unwilling to confront and deal with the steadily deteriorating resource base.

Very little integration of traditional and modern systems of natural resource management has taken place. Traditional systems prevail by default, even in
their weakened form, because the government is reluctant to confront traditional land and water use rights. Communications between the state government and the traditional leaders and communities are weak, sometimes clouded in mutual suspicion; the latter generally assume that the state is focused on economic growth, balance of payments, foreign investment, tourism promotion, and other such “modern economy” issues and not concerned with the problems or opinions of the traditional leaders and communities.

The two councils of traditional leaders, established constitutionally among other purposes to avoid such a communications gap, have in most cases been unable to do so effectively, becoming more involved in the modern economy issues of the government. Lack of effective channels of communication has made it difficult for state agencies to reach understanding with leaders and communities on the common objectives and interests for traditional and modern approaches to management and how they can be beneficially integrated.

Tourism

Tourism in Yap is of limited scale relative to its neighbors, Palau and Guam. On the main island of Yap are seven relatively small hotel facilities, ranging in size from 4 to 24 units and totaling 100 rooms and on the outlying island of Ulithi, one hotel of 10 units. Tourism is very important to the Yap economy. The Yap Visitors Bureau estimates that tourists spend US$3 million annually in Yap, a significant amount relative to Yap's annual gross domestic product of about US$40 million. It is believed that more than 80% of tourism revenue is connected to diving, which is in turn heavily dependent on the famous manta rays that can be seen year-round.

All but two of the tourism facilities are in Colonia, the capital of Yap, which has a population of about 1,000. All facilities in Colonia are on small areas of land, are connected to the municipal waste treatment system, and have thus far had little impact on the environment or the natural resource base. Little growth in tourism has taken place since the 1997 Asian financial crisis.

The people of Yap are aware of the social and environmental problems that large-scale tourism has brought to some of their neighboring islands and they want a different future for Yap. They recognize, however, that Yap has very limited resources to export or by which to attract foreign investment, and they therefore assume that their future is tied to the development of tourism. While they have fragments of a vision of future tourism, no plan or strategy has emerged as to how they will expand their current level of tourist arrivals and capture new markets.

Public-Private Partnerships

None of the four tourist facilities studied involved any significant form of public-private partnership. Of the two larger facilities, one was built on land created by fill, owned by the state, and sold to the developer and present owner and operator. The other is built on land leased from the state and through former colonial powers long ago alienated from any traditional ownership.

Of the two smaller facilities studied, one is built on land in Colonia purchased through traditional means (e.g., stone money and other obligations) by the Yapese family that owns and operates it. The other is outside Colonia and is built on land owned traditionally by the developer and operator. In both cases, the facilities are built on land still within the traditional system of ownership; traditional obligations still connect to the land.

Two attempts at public-private partnerships in tourism have been made in which private capital partners allied with a village or community. A large development was being negotiated between a municipality and a developer when investors withdrew during the Asian financial crisis. Another smaller venture was started in a partnership between a village and an American investor, but the facility was destroyed by a typhoon in 2001 when only two units had been built and it was barely operational. Though the concept seems acceptable, no real test of it in practice has occurred.

Recommendations

Four strategic recommendations have been derived from the study as programmatic guidelines that will enhance environmental sustainability of the use and management of natural resources, including for the development of the tourism industry. These recommendations reflect the comments and the recommendations of the people of Yap who were interviewed and are made with reference to conditions and issues in
Figure 4.1. Map of FSM
Yap. However, they are based on problems that are pervasive among the Pacific island countries. Specific actions to implement each must be tailored to the particular conditions in the location concerned.

**Identify Shared Goals and Plan Strategically**

When asked what they want for Yap, most Yapese answer with a number of common elements, including respect for traditional values, controlled progress into the modern economy, better education and health care, development of high-end ecotourism, preservation of the environment, better infrastructure, etc. But these issues have not been openly discussed in any forum, and no generally accepted statement of a vision for Yap, or of how the commonly held values and objectives will be achieved, has evolved.

Many Yapese feel that the government is pursuing economic development (e.g., trade, infrastructure, etc.) rather than development that focuses on bringing a better quality of life for many people. Development should be based on broad agreement as to what the government and the people are trying to achieve and the values and priorities that vision comprises. So long as no open discussion of issues or general agreement on values and a future for Yap takes place, it will be very difficult to integrate traditional forms of natural resource management with modern management techniques. Integration will require using the tools and leverage of traditional authority and community cohesiveness, working together with state government science and expertise, to achieve common objectives relating to the sustainable use of natural resources.

**Build Government-to-Community Communications**

Communications between the state government and the communities are poor; effective channels of communication must be built through systematic contact. The councils of traditional leaders have not fulfilled their intended role as communicators between the government and traditional leaders. State government agencies have tried, largely unsuccessfully, to communicate with the municipalities, but need to do so more, more systematically, and with a willingness on the part of government to listen rather than direct. Such a program will gradually create understanding through which the community and the state government can develop cooperation. Development programs must support the efforts of state agencies to mount well-thought-out and systematic processes of communications with the people.

Agreed goals and a shared vision of the future are essential as a basis for selecting courses of action that integrate traditional and modern concepts and tools for management of natural resources. Development of a commonly held strategy must begin in the communities and progress up to the state level. Forums should be conducted at the community level to identify community visions for the future, and those should collectively build a state vision. A vision developed at the top and passed down to the communities will be viewed as poor communications between state and community.

**Strengthen Community Cohesion and Action**

Traditional management of natural resources was based on the needs of the community, but more importantly on cohesion within the community that caused its members to communicate often among themselves and to understand their common needs and best interests. The advent of the cash economy and modern technology has caused the community to break down as an entity, with the result that its members and leaders often do not understand the issues of sustainable use of natural resources and are no longer able to act as an entity to enforce their collective will (e.g., prevent widespread poaching and use of gill nets).

Development programs should address the problem of creating community awareness and cohesion, supporting community forums and education to identify common problems and possible solutions. Communities also need the means by which to take action. A strong and focused community is a critical tool for sustainable management of natural resources in Yap. Without it sustainable management may in many cases not be achievable at all, especially since a strong enforcement capability will always be both too expensive and culturally unacceptable.

**Promote Public-Private Partnerships**

While public-private partnerships are relatively unknown at present, the concept fits well with traditional concepts of the role of the community or village in the management of natural resources. Partnerships should be supported through development programs at all
levels. They will provide stability by engaging more stakeholders in the active management of resources, preventing resource owners from feeling taken advantage of by developers and investors.

Development of ecotourism requires access to substantial land and water resources. With the prevailing complex system of landownership, partnerships may be the only way that such development will be possible. Most Yapese, when asked, responded that a public-private partnership between an outside investor and a community for the development of an ecotourism destination might be the only way such a venture could access the land and water resources required. In such a venture the community would hold an equity interest in exchange for the guarantee of access to land and resources and over time would take an increasingly active role in the actual management of the facility. Development programs should build the institutional capability—the business and community advisory and legal services—to initiate and develop such partnerships.
Background and Rationale of the Study

The Asian Development Bank (ADB) is formulating a Pacific Region Environmental Strategy (PRES) that reviews major environmental challenges in the Pacific region and defines strategic objectives, guidelines, and activities for ADB’s assistance to its Pacific developing country members (PDMCs). The purpose of the PRES is to make environmentally sustainable development a priority in the PDMCs and to ensure that assistance from ADB to its members will move development in that direction. As part of this review, ADB has supported several case studies of discrete issues in the practice of environmental planning and management in the Pacific region. One of these is a field study in Yap State, Federated States of Micronesia (FSM) to observe traditional approaches to the management of natural resources and their relationship to modern resource management and to the development of tourism. It is intended that this study contribute to the PRES guidelines for environmental sustainability and be of general use to other PDMCs.

Understanding the interaction of traditional and contemporary approaches to natural resource management is critical with the continuing shift in Yap away from traditional values and approaches. Traditional approaches have evolved over centuries, and while they do not always fit entirely with contemporary economies and objectives, they can often make a significant contribution in combination with contemporary approaches. At a minimum, modern developers should understand them so as to avoid serious conflicts. The most valuable and efficient solution, however, is likely to be one in which the traditional approaches can be integrated into comprehensive policies and approaches for environmentally sustainable development.

It is also important and timely to examine the effectiveness of public-private partnerships or other forms of cooperation. Worldwide, they are increasingly relied upon for achieving sustainable development in lieu of strict regulatory approaches, and it is increasingly difficult to rely on either public or private resources exclusively. This is a global trend and it is useful to understand how such partnerships have worked in the past and could work better in the future in the Pacific island cultures.

Tourism is an important potential growth industry for the Pacific islands. While tourism is itself highly dependent upon a largely undisturbed and appealing environment and ecosystem, it also creates a huge burden on the often-fragile Pacific island ecosystems. Its development is therefore inextricably interlaced with issues of the sustainable management of natural resources, including traditional aspects of such management, their integration with modern management methods, and the complex land tenure systems involved.

Public-private partnerships offer a means to involve traditional systems in the development of tourism. More important, they may be the only means for tourism development to coexist with traditional systems of land tenure and right-to-use aspects of traditional resource management.

Both public-private partnerships and traditional approaches to natural resource management are key to the development of integrated natural resource management policies and strategies that can be effectively mainstreamed into overall development policies and strategies for a sustainable future. While each Pacific island group has different cultural imperatives and conditions, the island cultures have sufficient in common through geographic conditions, ethnic origins, and other factors that conclusions and recommendations drawn from one island nation should have general replicability for policy and strategy across the region.

It is appropriate to undertake an examination of the implications of traditional systems of natural resource management on development in the tourism sector because a number of Pacific island countries derive a major portion of their foreign exchange from tourism, and many more are looking to tourism as their economic growth sector for the future. Most of the tourism is based on the use of coastal resources and has the potential for significantly impacting on fragile coastal ecosystems and on the traditional uses and access to the coastal aquatic resources.

The comprehensive and integrated approach of this study responds effectively to the mandate of the World Summit on Sustainable Development (WSSD) that small island states require immediate action to alleviate environmental impacts while improving community
quality of life and establishing a strong and credible economic base. The analysis is designed to lead to a more achievable strategy to integrate traditional and contemporary approaches to environmental management and to promote beneficial public-private partnerships in economic development, facilitating achievement of WSSD objectives.

The Study

Objective and Scope

The objectives of the study are to evaluate

- how traditional systems have played a role in natural resource management and in development,
- how traditional systems might be productively integrated with contemporary approaches to resource management, and
- how public-private partnerships have been employed in the development of tourism destinations in a Pacific island nation and could be employed in future development.

The purpose of the study is to generate recommendations to ADB that will contribute to the PRES and its guidelines for achieving the environmental sustainability of future assistance to PDMCs.

The study uses primarily personal interviews to examine the decision-making processes employed for the development of four tourism hotels. Two are small, locally owned facilities using traditional island design, and two are somewhat larger, more complex, and internationally or expatriate-owned and -operated facilities. The research inquires whether public-private partnerships or cooperation were achieved in these developments, and if so, where problems were encountered. Finally, comments are presented on how such partnerships can be promoted and better integrated into future development and management of natural resources.

Through the same interview process, the study examines the traditional methods of natural resource management, how the traditional and modern state approaches have conflicted with or complemented each other, and how they can be better integrated in the future for more sustainable environmental management.

The study also examines and contrasts the traditional natural resource management systems (such as restricted rights to the use of land and marine resources) with the concepts of resource management that have been employed by the state government. The analysis further examines how the traditional and modern approaches may have conflicted with or complemented each other and how they can be better integrated in the future for more effective environmental management. Conclusions are drawn about the implications of the study’s findings for efforts to mainstream environmental considerations into national, state, and sector development plans, policies, and programs in Yap and the other PDMCs.

Methodology and Implementation

A wide range of individuals in Yap was interviewed for the study. This list includes the managers of the tourism destinations concerned and those who may have direct knowledge of the decision processes and issues that were involved in their establishment. However, since the study involves broad issues of traditional versus modern approaches to the management of natural resources, and the efficacy and appropriateness of public-private partnerships within the context of the Yapese culture, a much wider range of individuals was interviewed than just those dealing with tourism. The full list is shown as Appendix 1.

Relevant documents such as the Constitution of Yap, the State Code of law, established and pending legislation, and various plans and conference reports were reviewed to gain their relevant information. The full list is presented in the References. However, the culture of Yap is one of verbal history, and beyond the
relatively recently written legal code and regulations, much that is understood and widely observed by its citizens is not written. Very little in the manner of policy or economic or political direction is written. While most Yapese would agree on many issues or values, it is usually not possible to find those points in written form. The study therefore depends heavily on information collected in interviews and in informal discussion.

**Issues**

The collection of information centered on a set of key issues, each of which translates in interviews into a set of questions that vary according to the situation. The issue areas and specific questions include the following:

**Vision**

- What are the long-term interests and objectives of the FSM National Government that will have impacts on the development of Yap?
- What are the interests and objectives of the state government of Yap with regard to sustainable management of natural resources?
- What are the interests and objectives of the traditional leaders of Yap with regard to sustainable management of natural resources?
- What are the interests and objectives of the tourism industry of Yap with regard to sustainable management of natural resources?

**Resource Management Approaches**

- What is the relationship of the traditional leaders to the state government?
- How have traditional leaders managed the use of natural resources?
- What approaches does the state government use to manage the natural resources sustainably?
- Have there been conflicts between traditional and modern approaches, and if so how have they been resolved?

**Resource and Development Policies**

- What are the present state policies and strategies for economic development?
- What are the present state policies and regulations as they affect environmental and resource conservation in development?
- Have policies and strategies for development incorporated traditional approaches?
- What are the state government policies, incentives, and marketing strategies to attract new investors in tourism?
- Do present policies and strategies encourage and create conditions favorable to public-private partnership and collaboration in development?

**Tourism Development Process**

- What are the present processes, procedures, and permitting and licensing requirements for the development of a tourism destination?
- What were the processes in place at the time of the development of the facilities examined in the study, and did they incorporate traditional approaches?
- Were the procedures followed and did problems occur?
- Were public-private partnerships involved, and what problems were encountered?
- How did the development process for small-scale facilities contrast with that for larger facilities in issues encountered?

**Conflicts and Synergy**

- Overall, how have traditional approaches to management of natural resources conflicted with contemporary approaches?
- How can they be integrated into and be supportive of contemporary approaches?
- How do public and private interests conflict, and how can they best work together for mutual benefit?

**Recommendations**

- What policies and strategies can help to promote and create the conditions necessary to beneficial integration of traditional approaches with contemporary approaches for environmentally sustainable development, especially in the tourism industry?
- What policies and strategies can help to promote and create the conditions necessary to the use of public-private partnerships for environmentally sustainable development?
• What can ADB do in technical assistance and in guidance for lending to assure environmental sustainability in the development it supports in the Pacific island countries?

The findings and resultant analysis and recommendations are largely a synthesis of the answers received to the above questions from the more than 50 individuals interviewed in Yap.

Findings and Analysis

Background and Observations

Federated States of Micronesia

The FSM comprises the four island group states of Yap, Chuuk, Pohnpei, and Kosrae, and the 1 million-plus square miles (mi²) of ocean surrounding the islands (Figure 1). The total land area of FSM is 207 mi² extending 1,700 miles from west (Yap) to east (Kosrae). The 133 mi² island of Pohnpei is the largest in the FSM and home of the country's capital, Palikir. The total population of FSM was estimated in July 2002 at 135,869.

In 1979, the Federated States of Micronesia, then still the United Nations Trust Territory of the Pacific Islands (TTPI) under US administration, adopted a constitution and in 1986 independence was attained under a Compact of Free Association with the US in which the latter provides national defense and substantial grant funds. The FSM is currently renegotiating the Compact with the US for an additional 20 years. The FSM is a member of the World Bank, the International Monetary Fund, and ADB.

Principal sources of revenue for the FSM are US payments, government work, fisheries, tourism, and subsistence agriculture. Present per capita gross domestic product (GDP) is about $2,000. FSM annual exports are $22 million (f.o.b., FY1999/2000) consisting primarily of fish, garments, bananas, and black pepper. Its principal trading partners are Japan, the US, and especially Guam. Annual imports are $149 million (f.o.b., FY1999/2000), leaving a substantial balance of payments deficit that is largely covered by US payments under the Compact and by tourism.

Present economic concerns include large-scale unemployment, overfishing, and overdependence on US aid. FSM economic activity consists primarily of subsistence farming and fishing. The islands have few mineral deposits worth exploiting except for high-grade phosphate. The potential for more tourist industry exists, but the remote location and a lack of adequate facilities and transportation hinder development. In 1996, the country experienced a 20% reduction in revenues from the Compact of Free Association, the agreement with the US in which Micronesia received $1.3 billion in financial and technical assistance over a 15-year period ending in 2001. Since these payments accounted for 57% of consolidated government revenues, reduced Compact funding resulted in a severe depression. Economic activity started to recover in 1999–2001.

The country’s medium-term economic outlook is fragile due to possible further reductions by the US in external grants under the next round of funding for the Compact. Geographic isolation and a poorly developed infrastructure remain major impediments to long-term growth. However, a satisfactory outcome to negotiations for renewal of the Compact will provide a basis for future development if wisely utilized.

State of Yap

The traditional name of Yap is “Waab”. In the traditional language “yap” means the oar of a boat. When the first European trading ship came to the island the sailors asked the name of the island, pointing down at the water. The islanders thought they were pointing at the oars of their boat and answered: “Yap.”

Located in the Western Carolines, about midway between Guam and Palau, Yap State comprises a tightly clustered group of four volcanic islands: Yap, Gagitomil, Maap, and Rumung, which together with ten smaller islands are surrounded by a coral reef. These with another 19 inhabited outer islands and 115 uninhabited islands and atolls give a total land area for the state of 46 mi². Two thirds of the estimated 12,000 population of Yap State live on Yap Island, whose land area is about 25 mi². Other islands with substantial land area and populations include Ulithi, Fais, Woleai, Ngulu, Satawal, Sorol, Lamoetrek, Sowol, and Eauripik. Only the first three have regular air service. Yap State includes a vast oceanic territory.
Yap’s capital and center of business and government is Colonia, a small town with a population of about 1,000, situated along the waterfront and around a bay.

**Government**

Yap is one of four states in the FSM, and within the federation, Yap State is a constitutional democracy with great independence to set its own policies and operations. The mainland has 10 municipalities and the outer islands are grouped into two island groups.

The Yap State Legislature has 10 representatives, called senators. Six are elected at large from the main island of Yap and four are elected from districts that include the 19 outer islands. The senators are elected for a 4-year term, as is the governor.

The senators have no term limit but the governor is limited to two terms. Normally the senators are opposed in elections, but equally normally they are reelected until they decide to retire. Most senators are from mid-caste villages and most have been traditional leaders. The most recent election in January of 2003 was the first time more than one candidate ran for governor.

The preamble to the Constitution of Yap recognizes traditional heritage and community life as the foundation of Yapese society and commits the government to integrate modern institutions and technology with traditional ways so as to realize prosperity and welfare for all. The Constitution establishes the Council of Pilung (COP) for the traditional leaders from the main islands and the Council of Tamol (COT) for the traditional leaders from the outer islands. These two councils constitute a fourth branch of government, in addition to the executive, legislative, and judicial branches. Yap is the only one of the four states of FSM with this fourth branch of government. The councils do not pass legislation but they must be consulted on any legislation that affects the communities, the traditional culture, the traditional leaders, or traditional rights. They can veto proposed legislation and have done so on one occasion.

The councils were created by the present Constitution and do not represent a traditional forum. However, other forms of council have existed that brought the regions and the villages together as needed to discuss and resolve issues. The system was structured under the three paramount villages and leaders of the entire island, and they convened other leaders as needed, depending on the issue and the relationships.

The councils are intended to be the communications link between the state government and the traditional leaders and communities. The original intent for the COP was that senior traditional leaders, one from each of the 10 municipalities, would sit on the Council. While this is still the case for the COT for the outer islands, the COP has evolved so that many of the representatives are not themselves traditional leaders but are chosen from the municipality to represent the community. Some of the representatives may themselves have weak regard for the authority or value of the traditional system.

The COP is intended as a force to work with the other organizations to preserve the traditional system, but the Council is somewhat ineffectual, has no clear mission, and many of the representatives actually do not know the traditional system very well. The Council discusses primarily modern issues and what the governor asks them to discuss. Communities feel that some of the representatives do not return often enough to their municipalities to inform the community and to ask for advice and the wishes of the people.

The municipality is a new geopolitical construct, created by the colonial powers. The municipality boundaries often do not coincide with the traditional areas of responsibility of the traditional leaders. As noted above, many of the representatives in the COP are not the apparent traditional leaders. But the senior traditional leader may not be the person who has the traditional responsibility to represent the area of the municipality to other villages. The issue is so complicated that some traditional leaders find it easier to let the municipality select another person. Moreover, many of the traditional leaders are old and do not want to go to the city and deal with the issues of the Council.

**Legal and Justice System**

Micronesia Legal Services Corporation is a nonprofit organization with offices in each state, providing free legal counsel and services to those who cannot otherwise afford them. It is supported by both local sources and by the Legal Services Corporation of the US, which in turn receives a US government grant to help provide the support.
The national legal system is small and cannot carry a heavy load of cases. There are only three state justices, one of whom has been ill for some time. All criminal cases are tried in the national courts. There is strong pressure, however, for civil matters to be settled in the traditional way in the village, in the municipality council, or in the municipal courts. The family structure is becoming weaker as the traditional system weakens and the modern system dominates, so domestic issues and civil disputes over land ownership are growing. They are, however, mostly still resolved in the community.

The representative to the COP is automatically the presiding justice for the municipal court, and he selects two other persons, often other traditional leaders, to make up a panel of three justices to hear cases in the municipal court. Neither the Council representative nor the two others locally selected usually has training in the law, so they depend on what is sometimes a weak understanding of the traditional system to settle civil claims. The advantage is that cases are usually settled quickly on simple evidence rather than being drawn out into complex litigation. Most cases in the municipal courts concern disputes over land borders and inheritance.

Only one private firm of attorneys operates in Yap—Mulalap & Mulalap—and Yap State has refused applications from others to establish legal practices in Yap. There is a State Office of the Public Defender that provides legal services for those who are brought before the criminal courts.

**Economic Development**

Yap State’s GDP, adjusted for inflation, declined 3% in FY2002 because of the drop in the flow of funds from the Compact of Free Association with the US. Inflation-adjusted GDP for FY2003 is forecast to grow by 0.9%. Of the four states in FSM, Yap has been the most prudent in the use of its share of Compact funds and has been able to save funds to provide a basis for some near-term infrastructure development.

Yap has enjoyed only limited investment and growth in tourism, but it is considered internationally one of the finer destinations for Scuba diving. The environmental conditions remain relatively good, though some problems are starting to emerge and some division has arisen within the government and the stakeholder community as to how to manage growth while simultaneously protecting the environment.

The export of manufactured garments earns the largest part of Yap’s foreign exchange (other than from the Compact), totaling 82% of exports in 2001. Yap vies with Palau as the world’s largest exporter of betel nut, which in the same year represented 15% of exports. Small amounts of marine and agricultural products and handicrafts make up the balance of exports.

The practical economic development policies of Yap emphasize increasing exports of specialty agricultural products and oceanic marine products such as tuna, light manufacture such as garments and value-added assembly, and the expansion of tourism, especially high-end ecotourism.

Present economic development goals, strategies, and objectives for the state of Yap were set out in a communiqué of the State government following the First Yap State Economic and Social Summit in 1996 (Yap State Government 1996). The overall goal is that Yap State should be a self-sustaining economy and society. The report of the Summit indicates that this goal reflects the type of society that Yap wishes to achieve and should be kept constantly in mind as decisions are made about the use of state resources.

The objectives and strategies focus on reducing reliance on external aid funds through achieving greater efficiency in the public sector operations, diversifying sources of external funding and investment, and increasing the size and competitiveness of the private sector. The latter is to be accomplished through policy reform, improved efficiency of land use, and investments in human resource development, especially in health and formal and informal education.

The Summit endorsed the objective of sustainability of development, with special emphasis on management of the physical environment to provide the resources for continuing production to generate livelihoods for the people of Yap. It emphasizes the importance of preservation, enhancement, and respect for the rich traditional culture as providing the social cohesiveness essential to human progress.

The report of the Summit contains detailed sections on status, objectives and proposed actions on topics such
as agriculture, commerce and industry, education, health services, marine resources (focusing on the promotion of commercial fishing), tourism, transportation and infrastructure, and government reform and downsizing. It includes only a limited statement of goals and values for the environment and sustainable development, however, and with no practical details as to what should be done. It states that a failure to conserve the natural resources will undermine the culture, and that the government of Yap should take the lead in protecting the environment. There is no mention, however, of the traditional management of resources or suggestion of collaboration between modern government and the traditional system.

While the overall resource and development policies of Yap do not actually address the issues of incorporating traditional resource management into the development process, in stressing the importance of the preservation of both the resources and traditional culture they create a policy environment that should be hospitable to such incorporation. Clearly it is not hostile to such concepts. It remains to the government, however, to take the initiative to bridge the gap of understanding with the traditional leaders to incorporate their management approaches into the dynamics of the development process.

Similarly, the present resource and development policies of Yap do not address or specifically promote the possible use of various types of public-private partnerships in the development process. However, in stressing the importance of traditional systems and the community, they establish conditions hospitable to the use of such partnerships. The very traditional culture itself is the most powerful force encouraging such partnerships. Despite individual rights to the use of resources, the overall benefit of the natural resources is considered to belong to the community. Therefore the community and the individual owners are both logical participants in any venture or development that uses the resources. The concern of the traditional system with the stewardship of the resources should intrinsically serve to promote more environmentally sound investments and generally sustainable development.

The State of Yap is not very different from many other Pacific island countries, in that it has a pervasive concern for sustainable development, but sometimes actual development programs are poorly designed and controlled and are not so sustainable. Findings and recommendations from the analysis of tourism development and concerning the integration of traditional and modern management of natural resources in Yap should therefore be broadly relevant and applicable throughout the Pacific region.

Traditional Culture

Yapese society has a caste or rank system comprising seven levels that are based on the rank of the village. People are recognized and respected according to their village. Each person is named after an ancestor, which ties that person to a certain piece of property. Every group of islands within the Yapese society has its own unique cultural identity and customs. Traditional life remains strong in the villages where fishing and weaving are still important parts of everyday life. Grass skirts for women and thu’us, a type of loincloth, for men are still seen as basic clothing in the villages, although today western clothes and styles are becoming more popular in use and are pervasive for the younger generation in school.

Dance is an art form in Yap. Through dance, legends are passed down, history is recorded, and entertainment is created. The dances of Yap are often raucous and always colorful and well orchestrated. Both men and women start at an early age to learn this special Yap tradition.

Most Yapese live in their home villages located outside of Colonia. Villages retain many features that have remained for centuries, such as stone pathways and clan platforms. A major part of the tourism appeal of Yap is that it retains many of its traditional characteristics. The stone paths wind through lush jungle and picturesque food-producing landscapes of tree gardens and taro patch systems.

Most of the islands east of Yap are coral atolls and are sparsely populated by a people different from the Yapese in culture and language. Four indigenous languages are spoken. These are Yapese, Ulithian, Woleaian, and Satawalese. English is the official language and the state government is conducted in English, though some local government organizations still conduct business in the Yapese language. Some of the older generation of Yapese can speak Japanese from the long period of Japanese administration. Traditional
Yapese was not a written language and has only been written phonetically in recent years.

Because of its remote position, Yap was minimally affected when the Spanish colonized Micronesia in the 1500s, and again during German occupation from the end of the 1800s to the beginning of World War I. The pre-World War II Japanese administration had more of a direct impact. By Micronesian and even by Pacific standards, Yap remains relatively unaffected by the modern world.

There are several institutions in Yap committed to the preservation of the history and traditional culture of Yap. The Historic Preservation Office (HPO), supported by both the government and private contributions, maintains a library of historical documents and is translating old documents written in early Yapese languages that have been almost lost. The Bechiyal Cultural Center continues the traditional architecture and boat building skills of Yap through its founder Tamag, a traditional leader and master architect and boat builder of Yap, and Kadai Village where the history and traditional art forms of Yap are presented to the public in a setting of traditional architecture.

**Traditional Leadership**

In the traditional culture of Yap, a geographic area does not normally have a single traditional leader or “chief.” The concept of a paramount chief or leader is one imposed by a succession of colonial powers that wished to deal with a single leader with full authority. The village and family structure has complex hierarchies, and for any single village and its lands, multiple leaders, of differing ranks, have specific cultural and operational responsibilities and authorities over different parts of the community (young men vs. women vs. old people) and different functional areas (taro growing vs. grassy shore area vs. open lagoon area). One of the leaders, not necessarily the most senior, will have responsibility for the stewardship of the land; another will be responsible for stewardship of the water or marine resources.

While some of the land or water may be held communally, most is owned by an individual or family and the right to the use of an area of land or water is inherited in an equally complex hybrid matrilineal/patrilineal system. While the “owner” enjoys the exclusive use of the resource, the nature of that use is subject to the guidance or limitation of the traditional leader, who has responsibility for stewardship of the resource.

While an individual can “own” land and water inside the reef, the owner does not have full authority over the use of that resource, as the traditional leader for the area has authority to approve or disapprove how the land or water is used. Because the leadership culture and the land tenure are so complex, foreign investors may become confused when they need to speak to the “chief” of an area because they want a decision on use of land or water resources. The person to whom the investors speak may be only one of a number of traditional leaders for the area, probably the one responsible for contact outside the community, and it may later evolve that they have not sufficiently consulted everyone necessary, especially not those with the real authority.

The role of traditional leader is normally hereditary, but not always. The role can be earned, especially if the incumbent traditional leader has no appropriate successor, in which case a successor is appointed by consensus in the community.

The traditional leader positions are inherited through the father, but the more important bloodline is matrilineal. Women have very limited authority and are not seen by men as equals: women are not allowed to fish, for example. And yet the aunt names the children and the name is connected to ownership of land, so the women effectively control the inheritance of land. It is an extremely complex system of balances that is not truly either patrilineal or matrilineal, patriarchal or matriarchal.

The main island of Yap is divided into 10 municipalities and each municipality may have as many as 100 villages. Each village and municipality has its own structure of traditional leaders, normally 3 at the lowest level, up to 10 at the highest level. There is a village rank system of low-, medium-, and high-caste villages, with a total of seven subcategories. An individual is normally considered to be of the rank of his village, but he may have linkages to a higher rank. A village can move up in the ranking. Originally, vertical movement was accomplished by defeating (or being defeated by) a higher-ranking village, but the Germans stopped all warfare in the 18th century.
A person of low rank is usually a farmer or fisherman; the higher ranks have responsibility for his welfare, putting his interest above their own because they depend on the product of his work. As one goes up the scale to higher rank, one normally has fewer personal rights to land and water and does less physical work such as planting and fishing, but one has wider authority and responsibility. The culture constantly seeks overall balance between authority and responsibility.

Yap has three paramount villages (Ngolog in Rull, Teb in Tomil, and Gachpar in Gagil) whose senior leaders are considered the three paramount leaders of mainland (i.e., the main island of) Yap.

As part of the system of multiple and specialized leadership roles, decisions are normally taken consensually through community discussion, from which the responsible leader gauges the consensus and announces it as the decision of the community. The Yapese culture is very nonconfrontational, and it is often difficult for individuals to speak their opinion.

Decisions are taken for the overall welfare of the community, whether at the village or regional level. In the past, much of the work was done communally (e.g., fishing and repairing fish traps and nets, building boats or houses, and repairing the stone paths that connected communities). There was ample opportunity for members of the community to slowly discuss issues, and usually a consensus would emerge without confrontation. This would include such issues as opening new land for cultivation, or fishing with nets, or working the community taro patch.

**Land Tenure**

Land tenure is extremely complex and has significant implications for the future management of natural resources. With certain exceptions for community land, individuals own all areas of land or water within the reef. The person’s name is connected to the land (or water) and it is inconceivable for a man not to own land, for he would then have no name. The aunt of a male child gives the child his name, determining the inheritance of land, and more than one person in an extended family may be named for a piece of land. They are each then owners of the land, each waiting his turn to be the prevailing owner. Only the owners of the land or water have the right to take resources from the area (e.g., to fish or farm).

The owner has the inherent right to take enough for the welfare of his own family, but more extensive use, such as fishing by net or extensive agriculture for community use or sale, is subject to the decision of the traditional leader. This stewardship was exercised traditionally to make certain that there was sufficient food for the community as a whole, since not everyone and not all villages had immediate access to sources of food. That particular aspect of leadership was exercised within a larger complex of leaders (some of whom were not at all concerned about natural resources), but that is what served indirectly to manage natural resources sustainably.

Because of its importance, land has been repeatedly divided through inheritance, until most of it is in small parcels. Less than 10% of the land in Yap has been surveyed and titled. There are many disputes over boundaries, and because several persons may be named as owners, it is often difficult to title the land. Tourism facilities have thus far been built on small footprints of land owned by the entrepreneur or on land in Colonia that is or was owned by the state. Future development of tourism, especially dispersed ecotourism, will face significant barriers in acquiring access to large aggregations of land in a manner that will be acceptable to investors. Foreigners and foreign corporations are not normally allowed to own land in Yap.

Land tenure is a critical issue both in inheritance and in development in the modern economy. The FSM Development Bank can accept untitled land as collateral for a loan if the note is signed by the traditional leader of the municipality and by that of the village and by the apparent senior landowner (several family members may be considered to be the owners of the land in a hierarchy of succession). But it is difficult to use traditional land as collateral and land tenure problems have in the past stopped the issuance of loans for business development.

Even with three levels of endorsement on untitled land as collateral for a loan, it is doubtful that a bank could actually take possession of the land if the loan were in default. The bank would do absolutely everything it could to solve the problem and to resuscitate the project rather than try to possess the collateral. Even with titled land as collateral, the bank would try to do the same rather than try to foreclose on the collateral. The entire concept of land as collateral is very questionable in Yap, and this could be a significant
barrier for a foreign investor in acquiring foreign debt financing.

A partnership relationship between an investor and the community could help to overcome the land title/tenure issue. The relationship would need to be worked out carefully as to how the community is involved, as the landowner has the last word on how the land is used. The FSM Development Bank would favorably consider a loan application from a partnership between an investor and a community.

Education

On the mainland of Yap are 10 secondary schools of grades 1–8, one school of grades 1–4 and one of grades 5–8, and all populated outer islands have an eight-year secondary school. One public high school and one private (Seventh Day Adventist) high school grades 9–12 are located on Yap mainland and there are high schools on two of the outer islands, Ulithi and Woleai.

Instruction in the first 4 years is entirely in the local language (which for the outer islands is different from Yapese). In years 5 and 6, English is introduced and the curriculum becomes progressively in English, with substantially all instruction in English from grade 7 up. Yapese is not traditionally a written language, so all written materials tend to be in English. This trend toward school curricula conducted entirely in English risks losing skills in Yapese, and thereby knowledge in the traditional system.

It is difficult to separate language from culture. A alternative approach being considered would be to introduce English very early in school for practical purposes, but also to retain Yapese or outer-island vernacular as a subject, with some cultural materials taught in the vernacular throughout the grades in order to preserve the language.

At all levels there is a component called living arts, which includes materials on the traditional culture, including such subjects as traditional ways of fishing and agriculture. The education system is gradually producing new instruction materials from the lower grades up, one year each year (Yap State Government 2003a, 2003b), and is presently revising grade 7. The new curricula increase the emphasis on the traditional values and on understanding the traditional ways of living, including managing natural resources and the importance of preserving the environment, but they do not go into detail about how the traditional natural resource management system works. More detail may be in the curricula of higher grades still to be produced.

Most teachers are relatively young and not expert in the traditional system, so it is difficult for them to teach about it convincingly. In some instances, a traditional leader from the community is asked to talk to the students about the traditional system.

Language has been a significant problem in the development of the state of Yap. Everyone on the main island of Yap can understand one other in Yapese, although differences occur in traditional pronunciation. But the outer islands have three other language groups, each of which is different enough from Yapese—and from one another—that when the COT meets they converse in English in order to be mutually understood.

The educational system has a difficult problem balancing between wanting to preserve the traditional Yapese and outer-island languages, while also needing to promote English for efficiency; ease of access to information, tourism, and trade; and for minimizing production costs of educational materials.

Natural Resource Management

Traditional Systems of Resource Management

Throughout the Pacific, people have been discussing for years how to preserve traditional systems of natural resource management. The Micronesian Traditional Leadership Conferences held in Koror in 1999 and in Pohnpei in 2002 emphasized this point. No clear solutions to the issue have emerged, however, and resolutions have been very broad, with no direction as to how such preservation should be accomplished.

The traditional system of natural resource management is an extension of the very complex systems of traditional leadership, community cohesiveness, and land ownership. No specific objective seems to appear in the traditional system of managing the natural resources, other than to assure a sufficient supply of food and shelter for the community. However, the consensual manner in which community decisions were made and the ownership and authority patterns
over the land and marine areas served to limit who could use the resources and how they could be used to meet a complex of community needs and obligations. Moreover, the technology available was such that, within the traditional ownership and use systems, the resources could not be easily depleted and marine populations and land fertility remained stable. It was not necessary to plan for the management of natural resources, and such planning was not part of the traditional culture.

In the outlying islands, three broad patterns of control and management of the natural resources exist. On Ulithi atoll, all reef and lagoon areas belong to the highest-ranking clan, whose chief is the paramount leader of the atoll. The marine areas are divided among the clans, however, for purposes of the rights to use the resources. Members of a clan can fish within the area of their clan at any time.

On Woleai Atoll, however, no paramount leader has authority over the entire atoll; the ownership of the reef and lagoon is divided among the villages and the right to use the resources is then divided among the clans in a village. The head of each clan controls the use of its own areas, including determining if the reef should be closed. Individuals can fish within their own clan’s area at any time.

A third form of tenure and usage rights is found on Satawal Atoll, where the leaders of three ranking clans divide the authority and responsibilities for the management of the island. One of these three is designated as the chief of the sea and controls the use of all marine resources. While the use of the fringing reef is open to anyone, the chief’s permission is required for the use of the food resources of all other marine areas.

The structure of the land and water tenure system (ownership versus right to use the resource) and the authority over management of the natural resource vary significantly from mainland Yap to the outlying islands, and even within clans and municipalities on Yap mainland. Overall, however, some oversight by a senior leader always affects the way the marine or land resource is used, and that leader is responsible to the community as a whole to assure that the resource is used in a manner that ensures the welfare of the community as a whole. While the term “sustainability” is foreign, the basic concept is part of the fabric of the traditional tenure and management authority system.

The manner in which the oversight authority is exercised is equally varied. A great variety of rules and restrictions has served to protect specific resources. For example, in the traditional system on Yap, only the high-caste villages are permitted to eat sea turtle and the lower-caste villages ate fruit bats. As there were far fewer high-caste villages, this served to maintain the population of sea turtles, which with the weakening of traditional restrictions are now almost gone. In another such rule, the land crabs that are considered a delicacy can only be taken when the wind blows from the west, during the season when storms make fishing too hazardous and fish are in short supply. This use of the crabs as a reserve food has stabilized both the diet of the islanders and the population of crabs.

The people still hold the power and authority over the use of the resources they need through community cohesiveness supported by traditional leadership. This is why it is important to engage the traditional leaders in addressing the issues, to reaffirm their responsibility to care for the interests of the people—as well as their authority to do so—and to give them the knowledge and the resources with which to take an active role again.

Management of Marine Resources

The most powerful single impact on marine resources has been the introduction of the small-mesh monofilament nylon net that has made fishing so easy that fish stocks inside the reef of Yap main island are being decimated. The advent of the outboard motor has also contributed to this technological nightmare. While no scientifically recorded data are available on changes in fisheries resources, it is widely agreed that yields are steadily decreasing and that some species have almost entirely disappeared. The traditional leaders recognize that there is a serious problem, but the traditional system of stewardship seems unprepared to deal with these issues stemming from modern technology.

The change from traditional to more modern methods of fishing, often for commercial purposes, has placed enormous and widespread pressures on the fish stocks. A survey by the Marine Resources Management Division (MRMD) in 1987 reported that the use of motorboats had increased by 22% in a decade, and that 7 out of 10 households in Yap owned spear guns and Gill nets. The report further indicated that 91% of villages
participate in night spear fishing and 72% participate in gill-net fishing.

On the main island of Yap, a growing problem is the illegal entry of individuals into waters to fish, including frequent night fishing with gill nets or with lights and spear guns. Small-scale commercial fishing in the lagoons of the main island is also increasing. Fishing for commercial purposes is a relatively recent phenomenon (post-World War II). Traditional leaders are considerably concerned, as it circumvents the traditional distribution system for the catch; encourages excessive, often wasteful fishing; and depletes fish stocks. The commercial exportation of fish is an even greater concern.

Less commercial fishing and less illegal fishing occur in the outer islands. Less opportunity exists there, but the situation also reflects the greater concern of the outer-island traditional leaders over the sustainability of the fishing yield, on which they are more dependent. Some actions taken on some of the outlying islands reflect this concern and illustrate ways in which the stewardship authority of the traditional leaders is implemented. Leaders of many of the outlying islands have banned the use of monofilament gill nets, recognizing that they would change the way net fishing is done, from a communal to an individual or small group activity, and that their use would result in overfishing. Spearfishing with lights has also been banned in many of the outlying islands as a method that would allow reef fish to be overharvested. On Woleai Atoll, an area outside the atoll that regularly has schools of tuna is restricted to fishing with pole and line from sailing canoes. On Ifik Atoll, the traditional leaders have banned the use of modern boats and outboard motors entirely. Only paddling and sailing canoes are allowed inside the lagoon.

Many of the islands close sections of the reef entirely after a senior leader dies as a sign of respect. Such closures may remain in effect for years. A closed section may be opened for other than management reasons, such as a tribute or a celebration. However, on Satawal Island, a raised coral island with a fringing reef and a high population density, a section of the reef is traditionally closed for long periods of time for the purpose of allowing the fish population to regenerate. For whatever reason the closings have been decreed, the islanders have quickly observed how dramatically the marine stocks have recovered. As a result, more leaders are starting to close sections of the reef for periods of time for the purpose of sustainable management of the marine resources.

In the outlying islands, the management of marine resources has remained continuously under local traditional control, even through the several colonial occupations, and remains now generally stronger than on the mainland of Yap. Traditional systems of marine tenure, fishing rights, catch distribution, and punishment of offenses are still usually observed. Most outer islands are a single community and no adjacent communities or clans have disagreements about landownership or the use of resources. Community cohesiveness and traditions remain more nearly intact.

Everywhere, both on the main island and on the outlying islands of Yap, the traditional systems of marine resource management have been increasingly weakened by new political, economic, religious, and educational systems. Many residents adopted Christianity following World War II, following which a number of cultural restrictions on the use of marine resources were lifted, and this, plus the entry of many people into the cash economy, has weakened the traditional controls. As a result, the traditional leaders have been increasingly unable to regulate the use of either marine or terrestrial resources in the sustainable manner that they once did. Weakened traditional authority and loss of community cohesion make it difficult to stop widespread poaching of individual fishing rights, and technological changes allow an individual or small group of persons to overfish an area where previously the entire community, fishing together, would not have depleted the stocks. Certain fish species have almost disappeared, and it is widely recognized that marine resources are endangered.

The commercialization of inshore fishing is believed to contribute to the erosion of traditional authority and obligations relating to fishing. Some nonlocal commercial fishing enterprises have circumvented local restrictions by forming alliances with local traditional leaders. Local communities seem to lack sufficient cohesion to stop their leaders from engaging in such illegal practices for their personal gain. The result is an overall loss of respect for the leaders and for traditional rules of resource management, and a further weakening of traditional authority. Communities then have greater difficulty instituting other management measures, such as bans on nighttime spear fishing, closure of protected areas, or protection of seeded giant clams.
Some Yapese concerned with the management of commercial fishing feel that traditional controls of the use of the water have a great advantage over government regulation because they make the people responsible for the use of the resources. They believe that attempts by the government to regulate the use of marine resources directly would be a mistake, because they would shift the attention of the people from what tradition says they should do to simply what they need to do to evade the enforcement of the government. They say that too many people already think that the government will do everything for them, including taking care of the natural resources.

In the waters surrounding Yap are more than 800 stone fish traps or weirs. Most have not been used for a long time and are in disrepair. They represent a very sustainable form of fishing. The man-made stone walls are mostly below water at high tide and the incoming tide pushes fish within the area of the walls. The outgoing tide traps the fish within the walls as they appear above water, and fish can be easily selected and caught. Those not taken can swim away unharmed on the next high tide. Efforts are underway in Yap to revive the use of the traditional traps.

While traditional management of marine resources primarily concerns the lagoon within the outer reef, it does affect to a more limited degree the waters immediately outside the reef and the taking of pelagic species of fish. Pelagic fish stocks are also down, though not as far as the reef stocks.

Management of Terrestrial Resources

The terrestrial resources of Yap are equally complex and as endangered as the marine resources. Yap’s ancestors developed the surrounding landscape into a complex food production and living system and that landscape in turn sustained the Yapese culture. Community forests consist of the trees, forests, secondary forest, agroforests, tree garden/taro patch systems, watersheds, and associated animal life and other natural resources in the areas where the Yapese live, and their urban and community area extends from town and village centers through agroforests and into the natural forests, where they collect medicines and other resources.

The Yapese developed food production systems that made use of simple wooden tools and natural processes to provide considerably higher yields of produce than are now achieved with more modern methods. One simple but elegant technique employed was pyramidal yam trellises about which yam vines were trained in order to gain more light and moisture and more vines per area. This technique was only named in the 1970s as thigomorphogenesis, but it had been used for hundreds of years in Yap. This way of growing yams also used less land and did not require the burning of trees to clear land.

In the uplands of Yap, the land was farmed traditionally with a complex system of ditches laid out in a grid to drain and irrigate the land. It is believed that the ditches developed bacteria to fix nitrogen that would maintain the fertility of the farmed area. The excavated soil was used to raise areas for houses, paths, and tree planting. The system functioned like a forest and provided a pleasant living environment as well. This practice was widespread and the outlines can still be seen, but the practice is now lost. Now people cut the canopy to open new space for gardens, then move on when the land is depleted. Such practices also produce damage to the marine habitat, when washout from the land exposed in the extensive clearing of watershed areas runs into the lagoon.

Relatively little of the land remains in upland forest and that which does remain is decreasing rapidly. Present distribution of the land is 3% urban, 12% mangrove, 13% upland forest, 28% agroforest, 23% savanna (where the earlier ditching methods are seen), and other categories. The most common form of agriculture now is a taro or vegetable patch with some trees.

Increasing variability in weather conditions and rising sea levels have produced saltwater intrusion into coastal agricultural lands and erosion from more extreme storm conditions. The loss of important traditional taro-producing land at the coastal fringes has caused more clearing of interior land for garden patches, with steadily increasing loss of already diminished forest cover. Traditional methods of multiple use of agricultural land for high and sustainable yield have been largely lost, and the weakened traditional authority and community cohesion mean that communities are apparently unable either to reintroduce traditional agricultural methods or to stem the continued clearing of more land.
Historically the Yapese used more complex forms of agroforestry, like the trenching system described above, which achieved significantly higher productivity from the combined land use than they now get from simple garden patches. Both the yam farming in the uplands and the taro raising in the lowlands or wetlands were more productive, and the soil was not depleted so rapidly. These integrated systems evolved over long periods of time to be the most productive approaches to the use of the land. Present agriculture is very simple, using basic hand tools; the complex approaches have been forgotten.

Unless the agricultural land is properly managed, forest cover will decrease further and erosion washing down into the lagoons will increase, impacting marine resources. Individual farmers (usually women) are reluctant to try “new” methods unless the village as a whole supports the concept. Community cohesiveness and action are needed to reintroduce the more sustainable agriculture methods.

**Modern Systems of Resource Management**

Modern governments commonly divide responsibilities for resource management among different agencies that regulate specific resources, such as fisheries and agriculture. Some agencies whose decisions may impact on these resources, such as economic planning and development through siting factories and infrastructure, are rarely required to consider their relationship to the resource agencies, and the linkages among all of the pertinent agencies is often weak. In Yap, as in many island countries, the problem is considerably complicated by the presence of traditional institutions of resource management, which in most instances have even weaker communications or linkages with the agencies of government than those agencies have among themselves.

Yap State has established the Marine Resources Management Division (MRMD) under the Department of Resources and Development. The MRMD has been very active in pursuing various planning efforts, participating in international programs, and trying to communicate issues of the decline of marine resources to the communities and the traditional leaders. It has an ongoing program of visiting communities, together with other agencies and organizations concerned with the environment, to talk about marine resource management.

The MRMD has undertaken specific programs to protect and reintroduce species. Most successful has been a program to reintroduce the several species of giant clams, which have almost disappeared because of uncontrolled harvesting. MRMD has raised seedling clams in an artificial environment to the size of several inches and then reintroduced them into the waters of cooperating individuals and villages. This has been a successful collaborative effort between the modern and traditional systems and the clams are gaining ground in some areas. Unfortunately, the clams are often still taken too young, by poaching and sometimes even by the cooperating water owner, impatient for a clam dinner.

Not surprisingly, MRMD does not have enough funds or staff to accomplish its full agenda. It is also still struggling to establish its image and legitimacy with the traditional leaders as an entity that wishes to form a partnership with them in the sustainable management of marine resources. As a government agency, it is suspected of trying to usurp traditional authority.

As to terrestrial resources, the Department of Agriculture is concerned with increasing agricultural production, but has not addressed the incorporation of traditional agricultural methods and land management techniques into modern agriculture.

The Yap Urban and Community Forestry Advisory Council (UCFAC) seeks to protect and enhance existing community forests, to expand the practice of community forestry to meet current and future needs, and to maintain the vital connection between people’s forests and culture. Yap’s ancestors had developed the landscape into a living system and that landscape in turn sustained Yapese culture. The Council wishes to maintain and enhance this connection while progressing into the future.

The UCFAC and the Forest Resources Management Programs have collaborated on a project to reintroduce the traditional yam trellis. While not a big project, it exemplifies collaborative efforts between the state and traditional systems for the sustainable management of natural resources. By reviving the use of trellises instead of burn-girdled trees to support yam vines, the traditional practice reduces the rate of deforestation.

In a recent project, researchers compared the production of gardens using the traditional trellises with
control gardens where the yams were allowed to grow up sacrificed trees—the common current practice. They found that the weight of the harvested yams was about 2.5 times greater per mound for the gardens with traditional trellises. Thus the practice appears not only to reduce deforestation but to significantly increase yields as well.

The support framework for the trellis project, which has now been carried out in most municipalities on Yap, utilizes a federal grant to provide tools (knives and shovels), a water chest, and a modest stipend for a teacher to village groups that want to do a project that helps both people and trees/forests. The teacher is generally a knowledgeable older person identified by the group who is willing to teach a group of at least eight apprentices. The government administers the program and the community implements it. Further work is needed with the yam trellises to understand the science behind the system (plant physiology, soil microbiology, etc.) in order to identify the parameters of the system and deliberately manipulate them, and perhaps eventually utilize science to enhance the traditional practice.

The Yap Environmental Protection Agency (EPA) is considered to have the responsibility to implement the National Environmental Management System (NEMS) prepared for FSM in 1993 with ADB technical assistance (ADB 1993). The NEMS stresses traditional environmental management as a priority area for implementation, and the EPA does participate with MRMD and other agencies in outreach programs to traditional leaders, communities, and schools to explain the importance of protecting the environment, including both the marine and terrestrial environments. The organization undertakes to prevent the discharge of toxic wastes onto the land or into the water, but the environmental regulations in Yap are minimal and the ability to enforce them is limited.

The First Yap State Economic and Social Summit to consider the future of the state and to set directions for development, held in 1996, reported on goals, objectives, strategies, and projects for marine resources, including recommendations to maintain existing traditional resource regulations, develop and maintain adequate monitoring data on the various resources and set specific harvest limitations, implement the Marine Resources and Coastal Management Plan (MRCMP), and ban the commercial exportation of inshore fisheries resources to markets outside Yap State.

The most recent planning document for marine resources is the MRCMP, started in 1991 and published in 1994, but even now not adopted by the government. Much of the basic data on fisheries resources and exports needed for its implementation have not yet been collected. In 1999, the MRMD again initiated efforts to revise and revitalize the MRCMP. However, to date essentially no marine resource management plan is in effect, only a collection of valuable but fragmentary activities. The only policies officially endorsed by the state with regard to marine resources are those from the 1996 Summit.

In 1999, an important initiative resulted from a mandate of the two councils of chiefs, the COP and COT. It established an Environmental Stewardship Task Force to work cooperatively with the government to develop an environmental stewardship program for Yap. This initiative was subsequently merged with the initiative of the MRMD to revitalize the MRCMP to become the Environmental Stewardship Consortium (ESC).

The ESC includes the original task force of prominent individuals active in the issues of sustainable resource management, plus representatives of relevant government agencies, nongovernment organizations (NGOs) (e.g., the Yap Community Action Program (YAPCAP), the Yap Institute of Natural Sciences, and the Yap Women’s Association, and community representatives appointed by the councils of chiefs. Many of its approximately 20 members are very influential in state and traditional affairs; together they are representative of the many stakeholders in the sustainable management of the resources of Yap.

More than any other body in Yap at this time, the ESC bridges the gap between traditional and modern approaches to resource management. It has intervened on several occasions in public issues: in the most notable of these, runoff from highway construction was believed to be threatening the habitat of the manta rays and the ESC forced the state to conduct a full and neutral environmental impact assessment (EIA). A bill before the present Legislature would formalize the ESC as the Natural Resources Advisory Council (NRAC) to assist the councils of chiefs and to link government, NGOs, and other efforts with communities. The new government is very supportive of the concept of the ESC and the NRAC.

The ESC has also assisted in the development of the Yap State Biodiversity Strategy and Action Plan,
which has become part of the FSM National Biodiversity Strategy and Action Plan (NBSAP). The concept of the integration of traditional resource conservation was incorporated into the NBSAP, as endorsed in March 2002. The NBSAP begins with the vision: “The FSM will have more extensive, diverse, and higher quality... marine, freshwater, and terrestrial ecosystems, which meet human needs and aspirations fairly, preserve and utilize traditional knowledge and practices, and fulfill the ecosystem functions necessary for all life on Earth” (Federated States of Micronesia 2002a).

Unlike some other island countries, the government of Yap does not consider that it controls the lagoon waters within the surrounding reef. Respecting traditional ownership rights, the government finds it very difficult to try to regulate what is done in those waters. Therefore any form of regulation of the inshore waters is problematic. This situation makes it doubly critical that the modern systems and the traditional systems work together in a partnership for sustainable management of lagoon resources.

The present Governor would like to stop altogether the use of nets in the waters inside the reef, but he does not feel that he has the authority to do so by regulation. He proposes instead to introduce fishpond production of food fish species that can tolerate brackish water, and then make illegal the commercial sale of reef species other than those commercially produced. The government cannot control the fishing, but it can control commerce. Direct government regulation or management of the marine resources, however, remains problematical.

A bill is pending before the State Legislature that would give MRMD sweeping authority to regulate the use of the lagoon for the conservation of coastal and aquatic resources (Fifth Legislature of the State of Yap 2002). The terms of this proposed act stand in stark contrast with the traditional concepts of authority over the use of natural resources, and the bill is therefore unlikely to be enacted as it stands. However, it is an important start, and a compromise bill may give MRMD more authority and resources to enter into a partnership with traditional authority to achieve the same purpose.

In another initiative, the Strategic Action Programme for the International Waters of the Pacific (IWP) Small Island Developing States is just starting to establish marine protected areas (MPAs) in the lagoon waters of four cooperating coastal villages. The villages and the individual landowners concerned have agreed to participate in a partnership with the MRMD to establish the areas. These are at the northern and southern extremes of Yap, in Rumung and Gilman municipalities, respectively, and on the east coasts of the island in Gagil and Maap Municipalities. The purpose of the project is to demonstrate how damaged marine reserves can recover when protected or used for a limited take. The program is encouraging in that it represents cooperation between the state government and communities and could be the precursor and model for an integration of traditional and modern approaches to natural resource management.

Integration of Traditional and Modern Management of Resources

The traditional systems of resource management have a great intrinsic advantage, both in their knowledge of conditions at the very local level and in their ability to make decisions quickly. In order for their role to be meaningful in the future, however, it must be reconciled and integrated with that of the government agencies that are also charged with managing the resources for the welfare of all the people. As these traditional institutions and systems have become weakened, they must be revitalized, while at the same time, the best of both traditional and modern management systems must be integrated into a partnership seeking to achieve identified common goals.

Recognition of both the limitations of government and the decline in traditional management authority has led to the suggestion that, where traditional systems still exist, they should be embedded in a framework of “co-management,” defined as the mutual accommodation and sharing of management responsibility between traditional and government systems. The concept of co-management was presented and recommended at the Coastal Fisheries Consortium held in Pohnpei in December 2000.

The MPAs being established by the IWP, the experimental programs with yam production, and the activities of the ESC represent the leading edge in Yap’s integration of traditional and modern environmental management. They are promising, and the potential for their success is substantial. But true integration will only come with understanding of common goals, strengthened
communities, and effective communications between modern and traditional systems. Much work remains to be done to create those conditions, but collaboration and partnerships between government and communities and between government and individuals will be essential to the future sustainable management of Yap’s natural resources.

Weather Variability

Increased variability in weather patterns and rising sea levels have become major concerns in the last decade for the people of Yap, especially for those living on the 19 outlying islands that are coral atolls and rise only a few feet above sea level. Some migration from the outlying islands to the mainland has already occurred as a result of erosion of land and fears of future storms. The present government is very concerned about the impact on the economic viability of Yap, including matters as basic as being able to raise enough taro root, if a significant portion of the outer-island population (which is 40% of total population of Yap) should decide to move to the mainland. This phenomenon is culturally conceivable, as the outer islanders are more economically dependent on the state government for survival than are the mainlanders and tend to look more to the government to help them survive.

No local scientific measurements could be found on Yap of the change in sea level, but everyone has a story of a set of rocks or some other feature that within their memory was above sea level at normal tides. The perception that the sea level is rising is pervasive, ranging from 8 to 12 inches in the last decade, especially in the outer islands. But it is the increased variability in weather that has produced the more tangible effects. Storms are observed to be more frequent and more violent, with higher surge tides. Substantial portions of coastline have been eroded, and a number of villages have built concrete seawalls to try to stop the erosion. Unfortunately, violent storms often come over the seawalls and erode the land inside the wall, leaving it standing alone in the water.

In the outlying islands, many instances of saltwater intrusion into freshwater lenses have occurred as a result of the erosion. This poses a significant threat: the freshwater resources of the outlying islands are very limited, as they have no mountains to form catchment basins. In one instance, half the population of cattle on an island was lost because saltwater intrusion damaged the grasses on which the cattle grazed.

On the mainland, the combination of high tides and saltwater intrusion has caused the loss of traditional taro-growing land and consequent clearing of forest cover to open more land for agriculture. Ninety percent of taro production is on the coast and almost all traditional community taro lands are on the coast, often occupying small inlets that had been dammed and filled. By nature of their geology, these are the first to be affected by saltwater intrusion.

Not only has loss of these special agricultural lands caused the loss of forest, it has also speeded the weakening of community cohesiveness. One of the traditional activities conducted cooperatively by the community was the cultivation of the community taro patch. With the loss of such community resources, members of the community have turned to independent family agriculture and community cohesiveness has suffered.

The variability of weather also impacts the traditional leadership and management systems. Historically, traditional leaders specified fishing or planting according to the time of year as determined from the stars, because they could anticipate rain or certain sea conditions. Now they cannot be sure that the weather will cooperate with the schedule, and this variability serves to weaken the traditional authority.

Tourism Development

Tourism in Yap is of limited scale relative to that of its neighbors Palau and Guam. Six hotel facilities with a total of 100 rooms are located on the main island of Yap and one hotel of 10 units on the outlying island of Ulithi. Nonetheless, tourism is very important to the economy of Yap. A recent study by the Yap Visitors Bureau estimates that the 3,289 tourist arrivals in 2002 spent a total of more than US$3 million in Yap. This is significant with reference to a 2001 GDP of US$40 million and is slightly more than the amount spent each year for the importation of petroleum products. More than 80% of tourism revenue is connected to Scuba diving, which is in turn heavily dependent for marketing on the famous manta rays that can be seen year-round.

Yap has other attractions besides the manta rays, however, and good potential for diversified ecotourism
development. The numerous sand beaches and coral reefs are fine for snorkeling. The network of stone paths offers the opportunity to walk through unspoiled dense tropical forests, mangroves, and upland agricultural areas, while observing a great variety of plants, birds, small animals, and reptiles. Many stone paths have fallen into poor condition and disuse, but some have been rebuilt. One village (Kadai) has carefully rebuilt its entire network of paths, as well as its platform and several traditional houses; it offers tourists a guided walk through the forest and traditional dances in an authentic village setting.

All tourism facilities are relatively small, ranging in size from 4 to 24 units. All but two of the facilities (with a total of only 14 rooms) are in Colonia. All facilities in Colonia are on small areas of land, are connected to the municipal waste treatment system, and have thus far had little impact on the environment or on the sustainability of natural resources. Tourism operators and facilities connected with diving have been very active in supporting government actions and in taking their own voluntary actions to preserve the pristine nature of the marine resources on which they depend.

Many of the people of Yap who have engaged in the modern economy have observed social and environmental problems that large-scale tourism has brought to their neighbors, Palau and Guam. They want a different future for Yap. They recognize, however, that Yap has very limited resources to export or by which to attract foreign investment, and they assume that their future is significantly tied to the development of tourism.

Everyone knows the term “ecotourism” and assumes that it is low profile and does not disturb the environment. Though they may not understand well what it otherwise implies, they want to see ecotourism developed in Yap. The other term widely used is “high-end” tourism, conjuring visions of a small number of tourists who pay substantially for luxury services.

Tourism was expanding in the mid-1990s, and much of the present capacity was built just before the Asian financial crisis in 1997. Since then, and especially since the threat of terrorism has reduced international travel, the tourism sector in Yap has been trying mainly to survive. Annual occupancy averages about 25%. While there are fragments of a vision of future tourism, no state or industry sector plan or strategy envisions how Yap will capture new tourism markets.

This study compares the application of traditional management approaches and public-private partnerships in large vs. small tourism destination development. The developments selected and contacted for the study are the Trader’s Ridge Resort and the Manta Ray Bay Hotel, both relatively large resorts (for Yap) of 23 units each. Both have international or expatriate ownership and management. The smaller facilities are the Pathways Hotel and the Village View Resort, facilities of 9 and 10 units respectively, built in traditional architectural design and owned and operated by local families.

The first two facilities and the second two stand in sharp contrast physically. The study asks if their development also contrasted significantly, and if lessons can be learned for the future environmental sustainability of development from the different issues they faced and resolved.

Trader’s Ridge Resort

Trader’s Ridge Resort (TRR) is wholly owned by the US-based Robert Gumbiner Foundation and is associated with the Ethnic Art Institute of Micronesia located on the site of the present hotel. The TRR has 23 rooms with relatively luxurious appointments and facilities and was built in 1997, just before the Asian and world economy declined. The land on which the main buildings stand is leased from the Yap state government on terms of an annual minimum payment plus a share of profits on a scale that declines as profits rise. No annual net profits have accrued, so the payment has remained the minimum. No written lease was drawn up for the use of the land.

The resort incorporates a previous structure that was the quarters for US Navy SeaBees under the US Trust Territory Administration prior to the independence of FSM. The building was built by the Japanese administration that commenced after World War I, so the land has been alienated from traditional ownership for a long time.

However, some of the outlying buildings, such as the water sports center and dock, are on private land still held within the traditional system of land ownership. TRR has the verbal permission of the owner and the respective traditional leader to use the land and no rent is required. There are however, undefined obligations that go with the use of the land, such as supplying
refreshments for village festivities. Thus far, the requests have been small but the ultimate extent is undefined.

The management of the resort has from the beginning sought to incorporate traditional leaders into the operation of the hotel. One traditional leader from the local village was employed in the resort. This did not work out well, as he had difficulty carrying out his duties and was unable to adjust to working with Yapese of a lower caste or social level than himself.

The resort management has created a committee of landowners whose land borders the lagoon on which it is situated and pays a traditional leader from the area to manage the work of cleaning up the lagoon. Progress has been limited and slow. Hotel management has placed trash barrels around the lagoon at its own direct expense and pays a local company to collect and dispose of trash placed in the barrels.

TRR’s present annual occupancy rate is about 25%. As it is owned by a foundation, it has no debt and is not under the same pressure to make a profit that a normal commercial operation would be. It has therefore continued to make improvements, and has maintained a full staff when a commercial operation would have been forced to drastically reduce operating costs.

Except for three expatriates (the general manager, his wife who fills an active role in the operation of the hotel, and a water sports and technical manager), the entire staff of the resort is Yapese. It has been difficult to keep trained Yapese staff, and other hotels in Colonia have all turned to employing Filipino or other foreign staff in order to get the work done.

TRR at one point tried unsuccessfully to buy the Pathways Hotel, but the conditions placed on Pathways for the use of the land were that control of the hotel could never be sold to foreigners, as they would not understand the continuing obligations that go with the use of the land.

TRR has new management and is in transition, trying to identify its future market. The diving market is largely held by the other larger facility studied which has agreements with major dive travel marketing and packaging organizations in the US and Europe. Present management is looking at the retired high-end market.

Manta Ray Bay Hotel

The Manta Ray Bay Hotel (MRBH) has 23 modern units, is dedicated to the diving market, and advertises widely internationally. It is built on fill, so questions of the traditional ownership of the land never arose. The land was titled to the Yap State and sold to WAAB, the local corporation operating the port, from which it was bought by the present owner, a former US Peace Corps volunteer to one of the outer islands of Yap. The land has clear title. People still occasionally claim that the hotel waterfront is violating fishing rights, but these claims have not been taken seriously by either the hotel or, apparently, by the area’s traditional leaders.

MRBH also operates Yap Divers, the largest dive operation on Yap. The traditional ownership of water rights has in general not been an obstacle to the development of diving tourism. Sport diving does not take resources from the water, and under the traditional system, anyone can bathe or swim in any water without seeking permission. To avoid any conflict, however, each of the five present dive operators seeks the permission of the water rights holder for each dive site visited even though the operators believe that diving should be seen as no different from swimming. In most cases, this permission is given freely, with no request for payment, as the owners of the rights merely wish to have those rights reconfirmed.

In one notable exception, the historical owner of the Miil Channel, the area where the manta rays can be regularly viewed in their cleaning station, demanded payment for access. Because the site is key to the diving trade for Yap, the operators made such payments. However, the usage rights (though not the ownership) had been lost in an inter-village war in the 19th century. The traditional leader of the village now owning the rights decided that there was too much controversy and told the operators to stop making payment. The operators have done so and the former claimant of the usage rights has threatened to take the issue to the municipal court. Up to now, the present owner of the rights has not suggested that the village should receive any payment, only that the individual owner should not charge for access.

The Pathways Hotel

The Pathways Hotel has nine units built in 1996 in the traditional architecture of Yap, primarily native
wood, bamboo, and thatch construction. The owners of the hotel have from the beginning been very concerned to use the environment sustainably. The hotel labels itself an “ecoresort” specializing in “eco-oriented” adventure activities.

The hotel was established by and is still owned by a family of traditional leaders, but it is at the edge of Colonia in a location some distance from their village and authority. The grandfather of the present manager bought the land through traditional exchange of stone money and obligations, because the family wanted a piece of land near Colonia, where family members could stay when visiting the city. When the father of the present manager decided to build the Pathways Hotel, the land was surveyed and titled. No consultation was held with the traditional leaders of the village where the hotel is located about approval to build the hotel. No partnership with the local village was considered to be needed in its establishment. A long-time expatriate resident of Yap was taken in as a partner, and three of the original eight units were sold up front as timeshare units and are still owned by nonresidents of Yap. This provided much of the capital to build the hotel.

Construction was held up at one point for several months because bulldozing the land for construction had eliminated taro-growing areas on which the villagers who sold the land depended to meet their obligations to the village. Traditional leaders of the village on whose land the hotel is located asked what the owners would do about it. The village that had given permission to sell and use the land was of a higher rank or caste than the owners of the hotel, so they could not ask directly what was wrong. They needed to listen to the traditional leaders of the local village but had to go through a friend of higher rank who could speak with the village traditional leaders. An amicable agreement was arrived at and the hotel owners reaffirmed that they had obligations to the village by nature of their use of the land. The traditional leaders wanted primarily reaffirmation of respect, not money. Subsequent demands to meet the obligations have been minimal.

Village View Resort

The Village View Resort has 10 units in 5 duplexes built on the oceanfront in a mixed modern and traditional architecture. The owner would have built entirely in traditional architecture, but feared that with direct beach exposure, the units might not stand up to the periodic typhoon winds.

The resort is established on land of the family of the owner in a village on the east side of Maap municipality, of which the senior traditional leader is the brother of the owner and operator of the hotel. Construction was started in 1994 and it opened in 1996. Approval by the traditional leader for establishment of the resort was never an issue, nor was use of the water in front of the resort, as the family also has the fishing rights for the adjoining water.

However, the village controlling the water to the south, which has excellent diving potential, refused to allow diving in the belief that it would disturb the fish. Like other villages on the west side of the island that do not allow diving, they do not understand the difference between local divers who spear fish and take turtles for food and the tourist sport divers who do not take sea life.

The resort also has a small diving operation operated by a Japanese investor/operator. When the diving operator proposed to introduce jet skis for tourists, the traditional leader, brother of the hotel owner, disallowed the proposal, as he was concerned that the noise would disturb the fish.

Tourism and Natural Resource Management

In the development of the four facilities studied, no clear process or set of procedures was followed. A business license is relatively easy to get and at the time that the four facilities were established, no environmental impact assessment (EIA) was required. An EIA is now required for any construction involving major earth moving, but no particular process is required for licensing a hotel.

Neither at the time when the four hotels were established nor at the present time has any state regulation or licensing requirement stipulated that the traditional system be consulted. The obligations of traditional land tenure are still very real, however, and any project utilizing traditionally owned land would be extremely foolish not to reconcile the use of the land or water with traditional resource management systems.

Each of the four facilities has had minor conflicts with the traditional system. Each has been different, and
in two of the cases the conflict was quickly resolved through discussion and modest contributions to the community. In the third, the facility simply complied with a limitation set by the traditional leader, and in the fourth the conflict has not been taken very seriously by any of the parties concerned and has thus far been ignored.

The new licensing requirement enacted in 2002 specifies that a business license shall be denied if a business activity is injurious to the health and welfare of the citizens of the State of Yap. It further defines this to be the case if the applicant or the business activity

- will create permanent damage to the natural environment of the state,
- is not environmentally sustainable,
- exploits Yapese or other Micronesian culture,
- will cause damage to traditional social structures,
- has not obtained permission for the activity from the local community,
- has not satisfied the requirements of the EPA, or
- has engaged in other activities in violation of environmental protection laws.

While it is too soon to know how this wording will be interpreted and applied, it certainly provides the government with ample leverage to prevent any business practice that is not environmentally sustainable, or that conflicts with traditional practices.

At the present level of tourism in Yap, the industry has so far had no apparent impact on the environment or on the sustainability of the natural resources. This is because most facilities are small and on the municipal waste treatment system of Colonia, and they depend on maintaining the condition of the reef and lagoon for diving. Future development could be very different. It would probably be located in more remote areas of the island and could use more services and resources to provide more luxurious services and facilities.

Development outside Colonia will require more planning as to how to make the operation of the facilities environmentally sustainable. It should also have some government guidelines as to how the development is to occur and may require some infrastructure of legal/cultural expertise to support development of the needed public-private partnerships.

Larger-scale development outside Colonia will also engage the traditional systems of natural resource management, and especially the traditional land tenure systems, more directly than has tourism development to date. The facilities examined in this study have either occupied land outside the traditional system leased or bought from the state, or they are on relatively small pieces of land owned by the family of the operator within the traditional land tenure system. The scale of these facilities has obviated any significant conflict with the traditional systems.

The diving aspect of much of the tourism has come into conflict on occasion with the traditional resource management system: some owners of water resources have been unwilling to allow sport divers to enter their areas, because of some misunderstanding of the nature of the sport. On the other hand, the diving operators are concerned with the depletion of marine stocks from overfishing, as it degrades the quality of the diving experience. They therefore back the government in its wish to regulate the use of the waters within the reef, and to that extent they are in further conflict with the traditional systems of land tenure and resource management.

The tourism and diving operators hold the position that diving is no different from swimming and that under traditional rules anyone can swim or bathe in any water, regardless of ownership. Noting that the tourism of Yap is overwhelmingly dependent on diving, the dive operators would like the government to take a public position that diving does not deplete or damage the resources of a site and that therefore access to all waters for diving should be free. They have been disappointed; the government has failed to take such a position because it is reluctant to challenge the traditional rights of the landowner to determine the use of the water. Traditional leaders have only rarely intervened in this issue.

Tourism and traditional resource management have a common interest in sustaining the resources, though for different reasons. Their common interest has thus far kept the tourism industry and the traditional leaders from coming into serious conflict. Some of the tourism facilities are owned and operated by traditional leaders. So long as tourism remains at its present level, an uneasy coexistence will probably continue between tourism and traditional resource management.
The modern economy hopes for substantial growth of tourism, however, and in ways that will affect larger areas of land and water. For that to happen without conflict, it will be essential for the government to take an active role in setting guidelines and in working with traditional leaders to achieve understanding about how development can be designed to work within tradition and to bring true, positive development to the people of Yap. Achieving the expected growth in tourism, and especially in a sustainable manner, will also require a clear strategy and action plan that is consistent with and integrates both traditional values and modern aspirations. The default development in the absence of careful planning is likely to be economically disappointing and environmentally unsustainable.

**Public-Private Partnerships**

**Tourism**

None of the four tourist facilities studied involved any significant form of public-private partnership. Though the concept of public-private partnerships in tourism seems acceptable, no real test of it has occurred in practice because of obstacles of weather or finances. Two known attempts have been made at real public-private partnerships in tourism, in which private capital was or was proposed to be in partnership with a village or community. In the early 1990s, a project was proposed in the village of Chool, Maap Municipality, by a Japanese investor/developer for a large operation called Nature’s Way. It would have included accommodations, food production, community development, and much more. In retrospect the project seems a good vision, but it was ahead of its time. The community did not understand the project or their relationship to it and was having difficulty in agreeing to it. When investors withdrew during the Asian financial crisis, the project collapsed.

Another smaller venture was established as a partnership between a small village and an American investor. Destiny Resort was located in Gilman Municipality on the far southern tip of Yap. It was started in 1995 by an American investor from Hawaii in partnership with the small village (perhaps 20 persons) that owned the coastal area. The village was not incorporated. The venture was a public-private partnership in which the village held 40% of the equity and received a minimum US$1,000/month payment until their share of profits would exceed that figure. Payments were made to the village chief, not to the individual landowners, but all of the payment was probably returned to the landowner. Initial construction was on one parcel of beachfront land, surveyed and titled to one member of the village. Two other surveyed and titled parcels were owned by other villagers and designated as expansion space for growth. At the beginning of the project the entire village was surveyed and titled in 1 month with no problem. Members of the same family owned all three parcels. As it was a high-caste village, no problems arose of layers of obligation on the land from higher-caste villages. Unfortunately, the facility was destroyed by a typhoon in 2001 when only two units had been built and it was barely operational.

The Ulithi Adventure Resort on Ulithi Island is a partnership of three foreign investors, one of whom served in the military on Ulithi during World War II, and a local citizen who owns the land. Neither the village nor the clan is involved in the venture. The hotel has comfortable facilities but has never attracted much business because of lack of marketing. Annual occupancy is probably less than 15%.

In the state government sector, no examples of public-private partnerships exist. The state government had an exceptional opportunity to enter into such a partnership when it decided to remove the national public utility from direct government operation. However, it decided to corporatize the utility rather than seeking private capital or management, and it is still wholly state-owned.

The entry of Continental Airlines into Micronesia prior to national independence was in some ways a public-private partnership, as Continental was previously a solely domestic US carrier and the Trust Territory Administration invested in the infrastructure needed to support the air routes. A proposal from private investors is presently under consideration by the government of Yap to expand the air service to and within the state in a partnership involving investment by the state.

Many in Yap see the concept of public-private partnerships in business and development as useful, and the government may consider it for future infrastructure projects. However, the state government may need help in developing the legal guidelines and infrastructure for public-private partnerships involving the government.
Substantial future expansion of tourism outside the capital is almost certain to involve partnerships between outside private capital and expertise and the communities that own or have traditional influence over the use of the land and water resources.

**Natural Resource Management**

A different type of partnership has been tentatively tried in the past and is presently being explored through new initiatives. It consists of public-public-private partnerships in which the state government, the community, and the private land or water rights owner all cooperate to achieve objectives of sustainable management of natural resources. The approach could equally apply to marine resources and terrestrial resources, but where sustainability is concerned, the focus has been on the marine resources. The MPAs being established by the IWP and the activities of the ESC to establish an environmental stewardship program for Yap are examples of partnerships between the traditional and modern systems for the sustainable management of resources. They are both promising, and the potential for their success is substantial. But their success and that of future public-private partnerships must be built on understanding of common goals, strengthened communities, and effective communications between modern and traditional systems. Much work remains to be done to create those conditions.

**Communities**

The Yapese culture is very nonconfrontational and it is often difficult for individuals to speak their opinion. Traditionally, as part of the system of multiple and specialized leadership roles, community decisions are normally taken consensually through discussion. Members have ample opportunity to discuss issues with deliberation, then from the discussions, the responsible leader gauges the consensus and announces it as the decision of the community. Decisions are taken for the overall welfare of the community, whether at the village or regional level. Usually a consensus would emerge without confrontation about such issues as opening new land for cultivation, or fishing with nets, or working the community taro patch.

Very few activities now take place at the village level or on a community basis, such as communal fishing or building or even discussion. Community taro patches are becoming overgrown because no one works them. People work only what they will use for themselves. Stone fish traps are abandoned because community fishing has declined, and the species of fish for which they were built have largely disappeared. Nets have replaced the traps.

Yap has been trying to establish marine protected areas for many years, with some success. The MRMD has tried to establish marine life reserves to let the fish reproduce, but too many people fail to respect the reserves. Most notable has been the program to establish protected areas for reestablishing giant clams, in which some communities have cooperated. Still, reseeding of giant clams is failing because of poaching and impatience to eat the clams. Young people sometimes fish illegally with nets for fun, letting the catch spoil and not caring about the diminishing fish stocks.

Not enough traditional leaders are really trying to stop the overfishing and violation of restricted areas, and the communities have lost the cohesiveness that might allow community members to either take action themselves or urge the traditional leaders to do so. The traditional leaders know they should try to stop the violation of the reserves but they are discouraged by no one listening to them. Many just do not care any more and the traditional authority is disappearing. Unfortunately, some traditional leaders are even exploiting their communities by using community resources for business gain in the cash economy, especially through fishing. As a result some communities are trying to reassert their collective authority over the use of the marine resources.

The community takes very little part in national decisions. One rarely sees community discussions with the representative to the COP. Television and the cash economy are fuelling a transition from the village community to the nuclear family, in which everyone goes to work or to school in the day and comes home to watch TV at night. The cash economy and the state government have largely ignored the communities, and the communities therefore assume that the government does not care about their opinion. This has weakened the traditional system. Management of natural resources was originally completely a community function. The cash economy and the new authority of the state have also left the communities expecting that government should do whatever is needed, and if participation of
the community is required they should be paid for their
efforts. For example, the state government now offers
funds for villages or individuals to repair the stone paths
on their land. Traditionally the villagers would have done
it for themselves. Now everyone expects to be paid by
the government for such community efforts.

Children are being taught about the environment
in school but not enough about the value or effectiveness
of traditional methods of natural resource management.
Therefore the new generation tends to disregard the
traditional systems of resource management. Information on environmental issues and marine
conservation does not reach communities easily. It is
essential to reach the younger people in the community
with information, while at the same time showing respect
to the traditional leaders. Consultations on
environmental issues and resource management have
been held in the municipalities and the villages by
representatives of the Historic Preservation Office,
MRMD, EPA, and other organizations, but it appeared to
the state government that no one was listening to them
so their frequency has diminished.

MRMD and the EPA have programs to take
information to the communities and into the schools, but
the government is still unable to do enough to educate
the communities. Education is the key, starting from the
lowest levels of public education up to the traditional
leaders themselves, who might do much more to help
manage the resources if they better understand the issues.

The communities need to do things for themselves,
but to do so they need stronger leadership and to come
together to discuss what to do. Where the community
has taken action it has usually been the result of a single
person in the community animating the community, and
it has not always been the traditional leader who has
risen to the occasion. An emerging leader, however, will
still need at least the passive endorsement of the
traditional leader.

Both the state and the communities need a long-
term vision of where they want to go, such as on what
type of tourism they want to develop and where, and
how they want to manage their natural resources. There
may be a lot of agreement among the people on what
type of world they want, but the vision is not expressed,
nor are ideas discussed on how to achieve it. For
example, in political elections there are no platforms of
policy or plans or issues, only campaigns on personal
popularity laced with clan affiliation.

Some signs have indicated, however, that the
communities themselves are recognizing this shift and
are starting to encourage more community activity. The
traditional leaders still have the ability to direct the
communities to take action, but something must focus
their interests, as well as that of the communities. The
traditional leaders make decisions only when they
perceive the intent of the community, rarely against the
wishes of the community as a whole. The community is
the real force for change and for action to preserve
the resources. Communities and education hold the
keys to a coherent and widely desirable future for Yap,
a future striving to gain a vision rather than one arrived
at by default.

Lessons Learned

Problems

• The traditional leadership and the communities
  feel that they are not part of progress. They see
  the government as concerned with economic
development rather than true development that
focuses on the improved welfare of all the
people. Consequently, they do not respond well
to government overtures.

• Communication between the government and
  the traditional leaders and the communities is
weak or nonexistent. The councils of traditional
leaders established by the Constitution to bridge
that gap have not fulfilled their intended role,
and government agencies are sometimes inept
at communicating with the traditional leaders
or communities.

• Traditional leadership has been weakened by a
  number of forces, including the cash economy,
new technology, religion, and villagers working
in Colonia, Palau, Guam, Hawaii, or elsewhere.
Yet although their authority is often not well
exercised, it still exists. Tourism and the impact
of foreign visitors do not appear to have been
significant factors in this decline.

• Communities have lost cohesiveness for many
  of the same reasons that the traditional leaders
have lost authority. Communities rarely work
together any more, nor do they come together often to discuss issues.

- The extraordinarily complex traditional system of land tenure causes frequent disagreements over ownership and use and is an obstacle to coherent regulation of the use of natural resources and to investment for development.
- Traditional systems for the management of natural resources are significantly weakened, partly because of the general weakening of traditional authority, but especially because of the introduction of technology not anticipated within the traditional system.
- Environmental sustainability is currently not directly addressed in traditional systems or adequately addressed in government functions. While individuals in both systems are very concerned for the future sustainability of the culture and the environment, they are not yet integrated into a planning process to achieve that sustainability.
- Very little in the way of policy or economic or political direction is written. Most Yapese may agree on many issues or values, but it is seldom possible to find the position in written form. Yap has a tradition of verbal history and much that is widely agreed remains unwritten.
- The Yapese culture is very nonconfrontational and public debate is rare, even on issues crucial to the future of the state. There is no common expression of a vision for the future of Yap, from the government or from the traditional system, nor is there any forum that encourages the discussion of ideas.

**Challenges**

- The overriding challenge is to make the traditional systems of leadership and community feel that they are partners with the state government in moving forward toward true development that bring benefits for all and is environmentally sustainable.
- Establishing good communications between the government and community and traditional leadership will be the greatest challenge. It must be done in a manner that is truly collaborative and not patronizing on the part of either party.
- Reaching agreement among traditional leaders and government regulators and managers over the integration of traditional and modern approaches to the management of natural resources will be difficult and will require building understanding and trust through common interests.
- Achieving development of tourism beyond its present basic level will require innovative approaches to working within the land tenure system and new mechanisms for partnership between developers and communities for common gain and true development.
- A major task will be to develop a state strategic plan in which vision, objectives, actions, and implementation plans are established for the whole state. This must then be realized through the establishment of policies, enabling legislation, implementation mechanisms, enforcement, monitoring, and evaluation.

**Opportunities**

- The traditional system is weakened but still sufficiently intact to be a strong force for sustainable management of natural resources, but it must be informed of issues and engaged in a partnership with state government.
- The education system is strong and dynamic, and bringing understanding of common goals and a vision for the future of Yap to school children may be the most effective means to reach the larger population in the long run.
- A new state government is in the early stages of developing its policies and has expressed the desire to establish better communications between the state government and the communities.
- Tacit agreement among the people on a vision for the future of Yap is widespread, and the process of debating and articulating that vision from the ground up should require only the leadership and the open forum in which to make it happen.
- Opportunities for the development of ecotourism are excellent, but they will require partnerships between developers and communities. In turn, such partnerships and developments have the potential to greatly strengthen the communities, the traditional leadership, and the collaboration between traditional and government systems of natural resource management.
Recommendations

The following recommendations reflect the comments and the suggestions of the people of Yap and are made with reference to the conditions and issues in Yap. The strategy and actions are specific to the needs of Yap. But they address problems that are pervasive among the Pacific island countries.

Strategy

Yap currently has unsustainable patterns of use of its natural resources and faces the risk of serious and possibly irreversible depletion of those resources. Moreover, its economy is heavily dependent on a tourism sector that is in turn dependent on the condition of those same natural resources, lacks any development plan, and faces significant obstacles to growth in the traditional tenure of the land and water.

The two problems may have different roots, but the possible solutions are interrelated. Both require collaboration and partnerships between public and private entities. In order for those partnerships to develop, there must develop an identification of shared values and objectives, better communications between the modern and traditional sectors, a strengthening of communities and traditional leadership, and a common strategy and plan for the future of Yap against which to measure individual actions and ventures.

Integration of traditional and modern approaches to the management of natural resources, like the development of ecotourism, requires that the traditional and modern, the community and the government, the private and the public sectors all communicate better and understand one another’s values and objectives. While genuine differences are sure to remain, they can be better managed and compensated when mutual misunderstanding and suspicion are reduced through honest exchange.

The strategic recommendations below address the cultural and political roots of problems in both natural resource management and tourism development. The elements of the strategy are focused on the environmental sustainability of the management of natural resources and the development of the tourism industry, but they support all aspects of development. Collectively they go a long way toward making up a larger strategy for environmentally, socially, and economically sustainable development for Yap.

It is easier and perhaps more understandable to address the elements of that strategy rather than a single very large continuum. They are therefore presented as four strategic elements:

- Identify shared goals and plan strategically;
- Build government-to-community communication;
- Strengthen community cohesion and action; and
- Promote public-private partnerships.

At present the potential for cooperation is good but the environment for its realization is weak, and the mainstreaming of traditional environmental management and the formation of partnerships for development are unlikely until actions are taken to correct the underlying problems of institutional structures and the lack of communication. The subsequent recommendations concerning goals/strategy/planning, strengthening communities, and improving communications between government and traditional leaders and communities will collectively create the conditions in which public-private partnerships and the integration of traditional and modern practices for resource management will be possible.

Identify Shared Goals and Plan Strategically

Clear and agreed commonly held goals and direction are essential, both for the management of natural resources and for the development of tourism, and the two must be internally consistent.

Most Yapese agree on what they want for Yap: respect for traditional values, controlled progress into the modern economy, better education and health care, development of high-end ecotourism, preservation of the environment, better infrastructure, etc. But these issues have not been openly discussed in any forum, and no generally accepted statement of a vision for Yap or of how the commonly held values and objectives will be achieved has evolved.

Economic and social development, especially including achievement of sustainable use of natural resources, must be based on broad agreement about what the government and the traditional communities
are trying to achieve and on the values and priorities that that vision comprises. So long as there is neither open discussion of issues nor broad agreement on values and a future for Yap, it will be very difficult to integrate the traditional forms of natural resource management with modern management techniques. Integration requires that the tools and leverage of traditional authority and community cohesiveness work together with the science, expertise, and financial resources of the state government to achieve common objectives for the sustainable use of natural resources.

Both government and traditional leaders must truly believe in the importance of the integrated and sustainable management and development of all natural resources for the effort to be successful. Development of a state vision and strategy will fail if they do not. Both groups must repeat the same message down the ranks, to the different sectors of government, to the private sector, and to the traditional communities.

A forum is therefore needed for discussion of values and aspirations for the future of Yap. The forum is figurative, not literal, and may have many aspects, including everything from the traditional village council to debate between differing viewpoints on television. Government and traditional leaders must share their viewpoints in front of the general citizenry, so that a consensus of shared values, goals, and objectives can grow. And in the village council and in the television debate both traditional and modern viewpoints must be represented, in order to bridge the communications gap and resulting suspicion that have grown between traditional and modern systems of leadership.

Identifying shared goals and building a vision and a strategy for the future of Yap are introduced here as the first strategic objective because they are the paramount and overriding requirement for all aspects of balanced and sustainable growth. But they are also integral to two of the other strategic elements: building government-to-community communications and strengthening community cohesion and action.

Better communications between the government and the traditional sectors is needed in order for a forum on state values and goals to be effective, and the act of opening public discussion on these issues will in itself open new channels of communication and enhance existing ones. Similarly, some level of community organization must exist in order for the community to engage in the discussion of state values and goals, but the very act of participating in the forum and engaging in the discussion as a community will build community cohesion and a sense of community empowerment.

Building shared values and goals and a vision, strategy, and action plan for Yap should be widely debated and involve a cross-section of the entire community, including government, traditional, and private sectors. Implementation actions and committees should include representatives from traditional communities, the private sector, government, and NGOs who share the same goals, vision, and inspiration—to improve the quality of life of the people of Yap.

The entire process of building a consensus should proceed from a clear strategy of its own, which should be agreed among representatives of the various parties and sectors involved. It should start with informal mediation among leaders of the traditional and modern sectors to find basic agreement on their own values and objectives and on a process for building a state vision and strategy. This agreement would then probably include an extensive process of state government conferring with community councils, in the communities, to discuss goals and values, while simultaneously building communications channels for the long term.

As the people become more involved in the debate through community councils and the media, the debate would then move up to a state-level forum or convention where decisions could be drawn and directions set for the future, to be passed back to the communities for their further debate and eventual concurrence. A second round of state-level discussion could be required, but the process of reaching agreement should not be forced and all parties should feel that they have had adequate opportunity to make their viewpoint heard.

This process will include the issues of management of natural resources and the development of tourism, but it should touch on other important issues for the future (e.g., use of resources, foreign investment, and the development of industry) and encompass broad values and the general future of Yap.

Specific actions to implement the strategic objective of identifying shared goals and planning strategically are presented in "Actions" below.
Build Government-to-Community Communications

Communications between the state government and the communities are poor. For a number of complex reasons, the councils of traditional leaders set up to facilitate communication do not fulfill their intended role well, and occasional forays of agencies of state government into the municipalities only serve to underline to the people in the villages how great is the gap of understanding between state and community.

The government is seen as too secretive and as not communicating sufficiently with the communities. As a result, many people in the villages assume the government does not care about them. A more comprehensive newsletter or newspaper is needed and the government should help to support it by paying for space in which to communicate its plans and actions to the people. The governor and other senior officials should talk to the people regularly by radio, and issues of national values and goals should be debated on radio and on television. These and more should be part of a concerted government program to communicate better with the people.

The state government must take the initiative to build effective channels of communications through systematic contact. The same visits of government that may create confusion when done occasionally will, if done systematically and with a willingness of government to listen rather than direct, gradually create understanding through which the communities and the state government can develop cooperation. Cooperation in small ways and useful projects can steadily build understanding and willingness to listen from both sides. Development programs must also support the efforts of state agencies (e.g., for health care, agriculture, environment, and marine resources) to mount well-thought-out and systematic processes of communications with the communities and the people.

The public education system should play an important role in building communications. Children are taught about the environment in school, but not enough about the value or effectiveness of traditional methods of natural resource management to keep the new generation from dismissing the traditional ways, including those for resource management. It is essential to reach the younger people in the community with information, while at the same time showing respect for the traditional leaders.

The schools can also be an important part of the broader forum for discussion of values, goals, and strategy for the future of Yap. Children who are themselves asked to discuss and consider such questions can both take ideas home to their parents and prompt the parents themselves to consider the issues.

It is essential that a vision for the future of Yap develop from the community up to the state level. This vision will serve many purposes, as the basis for selecting courses of action that integrate traditional and modern concepts for the management of natural resources as the basis for decisions on the development of tourism, and for many more issues. But for all of these, it is important that forums conducted at the community level identify the community visions for the future, and that those collective visions filter up to form a state vision and strategy. A vision developed at the top and passed down to the communities will be seen as one more example of poor communication between the state and the communities.

Specific actions to implement the strategic objective of building government to community communications are presented in “Actions” below.

Strengthen Community Cohesion and Action

Traditional management of natural resources was based on the needs of the community, but more importantly on cohesion within the community that caused its members to communicate often among themselves and to understand their needs and their best interests. The advent of the cash economy and modern technology has caused the community to break down as a cohesive entity. As a result its members do not understand the issues of sustainable use of natural resources and they are no longer able to act as an entity to enforce their collective will on issues such as preventing widespread poaching and the use of gill nets.

Strengthening the communities will facilitate and stabilize the difficult transition for the traditional culture of Yap to the modern cash economy. More important for the management of natural resources, more cohesive communities may be the only entities capable of enforcing decisions reached collaboratively by government and communities on resource management. And as to the development of tourism, given the complex system of land and water tenure, the community may
be the only feasible partner for the development of
ecotourism requiring access to substantial areas of land
and water.

State and external assistance programs should
address creating community awareness and cohesion,
by supporting community forums and education for the
community concerning its common problems and
possible solutions. Development programs should also
help provide the means for communities to take action
to address their problems (e.g., materials for repairing
traditional fish traps or for marking boundaries of marine
preserves). Strengthened and focused communities are
not only the most important tool for sustainable
management of natural resources, but without them, in
the absence of an enforcement capability that will always
be both too expensive and culturally unacceptable,
sustainable management may not be achievable at all.

Specific actions to implement the strategic objective
of strengthening community cohesion and action are
presented in “Actions” below.

Promote Public-Private Partnerships

While public-private partnerships are relatively
unknown at present, the concept fits well with traditional
concepts of the role of the community or village in the
management of resources. Traditionally, the community
leadership has an important voice in the use of resources,
even though ownership is individual. It is therefore
logical that the community should be a partner in a
venture that involves the use of resources, especially if
multiple owners in the community are involved.
Partnerships will provide stability by engaging more
diverse stakeholders in the active management of
projects and by preventing the owners of the resources
involved from feeling that they may have been taken
advantage of by the investor or entrepreneur. They are
a workable idea and should be supported through
development programs at all levels.

Development of ecotourism requires access to
substantial land and water resources. With the prevailing
complex system of land ownership, partnerships may
be the only way that development will be possible. Many
different people were asked their opinion of the feasibility
of a public-private partnership between a foreign investor
and a community for the development of an ecotourism
destination. In it the community would hold an equity
interest in exchange for the guarantee of access to the
needed land and resources, and would take a
progressively active role in the actual management of
the facility. Without exception, those asked answered
that they felt it would be the only way such a facility
could gain access to the needed land and water
resources; they believed that communities (whether
village or municipality) would be willing to incorporate
if needed in order to be a viable legal partner in such a
venture.

It will be important to further investigate and
describe the possible methods to carry out such
partnerships and to build the business and community
advisory services and legal support to actually initiate
such ventures. The state government can play a major
part in business-to-community partnerships and should
develop guidelines for ventures that will minimize
misunderstanding or conflict and maximize benefit to
communities. Investors will also want the assurance of
the government that their actions are consistent with
state policy and regulations. While government
involvement should be limited, it can assure that projects
are in line with state and community interests,
regulations, and guidelines.

Similarly, public-private partnerships among state
government, communities, and private owners of the
rights to land and water will be essential to the
integration of traditional and modern methods of natural
resource management and the successful future
management of natural resources for sustainability.
The state government’s limited authority over the use of
natural resources makes it imperative to enter into a
partnership relationship with the community and private
owners in order to manage the resources in an organized
fashion to meet common objectives.

The nature of these partnerships will evolve with
time and experience, but in order to work at all they
require good communications and the establishment of
clear common goals and objectives. A successful
partnership must be transparent and must meet some
of the objectives of each party involved.

Specific actions to implement the strategic objective
of promoting public-private partnerships are presented
in “Actions” below.
Actions

Each of the following recommended actions has been suggested by one or more persons interviewed in Yap. They are grouped and presented here in the same structures as the strategic initiatives above. In many cases they overlap and would support each other. Obviously, they collectively make up a larger program for environmentally, socially, and economically sustainable development. It remains easier and perhaps more understandable, however, to address them in groups rather than as a single very large continuum.

The individual items are specific actions that the government can take, in most cases collaboratively with the other stakeholders, to carry out the strategic directions outlined above. Within a category the action items are presented in a loose temporal sequence in which they should be undertaken, though some actions might be logically initiated simultaneously.

Identify Shared Goals and Plan Strategically

- Initiate a process of identifying and defining shared values and goals for the future of Yap—in essence a state vision. Start with small group discussions among a few leaders representing both the modern and traditional leadership sectors, the private sector, and NGOs and other stakeholders. Establish this group as a state committee to identify the probable common ground and the key issues to address, and to set a strategy and plan for the process of developing a state vision and strategy.
- It may be useful to bring in an outside party with some experience in state visioning and strategic planning to organize and facilitate the initial discussions and the design of the subsequent process. The individual should be from outside the culture in order to have objectivity and the ability to suggest without restraint, but he/she should be careful to facilitate rather than direct.
- Organize the process of developing a broad-based and integrated state vision and strategy from the community level up. Government must support the process of municipal and village meetings and other forums needed to build a state vision and strategy from the bottom up. A systematic process of discussions at the community level should occur, at a minimum in each municipality, and if possible within individual villages or groups of villages, on the issues of shared values and goals and the citizens’ vision of the future of Yap. Involve multiple representatives of state government, from the legislature and the executive and its various functional agencies (e.g., environment, education, health, marine resources). While not every part of government can be involved in each discussion, all parts of government should have the opportunity to engage in some discussions and to sense the community perspective.
- If it is seen as too difficult to approach the larger issues of the future of Yap directly, an alternative approach is to stimulate an open dialog starting with an all-stakeholder conference on the issue of natural resource management. The discussion can then develop into the need for a state vision and direction in order to make any strategy or plan for management of the natural resources work. This approach may be more palatable than a direct approach to the larger issues of a state vision.
- Based on the findings in the community, draft a set of issues and apparent values and positions of the communities and other stakeholders with regard to each. These should be circulated and publicized in the newsletter and aired in radio and television debate.
- Convene a state forum to develop a strategic plan for Yap. The convention or conference should have widespread stakeholder representation, and it is important that no significant stakeholder be excluded. An outside moderator with skills in strategic planning might be of assistance. It is important that the conference start by addressing values and goals, and strategic direction, and not limit itself to specific action items as did the First Yap State Economic and Social Summit.
Convene a regional forum for the discussion and exchange of experience on the development of state/national vision, goals, and strategic plans. With so many physical, cultural, and economic issues in common, the Pacific island countries could gain much from one another’s experiences.

**Build Government-to-Community Communications**

- Establish a systematic program in which representatives of various elements of government visit communities to discuss the concerns of the community and what government is trying to do to meet the needs of the community. These discussions should occur at a minimum in each municipality and if possible within individual villages or groups of villages. Involve multiple representatives of state government, from the legislature and the executive and its various functional agencies (e.g., environment, education, health, marine resources). While not every part of government can be involved in each discussion, all parts of government should have the opportunity to engage in some discussions and to sense the community perspective.

- At some point the community discussions with the government may overlap with the process of seeking community perspective on values and goals for a state strategy. Unlike the focused discussions on goals and values, however, this process should be ongoing and permanent and should address the more practical issues that will cause the community to feel that the state government is responsive to its concerns and needs. The practical issues of natural resource management will be a continuing theme in such meetings.

- Local government organizations and NGOs concerned with traditional authority should organize together to take an active role in the statewide program of outreach to communities and to traditional leaders.

- The government should set out an organized media program to communicate with the people. A more comprehensive newsletter or newspaper is needed and the government should help to support it by paying for space in which to communicate its plans and actions to the people.

- The governor and other senior officials should talk to the people by regular radio or television programs, and national issues should be discussed and debated among different stakeholders on radio and on television.

- The media campaign and public debate should also be used as a means to preserve knowledge of traditional culture, and especially traditional methods of managing natural resources.

**Strengthen Community Cohesion and Action**

- Organize a statewide program of community revitalization. This program will be managed by representatives of the communities and of NGOs concerned with community development: it could be an independent agency, or it could be embedded within an NGO such as YAPCAP.

- Set up small-scale pilot projects to test principles and strategies, and then use lessons learned from these pilot projects to design new larger-scale programs. Use small projects that rebuild community pride and that require the collaboration of many individuals within the community, such as rebuilding stone paths and traditional buildings. Try to develop projects for the sustainable management of natural resources, such as rebuilding stone fish traps or surveying natural resources.

- Establish grant and loan funds for development and revitalization actions undertaken by communities. Make these easily accessible to all communities, subject to performance-based conditions. The state government should provide financial support for the convening of community forums to discuss issues, including management of natural resources.

- Train community leaders, both interested traditional leaders and emerging new nontraditional leaders, in how to revitalize community cohesiveness.

- Send someone well rooted within each municipality outside the community (within FSM or overseas) for training in business development and natural resource management. Select someone young who is not offended by training and yet who will have the stature to advise the traditional leaders when he/she returns.

- Introduce special materials on traditional leadership systems and the traditional role of
the community into public education, possibly through a traditional leader who is a roving lecturer to the school system. Develop guidelines on how the schools can help to facilitate community communication and revitalization.

- Convene a regional workshop on the revitalization of communities and the traditional systems of authority in order to generate exchange of experience across countries and cultures.

Promote Public-Private Partnerships

- Train legal counseling services, business development services, and municipal leaders in the issues and techniques of developing public-private partnerships between developers and communities, for tourism and for other projects, and between developers/investors and the state government for infrastructure projects.
- Establish tax and other incentives in the investment and tax regulations for development ventures that are built on public-private partnerships.
- Establish a revolving loan fund for private sector development to provide funds for the development of business proposals, the incubation of entrepreneurs, the marketing of opportunities, and seed money to start or expand small investments using public-private partnerships. This might be administered through the FSM Development Bank, with the technical support of the Small Business Development Center and the advice of YAPCAP on community issues.
- The state government should establish a public information program and a publicly available training program to provide information and training for village landowners to equip them with the business, financial, and management skills that will enable them to start small businesses, including small-scale tourism facilities, using various forms of partnerships.
- Examine possible ways of using land held in the traditional system as collateral for loans. Involve the financial and banking community in a careful analysis of how the traditional land tenure system limits the capitalization of land and thereby hinders domestic sources of investment financing because landowners cannot use their land as collateral. Identify solutions to the obstacles and develop any needed legislation or regulations.
- Convene a regional workshop on the past experience and future advantages of public-private partnerships for development. Examine how they fit within the traditional systems in the various cultures and how they can be used to best advantage to achieve sustainable management of natural resources.

Integrate Traditional and Modern Management of Natural Resources

- Empower the ESC as the planner, coordinator, and integrator of state programs to achieve sustainable management of natural resources. It already has a membership that well represents both the modern and the traditional systems, and it is the best positioned organization to seek the practical means to integrate the traditional and modern systems of management. It should remain an independent body, not a state organization. But it should have the endorsement of both the state executive government and the councils of traditional leaders as the planning and integrating agency to find the best solutions and to marshal and allocate the available resources, public and private, local and external, to achieve sustainable management of natural resources.
- Support partnership initiatives such as the new IWP program to establish marine protected areas. Examine closely the progress and results of this initiative, to identify how future partnerships between the government and communities and individual land and water rights holders can be better designed for collaboration among government, resource owners, communities, and traditional leaders. Note particularly the motivations of the resource owners and traditional leaders to participate in the partnerships and how they gain from the process. As neither party has sufficient authority, resources, or skills to accomplish sustainable management of natural resources alone, it is essential that they collaborate in order to achieve the objective. But each party to the partnership must achieve its own objective in the process in order for the process to continue or to be repeated.
• Establish a state program to promote public-private partnerships for the sustainable management of natural resources. This program should cover both marine and terrestrial resources, such as the reintroduction of traditional methods of agriculture. Build on the experience of the IWP program and if needed seek the assistance of outside parties such as the South Pacific Regional Environment Programme in mediating among the interests of state, resource owners, and traditional leadership.

• Provide special training or briefings for members of the councils of traditional leaders and for other traditional leaders, to enhance their understanding of issues in natural resource management and the relationships and common interests of traditional and modern approaches to management. Assist them in conveying these concepts to their constituencies. Draw the members of the councils into a central role in seeking ways to integrate traditional and modern methods of natural resource management.

• Provide short-term training for a variety of state government employees and local experts and consultants in natural resource management, so that they can participate in the process of government-to-community meetings and communicate more knowledge more effectively to the communities.

• Provide medium-term training for a select number of key individuals (program managers and innovative leaders, in government agencies and NGOs) in natural resource management and community leadership, so that they can lead and animate programs to communicate more knowledge more effectively to the communities.

• Secure outside experts in natural resource management to accompany local teams in outreach programs to reach communities. Experts from outside the culture, especially off-islanders from other Pacific cultures, can make a valuable contribution, because they have inherent status vis-à-vis the traditional leadership and they help to attract attention to the issues discussed.

• Seek the participation of traditional leadership in improved enforcement of both traditional restraints to use of resources and modern state regulations. The traditional leaders and communities are the best positioned to control excessive demands on the resources, but they are likely to do so only if they see that it is in their own best interest. This becomes possible as part of the larger processes of establishing communications between state government and traditional leaders, strengthening communities and traditional leadership, and educating communities and traditional leaders about the issues and importance of sustainable management of natural resources.

• Convene a regional forum focused specifically on the integration of traditional and modern approaches to the management of natural resources. While this subject has been raised in a number of regional and Pacific area forums, it has not enjoyed the exclusive and focused attention that it requires, and there are still few concrete conclusions on how to facilitate such integration.

Develop Tourism

• Commission a study of the possibilities for tourism development in Yap. Focus on ecologically sustainable tourism and include activities other than diving. Address issues of traditional landownership and how it may be an obstacle and the possible ways to deal with the issue. Examine possibilities for community-culture-based tourism and how such tourism might also serve to preserve traditional culture, rebuild traditional artifacts such as stone paths and clan platforms, and strengthen communities.

• Based on the analysis above and on the work on the shared goals and values identified in the overall visioning and planning for Yap, develop a tourism development strategy and plan for Yap. Involve representatives of both the modern and traditional sectors in the planning process. Hold public discussion in order to get feedback on the important elements of the strategy and plan.

• Seek outside technical assistance in building a state strategy for the development of tourism and associated air and water transportation, with special concern for ecotourism and its interaction with the management of natural resources.
• With a clear strategy and plan for tourism development, review existing law and regulation for consistency and for support of the chosen direction. Initiate new legislation to fill any voids or remove any obstacles to implementing the plan, such as obstacles to encouraging the types of investment and partnerships needed to realize the tourism development plan.
• Initiate coordinated action to attract needed foreign investment for both the tourism destinations and the service infrastructure (e.g., transportation, medical services, etc.) required to realize the tourism development plan.
• Convene a regional workshop on ecotourism development and its relationship to the sustainable management of natural resources. Yap and other islands have similar resources and are targeting the same tourism market. They can in many ways learn from the successes and failures of similar development and implementation plans on other Pacific islands, and from the impacts that similar development may have had on the sustainability of natural resources.

**Applicability to Other Pacific Island Countries**

Pacific island countries enjoy similar remoteness and isolation, small land masses, fragile ecosystems, small populations, weak economic development, and culture and traditions related to land tenure and natural resources. They tend to lack skilled personnel and the financial resources for economic development other than for fishing, agricultural, and tourism industries.

Pacific island people share a voyaging tradition and their societies and cultures have evolved over the millennia through migration. While each may have different imperatives and local traditions, the island cultures still have much in common as a result of geographic conditions, ethnic origins, regional history, and economic conditions.

They also share a broad concern for the preservation of their natural environment and for sustainable development, but sometimes their actual development programs are poorly designed and controlled and are not so sustainable.

The advent of modern technology, the cash economy, and other forces such as religion have had similar impacts on traditional cultures across the Pacific. All are in various stages of transition from the traditional to the modern world. Consequently, island communities also share the decline of traditional authority, the difficulty of communication between the modern government and the traditional leaders and communities, and in most cases the weak and unsustainable management of natural resources.

Hence, conclusions and recommendations drawn from one island nation should have broad replicability for policy and strategy across the region. Implementation, of course, will need to be tailored to the specific situation under consideration.

The approach for development of tourism in Yap is very applicable to other Pacific island countries, and some of the other islands are already on the road of similar development as proposed for Yap. Yap could well learn from the mistakes and successes of such countries as the Fiji Islands, Samoa, Cook Islands, and Tahiti.

**Next Steps for Strategic Planning**

The strategies above identified through this study of the State of Yap are similar to those that would be employed for most Pacific island countries:

• identify shared goals and plan strategically,
• build government-to-community communication,
• strengthen community cohesion and action, and
• promote public-private partnerships.

There is often a disconnect of interests and values among the traditional community, the modern government, and the private sector. There is seldom a common vision in specific terms, although most might agree on generalized terms such as improvements in the economy, education, health care, and management of natural resources. Yet, each sector perceives and defines these terms according to its own set of priorities, and its vision comes through different lenses; their common vision suffers in specific terms from poorly developed and ineffectual relationships among all three sectors.

The four strategy recommendations above, however, would create an opportunity for taking new,
innovative, progressive directions that not only provide solutions to the challenges within the State of Yap, but also address challenges faced by a majority of other Pacific island countries.

How does one create effective partnerships and what are the catalysts? To begin, one must recognize that effective partnerships are not products of a process or of a set of policies. They are the process itself. They are dynamic. They must constantly adjust to new conditions and challenges. They must be flexible, capable of adaptation and compromise. Therefore, the action items must address the process and the products separately. This has great advantages. While attention is directed to developing a particular product, meaningful partnerships can evolve among the three sectors. Attention to which sector has the most influence, the most benefit, or the most self-serving results disappears. The common vision becomes intertwined in the process rather than being forced or manipulated up front.

Therefore, building a common vision and values and evolving partnerships for specific products are an iterative process. Some existing common vision helps a partnership to take definition, and the experience of developing partnerships for specific goals helps to shape the common vision and values. They proceed together in an organic process of continual change.

So the next steps for a nation or a state, whether in integrating traditional and modern methods of natural resource development or in other issues of development, are on a dual track. Some discrete actions need to be taken early to improve community cohesion and communications between modern and traditional society. At the same time, the process should start, slowly and carefully at first, to explore common values, concerns, and goals toward the evolution and articulation of a common vision.

The items outlined in the “Actions” section of this report are the first stage in establishing a knowledge base, identifying stakeholders, and building a formative dialogue. They will create the conditions in which members of communities can better work together in the interests of the community and in which the state government can work collaboratively with communities and traditional leadership toward common goals and values. The results in implementing such action items will demonstrate when an island country is ready for a second stage of engagement.
References:


_____ 2003b. English Language Arts 2 Reader, Grade 6, Yap SEED New Baseline Curriculum. A public school text. Yap, Department of Education. Enterprising Department.
Appendixes
Appendix

Persons Interviewed

- Al Ganang, CEO/General Manager, Village View Resort
- Andrew Ruepong, Paramount Traditional Leader and Associate Justice (Acting Chief Justice), Yap State Court
- Andrew Yatilman, General Manager, Yap Visitors Bureau, member of the Environmental Stewardship Consortium and former Lt. Governor of Yap
- Andy Tafeilechit, Division Chief, Marine Resources Management Division, Dept. of Resources and Development, Government of Yap
- Ben Tured, Attorney and Yap representative, Micronesia Legal Services Corporation
- Berna Gorong, Editor, The Yap Networker (Yap’s weekly newsletter)
- Bill Acker, General Manager and CEO, Manta Ray Bay Hotel and Yap Divers
- Bruno Thangnan, Acting Chairman, Council of Pilung (council of chiefs for the main island)
- Charles Chieng, Executive Director of Yap Community Action Program, Chairman of Yap Environmental Stewardship Consortium, Chairman of the Board of Directors of the Environmental Protection Agency, representative to the Council of Pilung, traditional leader
- Charles Falmeypog, Executive Director, KCCDO (a tourist attraction in Kadai village) and Customer Service Manager of Yap State Public Service Corporation
- Charles S. Chiang, Member of the Yap State Legislature and of the Committee on Resources, Education and Development
- Charles Yalaarow, Manager, Yap participation in Strategic Action Programme for the International Waters of the Pacific Small Island Developing States (IWP)
- Christopher J. Buchun, loan officer, FSM Development Bank
- Christy Xavier, Publisher, The Yap Networker
- Cyril Chugrad, President, WAAB Corp.

- Dave Vecella, General Manager, Beyond the Reef Divers
- James Gilmar, Director, Department of Resources and Development, Government of Yap
- James Limar, Director, Small Business Development Center, former developer and manager of Destiny Resort, member of the Council of Pilung
- Jesse Damel, Deputy Director, Department of Resources and Development, Government of Yap
- Jimmie Townsend, CEO, Moy Inc. (a business development service with emphasis on preservation of the traditional culture of Yap)
- Joe Habuchmai, Lieutenant Governor of Yap State
- John Mangefel, first Governor of Yap, principal member of the Yap State Environmental Stewardship Consortium, Chairman of the Board of ACE
- John Mootmag, Law Clerk to the Yap State Court
- John Pong, Traditional Leader, Kadai Village, representative to the Council of Pilung
- John Wayaan, owner and manager, The Pathways Hotel
- Joleen Chumrod, student, granddaughter of Tamag, daughter of Sen. Ted Rutun
- Joseph J. Urusemal, senator from Yap and Floor Leader, Congress of the FSM
- Kevin Rhodes, Consultant to South Pacific Regional Environment Programme for IWP
- Leo Flawaw, Administrator for the Council of Pilung and representative to the Council from the Municipality of Gagil
- Leo Pugram, Coordinator for Curriculum and Instruction, Yap State Department of Education
- Leo Yinug, Director, Environmental Protection Agency, Government of Yap
- Lonnie Fread, Manager, Yap Art Studio and Gallery
- Margie Falanruw, Director, Yap Institute of Natural Sciences, regional representative for the US Forest Service
• Michael Gaan, Chief, Commerce & Industries, Dept. of Resources and Development, Government of Yap
• Michael Gumbiner, General Manager, Traders Ridge Resort
• Patricia Leon, The Nature Conservancy, Pohnpei, FSM
• Peter Stelzer, Attorney, Public Defender’s Office, Government of Yap
• Peter Tharngan, Manager, Yap Branch, FSM Development Bank
• Robert Finningan, Loan Officer, FSM Development Bank
• Robert Ruecho, Governor of Yap State
• Sabino S. Sauchomal, Floor Leader of the Yap State Legislature
• Samson Samasoni, South Pacific Regional Environment Programme, Representative to Yap for IWP
• Scott Davies, Manager, Media Shop, Yap State Department of Education
• Stan Fillmed, Founder and Owner of The Pathways Hotel, Traditional Leader of Kadai Village
• Tamag, Traditional Leader from Maap, Master Builder, Host of Bechiyal Cultural Center
• Ted Glenn, Executive Director, Academy For Culture and Education of Yap
• Theo Thinnifel, Interim Manager, Yap Fishing Authority, Government of Yap
• Tiare Holm, The Nature Conservancy, Koror, Palau
• Tomil, Representative to Council of Pilung
• Tony Falthin, Director of the Office of Rural Development (FSM institution funded by USDA and providing loans primarily for housing)
• Tony Ganangiyan, President of Yap Cooperative Association, a private company, and Speaker of the Yap State Legislature
• William Yad, Traditional Leader of Gachpar Village, historian and translator for Historic Preservation Office
• Yuruw, Traditional Leader

Names: In the traditional system Yapese are given a single name. The name relates to their land and is a clan name but not a nuclear family name (i.e., not necessarily the same as the mother or the father). Where a western style name appears first it is a Christian or baptismal name. Where there is a single name it is the traditional name, though the individual might also have a Christian name.
CHAPTER 5

Application of Traditional Environmental Management Practices, Knowledge, and Values to Solid Waste Management on Majuro Atoll, Republic of the Marshall Islands

Nick Rogers
Executive Summary

Background

The Republic of the Marshall Islands (RMI) is composed of 29 atolls and 5 low-elevation islands in a relatively remote part of the north-central Pacific Ocean. A fragile ecosystem and a limited resource base (a total land area of just under 110 km²) have caused the Marshallese to share a strong affinity with, and dependence on, land and ocean resources for their livelihood and economic development.

The traditional way of life has been, of necessity, an ecologically sustainable one; care of the environment is essential in order that future generations may benefit from the resources. However, the introduction of a cash economy and the need to satisfy increasing financial demands have led to growing pressures on natural resources. Environmental degradation is now becoming more visible in the urbanized areas, where resource use and rapidly changing lifestyles are generating nonbiological wastes such as aluminum cans, plastics, and abandoned vehicles. Solid waste accumulation is a problem in the population centers of Majuro and Ebeye.

While life skills, agriculture, and other more practical subjects are taught in schools, they are generally based on the latest technological findings, with inadequate emphasis on the use of traditional, ecologically sustainable techniques. Indeed, due to recent sociocultural changes and modern influences, awareness and understanding of the importance of traditional practices that have been important to past generations are now disappearing. To restore a sustainable ecology in the RMI, it is deemed necessary to promote traditional environmental management (TEM) by encouraging the incorporation of environmentally sustainable traditional practices with nontraditional practices. For the purposes of this case study, the term traditional refers to “knowledge, practices, and values that are accepted as legitimate today because they have a foundation in the recent or ancient past.”

The concepts of promoting TEM practices and empowering traditional leaders to enhance the environment have been discussed at various Pacific forums for over 20 years. Some very successful models of TEM (e.g., soil conservation on steep hillslopes in Papua New Guinea) have already been established in the Pacific, including the RMI (e.g., the Canoes of the Marshall Islands project, building wind-powered craft from locally available materials).

Natural Resources and Environmental Management Issues

With a mean height above sea level of just 2 meters, the low-lying atolls of the RMI are particularly vulnerable to climate change and sea-level rise, which under a worst case scenario could render much of the RMI uninhabitable. Increased storminess combined with a higher sea level would increase both the rate and extent of coastal erosion. Higher sea levels would also reduce the available land area, the extent of arable land, and the volume of the freshwater lenses.

Of all the islands of the RMI, only one (Mejit) has a fresh-to-brackish-water lake. All the other islands rely on either rainwater capture or, on the larger islets, exploitation of shallow groundwater lenses. These freshwater lenses are particularly vulnerable to overextraction (which renders them saline) and are easily contaminated. Indiscriminate waste disposal on the land has led to the contamination of most of the RMI’s shallow groundwater resources. The soils on the islands of the RMI are, for the most part, highly permeable and very low in nutrients and exhibit high surface salinity, making them generally unsuitable for agriculture.

High birth rates and inward migration from the outer islands have resulted in extremely high rates of population growth on Majuro and Ebeye, resulting in severe overcrowding in poorly constructed houses packed together without adequate sanitation and solid waste disposal, and some of the highest population densities in the world (over 2,500 per km² in Majuro).

The lagoon and nearshore reefs have traditionally been a major source of food and protein for the Marshallese. Destruction of the coral reefs has been occurring as a result of mining for aggregate (sand and gravel), dredging, channel blasting, and boat anchoring. Coral death has also resulted from rapid algal growth arising from high nutrient loadings associated with domestic waste disposal.
Solid Waste Management Issues

Traditionally, disposal of solid waste has been to ground. In the past, with low population densities and with most waste consisting of locally sourced biodegradable products, such disposal presented few ecological problems. Now, however, with high population densities and each household producing significant quantities of both biodegradable and nonbiodegradable solid waste, such materials are accumulating on both the limited areas of land and the marine waters at ecologically damaging levels. Organic materials account for some 50% of solid waste on Majuro.

The traditional land tenure system has often constrained government-led initiatives to improve the urban environment and conserve biological diversity. The issue of integrating customary landownership practices with government-enforced regulations has been one that the country has grappled with for some time. As all land in the RMI is in traditional forms of private ownership, the Government has no effective power to impose land use controls. Landowners have often been reluctant to accept regulation of solid waste disposal or other measures that may affect their rights to do what they want on their land. This has presented significant problems for government-led initiatives in solid waste management (SWM).

At present there are very few constraints on what can be imported into the RMI, and what forms of packaging it arrives in. Once on the islands, moreover, few incentives exist for its eventual removal once it has served its intended or useful purpose. Accordingly, large quantities of abandoned solid waste items are accumulating on the islands, particularly Majuro, which need to be disposed of.

Many of the wastes disposed of in Majuro have a high potential for recycling. From recent investigations undertaken by the Government, two different types of recycling programs appear to be feasible: commodity recycling, which includes food and beverage containers, and organic waste recycling, which includes food waste and wood waste. Paper and cardboard, which constitute very high relative percentages of the waste because of the need for packaging for imported consumer and food products, can be recycled either as commodities or as organics.

The Government study also concluded that 50% or more of the waste stream is compostable (including the cardboard and paper) and that aluminum cans and plastic polyethylene terephthalate bottles form a very large part of the solid waste. The high percentage of plastic water bottles is considered to be a reflection of the poor water quality on Majuro.

To date, recycling efforts have been minimal and focused on sporadic aluminum can collection at a handful of locations and a brief effort by the RMI Environmental Protection Agency (EPA). Some small-scale organic waste recycling has been undertaken at the Taiwanese experimental farm in Laura and, in the past, some research on trench composting was done at the College of the Marshall Islands Laura campus.

Applications of TEM to SWM in Majuro

With the very high percentage of organic material currently being disposed of to the landfill, the TEM practice of mulching or composting organic material, both to increase the fertility and to assist with water retention of the sandy soils, clearly has an application for SWM on Majuro. First, however, the organic material needs to be separated from the waste stream so that this can be treated using traditional methods of disposal such as mulch and/or compost. Before this can be undertaken, it is necessary to make people aware of the difference between biodegradable and nonbiodegradable materials, and what materials can be recycled.

Because of the land tenure system and the traditional leadership structure, the support of the alaps (traditional leaders) is essential for the successful implementation of any SWM initiative. Accordingly, by resurrecting the traditional values espoused in the Jabonkannaan, or “wise sayings,” traditional support might be found for the idea that the community, under the leadership of the alaps, should take collective responsibility for dealing with the problems of solid waste accumulation on Majuro.

RMI TEM Project

The TEM project in the RMI sought to apply TEM knowledge, practices and values to addressing the SWM issues on Majuro Atoll, and the most densely populated villages (Delap, Uliga and Darrit, or DUD), where the SWM problem was most severe. The TEM practice to be
promoted was the separation of organic waste for use as vegetation mulches, to enhance the fertility and water retention capability of the soils, and reduce the quantity of waste requiring disposal in the landfill.

The TEM value to be promoted was jimor wodjipel ra eo bunwoj, “spirit of coming together for a common cause that is the responsibility of all,” a “wise saying” that encourages unity of the people for the sake of the common good. It is particularly relevant to the TEM project because it reinforces the fact that the protection of the environment and the responsibility for the management of the natural resources of the RMI is the responsibility of everyone.

To carry this out, information on traditional knowledge, practices, and values was compiled from both primary sources (an alaps workshop and follow-up by the alaps to identify other traditional knowledge holders in their wetos [parcel of land]) and secondary sources, through the assistance of the Alele Museum and the Historical Preservation Organization, which collected, compiled and published Jabonkannaan, which express certain values and wisdom that bind the Marshallese culture together. Also identified through the alaps’ meetings were traditional conservation practices called mo, the setting aside by a traditional leader of a land or marine area as “taboo.”

Public awareness about the project and about TEM applications to SWM was raised through videos, an activity booklet, school presentations by the Environmental Education Officer, radio spots, computer presentations, community meetings, and workshops, among others.

**Mainstreaming TEM**

The TEM project appears to have been highly successful in terms of raising the profile of traditional leaders of Majuro. It has clearly improved their status and morale, and the knowledge of both the leaders and the community has been enhanced as a result of the meetings, workshops, and computer PowerPoint presentations undertaken by a strengthened EPA. The project has also initiated discussions on how the role of traditional leaders may be integrated into current decision-making systems with respect to SWM on Majuro. TEM-related aspects have also been incorporated into many of the strategies to achieve several key objectives relating to SWM in the latest 15-year RMI National Strategic Plan, Vision 2018 (2003–2018).

This TEM project has enabled the establishment of a “legitimate” platform for discussions on the issue, using SWM as an example. As the land managers, the alaps have been recognized as having a critical role to play in SWM on Majuro, where indiscriminate disposal of solid waste to land and sea has been occurring for decades; the alaps have now prepared their own SWM action plan and are looking to form an association to better promote their role in environmental management overall.

The TEM project represents only a very small, albeit vital, step in solving the solid waste problems on Majuro. Traditional knowledge must be maintained, in programs such as the Canoes of the Marshalls, if the importation of alternative products is to be minimized. Traditional practices, such as the mulching and composting of organic materials, must be encouraged to reduce the amount of waste requiring disposal to landfill and to enhance the fertility of the soils. This will in turn allow the growing of fruit and vegetables locally. Traditional values must also be revived to ensure that a collaborative approach to solving the many SWM issues is adopted.

TEM will not, on its own, solve the problems of solid waste on Majuro. However, any solution will only come about with the active cooperation and leadership of the traditional leaders. Many SWM issues TEM cannot address. Linkages with other SWM projects are therefore essential if progress in SWM is to be maintained.
RMI TEM Project

Project Context

In early 2000 the Asian Development Bank and the South Pacific Regional Environment Programme (SPREP) developed a coordinated effort to assist the Pacific developing member countries (PDMCs), with the goal of sustainable utilization of their natural resources through capacity building to promote traditional environmental management (TEM) practices, knowledge, and values. For the purposes of this project, the term traditional refers to “knowledge, practices and values that are accepted as legitimate today because they have a foundation in the recent or ancient past” (ADB 2000b).

A regional technical assistance (RETA) project was formulated in consultation with the senior officials of concerned agencies, scientists, traditional environmental management groups and nongovernment organizations (NGOs) in Cook Islands, Republic of the Marshall Islands (RMI), and Vanuatu.

The goal of the RETA was to be achieved by first collecting, compiling, and reviewing the available information on TEM practices, and then using this information to develop resource material for both formal and nonformal education. This resource material would then be used to raise awareness of TEM in the PDMCs and to educate all levels of the respective communities in TEM.

In addition to the application of traditional knowledge, the RETA would also evaluate the past and present roles of traditional leaders in natural resources environmental management and identify possible roles for, and mechanisms for the promotion of, traditional leaders in present environmental management structures. The RETA also sought to strengthen the regional information network for the transfer of knowledge and skills using standard information transfer systems and Internet-based technologies.

The concepts of promoting traditional environmental management practices and empowering traditional leaders to enhance the environment have been discussed at various Pacific forums for more than 20 years, and have been a key part of the environmental strategies of all the countries (Cook Islands, RMI, and Vanuatu) participating in the RETA for more than 10 years. Some very successful models of TEM (e.g., soil conservation on steep hillslopes in Papua New Guinea) have already been established in the Pacific, including the RMI (e.g., Canoes of the Marshall Islands).

Despite these successful models, the need for this project is compelling, as the state of the environment continues to decline despite legislation and various government agency and NGO initiatives. The three participating governments specifically endorsed the RETA as an essential activity to fill a potential weakness in their environment and conservation programs.

The RETA therefore had a clearly defined and relatively straightforward strategy to achieve its overall goal and objectives. Data on TEM would be collected, incorporated into educational resource material, and used to educate the community on the benefits of TEM. Traditional leaders would have a role in community education, and their status as leaders in environmental management would be enhanced.

The purpose of the RETA was to build the capacity of EPA staff and other key stakeholders in the community, in particular the traditional leaders, to enable the project objectives to be achieved. The project is fundamentally one of environmental education, and the desired end result (output) is education and awareness raising to produce an attitudinal change, the change (or outcome) being respect for the environment, respect for traditional environmental management systems, and respect for traditional leaders, who will hopefully feature more prominently in future environmental management initiatives.

Project Rationale

The traditional way of life has been, of necessity, an ecologically sustainable one: care of the environment has been essential so that future generations would benefit from the resources. However, the introduction of a cash economy and the need to satisfy increasing financial demands have led to increasing pressures on natural resources.

Environmental degradation is now becoming more visible in the urbanized areas, where resource use and rapidly changing lifestyles are generating nonbiological wastes such as aluminum cans, plastics, and abandoned
vehicles. Solid waste accumulation has become a serious problem in the major population centers of Majuro and Ebeye.

While life skills, agriculture, and other more practical subjects are taught in schools, they are generally based on the latest technological findings, and inadequate emphasis is given to the use of traditional, ecologically sustainable techniques. Indeed, due to recent sociocultural changes and modern influences, awareness and understanding of the importance of traditional practices that have been important to past generations are now disappearing. Hence, it is necessary to promote traditional environmental management by encouraging the integration of environmentally sustainable traditional practices with nontraditional practices.

**Project Development**

During the initial RETA inception workshop held in Majuro during August 2000, a working group was established to define the project, develop a final work plan, and implement the project. The RMI Environmental Protection Authority (EPA) was nominated by the RMI Government to be the coordinating agency for the project.

The working group comprised members from the Alele Museum, the Historic Preservation Office (HPO), the EPA, the Marshall Islands Marine Resources Authority, the Marshall Islands Visitors Authority, the Ministries of Finance and Education, the NGOs Waan Aelon in Majol (WAM) (Canoes of the Marshall Islands) and Mission Pacific, and private individuals.

After the initial inception workshop, the working group conducted a series of meetings to define the project and plan out the project activities. As a result of a participatory process, the working group decided to apply TEM to solid waste management (SWM) on Majuro Atoll, and initially to focus on the most densely populated villages (Delap, Uliga and Darrit, or DUD) of the island. The reason for selecting DUD was that the problem with SWM was most severe in these areas.

The objective of the TEM project was to raise awareness among the Majuro community, and eventually the rest of the RMI, about the characteristics and appropriate management of organic and inorganic solid wastes, particularly the use of vegetation mulches for organic materials, and the nonbiodegradable characteristics of modern waste. The TEM project also sought to instil a sense of responsibility at all levels of the community and to initiate community action under the leadership of the Alaps (traditional land managers).

**Natural Resources and Environment Issues**

The Republic of the Marshall Islands (RMI) is composed of 29 atolls and 5 low-elevation islands in a relatively remote part of the north-central Pacific Ocean (Figure 5.1). A fragile ecosystem and a limited resource base (a total land area of just under 110 square kilometers [km²]) have caused the Marshallese to share a strong affinity with, and dependence on, land and ocean resources for their livelihood and economic development.

With a mean height above sea level of just 2 meters, the low-lying atolls of the RMI are particularly vulnerable to climate change and sea-level rise, which under a worst-case scenario could render much of the RMI uninhabitable (RMI 1993). Increased storminess combined with a higher sea level would increase both the rate and extent of coastal erosion. Higher sea levels would also reduce the available land area, the extent of arable land, and the volume of the freshwater lenses.

Of all the islands of the RMI, only one (Mejit) has a fresh-to-brackish-water lake. All the other islands rely on either rainwater capture or, on the larger islets, exploitation of shallow groundwater lenses. These freshwater lenses are particularly vulnerable to overextraction (which renders them saline) and are easily contaminated. Indiscriminate waste disposal on the land has led to the contamination of most of the RMI’s shallow groundwater resources (RMI 1993).

The soils on the islands of the RMI are, for the most part, highly permeable and very low in nutrients, and exhibit high surface salinity, making them generally unsuitable for agriculture. While these soils may have supported various forms of vegetation in the past, no endemic species are known today. Most of the islands are presently covered in coconut palms.
High birth rates and inward migration from the outer islands has resulted in extremely high rates of population growth, and severe overcrowding on Majuro and Ebeye, such that their population densities are now among the highest in the world (population densities of over 2,500 per km² on Majuro) (RMI 1993). The results can be seen in DUD in poorly constructed houses packed together without adequate sanitation and solid waste disposal.

The lagoon and nearshore reefs have traditionally been a major source of food and especially of protein for the Marshallese. Destruction of the coral reefs has been occurring as a result of mining for aggregate (sand and gravel), dredging, channel blasting, and boat anchoring. Coral death has also resulted from rapid algal growth arising from high nutrient loadings associated with domestic waste disposal.

In addition to algal growth, the lagoon waters adjacent to urban areas of Majuro have been plagued with “red tide,” a proliferation of dinoflagellates, which can threaten marine life by lowering the dissolved oxygen levels in the water and which can also render some types of seafood toxic to humans (RMI 1993).

**Solid Waste Management Issues**

**Solid Waste Disposal**

Traditionally, disposal of solid waste has been to ground. In the past, with low population densities and locally sourced biodegradable solid waste products, such disposal presented few ecological problems. Now, however, with high population densities and each household producing significant quantities of both biodegradable and nonbiodegradable solid waste, such materials are accumulating on both the limited areas of land and in marine waters at ecologically damaging levels.

In the RMI submission to the International Waters Project during the 1997 formulation process, solid waste disposal was listed as the number one “major concern of marine and fresh water quality,” underlining the detrimental effect that uncontrolled disposal of solid waste is having on the aquatic environment.

In 1996, the United States Environmental Protection Agency concluded that a compelling need existed to improve waste management and disposal practices on Majuro, as the practices of disposing of solid waste in open dumps located on reef flat areas presented public health, environmental, and aesthetic problems, were detrimental to the well-being of the community, and could also hinder future plans to build a tourism industry (USEPA 1996). This latter concern was borne out recently when tourism companies operating cruise ships in the Pacific gave notice that they would bypass Majuro because of visible solid waste pollution on the atoll’s land and in its coastal waters. With unemployment rates on Majuro among the highest in the Pacific, the alternative livelihood opportunities that tourism presents are important for the well-being of the communities.

**Land Tenure**

On Majuro, as for other atolls of the RMI, neither the National Government nor the Majuro Atoll Local Government (MalGov) has any effective control over the use of land. All of the land is “owned” by the traditional leaders; each weto, or parcel, is under the management of an individual Alap. Government buildings are therefore located on land leased from traditional leaders. In some cases, individuals may seek residence on an Alap’s land without a formal lease agreement. No legislation states that leases have to be made, and verbal agreements are often sufficient.

The traditional land tenure system has often constrained government-led initiatives to improve the urban environment and conserve biological diversity. Conflicts have arisen relatively recently, because new government agencies such as the EPA and Marshall Islands Marine Resource Authority (MIMRA), mandated under legislation to regulate marine and land use, have endeavored to exert their authority. The Alaps have viewed these agencies and their mandates as diluting their authority over these natural resources and potentially affecting their rights to do what they want on their land, and have resisted the imposition of government regulations. This has presented significant problems for government-led initiatives to manage solid waste.

With no control over the use of land, the Government, despite legislation and regulations, is powerless to prevent the location of waste stockpiles, animal pens, or even graves in particular areas. The traditional leaders have also seen little evidence that the
government agencies themselves can effectively coordinate an environmentally appropriate SWM system.

**Population Growth, Inward Migration, and Solid Waste**

Inward migration from the outer islands has had two main adverse effects on the environment of Majuro. First, the majority of migrants tend to settle with friends and relatives in the very densely populated villages of DUD. This results in more of the already limited land being taken up for housing, thus reducing the amount of land available for the growing of fruit and vegetables and raising animals. This in turn raises the pressure to import basic foodstuffs that, because of the relative isolation of Majuro, are usually canned or similarly contained.

Accordingly, inward migration inevitably results in an increase in the per capita amount of solid waste generated, thereby exacerbating the already serious SWM problem. The diminishing amount of land available for agricultural purposes also puts more pressure on nearshore marine resources, as the villagers look for alternative sources of protein. Moreover, with over 60% of the population reported to be less than 30 years of age, waste generation is predicted to grow rapidly in the coming years due to high natural population growth alone, even without inward migration from the outer islands (RMI 2003).

Second, migrants tend to treat inorganic refuse—plastic, glass, and metals—as if it were organic refuse and discard these materials casually on the land or into the lagoon, or dispose of them in pits, as they do on the outer islands. In addition to Marshallese from outer islands, immigrants are also arriving in Majuro from many other countries. Land is being settled on, or leased to, non-Marshallese for a variety of domestic and commercial purposes, and proper attention to appropriate SWM is generally not incorporated into the formal or informal lease agreements.

**Imported Goods**

All of the nonbiodegradable, and most of the biodegradable, solid waste products on Majuro that are currently disposed of to land, or into the lagoon or the ocean, originate from somewhere other than Majuro. Because of the need to import almost all consumer and food products, containers and packaging for these items contribute significantly to the solid waste volume. Cardboard packaging was observed to be a relatively high percentage of the biodegradable solid waste, and aluminum cans, plastic bottles, and glass appeared to account for some 12-15% of the total waste stream. For example, very large quantities of aluminum cans and plastic polyethylene terephthalate drinking bottles were being disposed of (the high percentage of plastic water bottles probably reflects the island's poor water quality).

There exist very few constraints on what can be imported into the RMI and what forms of packaging it arrives in. Once on the islands, moreover, there exist few incentives for its eventual removal once it has served its intended or useful purpose. Accordingly, large quantities of abandoned solid waste are accumulating on the islands, particularly Majuro.

Potentially destructive products entering the marine environment around Majuro such as plastic bags and plastic six-pak connectors could easily be prohibited, as could styrofoam packaging. Also of concern is the amount of toxic or hazardous waste that is accumulating on Majuro associated with the importation of vehicles. Currently no legislation, regulation, or program deals with items such as used motor oil, batteries, tires, or brake linings. In 1996, it was estimated that more than 800 lead-acid batteries were probably discarded annually on Majuro (USEPA 1996).

**Solid Waste Volumes**

The waste generation rates on Majuro, at about 1 kg/ person/ day, appear to be much higher than in other Pacific island countries, which appear to have stronger cultural ties and traditional lifestyles. For example, Kiribati and Apia, Samoa, have solid waste generation rates of about 0.5 kg/ person/ day, whereas American Samoa, Saipan, and Hawaii have rates similar to the US mainland, about 2 kg/ person/ day.

If the people on Majuro continue to aspire to a US lifestyle, then solid waste volumes will inevitably increase. Vehicle numbers on Majuro have increased from 1,800 in 1998 to over 3,100 in 2002 (RMI 2003). Lead-acid batteries and waste oil now pose a particular disposal problem. In 1996, the USEPA estimated that 15,000–20,000 liters of waste oil was generated annually on Majuro, not including that produced by the diesel power plant (USEPA 1996).
Waste Separation and Recycling

Much of the waste disposed of in Majuro has a high potential for recycling. The government study also determined that 50% or more of the waste stream is compostable (including the cardboard and paper). Separating out those materials that could be recycled or composted could reduce the waste currently going to landfill by up to 65%. From recent investigations undertaken by the Government (RMI 2003), two different types of recycling programs appear to be feasible: commodity recycling of food and beverage containers and organic waste recycling of food waste and wood waste. Paper and cardboard can be recycled either as commodities or organics. Some small-scale organic waste recycling has been undertaken at the Taiwanese experimental farm in Laura and, in the past, some research on trench composting has been done at the College of the Marshall Islands Laura campus.

To date, recycling efforts have been minimal and focused on sporadic aluminum can collection at a handful of locations and a brief effort by the RMI EPA in the mid-1990s (Cans for Kids program). Unfortunately, no cans were ever reportedly shipped off the island as a result.

TEM Knowledge, Practices, and Values

Gathering TEM Information

As a part of the TEM project, information on traditional knowledge, practices, and values was compiled from both primary and secondary sources. Primary information was collected from traditional leaders at the Alaps Workshop held in June 2002. As a follow-up to the workshop, those Alaps identified as positive role models for the project held a meeting to identify traditional knowledge holders residing in their respective wetos.

With the assistance of the Alele Museum and the HPO, secondary information on traditional knowledge, practices and values was collected, including Jabonkannaan, or “wise sayings.” Marshallese express themselves and their culture with the use of Jabonkannaan. This traditional wisdom justifies certain values and solidifies customs that bind the culture together. These sayings, or wisdom from the past, have been compiled and published and are being used to promote traditional values in environmental management. Many of the jabonkannaan compiled in the publication (Alele Museum 2000) are still observed by the Marshallese community. In addition, the use of legends in traditional conservation practices has been recorded on videos at Alele Museum.

Also identified through these meetings were traditional conservation practices such as “mo.” Mo is a marine and/or terrestrial area that is set aside by a traditional leader (Iroij) as a restricted or “taboo” site. This traditional practice involves the placing of a prohibition or restriction on the taking of natural resources that have been depleted from an area of land or marine environment for a specified period of time until those resources are replenished. Similar traditional environmental management practices have been observed by most Pacific island nations for preserving and maintaining biodiversity for enjoyment by present and future generations and is still in practice today.

Awareness Raising

The working group concluded that the most effective means of raising awareness would be through public awareness videos, an activity booklet, school presentations, and integration of TEM into after-school programs, radio spots, community meetings, and workshops.

The TEM project has produced resource materials for both school and community education purposes, including a PowerPoint computer presentation on TEM and SWM on Majuro, a series of radio programs, and a newsletter with a number of articles focusing on TEM and the role of traditional leaders. The EPA Education Officer has been active, giving TEM and SWM presentations to schools and participating in radio programs. A newsletter has been delivered to all government agencies, and the project has received good coverage in the Marshall Islands Journal.
Application of TEM Information to SWM

Composting and Mulching Organic Material

The RMI TEM project sought to raise awareness of how various waste materials decompose, especially their organic components that have been traditionally used in mulches to enhance soil fertility. This process is then compared with what happens to the nonbiodegradable materials used today.

With the very high percentage of organic material currently being disposed of in Majuro’s landfill, the TEM practices of mulching and composting organic waste clearly have an application to SWM. First, however, the organic material has to be separated from the waste stream, so that this can be treated using traditional methods of disposal such as mulch and/or compost. In turn, before this can be undertaken, people have to be made aware of the difference between biodegradable and nonbiodegradable materials, and of what materials can be recycled.

This necessary education process is already well underway, as the EPA Education Officer is making regular presentations in Majuro schools. It will be several years, however, before the practice of composting and mulching organic material is mainstreamed into daily SWM practice at the weto level.

Waste Reduction/Minimization

The use of traditional knowledge, local materials, and traditional methods of transportation can significantly reduce the amount of nonbiodegradable solid waste. The Canoes of the Marshall Islands (WAM) is one of the most successful examples of traditional environmental management operating in the RMI, if not the Pacific, and one that the traditional leaders have now picked up on throughout the islands of the Marshalls.

The WAM project teaches young Marshallese how to build and sail traditional outrigger sailing canoes from locally available trees. By utilizing materials that are for the most part renewable and biodegradable, the WAM project results in less importation of alternative materials such as fiberglass and aluminum. By maintaining traditional knowledge and utilizing wind power, a sustainable form of transport, the WAM project also reduces the number of fuel containers and outboard motors coming into the RMI, most of which eventually require disposal.

Traditional practices of growing fruit and vegetables can also reduce the amount of imported canned food being brought in to Majuro, with the attendant need for later disposal of the packaging materials and the food containers.

Collaborative Approach to SWM

Jimor Wodjipel Ra eo Bunwoj, or the “spirit of coming together for a common cause that is the responsibility of all,” is a “wise saying” that encourages unity of the people for the sake of the common good. This saying is particularly relevant to SWM because it can be used to reinforce the idea that the protection of the environment and the management of the natural resources of RMI is the responsibility of everyone. Similarly, by resurrecting and promoting this and other traditional values espoused in the Jabonkannaan, the community, under the leadership of the Alaps, can be encouraged to take collective responsibility for dealing with the problems of solid waste accumulation on Majuro.

The TEM value to be mainstreamed into everyday usage is therefore community unity. The role of the traditional leaders being promoted is to encourage the spirit of togetherness in dealing with the solid waste problem. The traditional leaders should also gain a re-instilled sense of responsibility for the well-being of the people. They could therefore act as spokespersons for SWM at the weto level, and become role models for the community. The traditional values of working together for the common good should be able to ensure that the environment is not polluted by the indiscriminate disposal of solid waste.

It may be entirely coincidental, but at the debriefing meeting at the completion of the project, villagers were observed picking up refuse, and most of the wetos in Majuro appeared to be cleaner than at the commencement of the project.
Involvement of the Traditional Leaders in SWM

Land Tenure

The traditional roles of the Alaps have not changed, but with the advent of centralized government, the traditional leaders have tended to become marginalized in the decision-making process. The TEM project has not only provided a platform for the traditional leaders to work through the various land tenure and resource management issues with government, but has also given the leaders a key role in environmental management. The very extensive and positive publicity that the Alaps have received as a result of the RETA implementation has resulted in renewed respect for both the leaders and the traditional values of working together for the common good.

With the land tenure system and the traditional leadership structure, the support of the traditional leaders is essential for the successful implementation of any SWM initiative. As the traditional managers of the land, the Alaps have the ultimate authority over all of the land and the disposal of waste products on it. If land needs to be set aside for collection and disposal purposes, only the traditional leaders can make the necessary arrangements. As a result of the TEM project, the Alaps have agreed to make such land available.

Respect for Traditional Leaders and Values

The Alaps Workshop was a key event in the TEM project. The Alaps of Majuro attended in large numbers, and the working group members acted as facilitators. For EPA, the highlight was hearing the traditional leaders affirm that they are 100% behind EPA in their efforts to improve the environment, and that they (the Alaps) will work with EPA to effect improved SWM on Majuro. Previously, at least some of the Alaps had had a feeling that the EPA was trying to assume control of the natural resources, but they now realized that both had a role in natural resources management and they would support each other.

It is clear that the TEM project has improved the status and morale of the traditional leaders of Majuro, and the knowledge of both the leaders and the community has been enhanced as a result of the meetings, workshops, and PowerPoint computer presentations undertaken by a strengthened EPA. As a result of the TEM project, the traditional leaders have assumed a key role in environmental and SWM initiatives.

Many of the educational materials produced under the RETA have already been utilized as part of the awareness-raising component of the project. The Iroij and Alaps have had their awareness raised through meetings and PowerPoint presentations, and as a result of a workshop, the Alaps have produced their own SWM action plan. The management plan has established a list of activities, such as daily clean-ups at the household level and monthly clean-ups at the weto level, with assigned responsibilities, penalties, and incentive programs. A key aspect of the plan is that it has been developed by the traditional leaders/land managers, and that the community is responsible for its implementation.

Integration of TEM into SWM Strategies

TEM ideas and activities have now been incorporated into many of the strategies to achieve several key objectives relating to SWM in the latest 15-year RMI National Strategic Plan, Vision 2018 (2003–2018). For example, strategies to promote a clean environment include the establishment of policies to minimize the use of nonbiodegradable packaging, to encourage landscaping and beautifying of urban centers through active involvement of Alaps and landowners, and to strengthen public awareness and community education programs.

Strategies to enhance the level of awareness and commitment among all people in the community to help minimize environmental degradation include documenting and incorporating traditional knowledge in school curricula and educating the public about keeping the environment clean. Strategies for reinvigorating RMI cultural and traditional environmental conservation practices so as to harmonize development with environmental sustainability include identifying and revitalizing specific environmental practices, methods and sites, and establishing effective ways and means of promoting greater awareness and enforcement of traditional conservation practices.
The TEM project has therefore already had a significant impact by incorporating TEM into policy review, formulation, and implementation as seen in the new RMI Strategic Plan. The RMI Government has formally recognized the active involvement of traditional leaders in the Vision 2018 strategy. Moreover, the Government is including the traditional leaders in its new SWM initiatives. At the Multi-Agency Strategic Planning Workshop for SWM held in Majuro on 14–15 May 2003, the traditional leaders were not only represented but also formed part of the working group established to take the plan forward. The traditional leadership has therefore been effectively integrated into the SWM planning process.

The TEM project represents only a very small, albeit vital, step in solving solid waste problems on Majuro. Many SWM issues TEM cannot address. Linkages with other SWM projects that can address the issues that are beyond the scope of TEM are therefore essential if progress is to be maintained.

**SWM Issues that TEM Cannot Address**

A number of SWM issues are beyond TEM’s ability to address. For example, before being disposed of, nonrecyclable and nonbiodegradable products must be taken to collection points for ultimate disposal elsewhere. The current collection system consists of 70 20-cubic-meter roll-off bins placed strategically around the island of Majuro. These 70 bins are currently serviced by just two trucks, and even with collection operations ongoing for 14 hours a day, 6 days a week, the bins get filled up, so that solid waste is deposited on the ground nearby. While TEM can reduce the amount of material going to the bins, the government (both national and MalGov) needs to coordinate the operational aspects of trash collection, in association with the traditional leaders.

Once on Majuro, products that cannot be composted or recycled must be disposed of through incineration and/or landfilling on-island, or transportation off-island for disposal elsewhere. The design and operation of a safe and sanitary landfill and/or incinerator requires the application of new knowledge and skills. As with the collection of the solid waste, the government (both national and MalGov) needs to coordinate the siting and method of disposal, in association with the traditional leaders.

As TEM knowledge, practices, and values cannot directly address the collection and disposal of nonbiodegradable products or hazardous waste, special consideration should be given to how particular materials are ultimately to be disposed of before they are imported to Majuro. This process may ultimately lead to a ban on importing particular materials, or at least the removal of packaging at the source. This is clearly a major issue that has to be addressed by the national RMI Government in association with the Majuro community.

Finally, a vast quantity of solid waste such as old cars, tires, and derelict machinery litters the atoll and will make it difficult to see the benefits of improved SWM at the weto level. This is not restricted to Majuro, or the RMI. The collection and disposal of such solid waste off-island could form the basis of a separate RETA for the populated atolls in the Pacific.

**Conclusions and Recommendations**

Solid waste disposal on Majuro is one of the most pressing environmental problems in the RMI, brought about by increasing population pressures, changing lifestyles, and very limited land available for SWM. TEM knowledge, practices, and values have clear applications in addressing some of the SWM issues on Majuro, as does the involvement of the traditional leaders.

Solving the problems of solid waste on Majuro will not occur without a concerted and coordinated multisector approach. The use of multisector working groups or community groups to address environmental problems is one of the lessons learned from the review of the National Environmental Management Strategy (NEMS): the lack of progress with the NEMS implementation was considered to be due in large part because one agency alone (typically the RMI EPA) was seen as being responsible for project implementation. The use of a multisector working group to define and implement the TEM project spread the workload among the key stakeholders.
Perhaps even more important, the use of a multisector working group reinforced the concept that responsibility for environmental protection and enhancement is shared by all, and not the responsibility of one government agency with limited financial and human resources. The lesson is therefore to use multisector or community groups to address environmental problems wherever possible, and this is clearly essential for SWM. The TEM working group on Majuro could be expanded and continue to address SWM issues.

The ADB- and SPREP-supported TEM project appears to have been highly successful in bringing about major changes of attitude, and the key project objectives have been more than met. Under this project the RMI has taken a major step forward in mainstreaming TEM, at least on Majuro, in the area of effective SWM. As a result of the project, the traditional leaders and various government agencies and NGOs have united in their efforts to solve the island's solid waste problems.

The project was also successful in raising the profile of traditional leaders and initiating discussions on how they and their roles may be integrated into current decision-making systems with respect to SWM on Majuro. In the RMI, the problems of how to merge customary landownership issues with government-enforced regulations has been one that the country has grappled with for some time. This TEM project has brought about the establishment of a "legitimate" platform for discussions on the issue, using SWM as an example. As the land managers, the Alaps have a critical role to play in SWM on Majuro. The Alaps have now recognized their role and its importance, have prepared their own SWM action plan, and are looking to form an association to better promote their role in environmental management overall. Almost more important, the Alaps have also agreed to make the necessary land available for SWM purposes.

Educational initiatives have commenced that could lead to a reduction in the amount of solid waste of up to 65% through composting and recycling. Coupled with education on growing fruit and vegetables with the resulting mulch and compost, these initiatives could also lead to a reduction in food importation and its containers and packaging, further reducing the amount of solid waste generated.

Traditional knowledge must be maintained, in programs such as the WAM Canoes project, if the importation of alternative products is to be minimized. As a working example of the utilization of traditional practices for the sustainable use of natural resources, and a project which utilizes renewable and biodegradable materials wherever possible, the WAM project is an excellent model that should be actively supported.

Traditional practices, such as mulching and composting organic materials, must be encouraged to reduce the amount of waste requiring disposal to landfill and to enhance the fertility and water retention of the soils. This will in turn improve the quantity and quality of fruit and vegetables grown locally.

Traditional values, espoused in "wise sayings" such as the spirit of coming together for a common cause, are important to reinforce the fact that the protection of the environment and management of the natural resources of the Marshall Islands is the responsibility of everyone. Accordingly, resurrecting the traditional values espoused in the Jabonkannaan helps the community—under the leadership of the Alaps—take collective responsibility of dealing with the problems of solid waste accumulation on Majuro.

Although vital, the TEM project represents only a very small step in solving Majuro's solid waste problems. Linkages with other SWM projects are therefore essential if progress is to be maintained.

TEM will not, on its own, solve the problems of solid waste on Majuro. However, any solution will only come about with the active cooperation and support of the traditional leaders. Wisdom from the past will also inevitably figure very prominently in addressing Majuro's present and future solid waste problems.
References


CHAPTER 6

Mainstreaming Environmental Considerations and Traditional Knowledge and Practices into Policies and Programs for the Mele Catchment Area in Vanuatu

Matt McIntyre
Craig Wilson
Executive Summary

Background

As part of its preparation of a Pacific Region Environmental Strategy for 2005–2009, the Asian Development Bank commissioned a case study whose objective was to describe efforts in Vanuatu to mainstream environmental awareness, legislation, international undertakings, and traditional knowledge and practices into overall economic and development planning and policies. It attempts to achieve these objectives through a situation analysis of the Tagabe River Catchment Area on Efate Island, Vanuatu, identifying particular constraints and opportunities for integrated decision making and community development.

Current Status of Planning and Resource Use Management in Vanuatu

The study analyzes the various acts, institutions, and policymaking bodies at the national, provincial, and local level that affect development planning and resource use management in Vanuatu. These include the following.

Traditional Governance. Customary practices shape social, cultural, and political life in Vanuatu, most importantly those practices relating to land and its uses. A National Council of Chiefs, consisting of customary chiefs elected by their peers, advises on all matters relating to custom and tradition.

National Institutional and Legislative Regulation of the Environment. The single most important piece of legislation on environmental regulation is the Environmental Management and Conservation (EMC) Act, which entered into force in March 2003. Its major provisions create a Department of the Environment (DoE), stipulate that all projects or development activities that may impact on the environment must comply with this Act, and empower the Director of the DoE to intervene in the development process whether a project has been referred to the DoE or not and to call for an environmental impact assessment (EIA) for any project deemed likely to impact the environment. The EMC also calls for development of national policies and priorities to safeguard the natural resources of Vanuatu, heretofore lacking. The Act lacks some legislative and enforcement powers, however.

The Comprehensive Reform Programme (CRP) of 1997 guides national policy development and covers public sector, economic, and equity/social development reforms. While some improvements have occurred as a result of the CRP, the process has not produced tangible results for most people and support is dwindling.

Since 1996, a Medium-Term Development Framework has guided sector policy development. It gathers input from all sectors through consultations and the National Summit, then feeds it into the CRP Matrix to reflect priorities and provide a logical framework for determining policies and strategies. The CRP Matrix formalizes policies that encourage the mainstreaming of traditional knowledge into the government decision-making process and the policy framework.

All land in Vanuatu belongs to the indigenous customary owners and their descendants. As much as 80% of rural land is held under customary ownership. The rules of custom govern all decisions about tenure and ownership. Land cannot be sold, only leased for up to 75 years. The formal leasing process is effective and standard agricultural leases require the preservation, protection, and nonpollution of the land.

Nonetheless, landownership disputes are considered a major barrier to economic development, because vast tracts of land remain undeveloped while court cases attempt to settle disputes. The Customary Land Tribunal (CLT) Act of 2001 awards jurisdiction over landownership disputes to a tribunal of customary chiefs applying custom and traditional practice to adjudicate local land matters. While the CLT is regarded as an important instance of mainstreaming customs and traditions, no decisions by such a tribunal have yet been reported and in fact, most CLTs have yet to be set up.

The land in cities like Port Vila, the capital, is considered public land; it can be leased for commercial or residential development, usually for 50 years. Uncertainty over ownership rights also deters long-term leasing of urban land.

A Water Resources Management Act has been passed but has not yet come into force. It will provide for the creation of water protection zones to conserve
and protect significant water resources, especially in the Port Vila area.

Vanuatu signed and ratified the Convention on Biological Diversity (CBD) and has carried out a National Biodiversity Strategy and Action Plan (NBSAP) project (1997–1999) to produce a national biodiversity conservation strategy. Among its objectives is participation of local communities in the management of biodiversity. The objectives and priorities were to be integrated into the planning and development process through the CRP, which provides the policy platform, and the EMC Act, which guides the development. Following on the NBSAP, a National Scientific Research Council, one of its priorities, was being created. Information was being gathered for an environmental registry, which will include community conservation areas. These will form part of a database used to fulfill reporting requirements for the CBD and for development of national environmental strategies and plans as required by the EMC Act. The level of commitment Vanuatu has shown to implementing the CBD is commendable.

Provincial and Local Government. At present Vanuatu is divided into six provinces, which were to develop regional growth centers and develop rural areas. Local government councils (LGCs), which are highly autonomous entities, comprise elected and appointed members and can set out development policies and draw up regulations governing protection zones, such as natural parks and preserves. The Shefa LGC has jurisdiction over part of the Tagabe River catchment area.

Rural economic development initiatives (REDIs) for the six provinces of Vanuatu are designed to promote rural development by providing key stakeholders with support for business development, protecting and promoting cultural practices and traditions, and focusing government and external assistance funds on rural development. Reflecting Vanuatu’s great cultural diversity, however, they allow each province to take its own path and are formulated through a strong “bottom-up” community consultation process. Their administration is expected to improve linkages between communities and provincial and national governments.

Under the Physical Planning Act of 1986, physical planning units (PPUs) within the Department of Provincial Affairs provide planning guidance and advice to province-based planners, LGCs, and municipal councils. Physical planning areas establish planning control boundaries. While establishment of policy for PPUs was provided for in the Act, none has so far been prepared, and no regulatory power ensures that provincial or municipal authorities comply with the PPU’s advice.

Planning activities within Shefa province, which are carried out by a Planning Office and Committee and a Physical Planning Officer, have not so far included creation of a PPA for the province. While the committee is empowered to draw on all available technical advice from the PPU and any other relevant government department, such as the DoE, the committee has usually called for only minimal technical input, thus severely constraining the decision-making process. Shefa’s revenue generation base is skewed heavily toward funds from development-oriented permits, thus the Physical Planning Committee has a strong inclination to approve development proposals in order to maintain or increase the revenue base. The advent of the EMC will strongly affect Shefa’s development planning and approval process, as it requires EIAs for many kinds of projects that may have environmental impacts.

The municipal planning process is similar to that of the provinces. The EMC Act and its EIA mandate will require the Municipal Council to assess any future development proposals more rigorously for environmental impacts. An extensive EIA awareness and education campaign will be required to upgrade the capacity of both municipal and provincial councils.

Port Vila is running out of available land. The close proximity of the airport, the presence of water protection zones (WPZs) to the north and east, and prime agricultural lands to the north are physical constraints. The city has no development management strategy or policy in place, but the importance of establishing an integrated growth management strategy cannot be overemphasized, especially to address the critical issue of pollution of Port Vila harbor and lagoon by unmanaged domestic and commercial sanitation systems.

Power and Communications. Effective policy and planning processes that aim to mainstream environmental and traditional knowledge require up-to-date and accurate data to work with. The Vanuatu Resource Information System is the most extensive information system providing natural resource data coming from
various departments including Forestry, Lands, Geology and Mines, Fisheries, Statistics, Environment Unit, Vanuatu Cultural Centre (VCC), and Public Works. But collection of natural resource data and its dissemination within the Government is highly fractured and does not appear to have a high priority with in many departments and agencies.

Electric power in Port Vila, managed by UNELCO, uses a diesel-powered generator and a diesel-fired power station. Electricity charges, which are US$0.22/kWh, result largely from the cost of imported diesel fuel. There is little alternative.

Vanuatu’s telecommunications system is a land-based domestic and analogue mobile phone and microwave link to some rural areas, and an international satellite link. Television coverage is restricted to Efate. The service provider has a monopoly on Internet services and charges US$88 per month for 40 hours’ access plus telephone charges at US$5.80 per hour. The high cost of power and telecommunications constrains dissemination of information throughout Vanuatu and restricts much environmental information (and all other kinds) due to limited communications budgets within government and limited funds at the community level.

**Cultural Frameworks.** The VCC is the principal national institution responsible for “the preservation, protection and development of various aspects of the rich cultural heritage of Vanuatu.” The Vanuatu Cultural and Historical Sites Survey (VCHSS) handles much traditional environmental management (TEM) research and documentation. The VCC provides cultural research reports to the relevant ministries and government departments. It provides an ideal vertical linkage between TEM and policymaking, but no formal policy linkages have been set up between the VCC and the Department of Economic and Social Development (DESD), which is responsible for development planning, and no direct policy or administrative linkages connect the VCC and the CRP process.

**Tagabe River Catchment Area: Prospects and Problems**

**Physical Description.** The Tagabe River catchment area is a 25-km² subcatchment located about 15 km west of Port Vila city. It has relatively thick soils along the coastline that grade to deeper alluvial soils farther from the coast and in the upper reaches, consists of silty clays and raised limestone and volcanic deposits. The catchment area consists mainly of rural land; a small portion is in the Port Vila municipal area. Its administration is divided between the city and Shefa province.

**Land use.** Land use in the catchment is highly diversified. At the lower end near Mele Bay a high-density squatter area sits amid agricultural land. Two kilometers inland, industrial use predominates: a paint factory, a brewery, and a power plant are located amid smaller factories and workshops. Further up the catchment are the Bauerfield International Airport, small agricultural holdings, and another squatter settlement. The middle reaches are dominated by pasture grazing, with some subsistence agriculture and forest, while the upper reaches are predominantly forest.

Vanuatu’s population growth rate is declining, growth is likely to continue for another 20 years. This, combined with the pressures of migration from outer islands, places great stress on urban housing. Immigrants have squatted mainly within the Tagabe River area, paying a nominal rent to the customary landowners but getting no essential services, such as water, sanitation, or waste management, in return.

Port Vila’s lack of planning is shown in lack of setbacks from the high water mark or property boundaries, the poorly designed sanitation and drainage system, and the lack of green spaces and parks. The city’s infrastructure is inadequate to the present population; any expansion into surrounding lands will lead to increased environmental and health problems.

Port Vila’s Urban Growth Management Strategy (UGMS) includes an option for expansion into the Tagabe River catchment area. This would mean displacing farms from prime agricultural land close to Port Vila market; landowners are loath to see their land turned into urban housing. Moreover, small-scale agriculture is needed to feed Port Vila’s growing population.
Agriculture and tourism have been identified as the main economic drivers for Shefa: food production for Port Vila (the area’s agriculture is dominated by cattle raising by large [predominantly foreign] plantation holders) and proximity to the international airport are considerations. In addition, Shefa’s REDI recommends reforestation in parts of the Tagabe River area. Tourism outside Port Vila is limited by the absence of the necessary infrastructure, i.e., roads and tourist facilities. The challenges for Shefa’s planning process will be to manage the pressures so as to reflect the aspirations of all stakeholders, incorporate environmental considerations at all stages, and to make use to the extent possible of TEM and customs the stakeholders represent.

**Port Vila Water Supply.** Squatters’ informal gardens have encroached on the water extraction zone, and the easing of land in the zone has raised the issue of fertilizer and chemical use. River users report occasional visible contamination. Enforcement is all but nonexistent.

The increasing numbers and size of squatter settlements subject the zone to potential contamination. Water quality monitoring has detected no bacteriological contamination, but water samples taken during the 1997 drought, when levels were low, showed fecal coliform counts that indicated bacterial input from adjacent surface areas.

Residents of Port Vila’s suburban squatter colonies come from various islands of the Vanuatu archipelago. They don’t own or even legally lease the land they live on. Identifying TEM practice in such areas is difficult. Land rights disputes complicate ownership and water access issues. TEM can be described as common sense compounded with current circumstances.

All the industries present in the commercial and industrial zone of the Tagabe River catchment are supplied by the Port Vila municipal water system. Wastewater from production is typically treated before disposal but some have complained about poor drainage in the area and inadequate water treatment by the local brewery, which creates unpleasant odors.

Three WPZs have been proposed for the Tagabe River catchment area, covering 26.85 km². They allow for increasingly restricted use relative to their distance from the source area.

Water resource protection is a key issue for the Tagabe River catchment area. The biggest problem is present and future squatter contamination. Managing the informal population in the area has failed, due to political influence, poor enforcement, and ignorance due to failed communications about what the possible outcomes are of inappropriate urban development in a water resource area. The Tagabe River Catchment Management Initiative (TRCMI) aims to bring key stakeholders together to better manage the Tagabe River area. This is a key component of TRCMI.

**Waste Management.** Responsibility for waste management in the catchment area is divided between the Port Vila township and the Shefa provincial government. Within the municipality, waste collection and deposit in a landfill is provided by the municipal council for a fee. In the provincial area, Shefa provides no service, so residents can dispose of their waste at the landfill for a fee, or compost, burn, or bury it closer by. These methods are not managing the volume of waste, so the municipal council provides periodic bulk collection. Even so, the inappropriate disposal threatens the quality of surface and groundwater in the WPZs.

**Sociocultural Pressures.** The presence of so many squatters from different customary areas of Vanuatu, on land under traditional management practice by people not their kin or neighbors, has meant little identification with the land or development of any sense of community or stake in what happens there. This has led to continued expansion of unmanaged land use and increased threats to the resources they are compromising.

**Cultural Heritage Sites in the Tagabe River Area.** In Vanuatu, taboo sites play an important role in resource conservation, as they typically restrict access or use. The VCHSS has identified two sites in one of the Tagabe River area WPZs; the other two WPZs have yet to be surveyed. An additional site is claimed by all surrounding villages. Because of the diversity of the Tagabe area residents’ cultural groupings, consultation processes on cultural aspects will have to be more extensive to reach both traditional landowners and whatever community groups exist in the squatter area and to ensure that all are heard from.

**The Tagabe River Catchment Management Initiative.** As concern mounted among those providing water supply and service for Port Vila about the possible
compromise of the water bores in the Tagabe River catchment area, a multisector study group was set up by the DoE to assess water problems. When a wider range of issues was revealed in meetings, the TRCMI was established to outline existing issues, take them to the communities in the area, and review actions to take. By engaging the community in partnership with the private and public sector, the TRCMI provides opportunities for stakeholders within the catchment, especially those previously unfranchised, to raise concerns and propose solutions for the coordination and management of the water resource.

The TRCMI replaces the provincial and municipal management agencies, whose inputs were localized and selective, with a multistakeholder group to plan for management and use of the catchment area and integrate environment and community inputs into the process. A Tagabe River Catchment Management Plan is now in preparation, will involve local communities, utilize processes and outcomes of the Shefa provincial REDI, highlight social and economic interactions with the environment, and eventually serve as a model for other such management plans. Initial actions by the TRCMI include identification of existing land leases and establishment of a consultation process with communities that adjoin the WPZs.

**Frameworks for Integrating and Implementing Environmental and Community Planning**

**New Principles, Aims, and Objectives.** The EMC Act has set Vanuatu in a new direction in environmental planning and management: by establishing the TRCMI, the DoE has recognized that catchment or watershed management has the potential to deliver the environmental management and economic development outcomes that Vanuatu needs to achieve its stated goals. Since local communities hold natural resources in customary ownership, any management model must involve local communities. The TRCMI model highlights community participation in the decision-making process and a collaborative management approach.

The catchment management process creates a framework for addressing resource management issues and developing community-based economic outputs and benefits. Since the Tagabe River area falls partly in Shefa province, the provincial REDI will be instrumental in providing development guidelines for the area, which will have to be in accord with the aims of the WPZs, such as an ecopark or reforestation area.

**Integrating Environmental Planning and Management Law.** The EMC has commenced a process that will improve environmental planning outcomes for Vanuatu. Specifically, it calls for EIA as a component of the development approval process and will require local/municipal governments to assess environmental and social impacts of development. Gaining compliance with the Act’s requirements will take extensive awareness and education for all government departments and local councils. Meanwhile, it is a first step toward integrating community development and environmental management into the planning and development process. The national policies and plans provided for under the EMC Act will focus on integrated planning and strategies and structures that support it under the CRP and Physical Planning Act, or other new regulations.

**Linking Cross-Sector Policy, Plans, and Actions.** The CRP has embarked on a forward-thinking process of public sector reform that incorporates aspects of environmental management and traditional and customary knowledge into the economic reform and decision-making process and aims to streamline decision making, promote transparency within government, and encourage economic growth. As outlined in the CRP Matrix, the nationally based CRP consultation process has developed an overarching policy framework that provides for environmental conservation within an economic growth framework and promotes the incorporation of community input into the decision-making process.

**Instituting Participation throughout the Development Process.** An important component of EIA is the establishment of a public participation process that specifies the preparation and publication of a public notice by the development proponent allowing for public submissions. The inclusion of a public submission process within EIA allows for broader community input into the decision-making process and ensures that the concerns of the community can be formally presented for review and consideration.

**Capacity Building for Integrated Environmental and Community Planning.** Extensive capacity building is required at the national and provincial level to create and strengthen administrative and legislative measures.
that will see the incorporation of environmental and traditional practices into the decision-making process.

**Recommendations**

- **Policy Development.** Efforts should be made to open up conduits for community appraisal and the early injection of TEM and knowledge to each level of governance/decision making.

- **Strategic Economic Planning.** In order to ensure that environmental considerations are included at this level of planning, and that community and traditional knowledge inputs are included in decisions and review process, the Department of Economic and Social Development should receive capacity building in the assessment of environmental and social impacts of development proposals and in mechanisms for including community involvement.

- **Physical Planning.** The regulatory relationship between the national and provincial/municipal planning and environment offices should be strengthened through the development of an integrated strategic planning structure that specifically allows for inputs of community and traditional knowledge at all levels of decision making. A road map should be provided for the development of an integrated strategic physical and economic planning process for the longer term, including an integrative legislative framework, administrative process, and policy linkages involving community partnership. The Port Vila UGMS and Sanitation Master Plan (both of which depend on the successful institution of an integrated strategic planning structure), should be implemented.

- **Tagabe River Catchment Management Initiative.** The Government and community should, over time, incorporate the successful process and products from the TRCMI, its Coordinating Committee, and its Catchment Management Plan, within an integrated environmental planning system.
Case Study Aims and Objectives

As part of its preparation of a Pacific Region Environmental Strategy (PRES), the Asian Development Bank (ADB) is supporting, through its Regional Technical Assistance on Capacity Building to Promote Traditional Environmental Management in the Pacific Development Member Countries (RETA 5913-REG, or TEM RETA), the compilation of several case studies documenting innovative and/or successful environmental planning and management approaches in selected Pacific developing member countries (PDMCs). This case study aims to describe efforts in Vanuatu to mainstream environmental awareness, legislation, international undertakings, and traditional knowledge and practices into planning and policies for the country’s development. It analyzes the positive aspects and shortcomings for environmental considerations in development of the country’s legislative framework, administrative and institutional processes, and information management systems, and highlights constraints in contemporary land management practices, development practices, and current TEM practices that may impede the achievement of poverty reduction and sustainable development.

The case study attempts to achieve these objectives through a situation analysis of the Tagabe River area, a subcatchment of the greater Mele Catchment on Efate island, Vanuatu. It identifies particular constraints and opportunities for integrated decision making and community development; these may include discordant, contradictory, or ill-coordinated policies, laws and instruments, planning methods and tools; poorly characterized data, or insufficient empowerment of local communities in the development decision-making process.

To achieve equity, i.e., benefit sharing and intergeneration equity, and to balance environmental, community, and economic development goals, planning systems need to enable

- early policy development (before pressures develop);
- policy, plans and guidelines driven by community needs, values, and aspirations;
- community involvement from the outside or policy/development determination;
- the carrying out of day-to-day decisions at the village level;
- the streamlining of laws and administrative processes; and
- a balance in establishing directives among community/traditional knowledge, socioecon-omic data and scientific information.

These “principles” of community planning frameworks serve as guideposts for the reviews and suggested options for action to integrate legal platforms, institutional processes, data, and planning tools.

The intended outcome of the case study is to identify ways to stimulate the evolution of development planning practices to better balance the environment, sociocultural, and economic needs of the community, in both the short and long term. These suggested options are intended to fit into and augment existing systems in aiming for poverty reduction through sustainable development.

How the Study was Conducted

The case study was compiled by a study team that comprised the team leader, Craig Wilson; and four in-country consultants: local coordinator Russell Nari, Marie Hakwa on legal/administrative review, Anna Naupa on community consultations, and Matt Temar on geographical information system (GIS)/information review. Matt McIntyre, Coordinator, Sustainable Economic Development Program, South Pacific Regional Environmental Programme (SPREP), provided project oversight and coordination.

Mssrs. McIntyre and Wilson undertook an initial visit to Vanuatu on 6–21 February 2003. During this visit, they discussed with Mr. Nari of the Government of Vanuatu Environment Unit the identification of a suitable site for the case study. Mr. Nari described the Tagabe River area and its newly formed Tagabe River Catchment Management Initiative (TRCMI). Following discussions with key stakeholders, including Government representatives and members of TRCMI, it was agreed that the case study would focus on the Tagabe River area and conduct activities in association with the TRCMI Coordinating Committee.
The team leader undertook a second visit to Vanuatu on 22 March–13 April 2003 to compile the case study together with other study team members.

**Current Status of Planning and Resource Use Management in Vanuatu**

Various legislative acts, institutions, and policymaking bodies affect development planning and resource use management in Vanuatu, at the national, provincial, and local level. These are the laws, regulations, institutions, and administrative and policymaking bodies into which environmental considerations and traditional knowledge are to be mainstreamed. Following are descriptions of the chief entities and processes whose deliberations, policies, and actions could impact on the Tagabe River catchment area and its development.

**Traditional Governance**

Custom plays an important role in all aspects of Vanuatu's national life. Social, cultural, and political life is dominated and/or shaped by traditional or customary practices. Among the most important of these are the laws relating to land and its uses. When no rule of law is applicable to a matter before a court, it is directed by the Constitution to determine an outcome according to substantial justice and whenever possible in conformity with custom. The Malvatumauri National Council of Chiefs, which comprises customary chiefs elected by their peers sitting in district councils of chiefs, exercises general competence to discuss all matters relating to custom and tradition and makes recommendations for the preservation and promotion of Ni-Vanuatu culture and languages.

**National Institutional and Legislative Regulation of the Environment**

**Environmental Management and Conservation Act**

The single most important piece of legislation Vanuatu has passed to regulate its environment is the Environmental Management and Conservation (EMC) Act No. 12 of 2002, which entered into force in March 2003. It establishes the Department of Environment (DoE), which effectively upgrades the existing Environment Unit to department status under the Ministry of Lands, Survey, Environment, Energy, Minerals, and Water Resources (MOL). Its appointed Director is responsible for the development, coordination, and, where appropriate, implementation of the Government's environmental policies and programs.

For the purposes of environmental planning and resource use, the important provisions stipulate (i) that all projects or development activities that are likely to impact on the country's environment and that require any license, permit, or approval under any law must comply with the provisions of the EMC Act; and (ii) that the Director of the DoE is vested with the power to request environmental impact assessments (EIAs) on all projects, proposals, or development activities that impact or are likely to impact on the environment of Vanuatu. Such likely activities include, but significantly are not limited to, those that may

- affect coastal dynamics or result in coastal erosion;
- result in the pollution of water resources;
- affect any protected, rare, threatened, or endangered species, its habitat, or nesting grounds;
- result in the contamination of land;
- endanger public health;
- affect protected custom resources;
- affect protected or proposed protected areas;
- affect air quality;
- result in the unsustainable use of renewable resources;
- result in the introduction of foreign organisms and species; and
- result in any activity prescribed by regulation

and are subject to the EIA provisions of the EMC Act. Note that this section gives the DoE Director discretion to request EIAs for development activities, even if they do not fall within the scope of those described above. The new process also grants the DoE Director power to intervene in any development process, even if it has not been referred to the DoE, if he or she thinks an EIA is required from the project proponents.

Previously, there was no statutory requirement for EIA in Vanuatu, and EIA was carried out only when a
project proponent included EIA in a proposal or if a review by sector analysts in the Department of Economic and Social Development (DESD), whose role has been to facilitate policy development, deemed it necessary. They usually referred only larger (in size or cost) projects for assessment. Under the EMC Act, administrative linkages between DESD and the DoE will need to be strengthened to facilitate the implementation of EIA requirements.

Part 2 of the EMC Act makes provision for the development of national policies, to promote the environmentally sound and safe management and conservation of the natural resources of Vanuatu, to provide for the coordination of related activities, and to guide the mainstreaming of environment issues throughout the policy and planning activities of the Government; and national plans, which will be developed to implement national policies in accordance with criteria contained in the Act. The new DoE will establish priorities for implementation so that a structured approach is taken. Implementation will require considerable government support, but it is anticipated that those groups in Vanuatu that supported the passage of the EMC Act will continue to support its implementation. The DoE will also be encouraged to use the EMC Act’s passage to leverage additional assistance from external agencies (like ADB) that support sustainable development activities in the Pacific.

The EMC Act falls short mainly in that it fails to stipulate that provincial and local planning committees cannot approve development activities that fail to obtain the approval of the MOL Minister after undergoing an EIA at the request of the DoE. In practice, moreover, DoE personnel, as of the dates of the case study, seemed hardly aware of their new status, having not paid for a subscription to the Republic of Vanuatu Official Gazette containing the only available information as to the status of pending legislation. Further, as the EMC Act does not specify administrative processes in detail, much had yet to be finalized in setting up the DoE and conducting awareness workshops to inform affected government agencies about its administration.

The EMC Act also still lacks the appropriate legislation allowing the new DoE, taking over from the Environment Unit, to implement appropriate development and natural resource management controls. The Environment Unit was only called on for advice when provincial and municipal authorities deemed it necessary. Inappropriate developments and the failure to monitor the environment (as in the case of Port Vila’s pollution of the harbor and lagoon) have resulted. Even now, no statutory obligation exists for the councils to take EIA or the advice of the DoE or the Physical Planning Unit into account when issuing planning permits.

Nonetheless, the EMC Act lays out a new path for the supervision and regulation of development activities in Vanuatu, and constitutes a significant step in mainstreaming environmental considerations and legislation into the planning process.

Comprehensive Reform Programme

National policy development is guided by the Comprehensive Reform Programme (CRP) approved in 1997 with the aim of implementing public sector reform to address structural issues in the economy. CRP covers three categories: (i) public sector reform, (ii) economic reforms, and (iii) reforms promoting equity and social development. Public sector reform targets government institutions through downsizing and by increasing transparency and accountability in the decision-making process. Economic reforms are intended to promote private sector activity, improve financial supervision, and restructure state-owned enterprises to attract private sector involvement. Equity and social development reforms aim to ensure that all community sectors are beneficiaries in the distribution of wealth. The theoretical approach to development economics states that sustainable growth in a market-friendly environment creates economic opportunities that produce government revenues used to provide services to the public.

While some improvements have been made in Vanuatu through the implementation of CRP, there is concern that the process is not producing tangible results for people to see; as a result the reform process is losing support in some areas. Recent enactment of new legislation to encourage good governance and improved economic management is expected to garner more political support. A critical aspect of the reform process is to create an environment where the public service and the political processes work together in a more coordinated fashion. Anecdotal evidence points to political instability as a limiting factor in the implementation of CRP. With numerous changes of government over the past 5 years, consistency in the
implementation of reforms has been difficult to achieve. The CRP process would benefit on a long-term basis if the policy reform process could be insulated from the political process, allowing the public service to implement agreed reforms.

**National Planning Process**

DESD, which under the CRP replaced the National Planning Office, sets the development agenda for Vanuatu. Since 1996, a Medium-Term Development Framework (MDF) has guided sector policy development, linking fiscal budgeting and planning, and ensuring that national development is progressing in accordance with agreed policies.

The process of developing the MDF involved national workshops and an extensive consultation process. At the national government level, input came from the CRP and the National Summit, which accommodated input from members of Parliament. At the provincial government level, input from the Rural Economic Development Initiatives (REDIs) (see below) ensured that rural-based economic concerns are addressed. The private sector provided input to the MDF through Business Forum consultations attended by the Chamber of Commerce and private sector organizations. This input was channeled through the National Summit, then revised and updated at subsequent summits to reflect emerging priorities. From it the CRP Matrix was produced and endorsed by the Council of Ministers.

The CRP Matrix, reflecting the key elements of the CRP that are endorsed through the National Summit process, provides a logical framework for determining policy areas, deciding on appropriate strategies, detailing implementing actions, assigning responsibilities, setting target dates for completion, outlining monitoring mechanisms, and detailing risks and assumptions. Each Ministry then uses the Matrix to set its detailed Corporate Plan and Annual Business Plan for the coming year.

The CRP Matrix formalizes policies that encourage the mainstreaming of environmental and traditional knowledge into the government decision-making process to encourage economic growth and include the following policy areas:

- expedite consultation involving local communities;
- encourage civil society to work in partnership with government;
- improve effectiveness in local government;
- establish an attractive, safe, healthy, and sustainable environment;
- draft environment and conservation legislation; and
- develop new environmental policies and initiatives.

Based on the CRP Matrix, the national CRP consultation process has developed an overarching policy framework that provides for the inclusion of environmental considerations within an economic growth framework and promotes the incorporation of community input into the decision-making process.

**Land Laws, Tenure, and Resource Access**

Article 73 of the Constitution states that all land in the Republic of Vanuatu belongs to the indigenous customary owners and their descendants. The rules of custom form the basis of ownership and use of land and perpetual ownership of land is vested solely with indigenous citizens who have acquired their land in accordance with recognized customary land tenure. The rules of custom remain unwritten and vary from area to area—even within a single island community. This does not diminish the importance of custom for Vanuatu, as the Constitutional provisions for Parliament to legislate for village and island courts with jurisdiction over customary and other matters demonstrate. The role of custom chiefs within these courts is stated clearly in the Constitution under Article 52. Article 78(2) further provides for appropriate customary institutions or procedures to resolve disputes concerning the ownership of customary land.

In rural areas, as much as 80% of the land is held under customary ownership. Prospective developers can lease land, but only for up to 75 years. The formal leasing process administered by MOL is effective, as long as no disputes over customary ownership arise. The Land Leases Act provides for the establishment of legally enforceable covenants, and a range of environmental and natural resource conservation covenants have been imposed. Standard agricultural leases granted for 75 years require the lessee to preserve the land, protect
vegetation near a water course, not pollute the land, and not allow squatters to reside there. Breach of a covenant can result in the forfeiture of the lease, so it is a powerful administrative instrument that can be used to enforce environmental and conservation requirements for land use. The issue of land leases at the Freswin squatter settlement in the Tagabe River area points to the responsibility of the lessee, Cailliard & Kaddour, to ensure that squatters are removed. Eviction notices registered with the local courts have yet to be served; however, the squatters remain and the registered lessors have been forced to find alternative land, in some cases becoming squatters on adjacent water extraction zone land while waiting for eviction notices to be served so they can rightfully occupy land under their legal right.

Land ownership disputes have been singled out as one of the major barriers to economic development, because vast tracts of productive land remain undeveloped while court hearings fail to settle ongoing disputes. (In fact, the expression of interest in a development proposal for customary land can result in the sudden eruption of claims and counterclaims.) It is hoped that the introduction of the Customary Land Tribunal (CLT), which relies on village-level, local, and island-wide groups of chiefs to adjudicate disputes, will expedite settlements and unlock much-needed land for economic development. Moving to a formal process of land dispute settlement that involves local chiefs applying custom and traditional practice to adjudicate local land matters is an important instance of the mainstreaming of traditional practices and values.

The CLT Act No. 7 was enacted in 2001 by Parliament to provide for a system based on custom to resolve disputes about customary land. It is still too early to know whether procedures set up by the CLT legislation will work effectively and efficiently.

The CLT repeals the former jurisdiction of the Island Courts to resolve and determine any new customary land dispute which arises after the commencement of the CLT Act. Where a land case was pending in the Island Court at the time when the CLT Act came into force, claimants had to inform the Island Court if they wished to continue in the Island Court or start afresh in their respective CLT. The Supreme Court had listed outstanding appeal cases and outstanding Island Court land disputes for conferences, at which the judges were asking claimants how they wish to have these Land Appeals and Island Court land cases resolved in light of the CLT Act. No CLT decisions have been reported; in fact, most of the CLTs had not yet been established, since the Malvatumauri was still processing names of approved adjudicators for each custom area in their respective islands.

Land in the urban areas of Port Vila and Luganville is deemed public land and managed by the Government for purposes such as education and health. Public land can be released for commercial or residential development under the Land Reform Act, following negotiation with custom owners. Urban leases are usually for 50 years. As with rural and business investment, urban development requires clear land rights, and uncertainty over rights deters long-term investment, especially in infrastructure. It is hoped that the leasing process can benefit from the establishment of the CLT and ownership disputes can be resolved, to expedite leasing of land for development purposes and encourage greater economic growth. The opportunity to issue covenants on leases that include environment and conservation is seen as an effective tool and should be promoted in concert with new environment legislation.

**Water Resources Protection**

A Water Resources Management Act has been passed by Parliament and is currently awaiting gazettal before coming into force. The Act provides for the declaration of a rural or urban water protection zone (WPZ) for the conservation and protection of any significant water resource. Earlier studies (DePledge 1994) of the Port Vila water supply system have identified the location of three recommended WPZs, which are likely to be proposed following the implementation of the new Act.

**Biodiversity**

Vanuatu signed the Convention on Biological Diversity (CBD) and ratified it in 1993. One requirement for implementation was to compile a strategy and associated action plans to manage and conserve Vanuatu’s biological diversity. The National Biodiversity Strategy and Action Plan (NBSAP) project (1997–1999) was carried out to produce the Vanuatu National Biodiversity Conservation Strategy. Activities included the collation of existing reports on biodiversity, strategic assessments of selected organisms and ecosystems, and
an extensive community consultation process to identify community concerns and priorities and gather information on traditional natural resource management practices. Six key objectives were determined for the strategy:

- protection and wise use of biodiversity;
- application of policy, planning, and legal mechanisms to enable sustainable management of biodiversity;
- research, assessment, and monitoring of biodiversity;
- capacity building for environmental management;
- environmental education, awareness, and information sharing; and
- participation of local communities in the management of biodiversity.

For each objective, a total of 20 priority actions was defined and responsible organizations identified that would help achieve the objectives. Priorities included

- management of watersheds,
- management of cultural heritage,
- establishment of a biodiversity databank,
- establishment of a National Scientific Research Council (NSRC),
- conduct of EIAs, and
- protection of intellectual property rights.

These objectives and priorities were to be integrated into the planning and development process through two main avenues: the CRP, which will provide the policy platform and carry out policy reform in relevant sectors; and the EMC Act, which will guide the development of national policies and plans that will implement the policies. The soon-to-be-created NSRC and the establishment of the TRCM are providing a catalyst for a process of change. The national policies and plans will strengthen linkages between aid provider-assisted projects and the national planning process to ensure that sector-based activities are undertaken within a planning framework that recognizes their value. All too often project implementation occurs in isolation or within a single sector, without integration with other associated sectors. The implementation of the United Nations Framework Convention on Climate Change (UNFCCC), to which Vanuatu is also a signatory, has tried to address this issue and has embraced a range of sectors, including education and water resources, to expand its area of influence and impact.

Following on the National Biodiversity Conservation Strategy, a series of implementation activities have taken place. In 2001, the United Nations Environment Programme provided funds to help create the NSRC. A work program incorporating training needs assessments was carried out in the following thematic areas:

- scientific,
- management and use of biodiversity,
- traditional knowledge, and
- institutional and financial systems.

Following from the training needs assessments, a national review was undertaken of legislative and administrative requirements for the establishment of the NSRC. The review presented a series of recommendations and provided guidance on legislative requirements to protect biological diversity, safeguard the uncontrolled export of genetic resources, and provide data for reporting requirements for regional and international obligations and for national education and development. Control of biological resources will be addressed through the EMC Act under the regulatory powers of the Biodiversity Advisory Council and EIA procedures. A bill to enact the NSRC has been submitted to the Council of Ministers and is expected to pass in 2003.

Environment Australia provided a database to commence recording of information that will develop into the Environmental Registry, a legislative requirement of the new EMC Act. Community conservation areas (CCAs) will be listed in the Environmental Registry provided they conform with yet-to-be-developed establishment guidelines. Each CCAs biodiversity information will form part of a database that can be used in future reporting requirements for the CBD and for the development of national strategic planning documents such as National Environment Policies and National Environmental Plans as required by the EMC Act.

The level of commitment Vanuatu has shown to the implementation of the CBD is commendable, an indication that international conventions can trigger the development of legislation, which then provides the framework for the establishment of national policies and plans and helps create pathways for mainstreaming
environment and traditional knowledge within national and provincial decision-making processes. The release and follow-up implementation of the National Biodiversity Conservation Strategy has triggered a series of initiatives and activities through nationally supported actions, and regional/international assistance, and a combination of the two. Linkages have been created between CRP and NBSAP, the EMC Act, and other environment-related initiatives to encourage an integrated approach to environmental management. By coordinating CRP with the Business Forum, the MDF, and REDI, opportunities to integrate economic development within all government departments and the community can emerge. New policy and legislation is required to strengthen the linkages and allocated resources that will ensure that the implementation of initiatives matches anticipated outcomes.

**Provincial and Local Government**

**Local Government Councils**

At Independence in 1980, the Decentralization Act was passed forming 11 local government councils (LGCs) that were restructured in 1994 to form six provincial governments. The role of these bodies was to develop regional growth centers and focus attention on the development of rural areas.

LGCs covering local government regions (i.e., provinces) and municipal councils in Vanuatu are highly autonomous entities separate from the Government and each other. LGCs comprise elected and appointed members (the appointed members do not have voting rights) and take responsibility for good government in their region and promoting the health and welfare of local people. LGCs have the power to pass bylaws that set out their economic development policies and outline, create, and draw up regulations governing the environmental protection zones (natural parks, natural reserves, or tourist attraction areas), subject to any legislation creating environmental protected areas in the national interest.

**Rural Economic Development Initiatives**

The REDIs developed by MOL for the six provinces have the goal of promoting economic development, but permit each province to take its own pathway, reflecting the great diversity of Vanuatu’s provinces. REDI’s goals:

- Promote economic growth in rural areas by providing key stakeholders—farmers, fishers, landowners, and the business community—with the support needed to develop and nurture business development;
- Protect and promote cultural practices and traditions;
- Maximize the efficiency and level of available funding provided by provincial governments for economic development;
- Focus national government economic and human resources on economic growth through participation in REDI Technical Assistance Group activities and by including provincial priorities in the government investment program (GIP); and
- Focus aid provider and NGO activities on rural development through the REDI process.

REDI was formulated through a strong “bottom-up” approach following an extensive community consultation process and the appointment of provincial REDI coordination officers. Its administrative process will improve linkages from the community level through provincial councils to the national government level. It has the potential to act as an effective vehicle for mainstreaming environmental and traditional knowledge into the development decision-making process through the participation of communities and provincial governments, and by recognition by national planning authorities that REDI activities are to be incorporated in national planning processes such as the MDF and GIF. It will be essential to ensure that the REDI process incorporates aspects of environmental and social sustainability assessments at the project level and as a component of the Small Grants Provincial Development Fund financial assistance.

**The Provincial Physical Planning Process**

The nationally enacted Physical Planning Act of 1986 created the Physical Planning Unit (PPU) within the Department of Provincial Affairs, under the Ministry of Internal Affairs. The PPU provides development planning guidance and advice to province-based planning officers and municipal councils and is in the process of creating physical planning areas (PPAs) for each province and city to delineate planning control boundaries. While the Physical Planning Act provides for the establishment of policy, to date none has been
prepared. Moreover, no regulatory power ensures that municipal council or provincial planning officers comply with advice from the PPU.

Planning activities within Shefa Province, where a large portion of the Tagabe River Catchment Area is located, are carried out by the Shefa Planning Office under the guidance of the Principal Planning Officer, and administered by a Physical Planning Committee that is comprised of Shefa Councilors. While the Physical Planning Act provides for the declaration of PPAs, and a new PPA is planned, to date none has been formally approved for Shefa. While the Planning Committee is empowered to draw on all available technical advice from the PPU and any government department such as the Environment Unit (now, the DoE), the Planning Committee usually calls for only minimal technical input. As a result, the decision-making process appears severely constrained; in the absence of available technical information, it could easily overlook environmental and social impacts when development proposals are assessed.

The revenue generation base for Shefa is currently apportioned on an approximate 50:50 basis between funds generated within Shefa and funds provided by the National Government. Shefa generates the bulk of its funds from development-oriented permits and fees, including planning permits, business permits, and building permits, and is proposing the introduction of a subdivision tax and property taxes. As a result, the Physical Planning Committee has a strong inclination to approve development proposals in order to maintain or increase the Shefa revenue base. While revenues may increase in the short term, the longer-term impacts from development that has not been screened for environmental or social impacts may mean longer-term costs for Shefa in mitigation or remediation of those impacts.

The passage of the EMC Act will have a significant impact on Shefa’s development approval process. The Act requires that all development activities that require a permit or approval under any law must comply with its provisions, and spells out the activities and potential impacts that call for an EIA. While the implementation of the EIA component of the Act has not yet been defined, it is clear that the development approval process in Shefa will need to undergo substantial changes.

The Municipal Planning Process (Port Vila)

Within the PPA of Port Vila, where the rest of the Tagabe River Catchment Area is located, development planning activities are carried out by the Port Vila Municipal Council. The Physical Planning Office (PPO) prepares development assessments, drawing advice from a range of relevant departments including, but not limited to, the PPU, Environment Unit (now, the DoE), the Public Works Department (PWD), and the Fire Department. This process occurs within formal linkages between the PPO and relevant departments. Development applications are then passed for final assessment to the Town Planning Committee. This committee is made up of municipal councilors and may call for technical input when necessary, but no involvement of technical staff or requirement for input of external advice from relevant departments is required in the final decision-making process.

Again, the implementation of the EMC Act and its EIA mandate will require the Municipal Council to assess any future development proposals more rigorously for environmental and social impacts. It is anticipated that an extensive EIA awareness and education campaign will be required to upgrade the capacity of the provincial and municipal councils on EIA procedures.

Port Vila is running out of available land. Additional physical constraints to urban development include the close proximity of the airport and associated safety and noise factors, the presence of water protection zones on the urban fringe to the north east, and the presence of prime agricultural lands to the north. At present, Port Vila has no urban growth management policy in place; development approval agencies assess development proposals with no clear understanding of future social or environmental impacts, and without even any real understanding of the need to provide housing and municipal services, such as water, sanitation and drainage, for a growing population.

A strategic planning framework has been proposed through the development of the 1992 Draft Physical Plan and the 1997 Port Vila Urban Growth Management Strategy (UGMS). The UGMS emphasizes that the development of an integrated growth management strategy for Port Vila is required to coordinate the physical planning process and to establish an institutional and legislative framework to better manage infrastructure.
development. It would need to take into consideration increasing population levels, availability of land, provision of services, especially water and sanitation, and the expected environmental impacts that are likely to be generated from any urban growth expansion.

As part of the UGMS, a Sanitation Master Plan has been prepared to address the critical issue of pollution of the Port Vila harbor and lagoon by unmanaged domestic and commercial sanitation systems. While the Government has not yet committed itself to implementing either the UGMS or the Sanitation Plan, the importance of establishing a coordinated plan of management cannot be overemphasized.

Now that the EMC Act is in force, the assessment of development activities and their potential impacts on the environment will need to be implemented and enforced. The administrative linkages between the development assessment agencies, such as the Municipal Council and Provincial Planning Offices, and the DoE will need to be strengthened to ensure that the assessment and monitoring process operates on an effective and efficient basis.

Information Frameworks

Effective policy and planning processes that aim to mainstream environmental considerations and traditional knowledge require up-to-date and accurate data to work with. A wide range of information is stored in numerous government departments in Vanuatu: information used in the preparation of reports such as the national submission to the United Nations Conference on Environment and Development and preparation of policy and planning documentation and compliance documentation for international conventions to which Vanuatu is a signatory.

The most extensive information system providing natural resource information is the Vanuatu Resource Information system (VANRIS). Established as a component of the Vanuatu Land Use Planning Project funded by the Australian Agency for International Development and managed by the Land Use Planning Office within the Department of Lands, VANRIS assists land use planners and resource managers with decision making based on traditional, commercial, environmental, and other priority considerations, as national-level land use planning and resource management requires such information. A geographically referenced database information system as well as a formal GIS, VANRIS consists of three interrelated components: (i) a map base that generates maps using Map Info software; (ii) a database containing an inventory of natural resource, land use, and population attributes; and (iii) a user-friendly interface that provides a facility for rapid data manipulation and analysis. Natural resource data from various departments, including Forestry, Lands, Geology and Mines, Fisheries, Statistics, Environment Unit, Vanuatu Culture Centre (VCC), and Public Works is collected on VANRIS and is used for the generation of maps and reports. In order to manage and control the use of data, VANRIS has established data protocols such as a Data Transfer Agreement between the data provider (Vanuatu Land Use Planning Office) and the data recipient. The Land Use Planning Office also regulates temporary access to VANRIS. VANRIS users meet on a regular basis to discuss current GIS issues and plan future directions for the service.

A preliminary assessment of data management within a range of government departments highlighted a number of deficiencies that are limiting the effective use and sharing of data within government. While government data is accessible to the public, the public may in some instances not be aware of its existence and therefore may not realize that information can be accessed. Some information is available on a user-pays basis and a fee is charged to access or obtain copies. In some instances, it is protected by special conditions: the VCC tightly manages and controls the collection of data in Vanuatu and has strict protocols in place to protect customary data.

Other deficiencies:

- Data is collected in a range of nontransferable formats due to incompatible software and hardware;
- Software and hardware from different sources, including the Government and aid provider organizations, are not always compatible with existing technology;
- Technical expertise is lacking within departments to ensure efficient operation of data networks;
- Safe and secure storage of data is lacking, and few security protocols are in place to manage data sharing;
• Data sharing between departments is minimal;
• Viable equipment for efficient operation or provision of services is in short supply; and
• On-the-job or ongoing training in data collection and management is lacking.

The collection of natural resource data and dissemination of information within the Government is highly fractured and does not appear to have a high priority within many departments and agencies. Agencies that do recognize the importance of data, such as the MOL and its respective departments, are constrained by finances for the purchase of appropriate equipment and the availability of technically trained local staff.

Power and Communications

The Port Vila power supply is managed by the private electricity and water supply company UNELCO with an approximate generation capacity of 22 MW using diesel-powered generators and a new diesel-fired thermal power station. Electricity charges are calculated on a formula that includes the level of local wages, price of fuel, consumer price index, and exchange rate. In a survey of five Pacific Island countries, Vanuatu had the highest electricity usage tariffs at Vt32.03 per kilowatt hour (kWh) (US$0.22 kWh).

The high cost of electricity results largely from the cost of imported diesel fuel (approximately 42% of the cost of electricity) and with such a small market there is little scope for competition. A lower power cost would assist economic development through lower business costs, but with diesel fuel costs subject to global market influences, internal mechanisms to lower power costs in the absence of competition may prove difficult to establish.

Vanuatu’s telecommunications system comprises a land-based domestic and analogue mobile phone and microwave link to some rural areas, and an international satellite link. The network has been owned and operated since 1992 by Telecom Vanuatu Limited (TVL), a consortium comprising the Government of Vanuatu, France Telecom, and Cable & Wireless. Television coverage is restricted to Efate and provided in English and French, with limited programming in Bislama. TVL has a monopoly on the provision of Internet services, which are expensive at Vt 11,000 per month (US$88) for 40 hours’ access plus telephone charges at Vt 720 (US$5.80) per hour. Public access to the Internet is available at least three outlets in Port Vila at a cost of Vt1,500 (US$12) per hour. TVL provides a free service for schools that have electricity and computers. Radio reception is available throughout the islands of Vanuatu and is a means of communication and information dispersion.

The high cost of power and telecommunications is a constraining factor in the dissemination of information throughout Vanuatu. With Internet connection charges so high, access to the multitude of environmental information available is restricted due to limited funds at the community level and limited communications budgets within government departments. Some government departments have moved to the use of the phone card system in order to better manage their communication costs.

The value of the Internet for access to environmental information cannot be overstated; lack of access by the community and Government will severely constrain access to the best available information. A number of United Nations conventions of which Vanuatu is a member, including UNFCCC and CBD, have websites that provide up-to-date information for signatories. Limited access to this information will limit the extent to which Vanuatu can comply with the conventions’ requirements and institute environmental management practices that will improve the sustainable use of natural resources within the country.

Cultural Frameworks—The Vanuatu Cultural Centre

The VCC is the principal national institution responsible for “the preservation, protection and development of various aspects of the rich cultural heritage of Vanuatu” (Vanuatu National Cultural Council Act, cap.186). The Vanuatu Cultural and Historical Sites Survey (VCHSS), one of its executing bodies, handles much of the TEM research and documentation. It is the VCC’s policy to ensure public access to all of its materials, unless custom requires otherwise (for example, women may be prohibited from viewing certain cultural artifacts).

The VCC regularly provides cultural research reports to the relevant ministries and government departments.
For example, a 2001 SPREP/ ADB RETA TEM Project contracted to the VCC supplied the Environment Unit (now the DoE) with information on the documentation of TEM systems. This information was used in the development of Vanuatu’s NBSAP.

The VCC provides an ideal vertical linkage between TEM and policymaking, but no formal policy linkages have been set up between the VCC and DESD, which is responsible for development planning. The VCC promotes cultural aspects in Government operations, but unless individual Departments are implementing specific projects requiring cultural research, the VCC can only act in an advisory manner. While the Government strongly supports the incorporation of TEM and other traditional cultural input into government planning policies and procedures, no direct policy or administrative linkages are in place between the VCC and the CRP Matrix to utilize the VCC’s information resources.

The Tagabe River Catchment Area: Prospects and Problems

Physical Description

The Tagabe River subcatchment is an area of approximately 25 square kilometers (km²) that forms a part of the Mele Catchment on Efate Island; the Mele area is located about 15 km west of Port Vila, the main city on Efate and the capital of Vanuatu (Figure 6.1). Three river systems flow to the Mele Plain coastline; the Tagabe River is the closest of the three to Port Vila, entering Mele Bay approximately 4 km from the Port Vila Central Business District.

Along the Mele Plain coastline, the soils are relatively thin (up to 80 cm thick), and grade to deeper alluvial soils farther from the coast, in the Mele-Tagabe plains. In the upper reaches of the catchment, the river valleys consist of silty clays and raised limestone and volcanic deposits.

The Tagabe River catchment consists mainly of rural land; a small portion of the river course passes through the Port Vila municipal area. The area’s administration is divided between that of the city and that of Shefa province.

Land Use

Agricultural Pressures

Land use in the catchment is highly diversified (Table 6.1). At the lower end, where the Tagabe River flows into Mele Bay, the high-density informal (squatter) settlement of Blacksands sits amid agricultural land. Approximately 2 km inland, the land use is predominantly industrial: a brewery, a juice factory, a paint factory, and a power generation plant, among other smaller-scale factories and workshops, are located there. Further up the catchment is the Bauerfield International Airport and also small agricultural holdings.

Table 6.1. Land Use (2003), Tagabe River Catchment Area

<table>
<thead>
<tr>
<th>WPZ</th>
<th>Current Land Use</th>
<th>Stakeholder/Land User</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>Commercial and domestic agriculture, minimal residential, main water supply area, domestic use of the Tagabe River. Frequent pedestrian traffic through this zone.</td>
<td>UNELCO, Sam Mahit, Michel Furet, M. Traverso, Department of Agriculture and Livestock.</td>
</tr>
<tr>
<td>2</td>
<td>Commercial and domestic agriculture, high-density settlement, small-scale industrial, recreational and domestic use of the Tagabe River. Poor residential sanitation.</td>
<td>UNELCO, Sam Mahit, Michel Furet, M. Traverso, Department of Agriculture and Livestock, National Housing Corporation (Freswota), Freswin Communities, Beverly Hills Estate, Bladinere Estate, Rangorangoa Village, Smet, Tusker Brewery. Bauerfield International Airport, airport area, Alick Sualo, Edward Crowby, M. Furet, Ifira Community.</td>
</tr>
<tr>
<td>3</td>
<td>Commercial and domestic agriculture, commercial, high-density settlement, and traditional landownership.</td>
<td></td>
</tr>
</tbody>
</table>

Note: UNELCO = electricity and water supply company; WPZ = water protection zone.
Source: Tagabe River Catchment Management Coordination Committee.
Figure 6.1. Map of Vanuatu
and another squatter settlement, Freswin. Adjacent to this area is the groundwater extraction zone that is the source of Port Vila’s water supply. The middle reaches of the catchment have been selectively logged and are dominated by pasture grazing, with subsistence agriculture and some patches of forest, while in the upper reaches broad forest cover remains, along with some subsistence agriculture.

Land use in the catchment has been changing rapidly in recent years. In 1980, the area was primarily agricultural, with pastures, coconut plantations, and small agricultural plantings, or contained unalienated traditional tenure under customary landownership. Since the early 1990s, the lower and middle reaches have been absorbed by the urban population of Port Vila (some 29,400 in 1999; present estimates run as high as 40,000); the city has grown rapidly because of rural-urban migration, and squatter settlements have grown up in the Tagabe River area at Tagabe, Freswin, and Ohlen, which are within the municipal boundary, and at Blacksands and Manples. Table 6.1 lists some of the present uses and users.

The rural areas of the Tagabe River catchment area in Shefa province are under the traditional customary ownership of three main island groups: Ifira, Mele, and Erakor. Most of this land has been leased by the customary owners for grazing. This usually involves what is called a “customary lease,” i.e., the granting of occupational rights to customary land by one customary owner to another Ni-Vanuatu without a formal lease agreement. Violations of these agreements have resulted in illegal occupation of the leases at the invitation of the custom owner, leaving the lease holders no alternative but to squat elsewhere, mainly on prime agricultural land and/or in the municipal water extraction zone.

Population Pressures: A Growing Port Vila

Population data show that 43% of the country’s total population of 187,000 (1999 estimate) is under 15 years old. Even though growth rates are steadily declining, from 3.2% in 1979 to 2.1% in 1999, population growth is likely to continue for at least the next 20 years. This increase, together with the economic pressures that result in increasing migration to Port Vila and, to a lesser extent, to the country’s second city of Luganville, is expected to place escalating pressure on the urban housing situation.

As immigrants have arrived in Port Vila, most without access to the funds necessary to purchase land, which is increasingly scarce and expensive, they have squatted on the fringes of the city, mainly within the Tagabe River area. They have done so at the invitation of the customary owners, who have charged a nominal rent to the squatters but have not provided any essential services such as water, sanitation, or waste management. Living conditions are substandard, health levels are poor, and the potential for disease outbreaks is high. As the squatter settlements have little or no access to the Port Vila water supply, their water comes from groundwater wells or directly from the Tagabe River.

Port Vila has clearly outgrown the urban area that was originally made available through negotiation with customary owners and unable to satisfactorily house an expanding population. At present, the city has a PPA, but no urban growth strategy; planning is carried out on an ad hoc basis, and little recognition is given to the importance of providing land and services for the growing population. The results of poor planning within the area are shown in the lack of building setbacks from the high water mark or from property boundaries, the poor design of the sanitation and drainage system that is contributing to the pollution of the harbor and lagoon, and a lack of designated parks and reserves to ensure that green spaces throughout the town are created and preserved. Since the current infrastructure of Port Vila is insufficient even for the existing urban area, any expansion into the surrounding lands, such as those of the Tagabe River catchment area, that is allowed to occur—or rather, continue: Blacksands squatter area has existed for 20 years—without proper control and management will increase pollution loads in the harbor and lagoon and lead to increased environmental and health problems and severely restrict the tourist potential of these areas.

Farms or Houses?

The proposed UGMS for Port Vila identified a number of options for the expansion of the urban growth corridor. One option is for the urban zone to expand into the Tagabe River catchment area between the airport and the coast. Urban expansion would limit access to the prime agricultural land on the alluvial plain that adjoins the Tagabe River. Only 16% of Shefa province is prime agricultural land and any further loss of such land would constrain the capacity to expand agricultural
activities. In addition, these areas are close to Port Vila, so transport costs to markets are low; these advantages would be lost if the close-in land were developed. Shefa landowners, who do not wish to see their prime, valuable, and scarce agricultural land turned into urban housing have refused to consider conversion.

Furthermore, as small-scale agriculture is now being actively promoted as an import substitution alternative to imported foods, land use planning to ensure that productive land close to the Port Vila market is not lost is actively needed. The fertile alluvial soils of the Tagabe River catchment area provide residents with opportunities to generate cash income from excess crops and help support an increasing population.

The fact that areas of the Tagabe River close to the coastline are flood-prone is another reason to limit urban development in that area. The South Pacific Regional Geoscience Commission (SOPAC) is in the process of preparing a coastal hazards survey for the Mele Bay coastline; the results of the survey will contribute to the planning requirements specific to the area. The proposed Tagabe River Catchment Management Plan will identify the areas of agricultural land that need to be reserved to ensure that urban development occurs within a strategic or structured manner.

Shefa Land Use and Planning

As the Tagabe River catchment is partly within Shefa Province, it is important to review the economic development proposals that community and business groups have identified for the Shefa area and how they may influence the implementation of development activities in the Tagabe River catchment area. Shefa’s REDI has been developed as a Five-Year Economic Development Plan 2003–2007 that outlines the province’s development goals. Implementation of the REDI will be guided by an Annual Action Plan, which will detail implementation arrangements for the coming year by identifying implementation pathways that involve existing government departmental activities and, if none are available, generating project proposals that meet the identified need. Project proposals will be assessed in accordance with REDI guidelines to ensure they comply with environmental and social requirements.

Agriculture and tourism have been identified as the main economic drivers for Shefa: food production for the growing population of Port Vila is one important consideration, and its proximity to the international airport is key for the export of goods and the arrival of tourists. Agriculture is dominated by commercial beef cattle production by large plantation holders (predominantly foreign leaseholders), with smallholders (predominantly Ni-Vanuatu) accounting for approximately 10% of production. Large-scale logging has ceased and has been replaced by small-scale minimills, but reforestation projects have not followed previous logging activities and the replanting of preferred timbers for the local market such as sandalwood nangai (Canarium indicum), white wood, and mahogany is needed. The proposed establishment of a reforestation reserve for the proposed water protection zones within the Tagabe River catchment could benefit from the reforestation recommendations outlined in the REDI. The increasing population of Port Vila and the proposed expansion of urban growth areas may impact on the potential to supply agricultural goods to the local market if prime alluvial soils adjacent to the Tagabe River are converted to residential land.

Tourism in Vanuatu is dominated by the attraction of Port Vila. The potential to expand to other areas of Efate has been recognized, but the necessary infrastructure, such as suitable roads and tourist facilities, has yet to materialize.

A physical planning strategy has been developed for Shefa Province and proposes the establishment of relevant PPAs and the introduction of legislation to administer physical development. The advent of the EMC Act will encourage more effective and efficient planning practices and is expected to complement the proposed physical planning strategy that will be developed for the new PPAs.

The REDI’s environment strategy emphasizes the need for improved policy and planning controls, the implementation of the EMC Act, and the development of efficient environmental management systems. The preparation of a catchment management plan for the Tagabe River catchment area would fulfill this requirement.

The Shefa Land Use Guide is derived from the Vanuatu National Land Use Policy and designates land under the classifications of best agricultural land, next best agricultural land, marginal land, and nonagricultural
land. The Land Use Guide has three aims: (i) to guide planners in the administration of land use, (ii) to provide stakeholders with a recommended guide to land use policies, and (iii) to guide stakeholders on the preferred use of land through the physical planning process.

The classification of land for the Tagabe River catchment area includes best agricultural land and next best agricultural land and supports a range of land uses including urban, urban/permanent gardens, grazing, airport, shifting agriculture, and shifting agriculture/permanent gardens. The diversity of current land uses within the Tagabe River catchment presents the Shefa LGC with a situation that will require the development of specific land use policies that take into consideration the current status of the land and consider the growing pressures that are being placed on it, including

- the expansion of unmanaged high-density housing,
- the encroachment of urban populations on high-productivity agricultural areas,
- the impact of land use on the water resources,
- the conversion of forest areas to grazing,
- the presence of shifting agriculture on land designated for water resource purposes, and
- the expansion of industrial activities and their potential impact on ground and surface water quality.

The challenges facing the Shefa LGC and its planning process for the Tagabe River catchment area will be to manage the pressures in a manner that reflects the aspirations of all stakeholders; to incorporate environmental considerations at all stages of development planning, as articulated by those stakeholders; and to make use to the extent possible of the traditional knowledge and custom those stakeholders represent. Shefa’s participation in the TRCM Coordinating Committee is a critical component of the planning process and requires that the province is making proactive steps to manage land use pressures.

**Port Vila Water Supply**

Water supply for the Port Vila urban area is sourced within the Tagabe River catchment located on the urban fringe to the north of the town area and is extracted by a series of groundwater bores. The Port Vila water supply assets are owned by the State. Since 1994, however, the water supply has been managed under a franchise agreement with UNELCO. Current extraction rates are approximately 9.5 cubic meters (m³) per day from an estimated capacity of 18,000 m³ per day.

**Agricultural Contamination**

The groundwater extraction zone of the catchment is now under threat from several sources. Informal food gardens established by residents in the squatter settlement of Freswin have encroached on the zone. Moreover, the leasing of land in the extraction zone for agriculture has raised the issue of fertilizer and chemical use by river users, who report occasional episodes of visible contamination. Existing legislation under the Pesticides Control Act of 1993 regulates the importation of pesticides, but the control and use of chemicals for agricultural purposes is the responsibility of the understaffed and underresourced Agricultural Extension Officers, who have limited ability to monitor pesticide use.

**Squatter Settlement Contamination**

Second, the increasing numbers and size of the squatter settlements subjects the zone to potential contamination. Water quality monitoring of the groundwater bores, carried out by UNELCO on a regular basis, has not detected any bacteriological contamination, but encroachment on the water extraction zone by urban populations has the potential to increase the likelihood of contamination from surface water flow. While groundwater flow is from the northwest to the southeast, moving groundwater generally toward the coast, increasing high-density residential areas combined with inadequate sanitation systems may increase surface water contamination and have a detrimental impact on the water resource. A series of surface water samples taken in the Tagabe River during the 1997 drought when stream flow rates had substantially slowed, showed fecal coliform counts in excess of 1,000 organisms per ml, indicating bacterial input from adjacent surface areas. Improved management of the resource has been recognized as having high priority.

**Water Use Within Residential Communities**

The residential communities within the Tagabe River catchment area, as well as those heavily reliant on the Tagabe River for water, include Agathis/Tagabe villages, Beverly Hills Estate, and the settlements of
Blacksands, Freswin/Ohlen, and Freswota 4. The population in the Tagabe area has rapidly increased between the 2 Census years. The centers of significant population growth include the Bauerfield census area, within which lies Freswin; Agathis East census area, which borders the informal settlement areas of Freswin, Freswota, and Blacksands. Namburu Central and Ohlen census areas also experienced significant growth during these 10 years. Coincidentally, a low-income housing program was established in the Freswota area in 1998, and political campaigns promising land to voters in the Freswin area in the mid-1990s seem to have attracted increased numbers to these areas.

The percentage of households practicing subsistence land use in these neighborhoods is highest in Tagabe South estate area, which abuts Agathis and Freswin. The majority of neighborhoods practice pure subsistence gardening, suggesting that there is limited paid employment, and therefore limited financial capacity in these communities.

Those squatters most reliant on the Tagabe River (in 1999) resided in the Bauerfield census area, which contains Freswin (31 households). This neighborhood also has the most village standpipes in the Tagabe area. Blacksands area has the next highest number of documented river users (18 households). These two neighborhoods also have the highest number of pit latrines, constituting a present and future sanitation threat along the river. The water supply obviously determines the sanitation system: Freswota has the highest percentage of flush toilets and piped-water houses. Evidently “bush toilets” are less common where there is piped water.

Traditional Management of Water Resources

The communities residing within and adjacent to the Tagabe River catchment area come from various islands throughout the Vanuatu archipelago. The diversity of cultures and customs becomes subsumed and obscured in this northern area of Port Vila, hence identifying specific TEM practices is difficult. Common sense would typically prevent people from polluting their water source, yet necessity often allows no alternative to the existing uses of and near to the Tagabe River. With land rights disputes complicating the water access issue, many homes rely solely on the river for water. Bush toilets are in close proximity to the river due to lack of space and water capacity to have flush toilets. TEM, therefore, in this context, can be described as common sense practiced with water resources, although compounded by current circumstances. In Vanuatu, individuals particularly identify with the land from which they originated. When they are far from that land, and in addition, do not own or even legally lease the land on which they reside, they are likely to take little interest in the land/environment around them.

The traditional landowners of Ifira in the rural zone of the Tagabe River area have identified two cultural tabu sites that relate to their TEM practices. It is anticipated that the VCC will undertake additional surveys in the catchment area.

Industrial and Commercial Impacts on Water Resources within the Tagabe Area

The commercial and industrial zone of the Tagabe River catchment area contains a collection of factories and warehouses, home to a variety of industries from fiberglass manufacture to fruit juice and beer production. All industries at present exploit the municipal water supply. Wastewater from any production is typically treated before final disposal. However, there have been complaints from some companies about poor drainage in the area and Tusker Brewery’s inadequate wastewater treatment, which results in unpleasant odors. Port Vila Municipality’s Environmental Health Section is responsible for monitoring water quality and wastewater treatment.

Three site studies (Boxes 6.1–6.3) describe some of the larger industries within the Tagabe Area, whose activities would have the most significant impact on Tagabe River.

Protecting the Water Supply

Under the provisions of the Water Protection Act, the Department of Geology and Mines and Rural Water Supply has proposed three water protection zones (WPZs) for the Tagabe River catchment area. The WPZs cover an area of 26.82 km² and each proposed zone will allow for specific uses:

- WPZ 1 (0.3 km²)—pedestrian and vehicular traffic, building, and development associated with Port Vila’s water supply should be the only
### Box 6.1. Site Study: Fibreglass Vanuatu

This factory does not require water for its production process. Use of water is strictly for domestic purposes and is serviced by the municipal water supply. Factory waste is collected and deposited at the Bouma Dump Site. The factory is rented on a 3-year lease from Caillard & Kaddour Real Estate (C & K) and future expansion will be into the adjacent factory space, also owned by C & K.

Concerns regarding resource use in the area relate mainly to the poor drainage system. Two drainage ditches border Fibreglass Vanuatu’s location: one from the Service Station is regularly blocked, leaving pools of oily water discharged from the Service Station standing for long periods. Standing drainage from the Tusker Brewery (see Box 6.3), which contains the Brewery’s “dirty water,” results in unpleasant odors and occasional obstruction to motorists during floods. Both drainage ditches empty into the Tagabe River upstream of the Blacksands area.


### Box 6.2. Site Study: Mr. Juicy

The manufacture of Mr. Juicy’s fruit juices uses water from the municipal water supply. No noxious products are used. Chlorine is filtered out of the water before production and chemicals are used to buffer water hardness. UVD filters are used in the final stage of the filtering process. The filtered water is then used to reconstitute frozen juice pastes to create juice. The plastic bottles used for the distribution of the juice are cleaned using chlorine disinfectant.

Wastewater from the juice production process is dispersed to a solids pit, similar to a sewage treatment tank, located 20 m from the factory site, about 20 m from the Tagabe River. The manager stated that the Vanuatu Environment Unit had examined the wastewater treatment and found it to be satisfactory, with minimal impact on the river system.


### Box 6.3. Site Study 3: Tusker Brewery

Tusker Brewery produces beer and mineral water from filtered municipal water. For every 50,000 liters of beer produced each month, six times as much water is required. Alkaline detergents are used to clean tanks, so a wastewater treatment facility comprising three chambers removes solids. The pH of the wastewater is rather high, at 10. The wastewater is then disposed of into an open-air drainage channel that eventually feeds into the Tagabe River. Other waste products from the Brewery are disposed of as follows: spent grain is used as cattle fodder, and protein bags of yeast are manufactured for use as protection against fruit flies in commercial gardens.

activities permitted. This area should be fenced off and strictly controlled.

- WPZ 2 (4.19 km²)—nonintensive agriculture or horticulture and unsealed roads should be the only activities allowed.
- WPZ 3 (22.33 km²)—nonintensive agriculture or horticulture, sealed roads and low-density settlement should be the only activities permitted.

Water resource protection and uses are a key issue in the management of the Tagabe River area, as it is Port Vila area’s only water. While current water quality monitoring does not show any indication of contamination, surface water samples taken in the Tagabe River during a low flow period showed high levels of bacterial contamination from surface inflows. As Port Vila’s population rises and squatter camps within the water protection zones increase in size, improved management strategies urgently need to be put in place before the water resource comes under serious threat.

Up to now, managing the presence of squatters in the water catchment, a serious concern, has notably failed due to political influence, poor enforcement, and probably ignorance about what the potential outcomes of inappropriate urban development in a water resource area are likely to be. There is a clear communication breakdown between government regulating bodies, traditional landowners, private developers, and the communities in question. Illegal subleases of agricultural land allowing increased population levels in the WPZs are also not being addressed; a range of inappropriate practices may result in surface water and groundwater contamination. Linkages among the key stakeholders are nonexistent or ignored for a range of reasons, including lack of regulatory resources and ignorance of or indifference to the current situation.

The establishment of the TRCMI as Vanuatu’s first catchment management initiative aims to provide the linkages that will draw key stakeholders together in a manner that respects the roles that individuals and organizations play in the better water management of the Tagabe River area. The protection of the water supply is a key component of TRCMI and an important consideration in the development of the Catchment Management Plan.

### Waste Management

Waste management in the Tagabe River area is the responsibility of the Municipal Council in the Port Vila township and the provincial governments in the rural areas. In those areas within the municipality, a regular waste removal service is provided by the Council and all waste is deposited at the Bouma Landfill. A yearly Council fee is charged to residents for services, including the collection of rubbish. A fee is charged for depositing waste at the Bouma Landfill. No waste removal services are provided by Shefa, so residents on provincial land are required to dispose of their rubbish at the Bouma Landfill and incur a charge, or—more often—dispose of household rubbish on-site by a combination of composting, burning and burying. At present, these methods are not managing the volume of waste generated, and the Shefa LGC clearly has limited ability to provide a waste collection service for the squatter camps within its local government area, so the Municipal Council provides a periodic bulk collection service at large skips that are left in strategic areas within the populated areas. The inappropriate disposal of waste from the squatter camps poses a threat to the quality of surface and ground water within the WPZs.

A more effective waste management system is obviously needed. The implementation of the Port Vila UGMS would provide the opportunity to develop a more effective cost recovery process for the city through the inclusion of a rating system based on property value. The current disparity between low- and high-cost property values is not currently reflected in council income, hence a move toward an “ability to pay” process would provide a higher revenue base for the Council to implement a more effective range of waste management and other services and minimize funding leakages from the Council.

Meanwhile, squatter camps outside the municipal area will not be provided with a regular service by Port Vila, as the Council is currently having difficulties even maintaining service within its mandated area. The location of a new landfill site for Shefa is under investigation by SOPAC, but it is not clear if a collection service will be provided or residents will be required to transport waste to any new facility that is constructed. In any event, squatter camp residents, whose incomes are low or nonexistent, are unlikely to want to pay for waste disposal.
The municipal and national government departments responsible for planning, environmental management, and health care are not involved on a formal basis, as no linkages have been legislatively established. The EMC Act should provide the opportunity to establish formal linkages between relevant agencies involved in waste management and the community to encourage better waste disposal practices. A review of the Physical Planning Act with a view to providing legislative power to implement urban management strategies in concert with local government would greatly improve the capacity of local government to provide essential services at a cost the community can afford.

**Sociocultural Pressures**

The situation in the Tagabe River area reflects the complexity of land, customary control of land, and traditional land management practice that is developing in peri-urban Vanuatu and elsewhere in the Pacific. Today, the subcatchment area contains multiple stakeholders, including rural and urban communities that support traditional and modern practices and often have competing interests. They come from different island groups, with different customs and cultures. Community surveys carried out in squatter camps for the preparation of the case study show that the number and variety of island groups represented in the settlements has resulted in a dilution of customary links with the land on which they are squatting. The granting of rights by customary owners in the Shefa provincial area to individuals and groups from island groups other than their own has meant that customary traditional land management and environmental practices on this land—if any are practiced at all—are even more diluted.

Furthermore, they feel no links to their neighbors, who are not within their kinship boundaries. Too many interests compete for allegiance in the community groupings. As a result, the traditional practices that usually support communities are not evident. The community does not function as a coherent group and does not have the capacity to negotiate effectively for better conditions with the landowners or the formal service providers. UNELCO, for example, will only provide electricity and water to registered landowners or residents, so squatters feel no compunction about creating bush toilets or drawing water directly from the Tagabe River. Without tenure or title, they have no stake in management of the land they live and sometimes farm on, and no representation in local government bodies that should be making decisions about the areas.

Their generally ignored status threatens to allow continued expansion of areas of unmanaged land use. Until squatter camp residents are drawn into the discussion and decision-making process, their presence will continue to increase threats to the ongoing viability of the natural resources they are compromising. Their presence in substandard living conditions and failure by the national, provincial, and municipal authorities to effectively manage the situation in association with the custom owners reflects on the inability of responsible parties to find a solution to an increasing problem of national importance.

**Cultural Heritage Sites in the Tagabe River Area**

In Vanuatu, taboo sites play an important role in resource conservation, as they typically restrict access and/or use. In the Tagabe River area the Vanuatu Cultural Heritage Site Survey (VCHSS) has identified two cultural sites within WPZ No. 1 based on Ifiran custom beliefs. One site is close to the head of the river, and is a tabu wota with an associated traditional story of a snake coming out of the ground and making its way to the sea, leaving the river behind as its trail. The second site is close to the hill near the Freswota school, where there is a tabu fowl with an associated traditional story of a snake coming out of the ground and making its way to the sea, leaving the river behind as its trail. The second site is close to the hill near the Freswota school, where there is a tabu fowl. Martha Kaltal of VCHSS has been informed by Ifiran landowners of their wish to fence off an area 120 m in diameter around this second site for conservation purposes. VCHSS has not yet carried out surveys for WPZs Nos. 2 and 3. The area of Bellevue and Beverly Hills is not known to have any cultural or historical sites, mainly because the land has long been alienated from indigenous custom landowners. There is, however, a VCHSS site at Bufa, at the limits of WPZ No. 3, which is claimed by all surrounding villages: Erakor, Ifira, Mele, and Pango. Chief Alick Sualo of Rangorangoa has indicated an eagerness to work with VCHSS to record the numerous taboo sites on his custom ground. He mentioned that some of these sites directly relate to water conservation. The cultural practice of declaring taboo areas is alive and well in Rangorangoa, and residents know to respect taboo areas marked with the namele leaf.

The specific cultural aspects of the Tagabe River area present a range of issues that will need to be
addressed in the development of any catchment management plan for the area. The cultural diversity of
the squatter camp residents and the issue of their residence on land of a different cultural grouping has
been identified as constraining usual customary practices and compromising the use of specific traditional resource
and environment management practices. Community consultation processes need to be more extensive, to
ensure that all cultural groupings—traditional landowners and whatever community groups exist in
the squatter areas—are included. The community consultation process carried out in the compilation of
this case study is apparently the first time that a coordinated attempt has been made to better understand
community-based issues pertaining to water resources and their use.

The implications for the inclusion of cultural issues into the national decision-making processes can be
summarized as

- A need to strengthen policy linkages between the VCC and sector-based departments,
- A need to ensure that national decision-making processes include cultural components in accordance with CRP Matrix policy objectives and strategies, and
- A need to develop policy and legislation that formalize the incorporation of cultural requirements rather than relying on informal requests or nonbinding advice.

The Tagabe River Catchment Management Initiative

The importance of a safe and secure water supply for Port Vila caused the Shefa province LGC, the
Department of Water Resources, and UNELCO, which manage water supply and delivery services for the city,
to become concerned that the integrity of the water bores in the Tagabe River area might be compromised by the
impact of increasing population levels in the catchment. The LGC proposed that land in the catchment be
reclassified as a park or water protection area to ensure that future use of the land did not contaminate the water supply.

Early in 2003, Vanuatu’s new DoE established a multisector study group to assess the range of issues in
the Tagabe River area. Initial meetings revealed a broader range of relevant issues than just the water resources problem. It was agreed that the most appropriate approach would be to outline existing issues, then take them to the communities and review options for actions to take, in concert with the community, to address identified issues. The TRCMI was set up and established two working groups: one to investigate legal frameworks and the second, a technical/water resources group, to assess options for the establishment of water protection areas in the Tagabe River catchment. By engaging the community in partnership with the private and public sector, the TRCMI provides opportunities for stakeholders within the catchment, especially those previously unfranchised, to raise concerns and propose solutions for the coordination and management of the water resource.

The Tagabe River catchment area falls within both the Shefa Planning Area and the Port Vila Municipal planning areas. Planning procedures for both management agencies are currently based on a localized process where technical inputs and information are provided only on a selective and advisory basis. For the Tagabe River Area, the establishment of the TRCMI and its Coordinating Committee, a multistakeholder group to plan for the management and use of the designated catchment and the integration of environment and community inputs, has been recognized as critical to the ongoing success of the initiative. It has long been recognized that community involvement is a necessary component in the management of locally owned natural resources. The production of a Tagabe River Catchment Management Plan will encourage activities at the catchment or watershed level, involve local communities in its preparation, utilize processes and outcomes of the Shefa provincial REDI, and highlight the social and economic interactions with the environment. The implementation of the catchment management initiative is expected to act as a model for the development of other catchment management plans in Vanuatu.

Initial actions by the TRCMI include the identification of existing land leases and the establishment of a community consultation process within communities that adjoin the proposed WPZ. Any management initiative will need the support of communities, especially those in the squatter camps adjacent to the WPZ that have the potential to generate the most significant impact from unmanaged water use and inappropriate waste disposal and sanitation practices.
Frameworks for Integrating and Implementing Environmental and Community Planning

New Principles, Aims, and Objectives

The Catchment Management Model: TRCMI and the TRCMI Coordinating Committee

To overcome the deficiencies in the existing environmental planning process in Vanuatu, the Environment Unit (now the DoE), through the EMC Act, has embarked on a new direction for environmental planning and management. By establishing the TRCMI and its Coordinating Committee, the Environment Unit has recognized that catchment or watershed management has the potential to deliver the environmental management and economic development outcomes that Vanuatu needs to achieve its stated goals.

In Vanuatu, where natural resources are held in customary ownership, any management model, if it is to be effective in the long term, has to recognize that local communities are the main beneficiaries and therefore are to be incorporated into the decision-making process. The catchment management process highlights community participation as the cornerstone of the decision-making process, and establishes the communication and administrative linkages between key stakeholders that are needed to improve management outcomes through a collaborative rather than a regulatory process. While the community management process has long been recognized, an effective model is required to provide the framework for the decision-making process.

It is important to avoid the mindset that relies on external funds to implement activities. The underlying ethic of catchment management is that self-empowered groups take long-term action for their own future. The catchment management process creates a forum where the people who live in the catchment can work together to achieve the common goals they set. The focus of catchment management is on local communities implementing activities themselves with managed and agreed assistance where required.

The focus of catchment management is on fostering a community-generated partnership with government and the private sector rather than managing a funding program, as a complex funding program can create greater demands on accountability, increase complexity, and sometimes set the community aside from the process. The implementation of a community monitoring regime provides an opportunity to bring different custom groups together to carry out practical tasks, consolidate the process of identifying and resolving resource management issues, and overcome difficulties associated with the range of different cultural groups.

The catchment management process creates a framework for addressing resource management issues and provides the opportunity to develop community-based economic outputs and benefits. The Tagabe River area contains the water resource that supports Port Vila. The threat of its pollution by agricultural intrusion and increasing squatter densities drives the need to develop a working model for improved resource management. An important component of a catchment management plan is the identification of economic development opportunities. As the Tagabe River catchment area falls within the purview of the Shefa LGC, the provincial REDI will be instrumental in providing development guidelines for the area. Economic development will need to be in accord with the aims of the water protection zones, such as the establishment of an ecopark or reforestation area, and could encompass opportunities including woodlots to supply firewood for sale at the markets or similar low-impact developments.

The Catchment Management Process

The development of a catchment management plan will provide a strategic planning document that guides activities within a designated catchment. The catchment management plan usually:

- describes the physical environment, social environment, high priority issues, etc.;
- outlines a framework to be designed so that key stakeholders can clearly identify their role in the resolution of identified issues;
- designates activities for implementation in consultation with key stakeholders;
- outlines how information (scientific, community, management, and customary) collected in the...
catchment is stored and used for regular updates of the management plan; and

- Outlines how economic development in the catchment is encouraged and supported.

**Integrating Environmental Planning and Management Law**

The advent of the EMC Act has commenced a process that will assist in the improvement of environmental planning outcomes for Vanuatu. The Act makes provision for EIA as an integral component of the development approval process for urban and rural areas. This process will place legislative requirements on local government and municipal councils to consider and assess environmental and social impacts of development. The Act requires the amendment and upgrading of related legislation from other departments and sectors, drawing them into the environmental planning process. Gaining compliance with these requirements will need to be introduced in a manner that informs all other sectors. An extensive education and awareness campaign for all government departments and local councils is needed to avoid any unnecessary confusion or difficulty over the introduction of the new Act.

The EMC Act is a first step toward a planning and development assessment process that fully integrates community development and environmental management. While the process is being set up, however, some mainstreaming, however limited, will also occur through formal EIA requirements; national and subnational levels of governance will also be integrated through the required referral system.

As the Act provides for the development of national policies and national plans, the focus for implementation of those policies and plans can center on strategies and structures that support integrated planning. Positive outcomes from this process will be strengthened by reviewing the Physical Planning Act or by setting regulations within the new Act that create linkages with CRP policy and strategy outcomes.

**Linking Sector and Cross-Sector Policy, Plans, and Actions**

The CRP has embarked on a forward-thinking process of public sector reform that incorporates aspects of environmental management and traditional and customary knowledge into the economic reform and decision-making process and aims to streamline decision making, promote transparency within government, and encourage economic growth. It was recognized that the private sector should be encouraged to become engaged in a market-driven process that would occur within an enabling environment created by a reformed and supportive Government; the public service and political arms of the Government should work in cooperation in order to realize the goals of the CRP.

Implemented CRP initiatives include the creation of the Department of Strategic Management (DSM) within the Ministry of Comprehensive Reform, with the role of overseeing the CRP process through the coordination of policy at the national level and ensuring that all sector policy was developed in line with national goals. The process of developing national policy is coordinated by DSM through a National Summit process. At the National Summit, decisions are made following input from key stakeholders, including the Business Forum, and through inputs from strategic planning processes, including the REDI and the Medium-Term Development Framework.

As outlined in the CRP Matrix, the nationally based CRP consultation process has developed an overarching policy framework that provides for environmental conservation within an economic growth framework and promotes the incorporation of community input into the decision-making process.

**Instituting Participation Throughout the Development Process**

The EMC Act incorporates EIA within the development process to ensure that all environmental and social impacts are identified and addressed and are minimized through the implementation of an appropriate management plan. An important component of EIA is the establishment of a public participation process that specifies the preparation and publication of a public notice by the development proponent allowing for public submissions. Assessment of public submissions is carried out in association with the EIA; the proponent may be required to correct any deficiencies in the EIA or provide additional information. The inclusion of a public submission process within EIA allows for broader community input into the decision-making process and ensures that the concerns of the community can be formally presented for review and consideration.
Integrating Planning and Environmental Information Systems

The establishment of VANRIS has created a database and information storage process with the potential to expand into an environmental information system that can service the broader needs of the national and local physical planning agencies. Significant deficiencies and inconsistencies exist at the sector level with regard to information collection, management, dissemination, and storage. Individual departments do not have the resources, technical capability, or secure storage capability to establish individual data and information services and maintain them in an effective manner. To address perceived deficiencies, a comprehensive data and information upgrade process is needed, to commence with a comprehensive review of existing information technology (IT) capability and the implementation of a series of internal procedural changes. A national IT strategy to prepare national standards to ensure compatibility of technology within and between departments is needed; it would encompass software and hardware requirements, outline training needs, standardize access protocols, and provide a framework for interdepartmental cooperation in data sharing.

Further, a National Resource Information Centre (NRIC) is needed to coordinate data and information linkages within Vanuatu. The implementation of the SOPAC-funded Hazard Vulnerability Project could provide the opportunity to establish the NRIC in consultation with relevant government agencies and building on the established VANRIS system within the Lands Department. Developing a Web-based interface will afford development agencies, including provincial and municipal planning officers, greater access to natural resource information and the ability to improve their decision-making processes. Web-based provision of information and the establishment of a single coordinated portal or “one-stop shop” for information will improve community access to information for decision-making purposes.

Capacity Building for Integrated Environmental and Community Planning

Of principal importance to Vanuatu is the building of capacity in a manner that supports established programs and activities identified by the Government as having high priority and for regional and international aid providers to recognize and support those priorities.

Improving In-Country Coordination: Administrative and Legislative Mechanisms

Those who staff the country’s administrative and legislative mechanisms are under pressure to perform. Demands from the community and government and nongovernment agencies are increasing, while at the same time, population pressure on natural resources is mounting and existing services are stretched due to lowered public sector staffing levels and constrained access to financial resources. The concept of “do more with less” has never been so appropriate. In order to improve efficiency and provide the services that are being called for, the Government instituted the CRP to revitalize the public sector and, in turn, stimulate the private sector to generate growth and resultant funds to maintain public services. Legislative and administrative reforms have been planned and some are in place, but the pace of reform has been slow and tangible benefits are not readily apparent to the broader community. Extensive capacity building is required at the national and provincial level to create and strengthen administrative and legislative measures that will see the incorporation of environmental and traditional practices into the decision-making process.

National Government

The coming into force of the EMC Act in March 2003, the culmination of a long process, set in motion a chain of implementation events: (i) establishing the DoE to administer the Act, (ii) setting a timetable for establishing administrative structures that are required for EIA, (iii) developing policy, (iv) establishing the Biodiversity Advisory Council, and (v) determining a process to guide the establishment of CCAs. It is critical that capacity building support be provided in these areas, as the new Act has become the driving force in the management of natural resources in Vanuatu, as has the role of integrating environment issues within the decision-making process as outlined in the CRP.

The PPU is currently understaffed and under-resourced to train local authority counterparts and needs capacity building and institutional strengthening. The Physical Planning Act requires reviewing to allow for the creation of an integrated planning process that will
assist in the coordination of planning and management tasks for urban and rural areas. Existing planning tools such as VANRIS need to be updated, together with the development and maintenance of a central Government information system.

**Provincial/ Municipal Government**

The implementation of EIA procedures will place additional responsibility on provincial and municipal planning agencies to upgrade their development approval processes. This is particularly important in the Port Vila and Shefa areas, as these areas are the current focus of development and are under increasing pressure to cope with environmental stresses. Developing the capacity and awareness of the provincial and municipal planning agencies to undertake EIA assessment processes and ensuring that the development approval process and EIA administrative process within local government areas remain separate from the political process is clearly needed.

**Providing Information—National Resource Information Centre**

As noted, the gathering, storage, and utilization of natural resource data and information in Vanuatu appears fragmented, poorly funded, and limited by a lack of awareness among agencies of the importance of reliable data and information in the decision-making process. The establishment of the NRIC will result in improved compilation and coordination of data, managed under a set of agreed protocols and policies, and provided with data security. It will be a service that is readily used by the public on a user-pays basis.

The establishment of the NRIC is proposed under a forthcoming SOPAC-funded project and will build on the existing VANRIS system. It is of critical importance that a program of technical training, capacity building, and awareness be factored into its establishment and ongoing operation to ensure that it remains a viable operation, self-funded on a long-term basis.

**Recommendations**

**Policy Development**

To guide the CRP process on which the Government has embarked, DSM prepares the CRP Matrix, which collates input from national and provincial government departments, the private sector through the Business Forum, and the community through the REDI process. This information is channeled to government via the National Summit, which reviews and updates the policy process to ensure that policy development proceeds according to an agreed time frame. The policy strategy for environmental management includes the implementation of legislation and the generation of detailed policy to manage protected areas, undertake community consultation, and carry out environmental awareness activities to strengthen traditional environmental practices.

**Recommendation:** Efforts should be made to open up conduits for community appraisal and the early injection of TEM and knowledge to each level of governance/decision-making. Where NGO ability is limited, wider community and traditional input can provide the checks and balances often required in complex decision making. Communities often have a broader knowledge and experience base than a sector department or external specialist—especially in being able to identify the consequences and implications of planned development. Early involvement in the development process will often lead to more efficient and effective decision making.

**Strategic Economic Planning**

The new Department of Economic and Social Development (DESD) initiated under the CRP has, significantly, undertaken the development of the MDF, a 2–3 year strategy that has replaced the 5-year National Development Plans. The MDF is prepared through a collaborative process and incorporates input from the private sector and the community through the REDI process.

**Recommendation:** In order to ensure that environmental considerations are included at this level of planning, and that community and traditional knowledge inputs are included in decisions and review process, DESD should receive capacity building in the assessment of
environmental and social impacts of development proposals and in mechanisms for including community involvement.

Physical Planning

The basic physical planning administrative structure and processes (the Physical Planning Act, PPUs, PPA) is in place. Their effectiveness is limited, however, by the lack of an integrated strategic managing structure, of technical inputs to the approval process, of legislative control by national planning bodies, and of administrative linkages between local development agencies.

Strengthening existing planning structures and processes through the incorporation of an integrated strategic planning process would provide considerable headway in achieving beneficial planning outcomes. This should be done through linking the new EMC Act and the Physical Planning Act in the first instance, with the view to a totally integrated body of law in the longer term. Community participation and input mechanisms for traditional environmental knowledge at the local provincial and municipal decision-making level should be a short-term objective. This would ensure more objective decision making, especially within an environment where mechanisms for technical inputs are missing.

Recommendation: The regulatory relationship between the national and provincial/municipal planning and environment offices should be strengthened through the development of an integrated strategic planning structure (in the short/medium term, and in the absence of a legislative platform, a policy guide), which specifically allows for inputs of community and traditional knowledge at all levels of decision making.

Recommendation: A road map should be provided for the development of an integrated strategic physical and economic planning process for the longer term, which in time would aim to produce an integrative legislative framework, administrative process, and policy linkages involving community partnership.

Recommendation: The Port Vila UGMS and Sanitation Master Plan (both of which depend on the successful institution of an integrated strategic planning structure), should be implemented.

Tagabe River Catchment Management Initiative

A catchment-based approach to community-based management of natural resources has been recognized as the most effective long-term model for Vanuatu, as it establishes the principle that communities in partnership with government and the private sector can work together to more effectively manage natural resources. The catchment management approach also establishes linkages between community and government that encourage the exchange of information and traditional knowledge and strengthen the decision-making process by including all stakeholders.

Recommendation: The Government and community should, over time, incorporate the successful process and products from the TRCMI, its Coordinating Committee, and its Catchment Management Plan, within an integrated environmental planning system. This will not necessarily be easy, even if the community engagement process is successful and the catchment management plan successfully fulfills the objectives of government, community, industry, and community leaders.
References


Appendixes
The preparation of the case study highlighted the need for the implementation of a series of focused project interventions to address issues of mainstreaming information and to further the progress of environmental management initiatives that have been commenced in Vanuatu. The Study Team developed the following series of proposed project outlines to assist the Government of Vanuatu planning bodies and the donor community in determining action areas of high priority.

**Project 1: Tagabe River Catchment Management Strategy**

The Tagabe River Catchment Management Initiative Coordinating Committee (TRCMICC) has developed an outline strategy for the management of the Tagabe River Catchment. The outline strategy or “road map” comprises three phases of activity:

- Phase 1: Information gathering,
- Phase 2: Consultations, and
- Phase 3: Implementation.

Phase 1 is currently being implemented through actions determined by TRCMICC. An initial outline for action will be presented to community groups to obtain feedback and to then develop and implement a Catchment Management Plan within the overarching Tagabe River Catchment Management Strategy being developed by TRCMICC.

**Objective**

The focus of the proposed project is the preparation and implementation of the Tagabe River Catchment Management Plan.

**Overview**

It is recognized in Vanuatu that community management of natural resources is the most effective management method. Community management combines the knowledge and skills of local people with the technical expertise of relevant government departments in a format that recognizes and values the contribution to of all stakeholders.

The formation of the TRCMICC was the result of community concerns over water access and use and an understanding by the Government that the future management of the water extraction zone for the Port Vila water supply was of high priority. TRCMICC took an innovative approach for Vanuatu and formulated a management group that based its management area on a watershed or water catchment zone. The intention of TRCMICC is to establish the TRCMICC as a potential model for future management plans within all areas of Vanuatu. It is intended that a series of CMIC’s can be established as a network, in a complimentary manner with Community Conservation Areas (CCAs), to provide a diversity of management structures in order to better manage the range of natural resources types that exist in Vanuatu.

Phase 1 of the project is currently being implemented and consists of the following activities:

- Review of existing technical reports relevant to the Tagabe River area (including the newly passed Water Resources Act);
- Proposed identification and location of water protection zones;
- Identification of current registered land titles, leases, lessees, and types of leases within the Tagabe River catchment;
- Review of current legal and administrative mechanisms;
- Identification of the island groupings, key community individuals, and traditional leaders within the Tagabe River area; and
- Review of existing information and data sets that cover the Tagabe River area that are held in government and nongovernment organizations.

Phase 2 involves the undertaking of a series of consultations with key stakeholders in the community and private sectors in order to present them with initial findings of Phase 1 and to establish a consultation
process that will facilitate the preparation of the management plan.

Outputs

The focus of the project proposal is to build on the outcomes of Phase 1 and Phase 2, prepare the management plan and continue with the implementation of activities.

The Tagabe River Catchment Management Plan would be prepared under the auspices of the TRCMICC by a technical expert over a 12-month period. The management plan would document the resources within the catchment, identify and describe environmental social and administrative issues within the catchment and provide a series of management activities to be put in place to address identified issues.

The establishment of the water protection zone (WPZ) would commence and a suitable area for the establishment of a multi-use botanical/ecopark instigated by a technical expert in forestry or recreational/multi-use park design. The concept of the botanical/ecopark is to establish a multi-use area within the WPZ that would include activities to protect the water resource, reforest degraded riverbanks and generate income through the input of local communities in a variety of opportunities including wood lot forestry and ecotourism.

Outcomes

- The establishment of the first community managed area in Vanuatu based on a catchment or watershed,
- the establishment of a multi-stakeholder management group, and
- the establishment of a resource management model for use by other catchments within Vanuatu and other Pacific island countries.

Project 2: Community-Based Environmental Monitoring Project

Objective

It is recognized in Vanuatu that community management of natural resources reflects the understanding that local communities are best placed to manage the resources that sustain them. The establishment of the Vathe Conservation Area in Vanuatu, a community-managed resource conservation area, has identified the need for greater community involvement in the ongoing and long-term monitoring of natural resources and their use.

Overview

Within the Tagabe River catchment the establishment of a community-based environmental monitoring group is proposed. The monitoring project would be designed by a technical expert under the auspices of the TRCMICC and would focus on establishing an ongoing and long-term monitoring regime to monitor a range of environmental and social parameters within the catchment.

Outputs

The role of the community monitoring group would be to establish baseline data sets on the current environmental quality of the catchment. This would initially be focused on low technology skills including stocktakes and assessments of water quality through the use of simple physical and visual parameters. Training for interested communities and relevant equipment would be phased in as the monitoring program developed. Baseline data sets would then be complemented by ongoing monitoring to assess the effectiveness of the Catchment Management Plan and information collected through the monitoring program would be used to refine activities implemented under the plan.

It is anticipated that local school groups would be strongly encouraged to participate in the process under a scheme similar to Riverwatch and similar community-based program established in other countries.

Outcomes

- Establishment of monitoring activities for environmental and social parameters,
- improvement of the quality of the natural and social environment,
- strengthening of communities within the Tagabe catchment area,
- involvement of school groups in environment-based activities, and
establishment of community monitoring projects in other areas of Vanuatu and the Pacific.

Project 3: Implementation of the Environmental Management and Conservation Act

Objective

Parliamentary approval of the Environmental Management and Conservation Act and its entry into force on 10 March 2003 signals a new chapter in the planning and management of natural resources in Vanuatu. It has long been recognized that the management of natural resources through improved planning and development assessment techniques was long overdue and the new Act was drafted and reviewed to address identified deficiencies in the existing process. The objective of the project is to provide targeted assistance to support the implementation of aspects of the Act requiring specialist input and concentrates on environmental impact assessment (EIA) and CCAs, in the first instance.

Overview

The format of the Act was based on a framework concept that provided the essential components of legislation without a high level of detail. The next stage of the process is to develop the details in the form of procedures and regulations to support the implementation of the Act. As well as the preparation of regulations and supporting policies and procedures, it is important to ensure that all interested and associated parties are informed of the Act and are aware of the implications of the Act and how it may affect the undertaking of current duties in the planning and management of natural resources.

Outputs

Environmental Impact Assessment
- Technical expertise is required for the drafting of regulations, policies, and procedures relating to the implementation of EIA activities;
- an extensive education and awareness campaign is required to inform government departments, private sector developers, the Port Vila Municipal Council, and Shefa Local Government Council (LGC) on the implications and requirements arising from the implementation of the Act;
- broad-based training in EIA scoping, generation, and use of criteria and minimum standards is required for all relevant government departments and development control agencies;
- environment and sustainable development performance-based guidelines are needed to assist with early intervention in the development assessment pipeline, and to provide a clear path for investors of the planning process required; and
- particular guidelines and policy for holistic community participation in development assessment processes is needed.

Community Conservation Areas
- Technical expertise is required for the drafting of regulations, policies, and procedures relating to the establishment of CCAs;
- guidelines are needed for communities that are proposing the establishment of a CCA; and
- an extensive education and awareness campaign is required to inform communities of the benefits that can be obtained from the establishment of CCAs.

Outcomes

- Government, private sector, community and development control authorities are aware of the requirements of EIA legislation and how it will impact on all areas of planning and management;
- all associated legislation is amended to conform with requirements of the new Act;
- EIA legislation is implemented in a more coordinated manner within Vanuatu;
- communities and traditional leaders are able to contribute to EIA and development assessment processes;
- CCAs are created covering a range of environments in Vanuatu; and
- communities support the introductions of CCAs on their lands.
Project 4: Mainstreaming Natural Resource Management Information

Objective

The mainstreaming of environmental concerns within the decision-making process requires an effective information management system. The Vanuatu Land Use Planning Project established the framework from which additional information-based activities require implementation. The objective is to create an efficient information storage process within relevant government departments and establish linkages to a National Resource Information Centre (NRIC). The NRIC would act as a storage center and clearinghouse for natural resource data accessible by government and community.

Overview

From information assessment activities carried out in the Phase 1 study by TRCMICC it was clear that some government departments did not have an organized data and information management system in place. Data was stored in a range of formats and in varying states of security and there was little conformity in software and hardware specifications. It was apparent that information-sharing protocols were lacking and there was little understanding what types of data were available for government or community use. Where training in information storage was provided, it was carried out in an ad hoc manner and with little understanding of stakeholders' needs and requirements.

Outputs

- An assessment of departmental capacity in the collection and storage of natural resource data and information;
- the establishment of the NRIC, a centralized database for the collection of reports, spatial and temporal natural resource data, VANRIS outputs, and other relevant information;
- avenues created for the enhancement of spatial and textual databases from community and traditional knowledge systems; and
- training in information collection, security and storage.

Outcomes

- Natural resource information is readily available for use by government department and community;
- a core users group is trained in information collection, storage and dispersal pathways; and
- information and its use for decision making having wider community acceptance.
Appendix 2
Summary of Provisions from Key Sustainable Development International Agreements

Agenda 21

In 1992, at the United Nations Conference on Environment and Development, the world community adopted Agenda 21. The Rio Declaration and Agenda 21 state the need for strategic environmental planning (Chapters 8 and 10) while Chapter 23 recognizes that one of the fundamental prerequisites for the achievement of sustainable development is "broad public participation in decision making. This includes the need of individuals, groups and organizations to know about and participate in decisions which affect the communities in which they live and work". Agenda 21 encourages the strengthening of institutional arrangements and administrative capacity in order to integrate environment and economic policy into national planning processes.

Barbados Programme of Action

The Barbados Programme Of Action (BPOA) for the sustainable development of Small Island Developing States (SIDS) presents a basis for action in 14 agreed priority areas and defines a number of actions and policies related to environmental and development planning that should be undertaken by SIDS with the cooperation and assistance of the international community.

Of relevance to this case study are the following actions and policies related to planning and integration:

1. Document and apply, as a basis for integrated catchment management and decision-making, traditional knowledge and management practices that are ecologically sound and include the participation of local communities.

2. Develop and improve national databases and the dissemination of information to relevant groups, especially local communities, youth and women, for land-use planning and management, including economic and environmental value of land resources, along with appropriate decision-making tools, such as Geographic Information Systems (GIS).

3. Increase attention to national physical planning in both urban and rural environments, focusing on training to strengthen physical planning offices, including the use of environmental impact assessments and other decision-making tools.

4. Adopt integrated planning and policies to ensure sustainable tourism development, with particular attention to land-use planning and coastal zone management, requiring environmental impact assessments for all tourism projects, the continuous monitoring of the environmental impact of all tourism activities, and the development of guidelines and standards for design and construction, taking into account energy and water consumption, the generation and disposal of wastes and land degradation, the proper management and protection of eco-tourism attractions.

5. Develop appropriate national, provincial, and local environmental regulations that reflect the needs and incorporate the principles of sustainability, including specific legislation for appropriate environmental impact assessment for both public and private sector development.

6. Increase the awareness and involvement of ngovernment organizations, local communities, and other major groups in public education, national planning, and the implementation of sustainable development programs.

7. Incorporate population issues into the mainstream of decision-making and planning mechanisms of government, including developing comprehensive population policies consistent with sustainable development objectives, while respecting and promoting the dignity and the fundamental rights of the human person and of the family.

8. Environment and development strategies will also need to be integrated at the outset of...
decision-making processes so as to ensure that macroeconomic policies are supportive of national sustainable development goals and priorities.

9. Appropriate national measures for institutional development should be adopted to integrate environmental, population and development strategies in national and sectoral development planning to achieve sustainable development.

10. Efforts should be made to increase the awareness and involvement of nongovernment organizations, women, local communities, and other major groups in national planning, the development of environmentally sound and sustainable technologies, and the implementation of sustainable development programs. They should include establishing or strengthening networks for the dissemination of information to assist effective participation in the planning and implementation of sustainable development activities.

**World Summit on Sustainable Development**

The World Summit on Sustainable Development (WSSD) agreed in the Johannesburg Plan of Implementation to encourage and implement the following actions and policies.

**(A) Integrated Community Development and Planning**

- Develop national programs for sustainable development and local and community development to promote the empowerment of people living in poverty and their organizations. These programs should reflect their priorities and enable them to increase access to productive resources, public services and institutions, in particular land, water, employment opportunities, credit, education, and health care.
- Develop policies and ways and means to improve access by indigenous people and their communities to economic activities, and increase their employment through, where appropriate, such measures as training, technical assistance and credit facilities.
- Recognize that traditional and direct dependence on renewable resources and ecosystems, including sustainable harvesting, continues to be essential to the cultural, economic, and physical well-being of indigenous people and their communities.
- Provide technical and financial assistance for assessing national capacity development needs and opportunities at the individual, institutional and societal levels.
- Promote the integration of the economic, social and environmental dimensions of sustainable development in a balanced manner.

**(B) Planning And Environmental Assessment**

Encourage relevant authorities at all levels to take sustainable development considerations into account in decision making, including national and local development planning, investment in infrastructure, business development and public procurement.

This would include actions at all levels to

- provide support for the development of sustainable development strategies and programs, including in decision making on investment in infrastructure and business development;
- continue to promote the internalization of environmental costs and the use of economic instruments, taking into account the approach that the polluter should, in principle, bear the costs of pollution, with due regard to the public interest and without distorting international trade and investment;
- develop and implement integrated land management and water-use plans that are based on sustainable use of renewable resources and on integrated assessments of socioeconomic and environmental potentials, and strengthen the capacity of governments, local authorities, and communities to monitor and manage the quantity and quality of land and water resources;
- enact, as appropriate, measures that protect indigenous resource management systems and support the contribution of all appropriate stakeholders, men and women alike, in rural planning and development; and
- further develop and promote the wider application of strategic planning and environment assessments, as appropriate, to provide essential decision-support information on policies, programs or plans that could have
significant negative or positive effects on the environment and social development.

(C) Environmental Information Systems – GIS And Environmental Reporting

- Strengthen national capacity for data collection and processing, and for planning, research, monitoring, assessment, and enforcement, as well as arrangements for water resource management;
- Improve their use of science and technology for environment monitoring, assessment models, accurate databases, and integrated information systems;
- Provide technical and financial assistance to developing countries, including through the strengthening of capacity-building efforts to assess their own capacity development needs and opportunities at the individual, institutional, and societal levels;
- Encourage further work on indicators for sustainable development by countries at the national level, including integration of gender aspects, on a voluntary basis, in line with national conditions and priorities;
- Promote the development and wider use of earth observation technologies, including satellite remote sensing, global mapping, and geographic information systems, to collect quality data on environmental impacts;
- Support countries, particularly developing countries, in their national efforts to collect data that are accurate, long-term, consistent, and reliable, and to use satellite and remote-sensing technologies for data collection and further improvement of ground-based observations; and
- Further develop and use indicators at the national level on decoupling economic growth from environmental degradation and for measuring the social, economic, and environmental impacts of industrialized countries’ consumption and production patterns.
Appendix 3
Environmental Impact Assessment Flow Chart

Any Ministry, Department, Government Agency, local government or municipal council receiving applications for any project proposal or development activity not exempted under section 13 must undertake, or have undertaken on its behalf, a preliminary Environmental Impact Assessment (EIA) of that application.

Where the Ministry, Government Agency, Department, local government or municipal council is the proponent of any project, proposal or development activity not exempted under section 13 of the EMC Act, the officer receiving the application must refer the application to the Director of Environment for an EIA under section 17.

Within 10 days after the preliminary determination is made, the Ministry, Department, Government Agency, local government or municipal council must provide written advice to the Director of the Environment Department.

The Director of the Environment Department must determine the need for an EIA. The Director must advise the project proponent in writing of his/her decision on the need for an EIA within 21 days of receiving the application, unless a longer duration is agreed with the said project proponent.

If EIA is required then it must be undertaken in such manner described by the Director and set out in sections 18-23 of the Act.

EIAs must determine

1. whether the project proposal or development activity is likely to cause any environmental, social or custom impact;
2. the significance of any identified impact; and
3. whether any proposed actions are likely to effectively mitigate, minimize, reduce or eliminate any identified significant impact.

Where the Director determines that no EIA is required:

Within 30 days after receiving the EIA report the Director must review the report and make a recommendation to the Minister.

The Minister must consider the Director’s advice and within 21 days after receiving such advice, the Minister must approve the application, refer it back to the Director for further assessment or reject the application.

The Ministry, Government Agency, Department, local government or municipal council is notified and they may process the application without any further reference to the EMC Act.

Successful applicants need to notify the relevant local authority to finalize procedure for obtaining final planning permission.
Appendix 4

CRP Policy Matrix and Prime Minister’s Millennium Goals—Links to Mainstreaming Environment and TEM.

The current CRP policy matrix 2003–2005 includes the following policies that directly relate to the incorporation of environment and community inputs into the decision making process.

Matrix Part A: Entrenching and Broadening the Governance Reform

Section 2. Improving participation of Civil Society in Government

Strategy

2.1 Reorganize arrangements for consultation involving local communities.
Actions:
• Convene Provincial Retreat every year
• Convene National Summit to focus on Provincial Retreat Resolutions every two years
• Convene Business Forum every year
• Convene Ministers Advisory Group quarterly

2.2 Strengthen the role and authority of chiefs
Actions:
• Submission of consultants report to the Council of Ministers
• Draw up laws providing for the role and authority of Chiefs including Chiefs Bill and amend island court and Decentralization Act

2.3 Encouraging civil society to work in partnership with government
Actions:
• Finalize and implement the MOU to promote partnerships between NGOs and the Government

2.4 Improve effectiveness in Local Government
Action:
• Relevant Acts amended

Matrix Part D: Promoting Economic Growth

Section 8. An attractive, safe healthy and sustainable environment

Strategy

8.1 Draft Environment and Conservation Legislation
Actions:
• Draft legislation to be passed by Parliament
• Protecting the rural environment for the benefit of the next generation

8.2 Develop new environmental policies and initiatives
Actions:
• Consider the creation of land and marine protected areas and identify possible sites
• Identify and survey sacred sites and “taboo” (prohibited) areas
• Consult communities on environmental management
• Develop and implement an environmental awareness program to strengthen existing customary measures to sustain environments

Prime Minister’s New Millennium Priorities

The Prime Minister presented the Government’s Major Priorities for the New Millennium.

The priority list included the following aspects that contribute to the mainstreaming of environment and community involvement in the decision-making process:

1. Improving the Lives of the People in Rural Areas by
   • encouraging improved economic opportunities through REDI schemes in all provinces, and
   • protecting the rural environment for the benefit of the next generation

2. Attacking the Obstacles to Private Sector Growth by overhauling policies and support systems in agriculture and tourism for sustainable growth.

3. Improving Participation by Civil Society by
   • strengthening the role and authority of chiefs,
   • reorganizing arrangements for CRP consultations so as to better involve local communities, and
   • encouraging civil society organizations to work in partnership with government.
CHAPTER 7

Lessons Learned
Introduction

The five case studies presented in this volume were commissioned to inform the ADB’s Pacific Region Environmental Strategy (PRES) exercise with field-level insights on current efforts in the region to “mainstream” environmental considerations into economic development plans, policies, and programs. These cases have documented and evaluated practical experience from on-the-ground examples of real-world problem-solving, as governments and communities in the region address constraints on the establishment of sustainable patterns of social and economic development.

Documenting experience from Tuvalu, Fiji Islands, Federated States of Micronesia, Republic of the Marshall Islands, and Vanuatu, and dealing with tourism, waste management, land use planning, protected area management, and biodiversity conservation, the cases indicate both the variety and commonality of resource management problems and responses across the region. This concluding chapter summarizes the key findings and recommendations of the case studies and then offers some cross-cutting lessons to be drawn from the case analyses presented.

Key Observations and Findings of the Case Studies

Marine Protected Area Management in Tuvalu. The case of the successful Funafuti Conservation Area in Tuvalu indicates that locally planned and implemented marine protected areas can improve protection of fish breeding stocks and related natural resources and result in significant net economic benefits for communities dependent upon these resources for their livelihoods. Such areas can also serve as important and sustainable attractions for the tourism sector. The case shows how this protected area was developed through close collaboration with community stakeholders and also achieved strong commitment from the government in the form of legal, institutional, and financial support, though the sustainability of these inputs must be ensured if effective management is to continue.

The case offers a useful model for similar marine conservation projects at other sites within the country, around the Pacific, and even beyond. While the generally low fishing pressure within Funafuti lagoon is probably a significant contributing factor to the successful results, the case points precisely to the urgent need—in locations where fishing pressure is presently beyond sustainable limits—to consider all reasonable means to bring these pressures under control so that the natural systems can be protected and can continue to provide benefits for communities that depend upon them for their livelihoods.

Sustainable Tourism Development in the Fiji Islands. The special case study of an SEA of Fiji Islands’ national tourism plan offers insights into approaches for improving the efficacy of tourism development in the Pacific as well as the analytical methodology employed. The analysis concluded that a “cautionary approach” is advisable for future tourism development in the Fiji Islands that would set growth objectives and targets for tourism in terms of benefits derived. The case also recommends that emphasis be given to developing those kinds of tourism that enhance local economies, such as ecotourism, community-based tourism, and the attraction of non-“packaged” travelers. Effective “bottom-up” planning of tourism at the provincial and tikina levels also should be encouraged. Finally, the SEA found that implementation of institutional and regulatory frameworks for environmental assessment and management—including capacity building and enforcement—is a prerequisite for development of a sustainable tourism pattern.

The SEA took a tourism sector planning exercise and reevaluated it to examine the extent to which it had adequately considered—mainstreamed—environmental dimensions and implications. An advisory group—representing a range of stakeholder interests related to the tourism sector—helped to guide the assessment, and their continuing support is helping to ensure that the SEA’s recommendations are fully adopted. This case shows how an SEA of this type can provide a robust and logical structure for assessing the environmental and social impacts of a sector development plan, and it can serve as a useful model for future environmental mainstreaming efforts.

Participatory Resource Management in Micronesia. The case study in the State of Yap examined the prospects for integrating traditional and modern approaches to natural resources management in island communities while employing a participatory approach...
to development planning and implementation. It found that these can indeed serve as critical underpinnings to attaining effective environmental and natural resources management provided several conditions are met. A prior identification of shared goals among all stakeholders—government, community and private sector—is a necessary prerequisite for arriving at an acceptable strategy for simultaneously meeting local aspirations and achieving proper patterns of environmental management.

The case also found that there should be open discussion of issues raised by proposals for development policy or program interventions; otherwise it will be very difficult to take advantage of opportunities to usefully blend traditional forms of natural resource management—such as taboo practices—with modern management techniques. This also presupposes that effective channels of communication exist between the community and the state government and the community has sufficient cohesion so that its members can easily communicate among themselves to understand their common needs and best interests. If neither of these conditions is met in advance of a proposed policy or program change, then the capacity must be developed before a participatory planning process can be initiated.

The case also examined the potential application of the public-private partnership concept to resource management. While the concept does not appear to be well known at present in Yap, it was deemed to hold the potential to fit well within traditional norms concerning the role of the community or village in management of natural resources, including its application to tourism development. However, if this approach is to be used, the study suggests that the institutional capability of the business sector and community advisory and legal services must be strengthened. Furthermore, traditional resource management practices—particularly relating to land tenure—must be addressed very carefully and with flexibility by private entrepreneurs so as to avoid misunderstandings or even conflict.

**Waste Management in the Marshall Islands.** The study in Majuro also examined that applicability of traditional environmental management norms to resource management—in this case the specific and challenging problem of urban solid waste management. Although a range of engineering measures relating to the collection and disposal of wastes will need to be implemented over time if Majuro is to cope with this problem, the study found that traditional knowledge and practices can play an important role in the overall strategy. For example, the amount of waste requiring disposal in landfills can be reduced by encouraging traditional patterns of mulching and composting of organic materials, and this can also help to enhance the fertility of soils—allowing for the local production of fruits and vegetables. The study further suggests that traditional values be respected and revived to ensure that a collaborative approach is employed to solving solid waste management issues engaging the active cooperation and leadership of traditional leaders.

**Community-based and Integrated Resource Management in Vanuatu.** The case study on environmental and economic development efforts underway in the Tagabe River Catchment Area adjacent to Port Vila city shows the high degree of complexity involved in developing a truly integrated and community-based approach to development planning and programming. Like many Pacific cities, Port Vila is expanding in a largely uncontrolled fashion and simultaneously outgrowing the municipality’s ability to provide services and even its jurisdictional boundaries. The case indicates the urgent need for measures to cope with a wide range of resource management problems—from protecting water supply sources to waste management—and recommends an approach that takes full account of local needs and aspirations while working through strengthened governmental planning authorities.

The case expresses some optimism that the Tagabe River Catchment Management Initiative will be capable of establishing a mechanism for partnership between government, the private sector and local communities—and their nongovernmental proxies—to accomplish these objectives. The hydrologically-based approach provides a framework for integrated planning and an enhanced understanding of the interactions between human activity and management of the natural systems upon which the region’s environmental quality and livelihoods depend. The study notes the difficulties likely to be encountered in restructuring regulatory relationships between the national and provincial/municipal planning and environment offices while simultaneously allowing for community inputs and respect for traditional knowledge and practices at all levels of decision making. However, it remains sanguine regarding prospects for success, mostly because it appears this approach
represents the only means for dealing with the complex range of resource management and human services issues in the study site.

**Lessons and Implications**

The lessons to be drawn from these case studies run to the core of how the process of sustainable development is to be organized in the Pacific. Traditional sector-based development planning and policymaking is struggling to cope with the complexity of environmental and natural resources management concerns, while simultaneously coming to the understanding that these issues must be adequately considered if economic advancement is to be sustained. An appreciation is also slowly growing for the importance of traditional resource management practices and norms and a search for appropriate means for blending local knowledge and aspirations into development strategies. This will require significant adjustments to and enhancement of both the information base upon which decisions are made and the skills and capabilities of government, private sector, and community stakeholders who must be mutually engaged in more collaborative and participatory approaches to planning and achieving sustainable development in the region.

**Develop and Adopt Integrated Approaches to Cope with Complexity.** The case studies illustrate several important methodological approaches to environmental mainstreaming and, more generally, coping with the increased complexity involved when environmental considerations are more fully considered in development policies, plans, and programs. The most obvious example of this is the successful application of the SEA tool to rethinking the Fiji Islands’ tourism development strategy. With further refinement, the SEA approach can greatly assist national and subnational efforts to take a more integrated perspective on the relationships between sustainable resource management and development plans and programs. The Tagabe River Catchment Management Initiative in Vanuatu offers yet another organizational approach—in this case built around hydrological boundaries—to understanding such interactions and their implications for development options.

**Identify and Take Advantage of Viable Traditional Practices.** Several of the cases indicate that potentially high benefits can accrue from efforts to understand and build upon traditional practices and knowledge concerning environmental and natural resources management. Top-down planning and decision making is increasingly in conflict with local aspirations and norms, and part of the problem is a lack of understanding of traditional resource use rights and patterns. From the proposed encouragement of traditional composting in Majuro to help cope with solid waste management problems to the use of a taboo-like ban on fishing in Tuvalu’s Funafuti Lagoon, the cases provide a glimpse of how development policies and programs can be adjusted to better consider and respect Pacific traditions capable of sustaining resources in a culturally appropriate and acceptable manner.

**Plan and Implement in a Collaborative, Decentralized, and Knowledge-Driven Manner.** The cases thus are advocating a move away from highly centralized to more nuanced and locally-driven approaches to development planning and decision making, but this will represent a fairly radical departure from current norms for many Pacific island governments. If it is to be implemented, a significant restructuring of development as well as environmental management institutions will take place to emphasize more integrated and collaborative approaches. Strong implications can also be drawn concerning the information required to support such reforms—ranging from an enhanced understanding of traditional resource management knowledge and practices to the spatial analysis needed for catchment area and coastal resources management. Although the cases do not deal with this issue directly, it is clear that major capacity building efforts will be needed if the advocated approaches are to be implemented.

**Conclusion and Acknowledgements**

The case study authors should be commended for preparing useful additions to the growing literature on innovative approaches to Pacific environmental management. Special thanks must be given to ADB’s partners in preparing three of the cases, the South Pacific Regional Environment Programme and the
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The case studies presented in this volume have provided valuable insights and field-level perspectives to inform the broader PRES analysis. The lessons drawn from these case studies are consistent with—and contributory to—the broader lessons highlighted in the main PRES report. The editors sincerely hope that the information presented will help broaden understanding of how environmental considerations can be mainstreamed into the very fabric of economic and social development planning and policymaking and that application of these new approaches will lead to a brighter future for the Pacific region based on the sustainable management of its resources and a full appreciation of its heritage and the knowledge of its peoples.