Environment and Development in the Pacific Islands

Edited by Ben Burt and Christian Clerk

National Centre for Development Studies
Research School of Pacific and Asian Studies
The Australian National University
Environment and Development in the Pacific Islands
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n.a. not applicable
.. not available
– zero
. insignificant
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Foreword

Ben Burt and Christian Clerk

This book is intended to promote Europe–Pacific Islands relationships in support of environmentally appropriate human development, and its publication has been made possible by several organisations concerned for this purpose. Most of the chapters derive from a conference organised in 1995 by the Pacific Islands Society of the United Kingdom and Ireland (PISUKI) and the United Kingdom Foundation for the South Pacific (UKFSP), with funding from the European Centre for Studies, Information and Education of Pacific Issues (ECSIEP). An important theme running through the book is the way Pacific Islands’ links with the wider world, the cause of so many problems for its peoples and environments, may also assist in solutions. But there are many areas of contention and, to do justice to the complexity of the issues, several chapters are complemented by short responses from alternative perspectives, reflecting debates raised at the conference.

The cost of publication has been supported by ECSIEP and PISUKI, with the particular intention of making the book available to people and organisations in the Pacific Islands. We would like to thank Roger Barltrop, Chairman of PISUKI, Dorothy McIntosh, Director of UKFSP, and Madeleen Helmer, Co-ordinator of ECSIEP, for their personal support for both the conference and the book. Special thanks go to Akuila Yabaki, a prime exponent of Pacific Islands–Europe links, whose roles in these organisations and several others made the project possible. Colin Filer also provided important support beyond the chapters he contributed, and Kate Evers dealt with the task of editing 18 disparate chapters. We are grateful to to the National Centre for Development Studies for its financial and professional support for the publication of the book.
# Abbreviations

<table>
<thead>
<tr>
<th>Abbreviation</th>
<th>Full Form</th>
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<tbody>
<tr>
<td>ACP</td>
<td>African, Caribbean and Pacific Countries</td>
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<tr>
<td>ADB</td>
<td>Asia Development Bank</td>
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<td>AOSIS</td>
<td>Alliance of Small Island States</td>
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<tr>
<td>AusAID</td>
<td>Australian Agency for International Development</td>
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<tr>
<td>BCL</td>
<td>Bougainville Copper Limited</td>
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<td>BHP</td>
<td>Broken Hill Proprietary Limited</td>
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<tr>
<td>CDC</td>
<td>Commonwealth Development Corporation</td>
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<td>CRC</td>
<td>Community Resource Conservation</td>
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<tr>
<td>DMP</td>
<td>domestic mode of production</td>
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<td>DSE</td>
<td>Development Services Exchange</td>
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<tr>
<td>ECSIEP</td>
<td>European Centre for Studies, Information and Education on Pacific Issues</td>
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<td>ENSO</td>
<td>El Nino Southern Oscillation</td>
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<td>ESCAP</td>
<td>United Nations Economic and Social Commission for Asia and the Pacific</td>
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<tr>
<td>EU</td>
<td>European Union</td>
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<tr>
<td>FAO</td>
<td>United Nations Food and Agriculture Organisation</td>
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<tr>
<td>FCCC</td>
<td>Framework Convention on Climate Change</td>
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<td>FFA</td>
<td>Forum Fisheries Agency</td>
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<tr>
<td>FNCs</td>
<td>Food and Nutrition Committees</td>
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<tr>
<td>FSC</td>
<td>Forest Stewardship Council</td>
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<tr>
<td>FSM</td>
<td>Federated States of Micronesia</td>
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<tr>
<td>GATT</td>
<td>General Agreement on Tariffs and Trade</td>
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<tr>
<td>GBRMPA</td>
<td>Great Barrier Reer Marine Park Authority</td>
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<tr>
<td>GDP</td>
<td>gross domestic product</td>
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<tr>
<td>GEF</td>
<td>Global Environmental Facility</td>
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<tr>
<td>GNP</td>
<td>gross national product</td>
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<tr>
<td>HIES</td>
<td>Household Income and Expenditure Survey</td>
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<tr>
<td>ICDP</td>
<td>Integrated Conservation and Development Programme</td>
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<tr>
<td>IHDP</td>
<td>Integrated Human Development Programme</td>
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<tr>
<td>Acronym</td>
<td>Full Form</td>
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<tr>
<td>IOOC</td>
<td>Interchurch Organisation for Development Co-operation</td>
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<td>IPCC</td>
<td>Intergovernmental Panel on Climate Control</td>
</tr>
<tr>
<td>IUCN</td>
<td>International Union for the Conservation of Nature</td>
</tr>
<tr>
<td>KDC</td>
<td>Kare-Puga Development Corporation</td>
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<tr>
<td>LNG</td>
<td>Liquid natural gas</td>
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<tr>
<td>MIRAB</td>
<td>Migration, Remittances, Aid and Bureaucracy</td>
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<td>MKAM</td>
<td>Mount Kare Alluvial Mining</td>
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<td>MTD</td>
<td>Marketing and Transport Division</td>
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<td>NANGO</td>
<td>National Association of non-governmental organisations</td>
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<td>NEMS</td>
<td>National Environmental Management Strategies</td>
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<td>NFIP</td>
<td>Nuclear Free and Independent Pacific Movement</td>
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<td>NFS</td>
<td>National Forest Service</td>
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<td>NGOs</td>
<td>Non-governmental organisations</td>
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<td>NIDC</td>
<td>National Interactive Development Council</td>
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<tr>
<td>NLUS</td>
<td>National Liaison Units</td>
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<td>ODA</td>
<td>Overseas Development Administration</td>
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<tr>
<td>OTML</td>
<td>Ok Tedi Mining Limited</td>
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<tr>
<td>PCC</td>
<td>Pacific Conference of Churches</td>
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<tr>
<td>PCRC</td>
<td>Pacific Concerns Resource Centre</td>
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<tr>
<td>PHDP</td>
<td>Pacific Human Development Report</td>
</tr>
<tr>
<td>PIANGO</td>
<td>Pacific Islands Association of non-government organisations</td>
</tr>
<tr>
<td>PISKU</td>
<td>Pacific Islands Society of the United Kingdom and Ireland</td>
</tr>
<tr>
<td>PJV</td>
<td>Porgera Joint Venture</td>
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<tr>
<td>RDU</td>
<td>Rapid Deployment Unit</td>
</tr>
<tr>
<td>SED</td>
<td>Services and Education Division</td>
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<tr>
<td>SGS</td>
<td>Société General de Surveillance</td>
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<td>SIDS</td>
<td>Small Island Developing States</td>
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<tr>
<td>SIDT</td>
<td>Solomon Islands Development Trust</td>
</tr>
<tr>
<td>SML</td>
<td>Special Mining Lease</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>
</tr>
<tr>
<td>SPC</td>
<td>South Pacific Commission</td>
</tr>
<tr>
<td>SPREP</td>
<td>South Pacific Regional Environment Programme</td>
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<tr>
<td>SST</td>
<td>Sea surface temperatures</td>
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SWIFT  Solomon Western Islands Fair Trade
TCSP   Tourism Council of the South Pacific
UKFSP  United Kingdom Foundation for the South Pacific
UNCED United Nations Commission on Environment and Development
UNDP   United Nations Development Programme
UNEP   United Nations Environment Programme
VSO    Voluntary Service Overseas
WHO    World Health Organisation
WTO    World Trade Organisation
WWF    World Wide Fund for Nature
Environment and development in the Pacific Islands: introduction

Ben Burt and Christian Clerk

This book looks at the problems and potential of a region of the world remote from the main centres of economic development and environmental crisis, yet sharing common experiences with other regions of the Third World. Like anywhere else, the Pacific Islands have their own peculiar problems and, more importantly, their own distinctive contribution to make to the never-ending debate on the meaning of development and how people may obtain its benefits without degrading the environment on which their lives depend. The chapters of this book raise questions about the development of particular kinds of resources.

Ancient economies

Since islanders first arrived in the Pacific, the foundation of their lives, and their main contribution to the ecosystem, has been an economy of farming, foraging and fishing, in a tropical environment of forest, reef and ocean. This way of life originated in Southeast Asia and was modified during centuries of exploratory migration eastwards, via the great island of New Guinea to smaller and ever more isolated islands with less diverse biological resources in Melanesia and Polynesia. On most of these islands, forests maintained the soil and water for cultivating staple root crops, vegetables, trees and palms. Where and
when the forest was uncultivated, it provided wild plant and animal foods, wood, fibre and other essential raw materials, fresh water, fuel and herbal medicines. Forest streams and rivers fed the coastal ecosystems of mangroves and coral reefs which provided a large proportion of the fish and shellfish of the marine economy, underpinning productive but less reliable fishing on the open seas.

Such ecological and economic systems still ensure the livelihood of most Pacific Islanders, as the subsistence sector which supports the commercial economies of most Pacific countries. Compared with the economic and technological transformations of the last 200 years, and especially with the impact of the global economy since the Second World War, these systems have been relatively stable, maintaining habitable environments for many hundreds or even thousands of years in some areas. Not that this has left Pacific environments unchanged: from the outset, human settlement created cultural land and sea-scapes as territories were claimed, adapted to human needs and given human histories. Even forest which islanders, or outsiders, have regarded as natural or wild was modified by the effects of shifting cultivation, agro-forestry and selective conservation of useful and symbolically important wild trees, plants or places. Some areas were transformed into intensive agricultural systems through irrigation and drainage, especially in parts of the New Guinea Highlands and Polynesia. Some suffered severe environmental degradation from over-exploitation of resources, with deforestation to grassland in New Guinea Highland valleys, parts of islands in the Solomons and Fiji and, in an extreme case, the whole of Rapa Nui (Easter Island). In the past the consequences of such loss of resources would have included starvation, war and emigration to uncertain destinations, but the continued viability of forest ecosystems in most areas shows that economic and technological limitations must also have restrained population and consumption levels in less drastic ways. In the long term, most Pacific economies proved themselves ecologically far more sustainable than the increasingly precarious economies of the islands today. And since this instability is a central concern of environment and development debates, it is worth considering how the economies which Pacific peoples developed for themselves and maintained over many generations compare with the capitalist economy and culture of development which began to draw them into regional and global economic systems no more than 200 years ago.
One essential difference is that most Pacific Island economies were based on communal control of land and its resources, including the submerged land of productive reefs. Tenure in particular areas was generally inherited collectively by the descendants of those who had held it in the past, and sometimes validated through long and complex genealogical histories. The right to manage the resources of these areas, usually claimed by men on the basis of genealogical seniority, was exercised on behalf of these family or clan groups, rather than as ownership in the Western sense. Production of food and goods was generally in the hands of families and households, but there were only limited opportunities to store wealth or use it to improve a basic material standard of living. People exchanged goods and resources by sharing, giving and lending, as much for social as material benefits, maintaining the strength, integrity and prestige of their local communities. Such communities defended themselves against each other in often bloody feuds, but also linked themselves in networks of intermarriage and exchanges of goods. They traded in the local produce of coastal and inland districts and in the products of specialised local industries, of symbolic as well as practical value.

Some of these economic and ceremonial relationships linked people directly over vast distances of ocean, or indirectly through extensive networks on land in the larger islands. But most island communities remained relatively self-sufficient and autonomous, at the level of neighbourhoods rather than islands, lacking the political integration required for further economic development until the colonial period. Community leaders claimed authority in a variety of ways: by seniority of descent, by assisting and indebting their relatives, by organising communal enterprises such as festivals or trading expeditions, by mediating the powers of ancestral spirits or sorcery, by controlling exclusive ritual institutions, or by military leadership. But as long as each local family or clan retained control of its own essential economic resources, the possibilities for larger and more complex political and economic organisation were limited. Only in some Polynesian societies, where seniority of descent carried special prestige, did aristocratic leaders manage to unite large populations under central authority. In Hawaii, Tonga and Tahiti they claimed and allocated their peoples' natural resources and goods for the economic and political development of strong expansionist kingdoms. But in general, Pacific Islanders had the kind of culture and social organisation which
European colonial administrators, and the Western advisers who succeeded them, have regarded as impediments to economic development. What these critics have been slower to recognise is that such institutions can also be safeguards against excessive exploitation of resources, unequal distribution of the benefits, and against the environmental and social problems which now concern both islanders and development experts.

**The colonial legacy**

In settling the Pacific, islanders voyaged well beyond the sphere of interest of their Southeast Asian lands of origin, and as that region was drawn into wider economic and political relationships with the growing civilisations of China, India and beyond, the Pacific Islands remained a peripheral region of mainly small and fragmented societies. The islands were only introduced to the developing global economy with the expansion of European trade into the Pacific, or rather across it between the Americas and Asia, from the eighteenth century onwards. The impact of this trade was very uneven, with some small islands of Polynesia which had once been the most isolated becoming the most accessible to long-distance shipping, while large areas of island Melanesia, with their own regional networks, remained inaccessible to colonial interests until the second half of the nineteenth century, and the New Guinea Highlands until the mid-twentieth century.

Europeans first exploited the islands to supply their trading and whaling ships and as convenient sources for a few high value raw materials, then as sources for cheap migrant labour. By the mid-nineteenth century some islanders were acquiring regular supplies of manufactured goods in return for local produce, and then for work on land appropriated by Europeans for plantations on certain islands, and also in Queensland. Sugar from Fiji and Queensland and phosphates mined on a few small Polynesian and Micronesian islands made significant contributions to world trade, but when various European powers annexed the islands in the late nineteenth century, they did so largely for strategic political reasons rather than for commercial purposes. In many areas trade hardly compensated for the costs of colonial administration and European enterprises often contributed more to their fantasies than their fortunes. The strategic value of the islands was demonstrated during the Second World War, but it is only since then that economic and technological developments have given a
significant commercial value to their natural resources. Improved transport and communications in the last few generations have opened the most remote areas of the Pacific Islands, even the interior of New Guinea, to commercial exploitation of timber, fish, minerals and agricultural produce to supply global markets.

The history which has drawn the autonomous societies of the Pacific Islands into the global economy is one of external exploitation, first from the metropolitan regions of Europe, North America and Australasia, then from the resurgent economy of Japan and most recently from the newly industrialised centres of East and Southeast Asia. This has driven the economic development of the islands in directions which reflect foreign rather than local priorities and interests, an experience which the Pacific Islands shares with other regions of the Third World. During the colonial period, European claims to be civilising colonised societies in the process of promoting commerce gave a gloss of benevolent paternalism to relations of economic exploitation which, for all the altruism of some colonial agents, were designed primarily to enrich the industrial economies of Europe and America. Following the Second World War, with the disintegration of colonial empires and the eclipse of European power by the United States, the new Western vision of world order which emerged was based not on continuing political dominion but on economic interdependence. Now it was international financial and commercial agencies which mediated the continued domination of much of the world by industrialised countries, with the United States in the leading role. In a new version of the colonial view that human progress had culminated in the civilisation of Europe, the post-war view promoted by powerful Western agencies of government, commerce and finance represented Western industrial society as a model for the development of everyone else, now with a focus on increased commodity production and 'growth' as measures of economic development and social wellbeing.

This model of development serves the interests of its exponents well enough, and has been largely adopted by the indigenous governing élites of the Pacific Islands, despite some reservations deriving from anti-colonial critiques of the West. Its influence remains strong in Pacific Islands countries, still heavily dependent on Western aid and training, where national independence came as recently as the 1970s in much of Melanesia and a number of countries are still under colonial administration. But the situation of the Pacific Islands is changing ever
more rapidly. A region which had previously been at the margins of the great economic developments shaping world history now ironically faces the challenge of being surrounded by the new centres of the global economy developing on the Pacific rim. There are many questions over the costs and benefits of existing economic development for ordinary Islanders, and to these must be added the question of how well such development will enable them to face a future of even more dramatic change.

**What is development?**

Since the end of the 1960s, as the effects of conventional Western development policies have been seen and felt, controversy over their direction and purpose has thrown doubt on the very notion of development, and its converse, ‘underdevelopment’. Depending on your perspective, underdevelopment may represent problems to be addressed by development, or problems caused by it, in what has been called ‘the development of underdevelopment’. It has been argued that as programs undertaken in the name of development have proven unable to deal with commonly acknowledged problems like poverty and environmental degradation, and have been repeatedly revised and reformulated, the concept has come to represent whatever a particular interest group wishes to promote in the name of progress towards its own vision of a desirable future. The result is that the basic assumptions which have driven national and international development policies are now being questioned more widely than ever.

The conventional capitalist view of world development as ‘modernisation’, which assumes that Western industrial prosperity and continued economic growth is environmentally sustainable and can be reproduced worldwide through policies economically beneficial to the West, has been challenged repeatedly by neo-Marxist academic theories since the 1960s. The First World industrial economies and the rural, labour-intensive Third World economies were recognised as interdependent parts of a global capitalist economy, dominated by industrial centres which created dependency in peripheral regions through the agency of transnational commercial and financial organisations. For some regions, especially Africa and Latin America, this was seen to be actually promoting the impoverished ‘underdevelopment’ which development policies were claiming to address. For others, particularly East and Southeast Asia, the theory
may appear to be contradicted by the growth of new industrial centres. But regions like the Pacific Islands which remain peripheral find themselves in a similar relationship to these new centres as to the old.

During the 1980s, while neo-liberal economic policies of privatisation, deregulation and structural adjustment were prescribed by international financial organisations to often compliant Third World governments, the growing human and environmental crises in poorer regions of the world confirmed widespread doubts over the consequences, and possibly the intentions, of capitalist theories of development. At the same time America was winning the Cold War for its vision of world order, as Marxist-inspired alternatives were collapsing under internal contradictions generated by totalitarianism in the Second World of the Soviet bloc and by American attrition in the Third World of Africa and Latin America. There was a corresponding crisis in confidence in the competing grand theories of development, with their reliance on global generalisations and politically-driven top-down solutions. Many of those involved in development practice turned instead for direction to the experience of local communities and voluntary or non-government organisations (NGOs) actually involved in development programs on the ground. The shift of focus has led to attempts to redefine development in opposition to the parallel shift of capitalist theory towards neo-liberal deregulation. The NGO approach now tends to emphasise change from the ‘bottom up’ through measures which enable the poor and powerless to take control of their own lives and to enrich themselves, not in terms of material wealth alone, but through processes they can participate in and which are accountable to them. The role of government and intergovernment intervention is seen as facilitating these processes, moderating the effect of the market which serves as the neo-liberal panacea.

Although the political and academic struggles between Marxist and capitalist ideologies have informed the policies of external development agencies in the Pacific Islands, islanders themselves have been more inclined towards alternative approaches building on counter-colonial notions of tradition which have often had populist overtones. Particularly influential was the ‘Pacific Way’ perspective which spread through the University of the South Pacific, reflecting an emerging regional identity in the 1970s. With a focus on the needs of the rural majorities and on the value of self-reliance founded on local culture, this anticipated the growing Western concern for appropriate ecologically sustainable development and contributed a valuable Pacific
Islands’ perspective to the development debate. In particular, experiences of rural development by Pacific Islanders, supported by national and international NGOs, show the possibilities of a kind of ‘bottom up’ development which empowers people to take control of their own futures as communities, building upon their own cultural resources.

This experience is reflected in many of the contributions to this book, but so is the fact that the recent economic and environmental history of the region has been directed by very different notions of development. Despite a growing awareness of the vulnerability of island environments and societies and the ecological constraints on possible futures, in practice economic interests and pressures have worked against local self-determination and ecological sustainability, even loosely defined, revealing contradictions at many levels from international agencies to national governments, local communities and individuals. These contradictions are a theme of this book, as they affect some of the major areas of concern in the Pacific Islands at the end of the twentieth century, and some of the ways Pacific Islands peoples and development agencies are responding to them.

**Issues in Pacific Islands development**

The contributors to this book agree that conventional development policies are failing the Pacific Islands, creating problems for which they do not also have solutions. One Pacific Islands perspective is provided by Siteveni Halapua (Chapter 2), in terms of a need to ‘harmonise’ the development process. Halapua sees development in terms of guided change in the production and allocation of material, social and cultural resources and he identifies the agents of change as governments, markets and culture, that is as political and economic forces modified by local value systems. These he deals with at the level of Pacific Islands states, acknowledging that development has been directed by their governments primarily towards increasing the production of goods and services. Halapua’s criticism of this conventional policy is that it focuses on balancing income and expenditure at the expense of balancing the right to use resources against the obligation to ensure their continuity. In his view these objectives must be harmonised through national institutions to plan, implement and evaluate policy according to the priority of managing resources for sustainable economic development.
But, in a critique of Halapua’s paper, John Cameron (Chapter 3) questions how far governments actually have an interest in promoting the sustainable utilisation of resources, rather than responding to a variety of contrary pressures. While tracing Halapua’s views on sustainability to the earlier ‘Pacific Way’ emphasis on local culture and values, Cameron also perceives a Western background to Halapua’s acceptance of market forces and economic growth as processes which can be modified by government in the interests of sustainability.

A different Pacific Islands perspective, more sceptical of the role of government, is given in Chapter 4 by Suliana Siwatibau, whose approach to the question of who controls development also develops from the ‘Pacific Way’ approach. She describes a widespread disillusionment with conventional policies of development as defined and controlled by Pacific Islands governments, international aid agencies and foreign commercial interests. Aid has been invested in large public infrastructure projects and expensive bureaucracies, corrupting governing élites which now sometimes seem more concerned to enrich themselves than to regulate commercial exploitation of natural resources or to maintain and improve the livelihood of local people. Siwatibau advocates the democratisation of development by informing, empowering and supporting local communities in defining their own development priorities. As she makes clear, these development issues are also environmental issues. In a region like the Pacific Islands, where people depend on the primary products of their lands and seas for both subsistence and commerce, the conventional economic theory which disregards environmental costs in economic calculations is even less defensible than it is in the industrialised countries which export these costs by exploiting the environments of other regions of the world.

These costs are most obvious in Papua New Guinea and the larger islands of Melanesia, countries which are heavily dependent on the sale of natural resources and particularly vulnerable to damage from large-scale extractive industries. The exploitation of forest resources is of particular current concern, as a threat both to the subsistence base of many local communities and to the economies of their countries. Deforestation, long an occasional consequence of human settlement in the Pacific Islands, accelerated with colonial plantation agriculture and now seems to be running out of control with commercial logging. The effects include soil degradation and erosion, damaged watersheds and loss of subsistence resources and, in a region of great species diversity
and high rates of endism, also the almost inevitable loss of species.

The bleak future of Papua New Guinea’s forests, threatened by large-scale logging careless of its environmental impact, is the concern of Max Henderson (Chapter 5). Local communities, enticed by promises of ‘development’ to open their forests to exploitation, receive little of the wealth generated and all of the adverse environmental consequences. Henderson’s paper is a harsh indictment of the unrestrained greed of foreign timber enterprises and their contribution to the corruption of Papua New Guinea’s politicians and public officials, a particularly serious example of the problem identified by Siwatibau. It is also a reminder of the limitations of even the best government regulations in safeguarding the public interest against the consequences of ill-conceived national development strategies devised under international economic pressure and advice, like those which lie behind the pressure on Papua New Guinea’s forests. Henderson’s answer is change from the opposite direction, which he illustrates with his experience of a community-based sustainable timber project in New Britain, one of the areas worst affected.

But assessing the damage of logging, its causes and remedies, is by no means simple, as Colin Filer shows in a critical response to Henderson (Chapter 6). While confirming that Papua New Guinea’s timber is being exploited at an unsustainable rate, Filer questions some of the statistical calculations and the degree to which the situation is still deteriorating, at least in terms of the financial losses to the country, locally and nationally. The debate over levels of timber extraction and revenues demonstrates the complexity of the problem faced by governments attempting to regulate the industry even when there is the will to do so. But equally important is the question Filer raises of how far the people of Papua New Guinea actually recognise the problem, or whether many of them are conniving in the destruction of their own forests for short-term gain, under the kind of political leaders they deserve. This adds another dimension to the question of who controls development, raised by Siwatibau. Those who are concerned by destructive logging in Papua New Guinea appear to share the problem of environmentalists in Western countries, having to demonstrate the case for more modest long-term sustainable development to local people who are no more clear-sighted or idealistic than most people in the world, and rather less so than some Western idealists imagine indigenous rainforest peoples to be.
Mobilising local communities behind sustainable alternatives to industries like logging depends on enlightening the self-interest of local communities: not a hopeless task as Henderson shows, but not an easy one either. Among other things this involves assuring a market for their products, Jaap Schep’s theme (Chapter 7). Schep describes a community forestry project in the other Pacific Islands country currently suffering massive forest damage, Solomon Islands, where logging serves to prop up a teetering national economy while it corrupts the country’s political life and devastates its subsistence resources. He outlines some of the economic considerations involved in developing a timber project from a local church initiative into a transnational fair-trade organisation to supply the specialised European market for certified eco-timber. There are evidently valuable lessons in development to be learnt from such community projects, but their achievements are inevitably small and modest relative to the scale of the problem. Although the question of how to arrest logging long enough for such alternatives to become widespread remains unanswered, as part of the more general economic problems of the Pacific Islands, it undoubtably involves the kind of international trade reforms attempted by the eco-timber movement.

But beyond challenges to the destructive impact of foreign companies operating in global markets are questions about the responsibility of Pacific Islanders themselves. This is a question which Colin Filer raises again (Chapter 8) when he analyses another high-profile environmental issue, mining in Papua New Guinea. Rather than attempt to assess the environmental costs and economic gains of mining, much publicised and debated elsewhere, he looks at how the prospects of the industry are affected by relationships between local, national and transnational interests. Government policy in Papua New Guinea has been for the state to mediate with foreign companies in order to build national economic development on mining revenues. As Filer shows, this aim is repeatedly frustrated by dissenting local claims to the economic benefits, which national institutions proved incapable of resolving before they erupted in the Bougainville rebellion and other somewhat less violent disputes at Porgera, Ok Tedi and Mount Kare. He attributes the disruption, in part, to inflated local expectations of development, a cultural expression of economic dependency which can be blind to the environmental consequences of selling the valuable resources of the land, whether minerals or timber. With competition for the benefits of mining among local communities matched by the
political opportunism of their elected representatives, under a political
morality which prioritises interpersonal and parochial obligations over
broader public or national interests, Melanesians often seem to
constrain environmental damage less by intention than by equivocation
and internecine conflict. While this obstructs the mining industry, it
also inhibits a coherent national policy on environment and
development issues, including concerted measures against the ravages
of logging already discussed. Filer’s analysis is a caution both to
Melanesians who accuse environmentalists of denying them the
benefits of economic development through neo-colonial interference,
and to campaigners who imagine Melanesians to be inherent
environmentalists betrayed by their political leaders.

However, it is also at the level of their often parochial local
communities that Pacific Islanders have had most success in realising
their visions of sustainable development. As in the forestry projects
mentioned above, the expertise and influence of links with industrial
countries may contribute most when it helps people build on local
experience of resource management, based on traditions of community
participation and control.

Edvard Hviding (Chapter 9) looks at this experience in another
crucial sector of the Pacific Islands economy, fishing. He deals not with
the issues of industrial tuna fishing which are already a focus of
international awareness, but with the management of coastal resources
under customary marine tenure, particularly important in the local
subsistence economy. In contrast to Western models of resource
management employed for ocean fisheries in the Pacific (which allow
fish stocks to be exploited competitively under largely ineffective
government regulation), under many Pacific Islands coastal systems
rights and regulations are negotiated by local communities from an
intimate knowledge of local ecosystems and local needs. As Hviding
indicates, they are in fact part of wider land management systems,
including those under which community forestry programs have been
organised. Customary marine, and land, tenure systems have ensured
continued livelihood for countless generations under pre-capitalist
economies. Hviding’s point is that they have also enabled islanders to
deal constructively with outside commercial interests, as well as
facilitating the kind of small-scale, community-controlled innovations
favoured by advocates of sustainable development. Although Pacific
Islands ecological knowledge and Western science approach
environmental management from different perspectives, they sometimes
come independently to very similar management solutions, and can complement one another in appropriate development programs.

But beyond regulating the exploitation of natural resources, whether of seas, forests or minerals, the development of sustainable economies in the Pacific Islands also requires investment in the agricultural productivity of the land. As Tim Bayliss-Smith argues (Chapter 10), islanders have long been investing in land as productive capital through systems of irrigation, drainage and agro-forestry. As environmental concern has shifted from the protection of supposedly ‘natural’ environments to the sustainable management of human ones, the experience of Pacific Islanders in enhancing the productive value of their land should itself be recognised as a valuable resource for planning the future of their islands. This might benefit from an understanding not only of the economic and political circumstances under which they developed these systems, but also of the pressures and opportunities which led them subsequently to transform or abandon them, particularly those introduced by colonial rule and the commercial economy. If further investment in agricultural productivity does not promise to realise islanders’ dreams of easy money, neither does it threaten the environmental degradation of mining and logging or the economic dependency and cultural subjugation of other forms of capital investment, such as large-scale tourist businesses.

However, Bayliss-Smith’s theoretical approach is questioned by Paul Sillitoe (Chapter 11), who contends that the whole notion of land as productive capital derives from Western assumptions about property relations which are not shared by Pacific Islands societies. In contrast to the economic motivations of capitalist society dealt with by Western economic theories, Sillitoe sees Pacific Islands local economies as maximising social and political rather than material values. Land is valued as the basis of community and identity, beyond its productive utility for subsistence or exchange, and this tends to diffuse rather than concentrate economic and political power. The kind of land tenure which this entails, being fluid and inclusive, is commonly seen as an impediment to Western policies for capital investment, which are based on more individualistic and exclusive forms of resource management. In drawing attention to these essential characteristics of Pacific Islands land tenure, Sillitoe warns that proposals to improve land as productive capital should consider carefully their consequences for Pacific Islands social and cultural systems. The traditional relationships between people and their land which he describes are an
integral part of these systems, which underpin the successes of the community forestry and fisheries developments as well as the frustrations experienced by the mining industry.

Such debates over the interpretation of Pacific Islands cultures and the social as well as environmental impacts of development lend support to the case for bottom-up initiatives sensitive to local circumstances. But as Hugh Govan argues (Chapter 12), attempts by development professionals to build on local experience and institutions may still suffer the paternalism of top-down approaches if they do not enable local people to participate fully in the planning and implementation of development projects. Through further case studies of community-based development projects which complement those in the forestry and fisheries chapters, he emphasises that community participation can not only enable development to benefit from local knowledge, but also empower the community itself to take control of its own future. This may require a cultural shift towards increased local awareness of the possibilities and problems of participation in development processes, as promoted by some of the indigenous NGOs which are putting into practice insights deriving from the ‘Pacific Way’ approach. It also requires that external agents of development, national or international, however vital their role, be prepared to relinquish control of the process to local people.

But ‘bottom-up’ development cannot simply replace the top-down approach, and community development policies benefit from, or even depend on, the support of government agencies, which have to be persuaded of the benefits to national as well as local interests. Peter Burns’ discussion of tourism (Chapter 13) illustrates this point in an exploration of the kind of alternatives open to development planners at the national level. He contrasts the conventional economic approach to planning the development of tourism as an industry, from which Pacific Islands peoples may benefit, with a more holistic approach which considers the contribution tourism can make to the development of Pacific Islands countries, taking account of the social and environmental costs. Burns focuses on the possible mitigation of these costs by eco-tourism, through which visitors aspire to experience and support the way of life and environments of local people. This aspiration has its own contradictions and attempts to realise it has costs as well as benefits for Pacific Islands economies at local and national levels. Yet eco-tourism can be used to promote environmentally sustainable development of direct benefit to local communities, with the greatest
potential for them to control their own part in this increasingly important economic sector.

The essential role of government planning is demonstrated again in John Cameron’s discussion (Chapter 14) of the nutritional problems associated with increasing reliance on imported foods and declining local food production in the Pacific Islands. This is a problem especially for some smaller islands of Micronesia and Polynesia, but also for the growing urban populations of larger Melanesian countries. A reduction in food imports seems desirable for economic as well as nutritional reasons, if complemented by policies to promote local food production, and Cameron goes on to consider the public policy implications. While recognising the need to involve local communities and encourage subsistence production, he shows the necessity for government institutions to take a holistic planning approach which recognises that nutrition is affected by policy on matters such as agriculture, fishing and the national commercial economy.

While Pacific Islands governments still need persuading of Cameron’s holistic approach, Andrea Tuisovuna (Chapter 15) argues it is open to criticism in its turn, for overlooking persistent cultural patterns which can have unfortunate effects on the way Pacific Islands peoples respond to imported foods and dietary practices. Tuisovuna calls particularly for improved health education to translate what are essentially Western messages about imported health problems into local language and culture.

For all the environmental and development issues affecting the Pacific Islands which demand local responses to global pressures, one process which seems least amenable to local control is the effect of climate change. Tom Spencer (Chapter 16) examines recent scientific assessments of this problem, particularly in relation to rising sea-levels and the ability of coral reefs to keep up with them; issues of crucial importance for the future of the islands, especially countries of low-lying atolls. But Spencer suggests that local factors can also be significant in charting the future of reefs, when global changes act upon corals which have been ‘pre-stressed’ by local human activities. Apart from the treatment of the reefs themselves, onshore processes such as the run-off from agricultural fertiliser, silting due to deforestation or pollution from waste disposal, affect the health of lagoons and reefs and the ability of corals to keep pace with changes in sea levels. While the range of uncertainty about the extent of likely sea-level rising has narrowed in the last ten years, Spencer points to considerable
continuing uncertainty about the broader patterns of environmental change in the coming century, which he describes as a challenge for environmental scientists.

But, as Christian Clerk points out (Chapter 17), uncertainty is also the condition under which policy has been, and will continue to be made. Pacific Islanders, who have made minimal contributions to greenhouse gases but may face some of the most serious consequences of climate change, necessarily view that uncertainty rather differently from the industrialised countries they must persuade of the urgency for action. Clerk suggests that Spencer’s data, while it dispels some of the worst-case scenarios of the imminent inundation of reefs, reinforces the need both for effective local coastal zone management plans and for continued pressure by Island states and their supporters in international fora. A range of international links are significant in mobilising support for Pacific Island concerns.

The book concludes with a review by Akuila Yabaki (Chapter 18) of some of the international networks linking the Pacific Islands to one another and with metropolitan countries, particularly in Europe, at the level of government, churches and NGOs. These parallel the First–Third World relationships which critiques of conventional development policy identify as the cause of many of the Pacific Islands’ problems, but they also provide opportunities to press for changes and suggest alternatives. The kind of Pacific Islands–Europe links described in the contributions to this book should help debates over the nature and purpose of development in the Pacific Islands to inform the Western agencies which still influence the future of this region which their own countries once colonised. Yabaki’s hope is that continuing regional and global relationships may lend support to Islanders’ own aspirations towards sustainable development. (An index of Pacific and Pacific–Europe organisations is given in the appendix).

Can development be environmentally sound?

Sustainable development is a phrase much used in this book, as it is in discussions of the future of the peoples and environments of the world in general, and it is so much part of today’s language of debate that it risks being reduced to the status of catch-phrase. But a certain vagueness in the concept can be a strength as well as a weakness, if it unites a wide range of interest groups in a common objective without stalling on the more difficult task of committing them to a single theory.
or policy for its achievement. The concept of sustainable development arises from a convergence between attempts by reformist environmentalists to make an economic case for conservation and recognition by development economists of the need for continuity in the utilisation of natural resources. This consensus was reflected in the World Conservation Strategy of 1980 and became central to the Brundtland Report of 1987, *Our Common Future*, which saw sustainable development as meeting the needs of the present without compromising the ability of future generations to meet their needs. This was presented as a global imperative, with a shift of emphasis towards proposing solutions to environmental problems by dealing with human ones in a sustainable way. While this involved the conventional strategy of increased economic growth, Brundtland argued for changes in the quality of growth towards forms which were more material and energy efficient, and more equitable in their impact.

However, attempts to compromise between economic and environmentalist values can have their limits. These approaches to sustainability still do not resolve the contradictions between modernising development based on conventional materialistic values, and stable, continuously productive ecosystems which this kind of development has historically undermined. In an attempt to clarify the issues, green economic thinkers have argued for reconsideration of the links between growth and development. For instance Ekins (1993) makes a distinction between the production growth of conventional economic theory, expressed in terms of increase of GDP and GNP; environmental growth which increases the stock of environmental resources for consumption and environmental services (such as the forests influencing climate); and welfare or utility growth involving a whole range of social values. These last include production, employment, conditions of work, environmental conditions, income distribution, leisure time and health and safety. Seen in these terms, negative environmental and social feedback from production growth may undermine environmental growth while not necessarily contributing to welfare growth. He accepts a need for GNP growth in the countries of the South, but argues that this must be based on environmental regeneration. Development is seen here as qualitative improvement closely linked to welfare growth and as the achievement of potential, which depends heavily on access to resources—ecological, organisational, human and manufactured.

The idea of welfare-oriented development based on popular
participation is now having an influence on mainstream development thinking. *The Pacific Human Development Report* (PHDR; UNDP 1994) called for a focus going beyond pure economic growth to consider contributions to productive and satisfying lives. It was followed by the *Suva Declaration on Sustainable Human Development in the Pacific* (UNDP / South Pacific Forum 1994) in which the representatives of fourteen South Pacific Forum states addressed issues of human welfare development, including the promotion of participatory and community-based development. Yet both these documents reveal a tension between pressures for production growth to meet welfare and other material demands and the commitment to broader welfare issues and community empowerment.

This tension can be seen, for instance, in the PHDR discussion of land tenure. Control of land resources (including reef) is central to the empowerment of local communities in economic and environmental terms and has long been a theme of the development debate in the Pacific Islands. The conventional development approach focuses on the constraints which traditional systems of land tenure, and the disputes which stem from them, place on the maximisation of economic value from the resources of the land. The PHDR recognises the integration of land tenure with social structure and the effect this has in preventing general poverty. It suggests that

> While an increase in the supply of tradeable land would free up one important constraint to economic growth, it would at the same time, bring with it increasing social costs, including the possibility of the emergence of significant poverty as land ownership became more concentrated (UNDP 1994:48).

Nonetheless, the Report goes on to speak of a trade-off between faster income growth and more rapid dislocation of traditional social systems, this balance to be decided by conscious decisions about development aims. Elsewhere, it also expresses concern that lack of clearly defined property rights in shared resources can, with the emergence of the monetary economy, lead to over-exploitation, following the ‘tragedy of the commons’ argument that people will be tempted by new cash markets to over-use shared resources on the grounds that if they do not, others will. So acknowledgment of the welfare role of traditional resource management is presented alongside economic and environmental arguments which could be used to change it fundamentally. However subtle and studied the Report’s treatment of these issues, it cannot resolve the tensions between the
conflicting interests which these arguments represent.

The wider setting within which Pacific Islands peoples seek to balance their local environmental imperatives and development needs is equally complex and fraught with difficulties. For some nations levels of debt have significantly increased in the 1990s, while GATT has given way to the World Trade Organisation (WTO) in a process of increasing trade liberalisation. As privileged market access agreements are removed, Pacific Islands countries find themselves increasingly competing against experienced larger players in global markets. The risk is that increased economic pressure will undermine even the limited vision of sustainability which their governments hold. While some environmentalists continue to press for revision of WTO rules to embrace notions of common environmental standards, the historical experience of GATT has been that the rules of international trade act against national measures to distinguish between goods with differing environmental impacts of production.

Given the lack of agreed environmental standards and global disparities in economic power, it is not surprising that Third World states have sometimes challenged bans and regulations on imports of ‘environmentally less friendly’ produce under GATT rules, presenting them as unfair restrictions on their export trade. This reaction is a way of prioritising immediate national economic and political interests, but it may also reflect deeper concerns over the direction being taken by the politics of environmental protection. It is not surprising if exhortations to conserve environments for the future are greeted with accusations of ‘green imperialism’ when poorer countries are expected to bear costs which high-consuming wealthy countries have managed to avoid or defer in the course of their own development. Being told to ‘do as I say, not as I’ve done’ on environmental matters tends to rankle with Third World peoples and governments. At the same time, the more insistent and agreeable messages of increased consumption in pursuit of exotic lifestyles which reach them through so many other channels are received less critically. The Pacific Islands cannot escape the blandishments and pressures of a global market that thrives on the continual escalation of material aspirations.

On the other hand, the small scale of many Pacific Islands societies and their traditions of communal resource control do seem to offer opportunities for alternative kinds of development, where sustainability derives from bottom-up processes under the control of local communities. As many of the contributors to this book argue, this
requires building on local culture and experience, working through existing social institutions and ensuring local participation by shifting control of development policy and process from governments and external development agencies to the people who have to live with the consequences. This approach encourages attempts to integrate theory with practice in recognition of moral responsibilities to the objects of research and policy at the local level. It is close to the position argued by Edwards as offering one positive route forward from the ‘impasse’ in development theory described by Schuurman (Edwards 1993, Schuurman 1993). Attention is focussed on the diversity of local and regional circumstances and the historical and cultural peculiarities of social institutions, from households to local communities and state polities. While this may not offer a grand theory, it has a power which rests on real experience.

Pursuing ‘bottom-up’ development does not mean idealising the wisdom or values of Pacific Islands societies, some of which had developed in environmentally-damaging ways long before they experienced the additional pressures of colonialism and world markets which underpin many of their present problems. Nor does it mean neglecting the essential role of government and international institutions in supporting and coordinating development processes. But at both levels, Pacific Islanders are well aware of the contradictions and trade-offs between short-term material benefits and long-term assurance of subsistence and social integrity, even if they do not always find it easy to choose between them. So it is important that their choices be well-informed, and this is where the kind of debates raised in this book may make a useful contribution. The flow of information needs to involve a broader public than just the government and financial institutions which make so many crucial development decisions. Pacific Islands peoples have a variety of links through which experience can be exchanged across the world to promote informed discussion on environmental and development issues, by way of trade and aid, churches and missions, NGOs and campaigning organisations, academic research and tourism. This flow of information may be slow to influence the agenda for ‘top down’ decisions affecting local communities on a grand scale, made by national and international organisations of government, finance and commerce. But Pacific Islands societies, with their strong and continuing traditions of communal resource management and local autonomy, do suggest
alternatives for the sustainable management of their own human environments, with lessons also for those regions of the world which have presumed to bring development to the Pacific Islands.

References


Harmonising resources for sustainable economic development in the Pacific Islands context

Sitiveni Halapua

Reframing the approach to economic development

This paper is based on the view that the conventional development model, followed by governments in our shared Pacific Islands region, is fundamentally inadequate for addressing the broad social, economic, environmental, political, and cultural development needs confronting the Pacific Islands today (see Halapua 1993). Hence the present approach to development in the Pacific Islands requires a fundamental reframing and redirection.

It will be demonstrated that the kind of framework needed to provide insights and meet the needs of the Pacific policymakers must be able to harmonise the interactions of all the major forces of development within the Pacific Island countries and between them and their overseas partners.

Economic development as a sustainable process

In our framework, development is defined as the process of guided change directed toward preferred goals. Today the preferred goals of development vary from country to country depending on the historical, social, economic, and political circumstances in each country. One of
the most common preferred goals, as expressed by governments in the region, is the desire to foster a steady expansion in the supply, as well as improvement in the distribution, of goods and services. At the same time the cultural values and some of the traditional institutions, in addition to the quality of population, environment, and natural resources, must be maintained over time.

These are not, of course, the only preferred goals of development in Pacific Island countries. Some governments emphasise self-sufficiency in the provision of basic goods and services. Many governments seek to achieve some form of self-determination with respect to the issue of control over the use of the resources available to them. A great many Pacific Islanders feel that there is a need to balance the preference for material goods and services with our spiritual and cultural values.

An integral part of the means of pursuing the preferred goals of development consists of the processes of government policy, market rules and arrangements, and cultural principles that determine the direction of quantity, quality, and distribution of resources available to the people. More importantly, the term ‘sustainable’ conveys the need for stability and continuity in each process. And the guided change or the ‘guidance’ is provided jointly by the government policy, the market forces, and the cultural values and beliefs of each society.

**The value-types of resources**

The types of resources that support the mode of life of a people encompass more than natural physical resources and man-made tools (capital). Each society determines what is important (value) for its way of life.

In this connection, resources are defined as those quantities and qualities that people value or consider to be important in association with their labour, in the pursuit of their preferred way of life. Thus a person values not only his or her work and knowledge but also its product and the purpose it serves. In addition, the person has the right to continue to value them.

In the literature of political economy, the value of a resource refers to its capacity to satisfy a desire or serve a purpose. It stresses the use-value of a resource. In this sense, historical myth or knowledge itself is but one type of value that serves the imagination or political will of a community of people. Based on the modern principle of government by consent, for example, the leading western scholars of the social-contract
theory stressed the importance of government with limited power and authority to serve a purpose, namely, the protection of the rights of individuals, especially their property rights. Thus the government is granted as much power as the people are willing to give up in exchange for guaranteed property rights and for protection of their lives. This western notion of a government has come to be conceived as the will of the people.

The government made the laws that define the property rights of individuals. The government process of defining and enforcing property rights and rules of exchange uses resources (labour, skills, knowledge, materials, tools, beliefs, etc.), and this is crucial for the existence of a market economy. It is affected and impacts upon, the existence and interactions of markets and cultural beliefs.

Therefore resources in the context of a Pacific society include the physical environment, government power and authority, man-made capital, skills, knowledge, and cultural beliefs. This conceptualisation of resources stresses the environmental, governmental, technological, and cultural values that serve the general well-being and promote the continuity of the preferred way of life of a Pacific Island society. But despite the diversities in emphasis in all these value-types in the Pacific Island countries, there is still an underlying identity that they have in common: people are obliged to express the value they give to a resource by conferring the rights to promote the continuity of that resource. For example, the culture of a community expresses the value it attaches to land by defining the rights that control the continuity in the use of land.

From the broad definition of value-types of resources, we identify seven dimensions of sustainable economic development in the Pacific Islands

- economic growth
- population
- environment
- technology
- culture
- government
- international relations.

Each of these dimensions reflects a certain type of value and serves an obligation that constitutes a compelling force for the common action of a society. Therefore each dimension gives policymakers a signpost as to where the country is going—the direction of sustainable development.
The dual character of the resources

Two forces are present in all value-types of resources in all situations
- the rights to use the resources or the services that flow from them to satisfy a desire or serve a purpose
- the obligations that serve as the compelling (rallying) forces for common action to promote continuity of the resources.

The former leads to the accumulative deterioration both in the quantity and quality of the resources. But the latter results in the productive reinvestment and creative preservation of the resources. For example, the rights to use a tuna resource to serve a commercial purpose of accumulation of monetary profits can result in the depletion of that resource over time. But reinvestment in the productive control over the rate of exploitation preserves the value of continuity of the resource.

The challenge of sustainable economic development in the Pacific Islands can be resolved and the process can be understood only by recognising that both the rights to use and the obligations to the continuity of resources are inherently inseparable. They are two sides of the same coin. Once the dual character of the value-types of resources and the interaction of these forces are understood and appreciated, the need for reframing our approach to economic development in the Pacific Island countries is obvious.

Interactions of dimensions of sustainable development

An analytical framework is needed for investigating the interaction of the value-types of resources in the process of economic development. Here, the critical issue is the value in continuity of the resources that support the direction of change in the way of life from the present generation to the future generation. Practical reasoning is central to our framework of analysis of the seven dimensions of sustainable development. Specifically, it does not allow the evaluation of the interaction of obligations to the value in continuity of the resources.

The continuity in economic production is conditioned by the interaction of the forces of economic growth, population, environment, technology, government and international relations. Thus we cannot isolate the evaluation of the rights of the factors of production from the evaluation of the obligations to the value of continuity of those factors. For example, the effect of market forces on the supply of and demand for labour resources cannot be clearly separated from the evaluation of the effect of cultural values.
It is the task of government policy for sustainable economic development to effect two sets of adjustments:

- the adjustment between income (or domestic savings) and expenditure (or total investment), and
- the adjustment between obligations to the value of continuity of the resources needed for development.

The kind of adjustment associated with the first set is the familiar conventional approach to economic development in the Pacific Islands. This conventional approach, which is adopted by the World Bank, the Asian Development Bank and the International Monetary Fund, focuses on the adjustment between aggregate income and expenditures in the economy. It is sometimes known as the 'resource gap' approach. Therefore it is the typical task of recommended economic policy to adjust the difference ('the gap') between planned investment requirements and savings.

There are three basic conventional methods or main sources of financing such 'gaps' known as deficits. First, there are additional resources obtained by external borrowing. Second, there are additional resources provided by the inflows of foreign capital or investment. In addition, the supporting policy measures include control of price inflation, government expenditure and direct subsidy, tariff and non-tariff protection, taxation, interest rate settings, and the foreign exchange rate.

All these policy measures tend to concentrate on the issue of redistribution of rights—especially the exchange of rights—to use resources. In fact, they do not address the question of obligation to the value of continuity of resources, which is essential to sustainable development in the islands.

Take tourism development for example. A reduction in or removal of the interest rate on loans for and income taxes on tourist facilities will redistribute the rights to use resources from the financial intermediaries (hence, the owners of savings held by financial institutions) and government to the private owners of such investment projects. But this policy in itself is not adequate to address the obligation to the value of continuity of resources such as the quality of the physical environment and the traditional culture upon which the growth of the tourism industry is also dependent.

Therefore it is prudent for policymakers to take stock of not only the exchange of rights to use resources but also the obligations to the value of continuity of the resources. In order for economic development to be
sustainable in the context of the Pacific Islands, the two sets of adjustments, stated above, must be combined and integrated in the planning, implementation, and evaluation process of government policy. This integrated approach needs the interactive exchange framework outlined above as its analytical tool.

**Harmonising the development processes**

Harmonisation in the context of our framework refers to the process of balancing the rights to use and the obligations to the continuity of the value-types of resources. It is conceived as an interactive exchange process in which the input is the preference for value-types of resources. The process itself is the means through which the differences in the value-types of resources are combined by practical reasoning into a decision or a policy. Therefore, the attention of policymakers should be drawn to the interactive process of the value-types of resources itself rather than to some planning exercise in setting and evaluating targeted goals—such as the planned rate of investment—of economic development.

As the Nobel Prize Winner James Buchanan once put it: ‘How does one improve a market? One does so by facilitating the exchange process, by reorganising the rules of trade, contract, or agreement. One does not improve or reform a market-like exchange process by an arbitrary rearrangement of final outcomes.’

The practical reason for balancing the differences in the value-types of resources is performed by individuals of the society via

- the government process, which constitutes a procedure for defining and enforcing rules of exchange and property rights
- the market process, which consists of an arrangement whereby the rights to use resources are voluntarily exchanged among individuals, government, and business firms
- the cultural process, which defines the broad principles and set of rules by which kinship, inter-tribal, clan, and spiritual relationships with respect to the rights to use and exchange resources are expressed and reciprocated.

Clearly, these fundamental processes are not necessarily compatible in every Pacific Island country. The lack of willingness or inability to resolve the form of incompatibility in the interaction of these fundamental processes can generate a destructive or negative effect on the sustainable use of resources for economic development. Therefore a
mechanism is needed for the interactive process of resource management designed to minimise if not avoid destructive or negative deterioration in the rights and obligations to use resources in the Pacific Islands context.

An institutional mechanism for resources management: The National Interactive Development Council (NIDC)

The NIDC is conceived of as the institutional mechanism through which the diverging government, market, and cultural processes are amalgamated into the policy of the interactive process of resource management. It offers a 'multidimensional window' for managing the value-types of resources for sustainable economic development in the Pacific Islands.

The NIDC models the approach to managing resources for sustainable development ultimately on the exchange paradigm—the exchange of an analytical information service to minimise if not prevent negative conflict in the rights to use and the obligations to continuity of the value-types of resources in specified ways. There are equity, technical and economic efficiency arguments for the role of the NIDC in the management of principles and rules of using resources to serve a purpose, namely, economic development in a sustainable way.

There are three principal functions of the NIDC

- to provide the analytical information service needed by policymakers in the planning and formulation of policy and strategy
- to promote complementarity in the implementation of policies through the exchange of analytical information
- to evaluate the responsiveness of policies in relation to the preferred goals.

In fact, the interactive framework of the seven dimensions of sustainable development provides the analytical tool for the NIDC. In addressing the practical issues of economic development, the government can rely on the NIDC to ensure that the processes of planning, implementation, and evaluation of the efficiency of projects are not divorced from the processes pertaining to the continuity of the flow of resources. Thus the NIDC plays the dual role of providing the analytical information service to the policymakers and serving as the institutional catalyst for implementing the economic development policy in a unifying and sustainable way.
Reference

There have been a number of differing contributions to the development discourse on the specific potentials and problems of the less populated islands of the South Pacific. Many of the islands came relatively late and unevenly to the global economy and polity and its associated cultural influences. Most also gained an element of greater autonomy after 1970 through varying processes of de-colonisation (Cameron 1991). The implications of this experience for development thinking have been complex. The global competition between Marxism-Leninism and Liberal-Individualism touched the islands' intellectuals but did not take root in popular consciousness. Both trade unionised workers' and indigenous enterprising capitalists' interests tended to be ideologically and politically marginalised by more populist ideas claiming legitimacy on the grounds of representing 'tradition' (Tupouniua et al. 1980).

Such 'Pacific Way' thinking in its various local formations in the early 1980s was concerned with ecological sustainability as an aspect of people's whole quality of life well before such thinking became fashionable in the West. Ecological sustainability has had a significant place on the intellectual agenda of the University of the South Pacific (Thaman 1983) and found sympathetic resonances in regional bodies, some government ministries and non-governmental organisations, as
well as influencing some external donor and lending programs. But the driving forces of the 1980s and 1990s in the Pacific Islands have not been these agencies. Trans-national economic interests, usually operating through trans-national corporations in the extractive and tourism sectors supported by the international financial institutions (global and regional) have set the pace and values of ‘development’ in the Pacific Islands, as elsewhere (Cameron 1993). The unhealthy MIRAB (Migration, Remittances, Aid and Bureaucracy: Bertram and Watters 1985) pattern of change identified for the smaller Polynesian islands might now be generalised for the whole Pacific Islands region to a MERAB pattern, where the ‘E’ stands for Extraction of natural resources.

Sitiveni Halapua has been a leading intellectual throughout this period of generally accelerating ecological degradation and rather piecemeal local resistance. His paper aspires to recover and more rigorously develop many of the sustainability ideas that were immanent in the earlier Pacific Way literature. But to those ideas he adds, even prioritises, the need for a steady expansion of productive activity. There is merit in this additional ‘realism’—in accepting widespread aspirations to higher consumption levels the people of the Pacific Islands are choosing through their own day-to-day decisions against being a nature reserve or anthropological zoo. Much more recognisable from a Pacific Way perspective is the stress on social harmony and the possibility of identifying preferred goals appropriate to each society. While the precise pattern of goals will differ, Halapua is confident that consensus can be achieved on changing the distribution of consumption opportunities and sustaining quality in human and ecological resources, drawing significantly on cultural values and institutions with origins in pre-European contact history, especially on those relating to the control and use of land (including reef).

But the model of the underlying policy process to guide development strategy is very recognisable to people schooled in European Enlightenment culture, especially that strand which comes from Immanuel Kant rather than Adam Smith. Formal government has a central role in determining the limits of market exchange as a determinant of values in the context of local cultural rights and obligations and has sovereignty in these decisions with respect to external cultural values. More by implication than explication, Halapua appears to be arguing that the burden of proof lies on government to demonstrate market forces are damaging to sustainability rather than on advocates.
of market forces to demonstrate positive gains in terms of sustainability.

In the spirit of practical reason, Halapua models sustainability as rights and obligations into seven dimensions of socioeconomic change. Each dimension involves claims and rights to resource use, claims and rights to income from resource use, and obligations to ensure continuity. The dimensions are not prioritised explicitly, but economic growth is placed at the head of the crucial, central table. Thus this model might be seen as encouraging maximum economic growth subject to the constraints of continuity in the other dimensions—not the most imaginative sustainable development strategy.

Certainly the seven dimensions are usefully exhaustive in coverage and take the development debate beyond economistic development planning and narrowly defined economic globalising liberalisation. Also introducing the notion of obligations (presumably to future generations) is very much in tune with more radical thinking on human development looking towards the new millennium (O'Neil 1986). But the reader is left wondering at the actions in practice of so many governments in the Pacific Islands, exercising as much formal sovereignty as the global system permits any government today with economic room to manoeuvre in terms of external debt. Most governments are presiding over policy regimes which have not accepted the obligation to guarantee ecological continuity or, arguably, any other of the obligations to continuity that Halapua identifies (Shiva 1989). Even continuity of production as the cornerstone to economic growth has not been guaranteed under regimes giving rights to natural resource extraction with little or no effective obligation to replenishment of the degraded ecology.

Given that Halapua's development ethics rest on the rational imperatives of a representative state, he is naturally led to conclude that there must be an institutional lacuna in the machinery and representativeness of government, requiring an additional institution to augment the overall rationality and accountability of decision-making. The National Interactive Development Council is meant to fulfil this role. But what if environmental degradation is not a matter of a lacuna in government rationality, hindering action in the interests of present and future local, multi-dimensional sustainability? What if most government decisions are recognised as the outcome of a complex interplay of powerful internal and external interests calculating economic gain to themselves? Certainly the latter position is more consistent with the
facts as we know them fifteen years after ideas on a sustainable Pacific Way emerged around 1980.

Halapua's comprehensive framework is valuable for monitoring human and ecological development processes. It also has a special relevance to the Pacific Islands as a region, given its peculiar history and current potential and constraints. But experience suggests that augmenting existing government machinery is neither necessary nor sufficient for sustaining, recovering and enhancing either the ecological or the human quality of existence (Lyotard 1991). Much wider questions of governance cannot be avoided.

References


I wish to begin with the word ‘development’. Who defines what development is? Since the independent states of the Pacific gained political sovereignty, development has been the key process driving each government. Each of them produced regular development plans that set out the goals towards which they strive and the means for achieving these. All of them expressed high ideals for improvement in the standard of living and increased prosperity for their peoples and countries. However the degree to which these good intentions have materialised has been very different for different people, with an increasing majority missing out.

I think that one of the many reasons that so many people miss out is because they had no say in defining development in the first place. In most of our countries, development is defined for us by our politicians on the advice of development planners and those who in turn advise them from the international development network. The United Nations agencies, the World Bank, and other official technical assistance services all contribute to defining for us how best we could or should develop. They measure development largely in economic terms, by indicators of GDP and GNP. They are primarily concerned with creating national wealth. The idea is to increase the national cake so that everyone can have a piece. I think this is logical, but unfortunately
it has some inherent weaknesses. Contributions to GDP do not take into account whether the activity is or is not sustainable and unutilised natural wealth is not valued. Positive and negative impacts on human wellbeing are undifferentiated. There is no accompanying indicator of the distribution of the national cake. Hence, increasing GDP or GNP often masks the fact that economic development has been hijacked for the benefit of a few, who have more than their fair share of this cake.

Another influential group in defining development is the private business sector. They define development largely in terms of investment opportunities and profits made. To them development means setting up sufficient infrastructure and a favourable legal and financial environment for private sector investment where maximum profits can be made. This is also commendable, but unfortunately, the system is often exploited by more powerful international commercial concerns to the detriment of small-scale local entrepreneurs.

The third large group whose definition of development we need to consider is the populace themselves. I cannot claim to represent the perception of development held by the majority of Pacific Islanders, but I do believe that given the chance, they would define development quite differently from our government planners and large-scale commercial interests. I have been fortunate to work closely with a few communities to facilitate community development planning. During this exercise, of course, community priorities for development have been set, and in all cases they have been identified by the communities themselves as having to do with social development issues such as water supply, community cooperation, or women’s workloads. Economic development in terms of improved cash income has not been at the forefront of concerns and seems to be perceived only as a means to achieving the necessary social gains, not an end in itself. This probably explains why many rural Pacific Islanders will only work for cash as and when they need it, which makes it difficult to expect regular supplies of produce from individual rural producers.

The concept of development I think most communities would choose is what several NGOs working at community level are now promoting. It involves appropriate technology, small-scale entrepreneurial development and sustainable utilisation of resources. It supports and enhances life at the subsistence level for the majority of our peoples. But the prevailing concept of development of our governments, and the large-scale commercial concerns that invest in our countries, is that natural resources are there to be harvested as soon as possible to bring in
wealth to the government and to attract large overseas investors. Large-scale logging, commercial fishing contracts, and large-scale mining activities, are encouraged in the name of development. In the meantime, the resource owners have lost the basis of their subsistence livelihoods and any potential for cash income in the long term is diminished with the loss of their forests, soils and fisheries. With royalties, compensations and lease monies they have become dependent on cash income that they do not have to work for. They lose their ability to live off the land and be self sufficient. They will most likely end up migrating to urban centres to find paid employment. There they will join the swelling unemployed inhabiting mushrooming squatter settlements.

Unfortunately the perception of development that quite a few aid agencies hold is that to give money to people is to develop them. This is a real temptation regularly faced by those who work closely with communities. It is so easy to give away money or goods and create a cargo cult mentality, but as everyone knows, this is like giving a man fish instead of teaching him how to catch fish and giving him a line and hook.

Just as definitions of development are contributed to by several different interest groups, so is the control of development shared amongst several parties. However, the influence of some far outweigh that of others in a way that skews the distribution of benefits of development. I shall now itemise the major parties that control development in the Pacific, and briefly explain the roles they play.

Development aid agencies

While our government development planners write and formulate our development plans, they are under great pressure from aid agencies to utilise aid monies annually proffered to their governments. Several times I have gone around the Pacific talking both to planners and to aid agencies and found that the performance of planning offices is often measured by the degree and speed with which they use up aid monies. Therefore despite the intention for long-term self sufficiency in their plans, they find themselves planning and coordinating management of short-term projects that satisfy aid agencies’ conditions rather than follow their planned priorities.

Aid has been a mixed blessing for the Pacific. Our heavy dependence on aid brings to question the degree of control we have on the
direction of our development. There are several reasons for this. As a region we receive the highest aid per person in the world. Our currencies generally remain artificially buoyant because of heavy inflows of aid monies in foreign currencies. The public sector of our countries dominate our economies and the bulk of our governments' development expenditures are funded through aid. In most of our countries, the public sector is by far the greatest employer. Government investments also make up the bulk of our national investments. In fact the ratios of national investments in our countries are higher than the average observed for all developing countries.

Normally, one would expect favourable economic growth rates with such high investment ratios, but this expectation has not materialised in the Pacific. The World Bank referred to this in its 1992 report as the 'Pacific paradox'. The explanation offered by some experts is that we are small, resource poor, and far away from major world markets, but according to other experts this is not entirely valid. The Caribbean, Mauritius, and the Maldives are also small and resource poor and Mauritius is additionally also far away from major world markets. Yet all of them have performed much better than the Pacific Island countries with relatively lower aid inflows. Part of the reason for our countries' poor performance is the inefficient use of aid funds.

It is not unreasonable to question the possible role of high aid inflows in deterring development in the Pacific. The differing demands and conditions of the numerous aid agencies that service our small countries often take up a disproportionately large segment of our politicians' and officials' time and attention. This distracts them from examining in a more holistic way the direction and progress of the countries' overall development and therefore takes the control of that direction out of their hands. I will take a few examples for illustration.

French Polynesia receives the highest aid per capita in the Pacific. Papeete, the capital looks highly prosperous compared to other Pacific cities. People throughout the group live well and their standard of housing, public services and physical infrastructure is high by Pacific standards. However, all this is dependent on a heavy French military presence and the use of the country for nuclear bomb tests. The native maohis who used to be so productive before, now produce at much reduced levels for export. If the military moves out, their economy is threatened with collapse, they are so dependent on military expenditure. The control the maohis have of their own development
under such a situation is obviously very small. This is manifest even in simple everyday life issues. I talked to some women on an island outside of Tahiti, the main island of the group. They complained of suspected pollution of their lagoon, the only source of daily protein for their families. The most common shellfish they collect used to be a nice pink, now it is grey. The authorities come and take samples of water regularly but never tell them anything. I took a small sample of the shellfish for analysis and it showed an extremely high level of lead content. The shellfish they eat every day is not fit for human consumption but, being uninformed, they had no knowledge of the nature of the danger to which they were exposing their families. When informed, they have little outlet for voicing concerns or influencing the kind of development activities that take place on their island. This is only a single story out of so many. The people seem helpless to take control.

The other illustration is a more general one about the influence of development aid on the main direction of development in our countries. The main investor in the majority of our countries is the public sector, which receives grants from donors and loans from international banking concerns such as the World Bank and the Asian Development Bank. Understandably, these banks will only consider large-scale projects, which are easier and more economical to administer than a whole series of small projects. This focuses public sector investments on things like large international airports, main highways, major ports, large power generation plants, big showy buildings and so on. While these are useful, they tend to serve more the needs of urban dwellers and the economically better off. Furthermore they divert attention from small-scale infrastructure projects that would more usefully serve the majority of the people and local communities. Women’s income-generating projects, for example, only need credits of a few hundred dollars to make so much difference to the lives of ordinary families. Building Irish crossings, small boat landings, rural roads, and even outer island air strips take much less money, yet make so much difference to meeting the development needs of the majority of our peoples. Such small projects are usually picked up by minor donors, often on an ad hoc basis. Because of the nature of the conditions of assistance from major development agencies, our countries’ development efforts tend to favour large-scale rather than small-scale projects, tend to favour urban dwellers rather than rural communities, and tend to service those who already have more rather than those who do not yet have enough.
Private sector investors

Most Pacific countries, following advice from international technical assistance agencies, are encouraging greater private sector investment and development. This is generally good advice as it would reduce the heavy reliance on the public sector. Unfortunately, instead of developing an indigenous private sector, this has encouraged the inflow of foreign investors who are increasingly taking control of our countries' development.

One way they do so is through corruption, which is spreading and increasingly becoming blatant in many of our countries. Some of our most influential politicians thrive on bribes and occasionally government officials have succumbed to bribery too. Increasingly, our politicians vote in cabinet and in parliament according to the interests of those who line their pockets. The priorities of our countries and the urgent needs of our peoples are brushed aside as the individual greed of some of our politicians take control of their judgements. This is a phenomena that is worldwide but in the Pacific, where the countries are so small, the influence of one or two corrupt individuals has much more impact on the development of a country than it would in a larger country. Much needed development funds are siphoned away into the overseas bank accounts of private sector investors and into the pockets of a few corrupt politicians.

I wish to illustrate with a typical example from one of our countries, Solomon Islands, which has a substantial resource of tropical hardwood timbers. It received assistance from a metropolitan donor country for an inventory of its timber resources and advice on how to log it sustainably. A foreign-controlled timber company came along, talked to senior politicians and received extensive concessions to log at rates that would deplete the resources in ten years. The government wanted money quickly to fund its widening budget deficits. Taxes from the export of logs would provide needed funds, while export receipts would supplement the country's rapidly dwindling foreign exchange reserves. On paper the company sold timber at a low price to a subsidiary company in Hong Kong where company taxes are low, but the logs were shipped directly to Japan. The Japanese buyer paid a high price for each log to the Hong Kong subsidiary company and, with low taxes, the Hong Kong company makes a large profit. The logging company in Solomon Islands was heavily engaged in transfer pricing and was shifting profits out of the country. Solomon Islands was losing
out on tax revenue, on foreign exchange receipts, and on royalties to landowners.

When the government of Solomon Islands changed, tax on logs was substantially increased to ensure a fairer return to the country and reduce logging rates to sustainable levels. But the company stopped exporting logs to avoid paying the increased taxes and the government had to give in as it was heavily dependent for revenue and foreign exchange receipts on the logging industry. Efforts of the new government to clean up corruption and get a fairer price for the country’s resources evidently worked against it. Its life was short and the old party regained control. The company representative is boasting that he brought the old party back to power because its ministers can be controlled to do as the company wishes.

Undue influence on our decision-makers does not only come from outside investors. As elsewhere, local business concerns have their own means of influencing our legislators. Free drinks or meals, Christmas gifts, supplies of building materials, grants of pieces of land or outright payments of sums of money under the table, are some of the common ways used to influence the policies, programs and priorities of our countries’ development. Those who have no money or gifts to offer get forgotten. Instead they are given crumbs in return for their votes at election time.

Our ‘brown masters’

When we gained independence, our colonial white masters were of course replaced with our own people. These are our ‘brown masters’. I borrow this term from Peter Ryan who used it to describe the unfortunate and blatant exploitation by some Papua New Guinea leaders, both of their own people and of their government system, to further their own ends.

The PNG parliament has 109 members, of whom more than ninety are, or recently were, under investigation for corruption. Bribery and speculation are now state-sanctioned and institutionalised by the outrageous Electoral Development Fund (or ‘slush fund’), whereby annually an aggregate K32 million is made available to members to dispense more or less at will. This equals about 10 per cent of the aid funds supplied each year by the docile Australian taxpayers.

Mount Kare, high in the desolate mountains of Enga Province, was recently an astoundingly rich alluvial goldfield—a PNG version of
Ballarat or the Klondyke, attracting perhaps 10,000 indigenous pick-and-shovel miners in a wild stampede. Here, on several visits, I watched PNG corruption in naked action. Politicians (including cabinet ministers) were active illegal gold-buyers, and swindling the miners into the bargain, with rigged scales and unfair prices. They then smuggled their illegally bought gold out of the country for sale in Singapore, Kuala Lumpur or Australia. This evaded the government’s modest five per cent tax on alluvial gold. Much of it travelled in Members’ personal suitcases, which customs officers dared not search (Ryan 1995:9-17).

Papua New Guinea is not exceptional. Fiji was only recently rocked by a scandal involving the government guaranteed National Bank of Fiji. It lost something between F$80 and F$120 million in bad debts to politicians, bank management staff, and their friends, relatives and business associates. The bank management approved loans with complete disregard for responsible banking procedures. The National Bank is supported by thousands of ordinary people who are small savers and depositors in the bank, most of whom live in rural areas where the most common banking facility is through the government post office and other agencies of the National Bank. Currently the Fiji government is wrestling with the problem of stopping the bank from collapsing. In Western Samoa, the politicians sacked the Auditor General for doing his job and revealing large irregularities in the use of public funds.

Where our brown masters exploit the system so blatantly, their influence is two-fold. First, as is obvious, by diverting public funds to their own and their friends’ pockets, they rob the populace of finances and services intended for their development. Instead, these brown masters channel funds for the benefit of a few and create a new small elite of wealthy locals. Wealth is in turn used to entrench their position of privilege. They influence development policies by paying corrupt politicians and thus encourage development that favours the rich and widens the gap with the poor.

The second influence is more insidious and so much more difficult to control. This is the impact the brown masters have on the morality and morale of those who provide services to the public. When top leaders are corrupt, lower officials are less likely to be deterred from bribery and corrupt practices. Similarly, the private sector and the public increasingly accept bribery as the means of getting services when needed. The process, once begun, feeds upon itself and becomes very difficult to stop. Again those without the means to influence miss out, and find it difficult to control their own development.
The way forward

I think that most of us believe in democracy. This has been popularly defined as government of the people, by the people, for the people. Development too has to be for the people, by the people. Without meaningful participation by the people, development of a country will remain partial and highly skewed in terms of the distribution of benefits. This requires that democratic structures are in place and that democratic processes are respected and functional.

Our leaders in the Pacific often appeal to culture when democratic procedures threaten their positions of privilege. Often they use culture to enhance their elevated situation and render them immune to questioning. Let me give you an example. There was a person of privilege in another of our countries. This person was the sole trustee for funds earned from a lucrative business of a landowning unit and she misused a substantial amount of the trust money for personal gain. The landowning unit took the trustee to court which found that the trustee had much to answer for but, although millions of dollars were allegedly involved, the matter was effectively glossed over because of the traditional role of the trustee in relation to the landowning unit. Although development must take place in adaptation to the cultural context, abuse of culture must be clearly recognised as such. Democratic processes are needed if people are to control their own development.

Several conditions are necessary for development by the people for the people, assuming democratic structures are in place. First, there must be an informed populace. The people must be informed of what is going on in their countries and they must know what the implications are for their lives of decisions made by their politicians. This requires that the population must be literate and politically aware, and the teaching of functional literacy in this context is very important. NGOs, churches, and trade unions, although active in this area, need to increase their efforts to increase literacy and raise awareness. The media also play an important role in raising people’s awareness. Leaders of these agencies need to have the courage to speak on policies which promote equity, contain the excesses of the powerful, and address the needs of the weak in society.

Second, there must be an empowered populace. While the people may be informed, too often many will not exercise their rights for various reasons, including culture and lack of confidence. Culture is often used as an excuse. For example, women may be barred from
important meetings of the community or from standing in political elections because it is not accepted culturally. People need to know their basic rights and be supported to have the confidence to assert these for themselves. Again NGOs and churches have an important role to play in this area.

Often people will gain confidence to speak out only with improved status of education and economic activity. What is of concern in the Pacific is the swelling numbers of young people leaving the formal school system with neither adequate education for employment or adequate knowledge and skills to fend for themselves in the subsistence sector. Just as the economic systems are marginalising an increasing number of people, so our education system is producing too many ‘push outs’. Without the means to understand the implications of events on their lives and the opportunity to become economically active and useful members of their societies, these people will have little chance of sharing control of development in their countries. With our predominantly young populations and high population growth rates, such a situation is of great concern for the future well being of our societies. Traditional structures of discipline are breaking down and violence in urban centres is increasing, as more and more young people feel frustrated with the status quo. Some form of appropriate community-based education urgently needs to be developed for the majority of our youth who are leaving school early. Again NGOs, churches and community groups have worked for years in this area with little if any government support. The results are highly inadequate and need to be urgently expanded upon.

Third, there must be a supportive network. The efforts of people at local community level to democratise development need the support of international networks in order to counter powerful forces against it from within their own countries. This is where development NGOs and the churches can play such important roles. Several NGOs are now working closely with local communities in Melanesian countries to help them determine their own development.

These communities identify and prioritise their own needs, assess their own resources and plan how they can utilise and manage those resources for sustainable development. Several communities have begun sustainable harvesting of their own resources for direct export to overseas buyers without going through large multinational companies. NGOs have helped in this kind of development. Forest products, both timber and non-timber, are being developed this way. Individual local
entrepreneurs are establishing themselves despite the lack of encouragement from governments. Many of them run small-scale family-owned ecotourism concerns, that enable them to earn some cash yet preserve their resources for their usual subsistence needs. In urban centres there is a growing informal economy where the people have taken control in the absence of inhibiting government regulations.

**Conclusion**

In conclusion, I wish to emphasise that while the control of development in our countries to date has been largely in the hands of national government institutions and a powerful élite, influenced or supported by multinational structures, there is now a growing movement of people working to have that control more widely shared. This movement needs the support of an international network for the growth of civil society, and books like this should contribute to strengthening that supportive network.

**Reference**

Papua New Guinea occupies the eastern half of the second largest island in the world and extends to include 600 other islands and archipelagos. The mainland is dominated by a central mountain spine nearly 2,400 kilometres in length with heights from 2,000 to 4,000 metres, continuing eastward to form the island of New Britain. Outwash from these mountains has formed large alluvial flood plains. The climate is tropical, the vegetation is mainly forest, and the future of this forest is now the focus of an economic and environmental crisis.

The national economy

Economic development imposed by the outside world commenced relatively late in Papua New Guinea. The German colony of New Guinea came under Australian administration after the First World War and was combined with the British colony of Papua after the Second World War to form the Territory of Papua and New Guinea, which gained independence in 1975. While the Australian administration pursued a policy of gradual and uniform development from 1951 to the mid-1960s, there then followed a strategy of rapid economic growth in areas with the greatest potential as recommended by a World Bank study in 1965. Dependency on Australian aid funds, then 66 per cent of
Administration receipts, was to be decreased and government spending on agriculture, forestry, transport and education increased. Besides stressing the need for higher education and more responsibility for Papua New Guineans, emphasis was given to overseas investment and continued expatriate participation in private enterprise such as gold mining and agriculture as well as in public extension services.

Small-holder agricultural production increased steadily but cash crops were subject to normal variations in international prices. Imports grew and the trade gap widened from 1960, when exports were 90 per cent of imports, to 1970, when exports were only 44 per cent of imports. During this period the Australian aid grant almost quadrupled and there was growing pressure within both Australia and Papua New Guinea for self-government and independence, resulting in a de facto National Government in 1972. But the unbalanced growth of the economy, unable to keep pace with the Administration’s expenditure and increasing imports, led to intensified political demands to exploit the country’s forests as a source of national export income and a vehicle for local rural development. This was the first major wedge jamming open the door to the forests. The second wedge resulted from the Private Dealings Act of 1971, which for the first time allowed foreign timber companies to deal directly with local landholders, bypassing official regulation or supervision. Unsophisticated and inexperienced villagers had to negotiate without any outside assistance against some very experienced international operators.

On paper the economy of Papua New Guinea appeared healthy and dynamic up to 1995. GDP was US$3.2 billion in 1990 and US$5.8 billion in 1995. Agriculture, forestry and fisheries were the main contributors, followed by mining, industry, construction, commerce, transport and other services, although 1993 figures indicate an increase in the mining and forestry sectors. The population totalled 4.2 million in 1996 and had a growth rate of 2.3 per cent per annum. The GDP per head was US$904 in 1990 and increased to US$1641 in 1996. The average real economic growth rate from 1984 to 1990 was 1.5 per cent. The average inflation rate from 1987 to 1992 was 9.6 per cent, but in 1992 it was as low as 4.7 per cent. Since the beginning of the economic crises in mid-1994 inflation has risen dramatically and, while official figures are generally discarded, it is commonly accepted that the rate in 1995 was between 25 and 30 per cent. The currency exchange rate floats against major currencies and, following an effective devaluation of 30 per cent in 1995, it is currently almost at par with the Australian dollar.
The economy is highly dependent on export commodities, such as gold (54.6 per cent in 1991), copper (26.5 per cent), forest products (7.4 per cent) and coffee (3.0 per cent). The export value was US$1.5 billion (53 per cent of GDP) in 1991 and US$1.8 billion (59 per cent of GDP) in 1992. The trade balance was positive: imports accounted for 73 per cent of exports in 1992.

But these figures do not account for the economic base of the majority of Papua New Guineans. Population density is low at 8.4 persons per square kilometre, and 85 per cent live in rural villages or hamlets, depending on various forms of subsistence agriculture. Papua New Guineans have an incredibly strong attachment to their land and, significantly, 97 per cent of the total land area is under customary land tenure, protected by state law. The forest trees and plants on this land and the wild creatures they support provide a significant proportion of the food supply, together with raw materials for building, tools and weapons, clothing and ornament, ritual and magical practices and medicines. But although the people share a similar economic base, the country is socially and culturally diverse, with as many as 800 distinct languages, one third of the world’s total. Life centres on local communities, which have a strong ethos of solidarity and mutual support.

**Forest resources and policy**

Estimates of the area covered with closed forest in Papua New Guinea vary between 32 and 36.4 million hectares, representing about 70 to 77 per cent of the total land mass. There are 12 different vegetation types of classified primary forests, ranging from mangrove at sea level to alpine forests in high altitudes. The forests are extremely rich in biodiversity, with between 11,000 and 19,000 vascular plants and more than 2,000 tree species, including more than 1,200 in the lowland rainforests, which constitute 43 per cent of the total forest area. Many plant species are endemic to Papua New Guinea and so are many of the native birds, mammals, fresh-water fish, amphibians, reptiles and insects. There are distinct regional differences in the distribution of forest cover, with some ancient deforestation in the Highlands resulting from subsistence gardening, whereas the lowland provinces had largely intact forest cover until recently.

Out of the total forested area, about 15 million hectares are classified as accessible production forests, containing an estimated volume of
approximately 500 million cubic metres of commercially valuable timber, valued at US$100 billion. But some recent estimates put remaining productive forests at only 7.2 million hectares, with a commercial timber volume of 170 cubic metres. The bulk of this is lower altitude-type of forest, easily accessible with a high concentration of desirable species, 50 per cent being lowland rainforest. The annual decline of forests is estimated by one authority at 1 per cent, due to shifting agriculture, mainly in the densely populated Highlands, followed by mineral exploitation and logging. However if the moonscapes left by most export logging operations are anything to go by, these figures are absurdly low.

Forestry in Papua New Guinea is undergoing a major transition. In 1991 a new Forest Policy and Forestry Act was passed by Parliament, designed to remedy shortcomings in the previous legal framework revealed in the Barnett forest industry inquiry (1989) and the World Bank Tropical Forest Action Plan Review (1990), and consistent with the fourth goal of the Papua New Guinea Constitution: that Papua New Guinea's natural resources and environment should be conserved and used for the collective benefit of all and should be replenished for future generations. The main objectives of the new National Forest Policy were the management and protection of the nation's forest resources as a renewable asset and their utilisation to promote economic growth, employment, participation in the forest industry and increased viable onshore processing. It stresses that all transactions affecting forest resources shall fully recognise and respect the rights of customary landholders, without whose consent no operation shall be permitted.

The acquisition of forest resources from landholders is effected by Forest Management Agreements, replacing Timber Rights Purchase Agreements under the previous Forestry Act (1976). In both cases the Papua New Guinea Forest Authority (formerly Department of Forests) purchases the rights to exploit timber from the landholders for a certain period, usually 40 years, and allocates it to a logging company or sawmill (by a Timber Permit), without affecting tenure of the land. Small forestry projects are permitted under Timber Authorities, granted for one-year periods or 5,000 cubic metres, whichever occurs first, with the logs to be used only for domestic processing, not exported. A Timber Authority may be obtained without the feasibility study and tender procedure required for larger projects. Before any company (including landholder companies) or person can apply for a permit or authority under the Forestry Act, they must first register as a Forest Industry
Participant. Sustained yield management of production forests is stressed as the guiding principle, with selective logging as the prescribed method for natural forests. Overall responsibility for sound forest management is vested in the State, which should formulate a National Forest Plan based on a National Forest Inventory.

Unfortunately the Government gagged the August 1996 sitting of Parliament and passed Amendments to the *Forestry Act* which had the effect of giving the Cabinet power to appoint or sack members of the National Forest Board. There has been widespread alarm amongst NGOs in particular at these amendments as they pave the way for a return to the pre-Barnett ministerial excesses. The World Bank has also taken a dim view and at this stage has withdrawn further funding support for the Government.

The promotion of onshore processing and value-added forest products was a major change from previous legislation. The National Forestry Development Guidelines further specify that the Government will decrease log exports, although not ban them. As a first step log exports were restricted to 3.5 million cubic metres during 1994. This volume was more than 250 per cent of the officially scaled log exports in 1991 (1.4 million cubic metres) and more than 140 per cent of a commonly accepted sustainable harvest level of 2.5 million cubic metres. The Government figures rely totally on loggers' submitted tallies, which may be credible if you still believe in Santa Claus and the Tooth Fairy. Raw logs exports increased dramatically (Table 5.1).

<table>
<thead>
<tr>
<th>Year</th>
<th>Raw log exports (million cubic metres)</th>
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<tbody>
<tr>
<td>1987</td>
<td>1.9</td>
</tr>
<tr>
<td>1988</td>
<td>1.6</td>
</tr>
<tr>
<td>1989</td>
<td>1.5</td>
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<tr>
<td>1990</td>
<td>1.4</td>
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<tr>
<td>1991</td>
<td>1.5</td>
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<tr>
<td>1992</td>
<td>1.6</td>
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<tr>
<td>1993</td>
<td>3.2</td>
</tr>
<tr>
<td>1994</td>
<td>2.9</td>
</tr>
<tr>
<td>1995</td>
<td>2.4</td>
</tr>
</tbody>
</table>

Further reductions in log exports were proposed in future years to encourage the development of a domestic forest industry, supported by incentives such as relief from tax and import duty on processing equipment. Furthermore, domestic industry will have first refusal on all species and grades of permitted log exports to secure its raw material supply. The Guidelines also stress that the development of forest industries should be dispersed throughout Papua New Guinea as much as possible and that landowners should be encouraged and assisted by the Forest Authority to participate in them. Community Forestry is a stated objective of the new Forest Policy, as a strategy for sustainable forest management.

Under the *Customs (Tariff) Act*, logs for export were subject to an export levy, fixed at progressive rates on the free-on-board prices (after all local costs have been met) of the different timber species, but this was removed in 1994. The export tax receipts had made a significant contribution to the Government coffers, compromising its decisions. Under the *Environment Planning Act* of 1978, all Timber Permit holders prepare an Environmental Plan for the project area, covering

- the purpose of the forest project
- sustainability of the yield
- harvesting and replacement techniques
- social and economic benefits to landholders
- proposed infrastructural developments
- viability of the project
- a detailed description of the existing biophysical environment
- environmental impacts and measures to mitigate them.

It should also provide a detailed land-use plan, showing the project area under the proposed ultimate land uses, including conservation sites for environmental, cultural or historic reasons. In practice, most Environmental Plans in the forestry sector appear to result from a search and replace exercise on the word processor.

A National Forestry and Conservation Programme was adopted in 1990 to implement the new Forest Policy and improve both forest conservation and sustainable forest management for the social and economic benefit of the people. The national lead agency is the Forest Authority, with the World Bank as lead donor agency. More than twenty major projects have been approved for the Public Investment Programme of 1993–98, plus a number of small projects. The overall
budget is estimated at 40 to 50 million kina, with the Government committing more than 5 million kina to date. These projects include landholder awareness campaigns through local NGOs, resource appraisal, human resource development, preparation of a National Conservation Strategy, and a Community Forestry Program for Rural Development. Certain projects are already completed, such as the review of forest policy and legislation, the establishment of a new administrative structure, and the Forest Industry Development Study. A special Ecoforestry Committee has been established to promote small-scale, sustainable forestry projects, comprising representatives from Government Agencies and NGOs.

One of the major legislative changes has been the creation of a unified National Forest Service (NFS) under the National Forest Authority, which in turn is directed by the National Forest Board, which also oversees the Provincial Management Committees and Special Advisory Committee. The National Forest Service replaced and absorbed all the functions (extension, research, training and education, resource assessment, policy and planning advice, monitoring of forest development projects) of both the National Department of Forests and the Provincial Forest Divisions. The system whereby the Forest Department granted Timber Rights Purchase and Timber Permits at the provincial level is said to have undermined control of the export logging industry, although most of the major scandals occurred at national level.

The NFS is trying to impose tougher checks on logging and has the ambitious aim of placing a minimum of two Forest Officers with every commercial logging operation. This would be a considerable improvement on the present system where a Forestry employee normally depends on the logging company for transport, communications and probably a bed and meals, but it is still insufficient, especially in terms of housing and trained personnel. The priority of the NFS at present is clearly to regain control of the large-scale concessionaires by implementing the Forest Development Guidelines. Although its mandate also includes rural extension, the lack of funding and staff does not allow for active extension programs, given the scale of the task of monitoring the large scale logging projects. Small-scale operations below 5,000 cubic metres annual cut are presently of minor concern.
Figure 5.1  Yearly export of logs and other forest products (US$ million)


The growth of logging

Until the mid-1970s the great diversity of species and relatively difficult access to Papua New Guinea’s forest resources limited timber production and exports. The Pacific Rim markets were mainly supplied with tropical hardwoods from countries like Indonesia, Malaysia, Thailand and the Philippines, which possessed vast and more homogenous (*Dipterocarp* dominated) forest resources. In 1979 log exports from Papua New Guinea were liberalised and most logging companies geared their activities to overseas markets. When previous sources of South Sea logs dwindled owing to severe export restrictions, the timber industries of Japan, Korea and Taiwan, almost exclusively designed for the processing of round logs, turned increasingly to Papua New Guinea timber species, leading to dramatic price increases. Whereas the average free-on-board price per cubic metre was below US$70 in 1991, it had increased to US$160 by September 1993 with
Figure 5.2  Export log price trend in Papua New Guinea


Figure 5.3  Papua New Guinea log exports by country of destination

relatively abundant species such as Taun reaching a peak of US$350. The dominant position of Japan as a buyer should not be underestimated. The machinery and the market is Japanese, hence so is the finance. Whilst the Malaysian Chinese are on the ground doing the dirty work as the target of criticism and supposed control, the Japanese are able to assure their raw log supply and remain in the background.

Domestic processing has declined dramatically since the mid-1970s, from 63 per cent of all logs produced, equalling 830,000 cubic metres, in 1977, to less than 15 per cent by 1991, including the volume converted to pulp chips by the Japanese company Jant. In 1993 the approved volume for log exports totalled 6 million cubic metres. Even though it is unlikely that the export loggers were able to harvest this quantity, another dramatic increase can be expected, worsening the above trend. At present it can be assumed that the domestic processing share is well below 10 per cent. Figure 5.4 illustrates this point, with the interesting anomaly that in 1992 more logs were exported than produced.

About 20 years ago portable sawmills were introduced to Papua

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**Figure 5.4 Total production and log exports**

![Graph showing production and log exports from 1975 to 1992.](image)

New Guinea, the first being Dolmars from Germany and later circular saws from Australia, New Zealand and the United States. Since 1986 *wokabout somils* have been produced locally by NATEQUIP, a private company in Lae, producing 75 units a year with a total of close to 500 to date. The total number of portable sawmills in Papua New Guinea is estimated at approximately 700, no more than 30 per cent of which are believed to be in operation. One result of this high attrition rate is that the banking system is very wary of lending for community-based sawmill projects. Thirty-eight mills are said to practice some kind of sustainable yield forest management.

There are two main reasons for the failure of portable sawmills in Papua New Guinea. First, operators usually have neither technical expertise in equipment maintenance and repair nor an efficient technical and spare parts back-up service, particularly in very remote areas. The second bottleneck is the lack of accessible markets. In addition, many mills are not operated commercially but for the sole purpose of providing village communities or individuals with construction timber as the need arises, for example for schools, churches or domestic houses. Some operations are surviving as salvage mills, using the roads constructed by industrial loggers and converting logs that were too small, defective, or simply forgotten by the large companies.

Portable sawmills might also pose a threat of increased forest destruction if they are not operated under controlled environmental and silvicultural guidelines. Operators may be tempted to increase the harvesting rates to unsustainable levels ('creaming' all specimens of desirable species and good shape) or completely clearing forest stands to give way for gardens. However, this negative impact will be confined to a small area, if only for logistic reasons. One study calculated an impact of less than 5 hectares per year for each sawmill. There is currently little or no Government policy or guidelines on the use of portable sawmills and even their registration is not enforced. By comparison, export harvesting is estimated at 90,000 commercial trees per week at present levels, but because of the destructive harvesting methods practised by the loggers maybe a million commercial trees above 10 cubic metres (diameter breast height) are destroyed per week. At an average of two trees per week for a portable sawmill, it would take 45,000 portable mills to equal present commercial extraction rates, and many more to equal present destruction rates.
Logging for export

The domestic market for sawn timber is growing by 10 per cent per annum, but could easily be swamped if the export loggers processed even a small amount of their allocations locally. For this reason any serious community-based projects must aim for the export market, which is dominated by commercial logging, the cause of the forestry crisis. Harvesting rights for more than 6 million hectares of forests have been allocated to industrial logging operations, mainly by means of Timber Rights Purchases, but the allocated area could be as high as 7.5 million hectares, equalling 50 per cent of the total production forests. Harvesting periods from 5 to 20 years further discourage a long-term outlook. The sector is entirely controlled by foreign-based companies, and a single Malaysian company is thought to control in excess of 70 per cent of all export logging operations in Papua New Guinea. Other operators are based in Japan, Korea and China. Not one Papua New Guinean company is directly involved in harvesting and export of raw logs.

The level of damage to the forest may be even greater than previously estimated. The figures below resulted from a survey immediately after logging in various areas in 1983, and again in 1993.

The author of this survey comments that the practice of selected logging is designed to remove the commercially-sized trees from the forest, leaving the smaller trees to grow for the next harvest. However, it is apparent from the stand tables that many such trees are destroyed by

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<th>Table 5.2</th>
<th>Post-logging survey</th>
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<tr>
<td></td>
<td>Original no. of trees</td>
</tr>
<tr>
<td>KAP 1</td>
<td>366</td>
</tr>
<tr>
<td>KAP 2</td>
<td>420</td>
</tr>
<tr>
<td>VAN 1</td>
<td>534</td>
</tr>
<tr>
<td>VAN 2</td>
<td>526</td>
</tr>
</tbody>
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Note: Figures represent number of trees per hectare 10 cubic metres diameter breast height.
intense logging activity, particularly where large commercial trees are located quite close together. It is not possible for assessors accurately to evaluate immediately after harvesting the damage that has been inflicted on residual trees, but this probably causes the great majority of post-harvest deaths. And whereas to the casual observer there appears to be rapid forest re-growth, this is frequently dominated by non-commercial species.

So the reality is a colossal social, environmental and financial disaster. Justice Tos Barnett conducted a far-reaching enquiry into the timber industry from 1987 to 1989, resulting in a 20-volume report that highlighted the massive corruption, greed, economic, environmental and social disasters that had occurred. The report was never officially released, and no serious attempt was made by the Government to either prosecute those responsible or to curb the existing practices. In Barnett’s words

It would be fair to say of some of these companies, that they are now roaming the countryside with the self-assurance of robber barons; bribing politicians and leaders, creating social disharmony, and ignoring the laws in order to rip out and export the last remnants of the Province’s timber. These companies are fooling the landholders and making use of corrupt, gullible and unthinking politicians. It downgrades Papua New Guinea’s sovereign status that such a rapacious foreign exploitation has been allowed to continue with such devastating effects to the social and physical environment, and with so few positive benefits (Asia Pacific Action Group 1990).

Those were the good times. The situation has deteriorated dramatically since then. Checking and monitoring of logging operations has been woefully inadequate and the forests are suffering severe degradation, as can be witnessed by even the most casual observation. Operational standards stated in the Timber Permits are broadly and constantly violated by cutting trees below the minimum diameter (50 cm), by felling to the edge of watercourses, skidding logs in river beds, constructing roads of excessive width and with gradients greater than 15 per cent, harvesting on slopes with gradients greater than 30 per cent and by inflicting excessive damage to remaining stands and soil (estimated 30–40 per cent impacted). Villagers complain of the pollution of rivers and reckless destruction of gardens, houses and cultural sites. Promised infrastructural developments, such as permanent roads, bridges, schools and aid posts are usually far behind schedule or never materialise.
The royalties accruing to the landholders are only marginal and in most cases not more than US$5 per cubic metre, compared to the profits of the logging companies of approximately US$75 per cubic metre. The employment generated is usually only of a temporary nature and often filled by Asian foreigners. Practices like transfer pricing, short scaling, down-grading of species, and all kinds of false record keeping were revealed in the Barnett Inquiry, and are now general practice, enabling logging companies to transfer all the economic rent outside the country. Our information indicates that no logging company has declared a profit in Papua New Guinea over the last 26 years although calculations show that current combined profits are in the region of US$450 million per year for the export logging industry. However, information from other sources often contradicts local data.

**How things can go wrong**

As a step to regaining control of the industry, the Government contracted Société Général de Surveillance (PNG), a subsidiary of SGS Switzerland, early in 1994 to monitor the logging industry in general for an initial period of 17 months. They have a mighty task, as a few examples will indicate.

Shin Asahigawa, a Japanese company, operated an export logging and sawmill concession at Bialla in West New Britain for over 20 years, from a depot on land sold by landholders to the Government for an oil palm plantation. Hostility from landholders over frustrated attempts to regain the land from the Government promoted the Japanese to pull out. They had paid landowners from another area a total of US$600,000 in timber royalties, which they borrowed back, then declared bankruptcy and hopped on the jet home. The landowners lost their timber, their US$600,000, and another US$200,000 due in income tax.

In Lassul Bay, East New Britain, New Guinea Lumber, a subsidiary of Rimbunan Hijau, dug up live reef to use as road base within sight of a government office and allegedly with the permission of the local Member of Parliament. Villagers complained not only of the destruction of the reef but also of polluted rivers devoid of fish and the destruction of property and historic sites. An investigation by the Department of Environment and Conservation recommended prosecution, but even if successful the level of fines would be insignificant compared to the offence. New Guinea Lumber had also been harvesting in another concession for eighteen months on New Britain without being
registered. They were fined US$30,000 by the National Court, but in the meantime they had exported an estimated US$48 million worth of logs.

Then there is the case of the Agriculture Minister, Roy Evara, attempting to bulldoze three so-called oil palm projects through the system, affecting a total area of 620,000 hectares. Evara claimed that the projects are agricultural, hence not subject to the Forestry Act. The development company, Singapore-based, is not only prepared to undertake the necessary clear-felling; they have also generously promised to remove the felled trees to a dump in Japan so as not to clutter up the cleared land, all this at no cost!

An extract from an internal memo to the Prime Minister states that

The Lianyi company proceeded to import second hand machinery and equipment

- without Customs clearance
- without company registration
- without Forestry registration
- without submission of an environmental plan, a working plan, or any similar documentation.

The company then commenced field operations in total defiance of the law and in total disregard of the landholders.

Such incidents raise other queries. Decisions are made involving tens or hundreds of millions of dollars that do not appear reasonable for high flying businessmen. In circumstances like this, with the equipment at risk of seizure, it is not rational to risk those amounts, unless of course the funds involved are derived from other sources than normal business profits or loans. The major loggers operate through a tangled web of locally-incorporated subsidiaries. In many cases these have a total paid up capital of US$2.00, with all the equipment leased, no real estate and no other tangible assets. If and when they are hauled before a court either by the Government or the landholders, there is nothing to sue. The company that offered to carry out the development of the oil palm plantation mentioned above, at our estimated cost of US$750 million, was capitalised at US$100.

It is obvious that the loggers are making substantial profits. We can assume US$40 to US$45 per cubic metre to harvest and deliver a log to the beach, plus Government levies and taxes, to a total of say US$105 costs per cubic metre, free on board. Average selling prices are around US$180, leaving a profit in the region of US$75 per cubic metre. At harvest rates averaging 25 cubic metres per hectare, that gives loggers
profits of US$1875 per hectare. This is substantially higher than can be realised from cocoa, coffee, oil palm or cattle ventures on cleared forest. However, in calculating the potential benefits to Papua New Guinea, we must take into account the fact that this is a once-only. No-one knows whether the forest will recover in 100 years or 1,000 years, but given the moonscapes created it will take at least 50 years for any reasonable commercial harvesting. If the actual profits are calculated more realistically, at US$1,875 for 50 years, they come to US$37 per hectare per annum, miserable by any standards.

May 13, 1994:
The Managing Director
Metlak Development Corporation Pty. Ltd.,
KAVIENG, NEW IRELAND

Dear Sir,

Our reference Invoice No: LA01/94
Negotiated under LC G/J-6512231
Date May 09, 1994
Vessel MV SASA SEBELAS

Cubicmetres loaded 6025.16
Amount (US$) 1,157,210.90
Amount (PNG kina) 1,110,034.44

**LANDOWNER SHARE**

Less: export duty 374,916.76

**Total landowner share** (41,906.43)

Less royalties 24,683.53

**Net amount** (68,598.96)

Less agricultural levy 4,518.88
Less infrastructural levy 3,012.58

**General Fund Available** (76,121.42)

Less Withholding tax (3806.67)

**NET PREMIUM TO LANDOWNERS** (72,315.35)
But the US$1875 is in any case not a profit for Papua New Guinea. Foreign logging companies make sure of this by manipulating their accounts to ensure they declare a loss. Take for example the reconciliation account between a logging contractor (New Guinea Lumber Merchants) and a landowner company (Metlak Development Corporation) covering a shipment of 6,000 cubic metres of logs from the Metlak concession in New Ireland, which is reproduced opposite. The bottom line is that the landholders lost forest assets valued at a minimum of US$1.2 million, and were in debt for US$72,000 as a result. To this financial scam can be added the environmental, social and cultural problems caused. The value of the logs is almost entirely transferred overseas and, taking account of the time and costs for government departments, it is quite likely that Papua New Guinea as a whole makes an overall loss from operations such as this.

There has also been a growing alliance between the loggers and local police units, fostered by donations of food, equipment, housing and even vehicles to the police, compromising their impartiality. When landholders protest at loggers’ illegal activities, the police are flown in by charter paid for by the loggers to arrest the landholders, on charges which, in some well-documented cases, were subsequently dismissed by the courts.

**Government**

It is reasonable to ask why the Government is not dealing with these problems. It is not necessarily a matter of changing the legislation, which has been quite adequate for a long time, more a matter of implementation and commitment. The inroads of the loggers are largely a result of Government’s inability to develop the rural areas while spending 48 per cent of the national budget in and around Port Moresby. Then there is corruption and a carpetbag mentality amongst the new fat cats of the capital, a town which is crime-ridden and razor-wired but accessible by direct flights to Asia and Australia. We must also accept that there are some villagers who will sell their heritage and deceive their own communities for short-term gain.

On the other hand there are dedicated public servants and politicians, whom the explosion in logging in particular has caught totally flat-footed. The responsible departments, including taxation,
environment, labour, forestry and finance, simply do not have the experience and the resources to administer and police the massive upsurge in activity. Serious efforts are being made to catch up, but there is a real danger that the forests will have disappeared before they do. The plight of the Forest Minister and his senior officials is illustrated by a recent press release.

Port Moresby, June 24, 1994.

Papua New Guinea was losing more than US$1 million per day in illegal log exports, the country’s Forest Minister, Tim Neville, said yesterday.

‘Some of the richest and most prized rainforest in the world was being secretly shipped out of the country by logging companies, mostly Malaysian, despite Government attempts to control the industry’, the Minister told AAP [Australian Associated Press] in an interview yesterday.

These attempts have already seen death threats issued to Mr Neville and his family, and a recent devastating fire at the Forest Authority’s records office, which destroyed thousands of crucial files on the industry.

Forestry sources were convinced that the fire was an arson attack, although authorities were still waiting for a report from Melbourne fire investigator, Peter Thatcher.

Mr. Neville said that monitoring logging companies in such a vast country had been largely impossible, where many of the concessions were remote and none of the sites had telephone contact.

‘Not only that, but the loggers are totally organised and we haven’t been able to compete against that until now. Even though things have been tightened up I would estimate about a million dollars per day is still disappearing.’

This is quite clearly a cry for help.
Pacific Heritage Foundation

So what is to be done? One possibility is the local initiative in which I am involved. Driven by a deep frustration a number of concerned people formed the Pacific Heritage Foundation early in 1992. Its prime aims are

- to promote an increased awareness amongst all people of the wealth and diversity of the natural heritage of the Pacific area
- to improve the welfare of the peoples consistent with improved conservation and managed economic programs
- to provide moral, technical and legal support to prevent the destruction of this heritage
- to provide education and assistance to communities to enable them to understand and preserve their heritage
- to provide practical working examples of environmentally sound methods of earning income from the natural resources without unnecessary destruction
- to establish a Conservation Botanical Garden aimed at representing the widest possible collection of plant material
- to support Government policies and practices aimed at the preservation of this heritage.

We recognise that the landholder has a right to use the forest as a source of income. If that means cutting down trees, then we aim to demonstrate that this can happen without destroying the forest, and yet yield a satisfactory income level. We promote new community projects only under strict criteria, which include

- that a resource survey indicates that the project can be economically viable and that the harvesting cycle will be sufficiently long to enable satisfactory regeneration whilst protecting the ecosystem
- that the landholders understand the land and the trees are their asset, protected by the Constitution and the Law
- that the overwhelming majority in the village or villages agree with the proposal, and that the land area to be set aside for the project is without dispute
- that the village as a whole, not just selected leaders, understand the implications and benefits of the project, and that it will require substantial loans and hard work to make it successful
that strict forest management guidelines must be followed if they wish to sell into the specialist export market, and that the projects will be inspected and certified by an outside agency at regular intervals

- that they understand their decision to reject export logging will lead to coercion, bribery, intimidation and even violence from various foreign and local interests.

The village must be of one mind.

Because it was close to home and fairly typical, an approach was first made to villagers in the Bainings area of New Britain to start a pilot project. Although they were the original inhabitants of the Gazelle Peninsular, they have moved back from the coastal areas as a result of population and commercial pressures exerted by their Tolai neighbours, and are under constant pressure from entrepreneurs and carpetbaggers of all breeds and inclinations. Recognising that it would be self-defeating to preach a total ban on tree-felling, we selected community-based portable sawmilling as the simplest and quickest project to promote. The banks responded with expressions ranging from horror to ridicule. It was decided that the first mill would have to be owned privately in the hope that it would convince the banks as well as the villagers. After 15 months of operation we were able to borrow 60 per cent of the cost of a portable saw for the first village group and the operation proved successful enough to enable their total loan to be repaid within 15 months. We were also fortunate in gaining support from B&Q Plc, the major do-it-yourself chain in the United Kingdom, and this translated into some funding assistance for necessary survey and awareness programs, as well as providing a market for the first grade sawn timber.

The Bainings Project has since expanded to three sawmills, with two additional villages awaiting finance approval. These five mills will operate in a total area exceeding 12,000 hectares, ensuring a cycle in excess of 50 years. The average harvest rate is less than 30 per cent of commercial harvesting, and the overall management plan is based on the guidelines established by the Forest Stewardship Council (FSC). We estimate that up to 70 per cent of the ground area is trashed by machinery in the average export logging operation, whereas our measured results show that less than 9 per cent is damaged. An independent inspection confirms that we are generally following the FSC guidelines with some variations for local conditions and some areas for improvement identified. Training is carried out on site, enhanced by
attendance at various workshops conducted by other organisations to promote land rights and environmental issues. We work closely with a range of NGOs within Papua New Guinea and overseas.

Principal benefits of the direct participation of local communities include involving landholders in the use of their forest resource and the promotion of environmentally sound harvesting practices. They gain opportunities for reasonable economic returns, permanent employment close to the village (which encourages villagers, particularly young adults, to remain in rural areas), a lower demand for large-scale destructive projects, and self-sufficiency in construction timbers. This did not happen without some major effort. It was eighteen months from the beginning of the discussions until the saw was in operation, approximately half this period needed for a decision by the village, and the remainder for the financial and bureaucratic shuffling. And the temptation of easy money remains, especially to older men. It is the women and the younger men who see value in preserving their natural heritage, and using it in a sustainable way. Sometimes the loggers’ plans backfire, but the following case illustrates the power they wield.

A bargeload of equipment landed on the south coast of New Britain (without authority, but that is another story). One of the Malaysians approached the villagers on the beach and asked whose land it was. An old fellow replied and was asked how much it would be to rent the land as a log dump. A little deliberation amongst the group and the answer was ‘a hundred’. Without blinking the Malaysian whipped open his briefcase and counted out 100,000 kina in new 50 kina notes. That focused the minds of the on-lookers somewhat. The barges were unloaded and after various checks and surveys, the drivers started to move the equipment inland a couple of days later. They got to the first village, where they found the road blocked and a group waiting; ‘Can’t come across our land without compensation.’ ‘How much?’ asked the bossman. Quick as a flash ‘100,000’ came the reply. A quick trip back to the barge and another 100,000 kina was counted out to the group desperately trying to remain sombre-faced. Strange to say, the same thing happened when they arrived at the actual forest edge. They paid again, but refused the fourth demand the next day when they started cutting down the trees. Over the next few weeks they were so harassed by the now angry villagers that they pulled out completely, having spent 300,000 kina in cash alone without shipping a log.

Against all this we have to fight with logic, reason, experience and hopefully sincerity, but some progress is being made. Our nation-wide
and international campaign with other concerned NGOs is raising awareness of the issues. The national press has responded with increased coverage while recent overseas television documentaries together with major newspaper and magazine articles have highlighted the problems. We are aware of other diplomatic and finance efforts to assist the Government and there is a growing awareness by aid donors that NGOs can be the most effective communications and education route. Increasing numbers of village groups from other areas are coming to the Project for guidance and requesting assistance to establish similar projects in their own areas. To date we have 14 additional projects in various stages of progress through the bureaucratic system, including several that have rejected overtures by Asian loggers despite hundreds of thousands of dollars of bribes.

Basically landholders want some cash and some development, but without the destruction of their forest, through projects which are under their control and employ their labour. We are not restricted to sawn timber as a commercial forest product. Other potential earners include galip nuts, orchids, rattan, traditional herbs and medicinal products, and crocodile and bird breeding. The various projects that are either up and running or close to operation will result in over 100,000 hectares of prime rainforest being denied to the loggers. The figure could increase dramatically if we had reasonable funding.

Where next?

For our work, the way forward depends on increased education and awareness activities. We believe that we can force the greatest change from the bottom, not the top. On this basis we intend to continue establishing community-based projects in place of export logging, and to be in a stronger cash flow and marketing position with increased volume. We also plan to set up a Community Justice Centre with in-house legal staff to handle landholder problems, having successfully assisted a number of village groups in court actions against loggers. Commercial lawyers are unfortunately either compromised by relationships with logging companies, far too busy, or far too expensive. A village group without access to substantial cash reserves cannot sustain an action against a cash-rich logger, but the laws to protect the landholders are there, the courts appear to be above corruption, and the use of legal challenges can be the quickest and most cost-effective way of obtaining results. We are further hoping to set up a central unit to
process the timber from the projects into higher value products. The greatest constraint is simply the availability of funds. So far private sources have met our monthly running costs of about US$8,000.

Sceptics may query this project but we make no claims to perfection, merely trusting that our approach is a better alternative than the present situation. Although a large number of portable sawmills would cause less damage than the levels of destruction in Papua New Guinea today, they do require strict adherence to management plans and regular supervision and inspections. There is also a limit to the volume of timber that can be harvested and processed by a local village community with limited labour and a need for cash conditioned mainly by their concerns for the education of their children, health care, food supplies, communications, transport and decent housing, together with a reasonable range of consumer items. On the other hand, can the market accept ever-increasing volumes of sawn timber and timber products from community projects? In the United Kingdom the changes have been driven by retailers such as B&Q, reacting to consumer concerns, particularly from the younger generation and school children, but the trade will only continue to respond if consumers keep up this pressure. They may need to write to the Papua New Guinea Government, ask importers to declare the source of their timber and the conditions under which it is harvested, and make others aware of the issues involved.

Conclusions

We don’t pretend to have all the answers, but we do claim that community-based projects are better than the almost uninhibited destruction of Papua New Guinea’s prime natural asset and the corruption of the people’s morality, lifestyle, history and culture. The problem may appear to be environmental, but it really is a human rights issue. The landholder’s assets, their food sources, their medicinal supplies and their sacred sites are being trashed. In asset terms they are wealthy people. An average coastal village with a population of 150 owns 25,000 hectares of forest, valued at US$200 million, but they have few of the things such money can buy. The way their assets are being exploited at present, in five years their forest may be turned into a wasteland, and they still won’t have any shoes. These peoples’ contribution to the world’s environmental and political problems is minimal. They are not creating pollution or over-consuming energy or
raw materials. But because they are isolated and inexperienced in such things, they are the unknowing partners in a global problem. Only when the last tree has been cut, the last river polluted and the last reef killed, may we understand that we cannot eat money.

References


Max Henderson (Chapter 5) provides us with a general historical account of the forest industry and forest policy in Papua New Guinea, followed by some indications of the way that NGOs like his own Pacific Heritage Foundation are seeking to establish some alternatives to the present system of exploitation. In these comments I shall restrict myself to a discussion of three contentious issues—the definition of ‘sustainable forest management’, the distribution of economic rent from large-scale logging operations, and the nature of community attitudes to the choice between sustainable and unsustainable forms of development.

**Sustainable harvests**

Henderson offers us several numbers which relate to the biophysical and economic significance of large-scale logging in Papua New Guinea. These numbers have rather different relationships both to reality and to the vexed question of ‘sustainability’. According to Henderson, it is commonly ‘accepted’ that Papua New Guinea’s forests can only sustain an annual timber harvest of 2.5 million cubic metres. But the PNG Forest Industries Association maintains that the com-
monly accepted level is twice this amount. How can we tell who is right?

Back in 1993, a team of Australian scientists estimated that Papua New Guinea might have as much as 7–8 million hectares of 'productive' forest containing a total of about 160–170 million cubic metres of commercial timber. If it were assumed that the same volume of timber could be harvested from the same piece of forest once every forty years, this area had the potential to produce a maximum annual harvest of more than 6 million cubic metres of timber, well above the current volumes of log exports. There are two problems with this kind of calculation.

First, we do not really know how long it takes the average stretch of Papua New Guinea forest to regenerate its timber values once it has been 'selectively' logged. But we do know that current logging practices in most timber concessions are likely to prolong this period, because the loggers either cut down or critically damage something between 30 and 80 per cent of all existing trees. Those trees which are critically damaged include many younger members of the commercially valuable species which will not live long enough to become part of the next log harvest.

Second, we do not know what proportion of existing 'operable forest' will actually be left to regenerate as best it can, or will still be available for logging in forty years' time. Large parts of this forest will probably be converted to 'inoperable' uses, either because they will become 'conservation areas' or (more likely) because they will be cleared permanently for agricultural or other economic activities. Taking this factor into account, one Australian forestry consultant estimated that there might only be 3 million hectares of forest available for 'sustainable timber production' with an annual harvest of 3 million cubic metres of timber.

According to the latest sets of figures produced by the PNG Forest Authority, the country exported 2.9 million cubic metres of logs in 1992, 3 million in 1994, and 2.4 million in 1995. Should we therefore conclude that timber production volumes are still within the limits of sustainability? There are several reasons why this conclusion is not warranted.

First, as Henderson points out, the official export figures almost certainly underestimate the actual export volumes, though not perhaps by quite as much as he suggests in his remarks on Santa Claus and the Tooth Fairy. The volume of 'concealed' exports may be less significant
than their value, because they are likely to comprise those species (like rosewood) which are presently subject to an export ban.

Second, the level of harvest will always be greater than the level of exports. Over the last few years, the difference has been officially estimated at between 600,000 and 1 million cubic metres per annum. This figure is understood to apply to timber which is subject to further processing before being exported or consumed by the domestic market.

Third, as noted above, the volume of timber which is ‘officially harvested’ may not include a substantial number of full-size logs which are wasted in one way or another, and certainly does not include those very substantial volumes contained in the (mainly immature) trees which are critically damaged by careless logging practices, even though this second form of wastage represents a substantial detraction from some future harvest.

Finally, there is a very wide variation in levels of harvest between different parts of the country. In recent years, for example, one of Papua New Guinea’s 19 provinces (West New Britain) has accounted for roughly half the logs exported from the country, even though it contained less than 14 per cent of the balance of commercial timber volumes estimated to exist in 1993. Under the National Forest Policy, each province is supposed to be practicing sustainable timber production, but this is clearly not happening, and those provinces in which harvest levels are obviously unsustainable will also be those in which logged-over forests are more likely to be cleared for other uses.

For these various reasons, it seems very unlikely that sustainable timber production will be possible if the country officially exports more than 2 million cubic metres a year for any significant period of time.

Revenue distribution

From a strictly economic point of view, I find it difficult to agree with Henderson that the situation in the forestry sector has ‘deteriorated dramatically’ since the conclusion of the Barnett Inquiry in 1989, unless one measures deterioration entirely by reference to the concept of sustainability which I have just discussed. Although Barnett himself declared that transfer pricing was amongst the worst of the scandals exposed by his inquiry, it is simply not true, as Henderson claims, that this practice has consistently enabled the logging companies to ‘transfer all the economic rent outside the country’, for the simple reason that logging companies pay an export tax, not a profit tax, and
while it might be argued that landowners do not get a fair return in their royalty payments, these payments do still represent a share of the economic rent.

Indeed, the relative share of the resource rent which is captured by government and landowners has grown significantly since 1989 as a result of changes to the fiscal regime which have been introduced as part of a wider package of legal and institutional reform in the forestry sector. In 1989, log exports were valued at 80 million kina (8.6 per cent of all domestic exports) and the government collected about 11.4 million kina in log export taxes (1.4 per cent of all non-grant revenues). In 1994, log exports were valued at 483.1 million kina (18.1 per cent of all domestic exports) and the government collected about 131.3 million kina in log export taxes (10.2 per cent of all non-grant revenues). The rates were raised substantially in two successive national budgets, first in November 1993 and then again in the ‘mini-budget’ of March 1994, when the country was already facing the fiscal crisis which caused a major devaluation later that year.

In November 1995, the government finally announced the introduction of a new revenue system which is more ‘progressive’ than the old fiscal regime because the rate of tax is tied directly to the export value of the timber, so the government’s share of the economic rent increases with the market price of the commodity. Under the new revenue system, landowners in all logging concessions are due to receive a flat rate royalty of 10 kina per cubic metre (double the average royalty paid under the old system), while landowners in new logging concessions, or those whose permits are renewed, are also due to receive a ‘development premium’ which, like the log export tax, will vary with the value of the logs being harvested. At a log export price of US$130 (175 kina) per cubic metre, which is close to prevailing market prices in 1995 and 1996, the new system has the effect of reducing the logger’s share from 62 to 55 per cent of the gross revenue while increasing the government’s share from 32 to 34 per cent and the landowner’s share from 6 to 11 per cent. These figures show very clearly why the national government and landowning communities both have a short-term economic interest in the continuation of what may turn out, in the longer term, to be an unsustainable level of timber production.

It is certainly true that the loggers made a substantial ‘windfall profit’ during 1993 and 1994, when prices were hovering around US$170 per cubic metre. One economist estimated the size of this
windfall profit to have been about 225 million kina, compared to government revenues of about 200 million kina over the same period. Another economist estimated that the government would have made an extra 200 million kina in log export taxes over the four years from 1992 to 1995 if the new revenue system had already been in place during that time. Henderson’s own method of calculating logging company profits appears to relate to the boom years of 1993–94, when log prices did sometimes reach US$180 per cubic metre, but it would certainly not be valid under the new revenue system, even if we accept Henderson’s assertion that the average cost of production is as low as US$40–45 per cubic metre.4

Since the logging companies are not public companies, the average cost of production has to be estimated by various indirect methods, and it is hardly surprising to find a wide discrepancy between the estimates made by industry spokesmen, which average around 90–100 kina per cubic metre at current prices, and those made by economists in the World Bank and the PNG Forest Authority, which average around 60–70 kina per cubic metre. The loggers have been threatening a ‘capital strike’ if they are forced to pay the new royalty rates as well as the new levels of export tax, and have based this threat on the claim that the new revenue system will prevent them from ever making a ‘windfall profit’ of any kind, and will therefore discourage further investment in the industry. The World Bank, for its part, has announced that it will fund a special study of this issue, while the Prime Minister and Forests Minister have been making ambivalent noises about the new revenue system for the better part of 1996.

It is in this light that we need to consider the national government’s recent decision to thumb its nose at the World Bank by passing an amendment to the 1991 Forestry Act which would enable Cabinet to stack the National Forest Board with members of its own choosing. This was seen in many quarters as a return to the bad old days of the 1980s, when ministerial control over the allocation of timber permits was the key which opened the door to massive corruption. The only defence which the Forests Minister could offer against this charge was that the government had decided to speed up the allocation of new timber permits in order to raise the annual timber harvest to 5 million cubic metres and thus help to plug the holes in its budget. But the Bank had already made it very clear that it did not regard this as a sustainable level of harvest, nor did it approve of the government’s persistent attempts to erode the autonomy of the National Forest Board. The
amendment has therefore caused the Bank to withhold the second tranche of a loan negotiated in 1995 as part of a wider ‘structural adjustment’ program to which the government had otherwise given its assent. From a strictly economic point of view, we may therefore ask whether the value of the additional revenue raised by the extra timber concessions will outweigh the opportunity cost of the financial assistance which will no longer be forthcoming from the Bank and other donors. If the answer is negative, and if the government now makes any moves to reduce the impositions of the new revenue system, then its claim to be acting in the interest of national sovereignty and fiscal responsibility will look remarkably hollow.

Community attitudes

One of the reasons why the World Bank and other donor agencies have consistently underestimated the difficulty of establishing a regime of ‘sustainable forest management’ in Papua New Guinea is because they have tended to assume that the vast mass of the rural population has a natural interest in the conservation of natural resources. They have been encouraged to make this assumption because they are seeking to please the Green constituency in their own countries of origin, and this constituency subscribes to a romantic vision of ‘indigenous rainforest peoples’ which is hardly more than the myth of the noble savage dressed up for post-colonial discourse. Since the vast bulk of Papua New Guinea’s forest resource remains under customary tenure, this vision encourages the belief that the goal of sustainable management can readily be achieved by clearing away the undergrowth of misconceptions generated by a corrupt and unrepresentative political élite which lives in the pockets of the logging industry. But this belief does not sit well with the practical experience of government and non-government agencies engaged in the pursuit of this goal.

Henderson is perfectly right to say that villagers are only interested in conservation if it is the by-product of an alternative form of development of the kind promoted by his own organisation, and small-scale ecoforestry is indeed one of the few alternatives which seems to make much economic sense in those parts of the country where the natural forest is under immediate threat from large-scale industrial logging. On the other hand, the viability of this alternative is not only dependent on the development of a mutually beneficial relationship between domestic producers and foreign consumers of eco-timber,
which has not been an easy thing to accomplish, but also depends to a
great extent on the leadership and enthusiasm of ‘charismatic
entrepreneurs’ like Max Henderson, who are themselves in short
supply. The basic problem here, which is both a political and an
economic problem, is to persuade rural villagers to forsake a form of
‘resource dependency’, in which they receive a substantial short-term
windfall without having to lift a finger, and opt instead for a form of
‘self-reliance’ which will eventually yield them a higher income in
return for a substantial labour input. Fighting the loggers on this terrain
is not an easy business.

Henderson acknowledges ‘that there are some villagers who will
sell their heritage and deceive their own communities for short-term
gain’, but he fails to point out that these people are often in the majority,
and it might therefore be more accurate to say that they are deceiving
themselves—if indeed their preference for ‘free money’ counts as an
example of self-deception. Henderson suggests that the Forestry (Private
Dealings) Act forced or obliged local villagers to enter into contractual
relationships with foreign logging companies. Experience in various
parts of the country, and especially in West New Britain, where the
provisions of this act were most extensively applied, suggests that
villagers are only too eager to enter into these relationships. As a
consequence there has been widespread popular resentment of recent
government efforts to prevent them from doing such deals by repealing
the act in question and then by seeking to undermine the political
influence of landowner company executives who regarded themselves
as natural leaders of their own communities. In Papua New Guinea,
where democratic forms of political competition are flourishing as
never before, it is sometimes hard to avoid the conclusion that people
get the leaders they deserve.

According to Henderson, rural communities in Papua New Guinea
have ‘a strong ethos of solidarity and mutual support’. This may be true
of some communities, but there is plenty of evidence to suggest that
many rural communities are riddled with exactly the same kind of
factional politics that dominates the national political arena. This lack
of cooperation at the village level poses a problem for all outsiders who
wish to secure popular support for some kind of ‘project’—whether it
be a large-scale logging project, a small-scale ecoforestry project, or an
‘integrated conservation and development’ project. Although it may
seem at the outset that all sections of the community support ‘the
project’, some individual leaders will sooner or later seek to ‘capture’ it
by claiming personal responsibility for its existence or a disproportionate share of its benefits. This will then prompt other leaders to oppose it and seek alternative avenues to secure their own power and influence in the community. When it is the loggers who suffer the disruptions caused by this kind of conflict, we may not feel too much sympathy for them. On the other hand, the difficulty of maintaining community support for a large-scale logging operation over a long period of time is one of the reasons why the loggers are so careless and wasteful in their search to extract the maximum volume of logs in the shortest possible time.

It would, of course, be foolish to deny the existence of a wide variety of community attitudes in a country which contains literally thousands of traditional political communities. On the other hand, if we can learn to qualify the romantic vision of ‘indigenous rainforest peoples’ with a serious dose of social realism, we shall be in a better position to see that the limited financial and human resources currently being devoted to the business of sustainable development in Papua New Guinea need to be directed to those particular areas where community attitudes are most likely to favour some form of self-reliance against the general preference for rental incomes. In that case the efforts of international donor agencies and local NGOs alike will not be so frequently wasted in the swamps of local ‘politics’.

Notes

1 The Forest Authority figures on log export volumes and values do not match those produced by the Internal Revenue Commission and reproduced in the Bank of Papua New Guinea’s Quarterly Economic Bulletin. This is because the Authority’s figures apply to the logs actually shipped in a particular year, while the Commission’s figures apply to the logs on which taxes are collected, and some of these are logs which were actually shipped in the previous year. This explains the ‘anomaly’ which Henderson has discovered in the 1992 figures, where it appears that log exports (as measured by the Commission) exceeded the log harvest (as measured by the Authority).

2 These figures are taken from the Bank of Papua New Guinea’s Quarterly Economic Bulletin. It is normally assumed that log export taxes account for roughly 96 per cent of all export taxes as shown in these bulletins.

3 Under the old fiscal regime, different species of timber attracted different rates of tax.
At a log export price of US$170 (225 kina) per cubic metre, the new system has the effect of reducing the logger’s share from 63 to 49 per cent of the gross revenue while increasing the government’s share from 32 to 41 per cent and the landowner’s share from 5 to 10 per cent.

It is not entirely clear to me why Henderson thinks that ‘we have to fight’ against a situation in which one group of villagers was apparently able to relieve a group of loggers of 300,000 kina in cash bribes without actually losing any of their logs. Should we not rather applaud them for their brilliance?
This paper is a case study on the use of forest resources. In the Pacific region the Melanesian countries, especially Papua New Guinea and Solomon Islands, are experiencing large-scale logging operations in their rainforests, mainly implemented by East Asian companies. The social, economic and environmental impact of these operations will be briefly mentioned here, but the emphasis of this chapter will be on possibilities to counteract the undesirable effects of these overseas economic interests. I will introduce a local initiative, the Solomon Western Islands Fair Trade (SWIFT) project, which aims to transport and market sustainably produced sawn timber as an effort to develop and manage natural resources for the benefit of the local society. We hope SWIFT will demonstrate that the export of sawn timber and improvement of marketing opportunities at the local level promotes local development. When natural resources are managed under Forest Management Plans as proposed by SWIFT this local development is also sustainable.

Local development means the improvement of living conditions and income opportunities at the village level. Sustainable local development adds ecological, social and cultural appropriateness to the common socioeconomic parameters of development. Although Solomon Islands
is mainly rural, with some 2,000 small villages, development in Solomon Islands—at the national level, especially in terms of economic growth or GDP—does not mean simply multiplying ‘development’ at the local village level by 2,000. Development parameters at the national level reflect another type of economy, which is unfortunately hardly related to village level development, let alone the improvement of living conditions on remote islands. National development data refer mainly to the small urban and formal economic sector and national infrastructure development hardly reaches the village level. It must be noted that the SWIFT model so far does not provide answers at the national level which can be expressed in national development parameters. However, if forest resources throughout the Solomons were to be managed in a sustainable way with maximum economic returns produced for and by village people, it would definitely provide an avenue for development which would support the national budget.

The international context of our case reveals the standard pattern of international economic relations between strong and vulnerable economies, characteristic of small island countries. We can easily observe the disadvantages of dependency, increasingly adverse terms of trade, poor negotiating power and serious damage to natural environments. This paper will not attempt to describe and analyse these weaknesses at the national economic and political level; it focuses on the opportunities and challenges of the private, non-governmental level, organised to promote local village development.

The SWIFT project and concept, as a so called ‘fair trade’ initiative focussing on sustainable management of forest resources, may be an alternative non-government initiative that does not suffer from these national disadvantages. We will see that control over trading structures is crucial for the success of this approach. If village producers were to produce timber, whether or not in a sustainable way, and were to sell it on an existing local, national or international market, they would again suffer from adverse terms of trade, poor negotiating power, high costs of transport and so on.

**Solomon Islands in the international context**

In terms of international economic relations, Solomon Islands is seen as a supplier of raw material, with certain natural resources of interest to private companies from other countries. There is exploitation of marine
resources, of mineral resources (gold, bauxite and nickel deposits) and forest resources. Solomon Islands has experienced a rather late flowering of interest in its resources, mainly because earlier colonial economic ventures by private enterprises faced high costs and only moderate returns. For example, Lever Pacific Timbers, which conducted the first logging operations in the western part of the Solomon Islands, was concerned about the corporate image of the parent company Unilever but unable to resolve cultural and environmental objections to its operations due to cost factors, so decided to withdraw, transferring its licences to Asian operators. Now with the Asian economic 'tigers' running to secure their increasing need for raw materials there is a new interest in the Pacific region with exploitation becoming economically viable mainly because of the lower cost levels borne by Asian companies. As a small island country, Solomon Islands has experienced within a few years clear negative impacts on social, political, economic and environmental conditions.

In the second half of the 1980s Solomon Islands received many Asian combined government and private company delegations offering aid packages and looking for investment opportunities and access to marine and forest resources. The Solomon Islands government had few options for economic development, since the domestic market is small, without strong buyers and faces high distribution costs. It is no surprise that the government turned to natural resource development (more accurately, exploitation) as a means to increase national income. With decreasing funds for essential government services such as health, education and infrastructure from traditional income sources, it had to turn to selling off resources bit by bit. This created a situation in which, for example, the western part of Solomon Islands presently has nine logging companies extracting some 500,000 cubic metres of round logs annually, twice the sustainable rate according to international experts.

Large-scale forest exploitation with round log export is now the main commercial activity in Solomon Islands. The government relies heavily on income derived from it, and there is also substantial personal income from logging going into the pockets of politicians and other influential people. The economic and political situation of Solomon Islands enables overseas logging companies to gain a strong grip on the national government through bribery and corruption. Of the official national income from round log export, 76 per cent is derived from logging operations in the two western provinces—Choiseul and Western Province, the project area of SWIFT.
The role of the United Church in development work

This is the context in which SWIFT was started, as an initiative to counteract socially, economically and environmentally disastrous development. We will briefly touch on the set of beliefs on which the concept and practice of SWIFT is based. The United Church, the local Methodist church of the western Solomon Islands, has established an Integrated Human Development Programme (IHDP) to co-ordinate its involvement in education, health and village-oriented economic projects. Its contribution to education is mainly through vocational training in short and longer term courses, mainly for drop-out youth. Health involvement is through a small hospital, a few clinics and health touring. Solomon Western Islands Fair Trade (SWIFT) was established by the United Church in August 1994 to create a legal structure for its economic programs. The three first words of the SWIFT acronym represent the geographical area of the operation, Western Solomon Islands. This is an area of some 500 small and 10 bigger islands, 800,000 hectares with 90 to 100,000 inhabitants. The words ‘Fair Trade’ were chosen because unfair terms of trade are at the root of underdevelopment and exploitation, internationally, but also at the local and national levels. SWIFT strongly believes that economic development in our project area can only take place under fair terms of trade and with a strong emphasis on the sustainability of economic activities. In the Solomons as a whole the subsistence economy is still predominant, with a rapid transition to a cash economy in areas closer to the few bigger villages. Economic development in such a context tends to cash in on whatever is at hand, without any long-term considerations. Facing the dominant issue of destructive logging operations, SWIFT’s first priority has been to facilitate marketing and transport of sustainably produced sawn timber.

Between 1985 and 1992, the IHDP supported several so called ‘socioeconomic’ projects such as piggery, poultry, cattle, cocoa, fishery and pineapples, initiated by local communities. The IHDP five year review (1993) revealed ineffectiveness in these projects. As a result of the review the Board of IHDP advised the United Church Synod to stop supporting such projects, scattered over too many islands and in too many different economic sectors. Insufficient know-how was available and all projects suffered from serious imperfections in infrastructure.

During the review, which included extensive travelling in remote areas, people asked the IHDP to assist in marketing and transporting
timber. They were being cheated by traders and middlemen and suffering from a lack of transport facilities. Certain skills in timber production were clearly present and people had access to land and trees through their customary rights. Timber itself as a product has advantages; it is not perishable (when well kept), it has a good price and there is a good demand locally as well as internationally. The United Church had to consider whether to embark on economic programs at all. Is the IHDP equipped to support commercial activities? Are these activities not more appropriate for financial institutions like the Development Bank of Solomon Islands?

The Church, however, has a long history of opposition to large-scale logging. From 1982 onwards, Bishop Boseto conducted ‘land workshops’, aiming at settling land disputes through reconciliation, to re-enforce the consensus on customary landrights. These workshops focussed on ‘worthy customs’ (the guiding principles of community leadership), the influence of Christianity, and on restoring consensus about land rights and boundaries. The land workshops, however, also discussed and subsequently opposed socially and destructive large-scale logging activities. The reality was that more and more villages were being visited by logging company representatives trying to buy allies in the village leadership in order to obtain access to village resources. The importance of basic legal and environmental awareness amongst church members was recognised by the United Church, but the moral opposition had yet to put in operation a realistic economic alternative. In a few cases villages started to give in to the companies because they had no other options for cash income.

The SWIFT eco-timber program

This was the historical context of the United Church decision to embark on this ambitious socio-political and economic program. The long-term political aim of SWIFT’s timber program is to enable people to say ‘no’ to offers from logging companies by empowering them economically. A second aim is to promote sustainable timber production for community needs and for earning a cash income by selling sawn timbers to local and export markets. This economic aim focuses on the direct, short-term interests of the people. For the United Church this economic program must first and foremost effectively enable people to throw greedy logging companies from their lands. After preparations to increase economic awareness and introduce small-scale sustainable forest
management, there was an enormous response when resource owners, realised that they could achieve a high price for their timber.

SWIFT’s fair trade approach to pricing is to calculate the costs of timber transport and handling in the Solomons (now at SI$400 per cubic metre) and deduct that margin from the free-on-board price that SWIFT would receive on the eco-timber export market. Purchases included second grade timber which could be used for local (IHDP) construction activities. Instead of the expected 50–60 groups, within six months some 240 groups had produced and sold sawn timber to SWIFT. After organising several courses in Sustainable Forest Management and courses in Timber Grading, SWIFT started on 2 September 1994 to purchase timber from these groups. At that time SWIFT did not check the production methods in the bush for each and every lot of timber. Only so called ‘environmental impact reports’ were produced at random by trained ‘barefoot’ foresters. The reason for this was that SWIFT had to know the strength of the ‘economic engine’ of the program and be absolutely sure that the production of timber was the result of sustained interest, not just temporary enthusiasm for a novel project. In the first nine months of buying timber SWIFT bought some 1,100 cubic metres of sawn timber, after which we adjusted the annual volume from 500 cubic metres to 1,500 cubic metres.

Our next step was to start to safeguard the sustainability of the scheme. Although the SWIFT courses were on ‘sustainable’ forest management, there is a natural preference for ‘convenient’ forest management, for instance milling the nearest big tree and then the next nearest one. From 25 March 1995 SWIFT only purchased timber from producers who had made a management plan for designated one hectare blocs of forest. From then on the SWIFT foresters were in great demand to assist producers in making forest inventories and plans. Gradually the forest management plans became better, although SWIFT was still unsure about the annual allowable cut in terms of sustainability. As a second step, towards certification under the Forest Stewardship Council principles and criteria, we requested the producers to be properly licensed for felling and milling and for business. Almost all producers use a chainsaw and frame; only in three cases is a group using a so-called wokabout (portable) sawmill. Group composition varies: some are clan groups, most are families working on allocated blocs of forest, and some are occasional community groups that mill a tree for communal income generation, for example to purchase roofing iron for a church or clinic.
The crux of the program is a specific set of interests that must somehow all balance out. These interests may be private or communal, short term or long term, environmental or cash generating. The players are private people or families, clan groups, the United Church leadership, the SWIFT Board, and the critical consumers of so-called eco-timber. The big issue is to make sure that SWIFT continues to balance these interests. It promotes slow and careful forest operations, not easy money for no effort, but a good fair price to encourage hard work. As a direct result there has been a substantial decrease in logging agreements between clan groups and companies, in our view, improving the long-term development prospects of the Solomon Islands. We also certify the method of timber production. This is important in order to find a niche market for this timber at premium prices, but the certification must not become so restrictive to the landowners that they feel their short-term interests are damaged.

Can SWIFT serve as a model?

There is nothing new in the SWIFT concept and there are other and earlier efforts to organise community forestry. But SWIFT was not started as a forestry project per se. From the very beginning timber production was the essential means for achieving the main objective: to enable land and tree-owners to say ‘no’ to the logging companies. For that reason SWIFT started with action, rather than by preaching. However, it had several built-in advantages. Solomon Islands had already gone through many programs and projects which resulted in a basic environmental awareness among a considerable group of people, so SWIFT’s sustainable forest management courses did not have to start at square one. Economic awareness about the potential value of forest resources through fair trade was the real eye opener for all landowners. It was the fair market and the fair trade price, serving the immediate interests of the people, which caused the massive response.

Besides, Solomon Islands and Melanesia in general offer certain favourable conditions for such projects. In Melanesia rights to land are solidly secured in national constitutions. In Malaysia and Indonesia, the bumi putra, the ‘children of the land’ are recognised as living in the forest, but they have to leave all decisions to a foster parent, the state, which claims to serve their interests. In Solomon Islands, timber rights procedures in principle allow clan groups to grant or refuse access to
their land. SWIFT aims at changing uninformed decision-making to informed, and empowered, decision-making.

The church network can ensure that such projects are rooted among the people. It provides a basic administrative infrastructure in almost all villages in the provinces where SWIFT operates. This is a big advantage compared to an introduced NGO that depends entirely on paid staff. Solomon Islanders have experienced unfair trade for too long and are ready for the alternative of Fair Trade. SWIFT is building trust by providing transparency, building on a basic trust in the United Church. If individuals or a third party were to claim to operate on a non-profit basis, people would definitely question it. Even with SWIFT organised by their church, people have some doubts and they expect the United Church to derive certain unknown benefits from the SWIFT operations. But the project benefits from the commitment of the SWIFT staff and management and solid support from the church leadership.

Then there are good quality timber species, and a good standing volume in the western part of Solomon Islands with fairly good soils, regular rainfall and good re-generation. Milling skills were already present and hard work is not avoided. People enjoy producing timber when they are working and making decisions for themselves. The project area is a small island territory with long coastal lines: once SWIFT organises shipping the transport problem is basically solved. There are hardly any alternatives for cash income since copra prices are low and introducing other products such as cocoa has been vexed.

Starting up the timber transport and marketing scheme was possible because of some available financial resources in the IHDP and it was further facilitated by very adequate responses from the Interchurch Organisation for Development Co-operation (IODC) in the Netherlands. IODC's funding flexibility has been particularly important in starting this process. From the very beginning the transport and marketing services in the project have been treated as a business on strictly commercial lines, though not for profit. All investment and operational costs must be financed either through loans or from the operational margin. The calculated margin of SI$400 per cubic metre for all handling costs by SWIFT still proves to be adequate, although it has to be recognised that the establishment of a timber yard and the purchase of a three tonne truck (together SI$367,000) was done with IHDP contributions. The landing craft presently under construction in Honiara will be fully financed from the trading margin, while some 50
per cent of the amount will be furnished as a loan from the Development Bank of Solomon Islands. It is completely impossible to obtain working capital for the trading activities themselves from commercial banks such as the National Bank of Solomon Islands, due to the bad reputation of eco-timber exports. Again SWIFT benefits from being part of the IHDP structure, because short term internal loans can be made from other projects. Computerised financial administration allows a strict separation of educational activities, which are subsidised by development funds, and economic ‘commercial’ activities, that have to be fully self-financing. If SWIFT were to allow subsidies to go into the trade, this would obscure the viability of marketing and transport activities of the fair trade scheme.

This clear distinction between commercial and educational activities is now expressed in SWIFT’s organisational structure. In SWIFT’s Board meeting of 9 February 1996 it was decided to have a Marketing and Transport Division (MTD) and a Services and Education Division (SED). The SED will provide the forestry services and organise all educational programs, the legal aid and awareness programs and the small feeder roads program. These activities are funded through IODC with additional funds from the European Union. The MTD has to work with commercial loans without external support. However, to the outside world, both in the Solomons and abroad, there is only one SWIFT and these divisions will not present themselves separately.

Certification of sustainability

In order to present a complete picture on SWIFT we have to focus on the sustainability question. SWIFT’s main aim is to stop disastrous large-scale logging in the interests of future generations. Sustainable forest use under commercial exploitation can only be guaranteed through forest management plans and controls on the implementation of these plans. SWIFT has opted for certification according to the ten Principles and Criteria of the Forest Stewardship Council (FSC). The FSC was founded in 1993 by a diverse group of representatives from environmental bodies, indigenous peoples’ organisations, community forestry groups and forest products certification organisations from twenty-five countries. It supports environmentally appropriate, socially beneficial and economically viable management of the world’s forests by evaluating and accrediting certifiers of forest managers and products. Certification, which forces SWIFT to be clear and strict on
sustainability, has a positive effect on the production process in the Solomons, but it also improves the marketing and the prices on the export market. This explains SWIFT’s strong commitment to the FSC. SWIFT aims to be accredited as a producers’ association, either directly with the FSC or through Société Générale de Surveillance, a certification institute. SWIFT has to control the producers after approval of their forest management plans. These certification bodies ensure compliance with SWIFT’s own procedures and policies and implement random checks in the forest areas. In a pilot phase (February 1996) nine producers were certified through SGS assessments and in the process SWIFT had to elaborate the Principles and Criteria of the FSC.

Forestry concepts such as ‘annual allowable cut’ and ‘natural re­generation’ need to be interpreted to fit the social and cultural setting of Solomon Islands. In accordance with land rights and customary rules for decision making, SWIFT developed an Environmental Pledge and the Mutual Trust Memorandum of Agreement. These two documents, to be signed by the traditional leaders of the clan or village, commit the land and sea resources of the people to sustainable development. In return SWIFT commits itself to provide the services enabling the community to develop its resources. The documents help to settle questions of land and boundaries and provide a degree of legally sound documentation to deal with problems such as a small sub-group of a clan trying to deal with a logging, mining or fishing company. The documents signed with SWIFT may contribute evidence on behalf of disadvantaged groups if such disputes come to court.

Land disputes, court injunctions and clan or inter-family rivalry are difficult matters to settle in the FSC certification process. Labour conditions and especially safety measures also have a long way to go before the Solomon Islands’ reality meets global FSC standards. For larger forest areas, forest inventories need accurate calculations of the standing volume and the plans need reliable assessments of potential natural re-generation. Is it realistic to assume that SWIFT, as a campaigning church organisation, can achieve the required level of forestry professionalism?

**SWIFT’s timber on the market**

We should also consider the challenges and problems that SWIFT is facing in finding a good, fair and reliable market for the 1,500 cubic metres of sawn timber annually, of six species. The local market for
timber in the Solomons is a difficult one. Demand tends to be slightly higher than supply, long delivery times are common, and delivery outside Honiara is troublesome because of poor transport and communications. This local market cannot be developed fast enough to respond to the marketed volume of the SWIFT project. With SWIFT’s own landing craft, it is envisaged that the local market in the Western Solomons will improve. It will also become possible to supply the Honiara market, although lack of facilities for re-sawing in the SWIFT yard will remain an obstacle for some time. It was because the local market was not strong enough in the short term and because of premium prices for so called ‘eco-timber’ on the export market, that SWIFT looked at opportunities on the export market.

Information campaigns on the impact of large-scale logging on the global rainforests have had the effect of reducing demand on the international market for tropical hardwood. Timber produced carefully in the context of a campaign against large-scale logging could therefore start by aiming at the special niche market of critical tropical hardwood consumers. With FSC certification adding credibility to SWIFT’s eco-timber, it should certainly find that niche market. But although the FSC trademark may satisfy the critical consumer and bodies such as local authorities seeking a solution for their tropical hardwood policy, it is not enough. Timber species of the Solomon Islands are largely unknown in many Western countries, and that market is used to a strict first grade timber selection. Quality standards are for a large part determining the price level. Also the quality of SWIFT timber, no matter how sympathetic the production process, has to meet the same standards as timber from large companies coming from unsustainable sources and milled in modern high technology mills. This problem is now being tackled by timber research on all six species according to European standards, commissioned by SWIFT, the results of which should facilitate official approval of the Solomons species. The other issue, that export timber must be strictly first grade, is being tackled by improved grading in the Solomons and professional re-sawing in the Netherlands, an expensive process which also increases waste. However these costs are unavoidable in creating a competitive quality product, for the market will not accept ‘beautifully harvested’ timber when it is poor quality. In the long run SWIFT will also need the Max Havelaar hallmark, a system of ‘fair trade’ certification widely used in the Netherlands, Germany, Denmark and Switzerland. When large-scale professional suppliers turn to FSC certified production, which we
hope they will, SWIFT will find it hard to compete in terms of price and quality. In that situation SWIFT will need to attract those consumers who want to support village-based, small-scale timber production, which has a certified fair trade chain.

Because existing eco-timber traders could not respond to SWIFT’s large and, in terms of volume and specifications, uncontrolled production, SWIFT was forced to get directly involved in selling on the European market. This shifted the priority of SWIFT’s activities towards developing a market that can use the six species, six lengths and eight sizes. Producers need that flexibility to avoid unnecessary waste and are even requesting SWIFT to accept another three species and are drawing up forest management plans accordingly. Broadening the range of species gives producers better opportunities to select trees according to micro-ecological criteria, rather than having to override such considerations for the sake of economic interests. SWIFT will have to develop a market for additional local tree species.

The market outlet established to respond to this situation was SWIFT Hout bv (SWIFT Timber Ltd), wholly owned by SWIFT in the Solomons. SWIFT Hout also works on a non-profit basis and tries to achieve the highest possible price for its beautiful timbers, because a higher price in Europe means a higher price paid to the producer. If it succeeds, the producer in the Solomons should be able to achieve his gross target of say SI$5,000 per annum by cutting only two or three trees (minus chainsaw costs and depreciation). The same income from royalties needs 70–100 trees to be felled by logging companies, with no prospect of future harvests.

SWIFT Hout started with a rather large stock as SWIFT Solomons could not afford to stop buying sawn timber from the community groups for fear of threatening confidence in the project. So SWIFT Solomons continued buying timber by chartering local vessels, mainly to promote its scheme, to strengthen its campaign and to keep the SWIFT alternative visible and economically attractive for the village groups. This meant that SWIFT Hout in the Netherlands continued to accept containers of sawn timber, and this meant considerable working capital was needed. Furthermore SWIFT did not, yet, have its own timber yard so SWIFT Hout was renting space in various places according to the orders and the specific processing requirements of the timbers. Another basic issue that SWIFT had to resolve was getting the Solomons timbers formally accepted by the timber product manufacturers association. Besides, the research mentioned earlier
takes time. On 1 July 1996 SWIFT Hout became the owner of a 9,370 cubic metre capacity timber yard in Dieren, near Arnhem, with existing re-saw equipment and dry stocking facilities for 3,500 cubic metres. This reduced SWIFT’s stocking expenses considerably. SWIFT is establishing relationships with housing corporations and with public works departments of municipalities in the Netherlands. These customers will account for the majority of SWIFT’s marketed volume. SWIFT also wants to serve the individual critical consumer, producing small quantities on specifications, as this provides a concrete means for the public at large to opt for sustainable development with their own purse. The new yard will be developed with this in mind, for individual consumers to come to the yard and pick their own pieces from our wide range of sizes and species. Fortunately this yard has the potential, the size and the facilities for this. In the long term SWIFT will continue to need their loyalty and support for this small-scale initiative.

Looking back, the forced involvement in marketing in Europe by SWIFT has been a blessing in disguise. If SWIFT had been able to sell the containers to the existing timber traders, first of all we would have remained dependent on their one-sided orders, with a preference for two or three species and specific sizes. Villages and islands with poor communication would have had problems meeting such prescriptive orders, which would also have imposed major constraints on the Munda yard. By establishing a SWIFT Hout company and a yard in the Netherlands we have shifted this problem to the SWIFT people in the Netherlands. Costs are high, but it will produce a better marketing structure for the future. These high costs are now the main problem for SWIFT Hout in the Netherlands. With sales coming up gradually, official admission to the Dutch and European market by the end of this year and increased experience with crucial technical questions like kiln drying of these unknown species, SWIFT may breathe more easily from the end of 1996. The high demand for FSC certified timber is the basis for our optimism, while we continue to struggle to clear all obstacles. With this determination SWIFT will continue to develop this model for sustainable local development, which is supported by international fair trade.
The Melanesian way of menacing the mining industry

Colin Filer

The big Australian bites the mud

In June 1996 Broken Hill Proprietary Ltd, operators of the Ok Tedi mine in Papua New Guinea, finally reached an out-of-court settlement with Slater and Gordon, the Melbourne law firm which represented the claims of various landowning communities living downstream of the mine whose subsistence resources had been extensively damaged by the discharge of waste material into their river system for more than a decade. Under the terms of the settlement, the mining company agreed to fund a substantial compensation package, to pay the legal costs of their opponents, and to find new ways of mitigating the physical impact of the waste material. The settlement has been widely regarded as a victory for what one commentator described as a "global alliance of landowners, ecological activists, anthropologists and lawyers [who had] mounted a worldwide campaign to stop the mine from polluting the Ok Tedi and Fly Rivers" (Kirsch 1996:14).

This was only the second episode in the recent history of the local mining industry to receive substantial publicity outside of Papua New Guinea, the first being the closure of the Bougainville copper mine by militant landowners and local secessionists in 1989. The amount of publicity which it received was largely due to the fact that it could be
readily portrayed and digested as a classic David-and-Goliath struggle between downtrodden indigenous peoples and monstrous multinational companies. Indeed, this was one of the reasons why Slater and Gordon chose to present their case in an Australian court and one of the reasons why one of the company’s senior executives was forced to make the public admission, some time before the settlement was reached, that ‘BHP had failed in the management of its public position over the Ok Tedi issue and that the company could only blame itself for its failure’ (Post-Courier 29 September 1995). But one of the reasons why the company had misjudged its public posture, and thus become an easy target for the global green alliance ranged against it, was because it had been locked into a national policy process, inside Papua New Guinea, where the waters are normally as muddy as those of the Ok Tedi river.

The most determined opposition to the green alliance did not come from the company’s Australian executives, but from members of Papua New Guinea’s own national elite or ‘ruling class’ who resented the threat to their own conception of national sovereignty and economic priorities. In August 1992, when the German Greens were already persuading the German shareholders to sell their own stake in the Ok Tedi project, the Minerals and Energy Secretary maintained that

> The State’s approach has been to put its cards on the table and formally agree to a certain amount of environmental damage as being acceptable. The government is in control of the situation and I very much resent the attempted interference by outsiders who do not have the knowledge or background information to understand. If these environmental fanatics were able to have a free hand in PNG, they could stir up the mining area and river villages into believing all manner of supposed grievances, recruit the odd politician who might see some short term selfish gain, and destabilise the whole situation (Post-Courier 10 August 1992).

In May 1994, when Slater and Gordon explained their decision to sue BHP in the Victorian Supreme Court by claiming that the company had ‘made all the relevant decisions, in particular the environment decisions, about the mine at all times’, and therefore expected the action to receive the support of the PNG government, the leader of PNG’s parliamentary opposition described it as the work of ‘foreign spivs, crooks and carpetbaggers’ (Post-Courier 4–5 May 1994). And in September 1995, when an Australian philosopher accused BHP of making ‘fundamental ethical errors’, the company’s most senior Papua
New Guinean manager was said to have replied as follows.

So people who have never seen my country say they believe that we do not have the right to progress. Australians still feel they can tell us what to do. They want us to live in a museum, to make countries like ours a zoo for them to visit the past. What people on the river want is to get rid of the mosquitoes from the marshes, to have houses that don’t need rebuilding every three months, they want to live longer. These are things that come with progress (Thomas 1995).

The policy process surrounding the Ok Tedi project was thus seen to exemplify, in an especially acute form, the recurrent argument between representatives of developed and developing countries on all manner of ‘environmental’ issues. But the intensity of this particular dispute owed as much or more to the ‘moral economy’ of the mining industry in the colonial and post-colonial relationship between Australia and Papua New Guinea as it did to the actual physical impact of this particular mine. While Australia and Papua New Guinea both have mineral-dependent economies, and Papua New Guinea is still dependent on Australian economic support, the national elite of Papua New Guinea might be forgiven for wondering why they should also be expected to buy into the world view which one journalist ascribed to the ‘chattering classes’ of Australia—‘that mining is, basically, a filthy rotten business’ (Callick 1995).

Now what we seem to have discovered here is not the Melanesian way of menacing the mining industry, but a form of national resistance to the Western way of doing so. BHP’s Australian executives made the mistake of thinking that they could profit from, or hide behind, this form of national resistance, while their Western opponents were able to paint the Papua New Guinean national elite as pawns and clients of the mining company, thus permitting the rest of the national population to be portrayed as the natural allies and beneficiaries of the struggle to clean up the company’s act.

I do not propose in this chapter to discuss the actual history and relative merits of the various ways of dealing with the physical impact of large-scale mining operations on the natural environment, for the simple reason that I am not qualified to assess either the economic or biological costs and benefits of such measures. My concern is with the structure of the policy process which embraces such issues, and especially with what I take to be a disjunction between the local, national and international dimensions of this structure. The central question at stake in this multiple process of debate concerns the
relationship between ‘compensation’, ‘development’ and ‘governance’ within the nation state of Papua New Guinea and—to some extent—the wider Melanesian ‘culture area’ with which its people commonly identify themselves. In Papua New Guinea’s case, this relationship is constructed around a single problematic fact—that ‘customary landowners’ own nearly all the land on which resource ‘development’ takes place, and yet the state claims ownership of nearly all the mineral resources which that land contains in order to maintain its right to set the terms of that development.

If I might be allowed to play the devil’s advocate, my argument would be that the Melanesian way of menacing the mining industry has not so far borne much resemblance to the grand struggle of indigenous peoples which takes place in the ‘collective conscience’ of coffee shop politicians in Melbourne, London or New York. Of course, Melanesian stakeholders can and do sometimes make appeal to this collective conscience or form alliances with overseas activists in order to pursue their own claims against the multinational mining companies. But the indigenous people of Papua New Guinea make life unusually difficult for multinational mining companies, not because they share philosophical assumptions or oppositional strategies which merit the special sympathy or applause of Western environmentalists, but because of the characteristic diversity and instability of political relationships between Melanesian persons, institutions and communities which constitute their national policy process.

The recent history of mineral resource development

Although the history of the mining industry in Papua New Guinea reaches back to the beginnings of the colonial period, a new beginning was made with the discovery of the Panguna copper deposit on the island of Bougainville in 1964. In the year preceding the formal declaration of national Independence in September 1975, the first Somare government successfully concluded its renegotiation of the 1967 Bougainville Copper Agreement and then caused Kennecott to abandon the Ok Tedi prospect by insisting that it be developed on the basis of the same ‘new deal’. In 1981, six years after Independence, when the Chan government delivered a new version of the new deal with the official birth of Ok Tedi Mining Limited (OTML), it simultaneously failed or refused to undertake the seven-year review which was anticipated in the Bougainville Agreement of 1974, despite
the loud noise of protest emanating from North Solomons Province. From the Bougainvillean (or North Solomons) point of view, one can certainly say that what began in 1964 was only redirected or diverted by the deals of 1974 and 1981 and was, more obviously, physically terminated by the outbreak of the Bougainville rebellion in November 1988 and the shutdown of Bougainville Copper Limited’s (BCL) mining operations in May the following year. But even in the wider national perspective, it can be said that these calamitous events inaugurated another new phase in the economic and political history of mineral resource development.

In 1988, Papua New Guinea’s mineral exports (gold, silver and copper) were valued at 861.5 million kina (equivalent to US$1042.4 million), which represented 70.5 per cent of domestic exports and 27.2 per cent of gross domestic product. The bulk of this output came from the two major mines at Panguna and Ok Tedi. In 1988 the national government’s Mineral Resources Stabilisation Fund collected 91.8 million kina from the mining industry, nearly all of which came from BCL in the shape of corporate income tax, dividend withholding tax, and the dividends paid on the government’s own equity stake in that company. These receipts alone represented 13.9 per cent of the government’s non-grant revenues, but a variety of other taxes levied on BCL and OTML would probably have raised at least another 40 million kina, thus making the mining industry responsible for something between one fifth and one quarter of all non-grant revenues.²

Despite the twelve-year gap between the start of mining operations at Panguna (1972) and Ok Tedi (1984), both these mineral deposits were initially discovered by a single burst of exploration in the 1960s, which in turn was prompted and encouraged by the colonial administration, and aided and abetted by the World Bank, as one of several ways to dig the economic foundations of an independent nation state. The next main burst of mineral prospecting did not occur until the mid-1980s, and it was this new wave of exploration which did so much damage to the building which had been erected on those earlier foundations, for the institutional capacities of the state have been no match for the proliferating struggle between all sorts of stakeholders over the distribution of real and imaginary mineral revenues. In other words, if it is true to say that the PNG mining industry has entered a new phase of development (or underdevelopment) since 1988, then it is not because there has been any major transformation in the technical, economic and occupational structure of the industry itself, but because
there have been more dramatic changes in its political surroundings. And these are all the more remarkable because so much attention had previously been paid to the formation and maintenance of ‘national mineral policy’ as one of the truly distinctive achievements of the post-colonial state (see Mikesell 1975; Jackson 1982; O’Faircheallaigh 1984; Pintz 1984).

From this point of view, the flurry of talks and thoughts which bore fruit in the Mining (Bougainville Copper Agreement) Act of 1974 and the Mining (Ok Tedi) Act of 1976 was the climax of a process of economic decolonisation which had already started when Bougainvilleans first took issue with the mining plans of CRA and the Australian administration. While the Bougainville question loomed large in the process of political decolonisation which passed through the deliberations of the Constitutional Planning Committee and the design of the Organic Law on Provincial Government, and while the Bougainville question was also a question of national economic policy, questions of national economic policy could not be settled by new constitutional arrangements. Nor were they. The architects of the new mineral policy were more interested in learning from the mistakes made by governments in other mineral-export economies, from Zambia to Australia, than from those made by the local colonial administration in dealing with the vagaries of Bougainvillean secessionism.

From their point of view, the 1967 Bougainville Copper Agreement was not the detestable tombstone of colonial mineral policy, but an imperfect solution to the problem of achieving the best of all possible deals between a developing national economy and an industry dominated by large foreign companies. But their own solution, like the one which it displaced, was based on the assumption that the nation’s interests would have to be defined and guaranteed by certain central bureaucratic institutions of the state engaged in a continuous relationship of regulation and negotiation with their foreign capitalist counterparts (Garnaut and Clunies-Ross 1983). And this assumption was the cornerstone of a ‘technocratic consensus’ which, until fairly recently, allowed or enabled a central bureaucratic élite to secure general acceptance of its right to manage the development of the mining industry for the long-term benefit of the new nation.

The Bougainville rebellion was by no means the first sign of a decline in the force of this technocratic policy regime. In light of the recent episode which I described at the beginning of this chapter, we could date the beginning of this process to the night of 6 January 1984,
when a catastrophic landslide permanently halted construction work on the Ok Ma tailings dam, thus ensuring that the Ok Tedi mining project would only proceed in defiance of the safeguards announced in its original environmental plan (Jackson 1993). This was the first big scandal to afflict the local mining industry since Independence, and its scale was magnified by rumours that the landslide was deliberately engineered to cut the construction costs of the project. Since that time the popular fear of physical pollution, especially water pollution, has continually combined with the idea that mining companies are by nature bound to operate in bad faith to create an undercurrent of public suspicion, and occasional whirlpools of public outrage, in which the ‘wicked multinationals’ have been construed, in customary terms, as king-size sorcerers consuming the vitality of hapless Melanesian villagers.

During the four years from 1982 to 1986, while the ups and downs of the Ok Tedi project produced occasional headlines or features in the local press, the local technocrats were quietly warming their hands on the ‘exploration boom’ which, in their own minds, symbolised the continuity and consistency of their efforts to attract foreign investment to the industry. The broader symbolic possibilities of this process only began to be revealed when, in October 1986, it produced a scandal of its own in the shape of the Placer Pacific share issue. Several ‘leaders of the nation’, most notably the Minister for Finance Sir Julius Chan, were accused of taking windfall profits from a ‘share float’ which the mining company had organised precisely (or ironically) with a view to giving Papua New Guineans a bigger stake, and thus attracting their political support, in the development of its gold prospects at Misima and Porgera. The Placer Pacific share issue was front-page news for more than two months—long enough to generate a news momentum which had a significant effect on the conduct of the 1987 national election campaign and induced a sort of mental ‘mineral boom’ in which the production and distribution of mineral resource rent became the subject of continual public debate.

The exploration boom has already produced a succession of new developments which arrived just in time to save the state from serious financial trouble following the closure of BCL’s Panguna mine, but which have also provided fresh fuel for public debate over the distribution of the benefits. Placer Pacific secured a Special Mining Lease and Mining Development Contract for development of the Misima mine in Milne Bay Province in December 1987, and Misima
Mines began production of gold and silver in June 1989. Placer also became the operating partner in the Porgera Joint Venture whose gold mine in Enga Province was granted the necessary approvals in May 1989 and started production in August 1990. The Kutubu Joint Venture received its Petroleum Development Licence in December 1990, with Chevron as its operating partner, and this project started exporting oil in June 1992. The national government has taken a minority equity stake in all these ventures, just as it did in BCL and OTML.

In 1995, Papua New Guinea’s mineral exports were valued at 2435.4 million kina (equivalent to US$1837.5 million), which represented 71.6 per cent of domestic exports. Crude oil exports from the Kutubu project accounted for roughly one third, gold for another third, and copper and silver together for the remaining third of this total export value. Exports from the Ok Tedi, Porgera and Misima mines were worth about 916 million kina, 431 million kina, and 172 million kina respectively. In 1995 the Mineral Resources Stabilisation Fund collected 281.7 million kina from the mining and petroleum sector, most of it (91 per cent) in the form of corporate income tax. These receipts represented 18.9 per cent of the government’s non-grant revenues, which suggests that the government’s overall dependence on revenues from this sector had increased quite considerably since 1988, to the point where they must now account for something between one quarter and one third of all non-grant revenues.

Given the current extent of known mineral reserves, the Kutubu, Ok Tedi, Porgera and Misima projects are all destined to cease operation before the year 2010. On the other hand, a number of new mining and petroleum projects were still in the pipeline at the end of 1995. Two ‘medium-scale’ gold mines (Tolukuma and Wapolu) both started production in December of that year, and two or three more are in various stages of development. Of far greater significance, in both its scale and its duration, is the development of the Lihir gold mine in New Ireland Province, where production is due to start in May 1997, and the value of output is expected to average about 287 million kina a year for the first fifteen years of a 30–40 year mine life. The Gobe petroleum project, a virtual extension of the existing Kutubu project, received its development licence in 1996 and thus extended Papua New Guinea’s role as an oil exporter for another few years. There has even been talk of developing a liquid natural gas (LNG) project whose capital cost would be greater than the combined cost of all existing mining and petroleum operations.
Despite these signs of buoyancy, there is also some evidence to suggest that the current pattern of mineral resource development may not be ‘sustainable’, even if our definition of ‘sustainability’ is one which allows for the continual discovery of new mineral reserves. For example, the Papua New Guinea Department of Mining and Petroleum’s own figures reveal that hard-rock exploration expenditures have declined from almost 69 million kina in 1988 to just over 36 million kina in 1995—in real terms (and in US dollars), a fall of more than 60 per cent over that period. In other words, the ‘exploration boom’ seems to have come and gone. And public statements by industry representatives have been increasingly preoccupied with those features of the local political environment which I have chosen to describe by the title of this chapter.

The origins and implications of the Bougainville rebellion

The outbreak of the Bougainville rebellion and subsequent closure of the Panguna copper mine generated a substantial literature over the period from 1990 to 1992, much of which was concerned with the ways in which the rebellion could be seen as a response to the social, political and economic impact of the mining operation, and the extent to which these linkages could be seen as characteristic features of the relationship between mining companies, local communities and the state of Papua New Guinea. All commentators recognised that the initial core of the rebel movement was a group of ‘militant landowners’, led by Francis Ona, who had for some time been demanding an enormous amount of money from the mining company as compensation for the environmental damage caused by its operations. The question was why the demand had arisen at this particular time, what the militants really wanted, whether and how they might have reached a settlement of their claims, and where they stood or what they represented in the regional or national society of which they were a part.

My own answer to these questions (Filer 1990, 1992) was to say that the rebellion had been nourished by a process of ‘local social disintegration’ which had been magnified to explosive proportions by the accumulated economic impact of the mining project, especially by the inability of the local community to distribute the economic benefits of mining in an equitable manner. Although it was necessary to recognise a wide variety of contingent factors which were bound to
affect the form and extent of this problem in other parts of the country, it could still be said that mineral resource development had a general tendency to exaggerate the political fragmentation of local landowning communities and the larger national society. The rebels therefore represented one section of a community (and a society) whose divisions had driven them to formulate a compensation demand which almost meant the opposite of what it said, because their real aim was to abolish the social conditions of their economic dependency rather than to make a new deal with the mining company which had been damaging their natural environment.

Some commentators (notably Griffin 1990) agreed that the rebels had an ulterior motive, but regarded the claims made against the mining company as an excuse for the resurrection of earlier demands for Bougainvillean independence from Papua New Guinea. No-one would deny that Bougainville’s political status was added to the rebel agenda at a fairly early stage in the proceedings, and once the mine had been closed it became the main bone of contention in the continuation of civil strife in different parts of the province. But this line of argument can only explain the original social and economic concerns of the militant landowners as a cunning concealment of the truth, even though substantial doses of truth were quite obviously present in their own formulation of these concerns. According to Larmour (1992), the rebellion was fuelled by some potent mixture of ethnic identity and class consciousness, but the timing of this chemical reaction remains something of a mystery. One of the few academic analysts with first-hand knowledge of recent developments on the ‘strife-torn island’ has suggested that Francis Ona and his original followers traded their own ‘compensation’ agenda with the ‘secession’ agenda of other Bougainvillean groups to form a coalition whose social support was then enlarged by the ham-fisted actions of the national ‘security forces’ initially sent in to quell the rebellion.³

Other commentators took the compensation agenda at face value, as a direct and justified response to the fact of massive environmental damage, and therefore took issue with the point in my own argument at which I had suggested that ‘the degree of strife within a landowning community... is proportional to the size of the packages which have been delivered to the community by a mining company and the various agencies of government’ (1990:104). From case studies of compensation agreements in Australia and other parts of the world, O’Faircheallaigh has argued that damage to the physical environment is itself a major
cause of social conflict within landowning communities, and that it
goes to the heart of the politics of resource development, because it
raises starkly the question of power: power over land use, project
design and environmental regulation, and over the distribution of
benefits mining can offer, at least on a material level, compensation for

We shall never know what might have happened if the Panguna
landowners had obtained a larger amount of this power before they
finally blew their tops. But we may still wonder whether Papua New
Guinea has the kind of political environment in which their search for
economic justice could have reached a satisfactory conclusion, largely
because the state resembles the landowning community in its apparent
lack of institutional capacity to set the standards for this search.

Amongst the other arguments which have been used to explain the
relationship between the mine and the rebellion, most tend either to
adopt a voluntaristic perspective, in which BCL’s surplus product
figured as the prize in a typical Melanesian ‘power game’ which
somehow got out of control (Quodling 1991; Wolfers 1992), or to
‘theorise’ the relationship by locating it in a local, national or global
context portrayed with traditional Marxist concepts like ‘class struggle’
(Thompson 1992), ‘mode of production’ (Wesley-Smith and Ogan 1992),
or ‘capital logic’ (Gerritsen and Macintyre 1992), none of which
appears to throw much additional light on the matter. All these authors
recognised the rebellion as a concrete illustration or extreme example of
a more general phenomenon, and in this sense they shared the views of
those mining company executives, government officials, and members
of the general public who all agreed, in the early stages of the rebellion,
that it taught some kind of lesson about the politics of mineral resource
development in Papua New Guinea. On the other hand, the long
duration of the fruitless search for peace on Bougainville seems to have
induced a revival in the popularity of Griffin’s argument that it really
was a ‘special case’, either because BCL’s corporate image has lost its
symbolic value in national political debate, or else because people in
positions of power and authority believe that they have already done
what they can to avoid a recurrence of such violent conflict in other
parts of the country.

Does the continuing history of conflict between mining companies
and local communities provide new evidence to support, disprove or
modify my own inference from the timing of the Bougainville rebellion,
‘that mines in almost any part of Papua New Guinea will generate the
same volatile mixture of grievances and frustrations within the landowning community, and, all other things being equal, blow-outs will occur with steadily increasing frequency and intensity until there is a major detonation of the time-bomb after mining operations have continued for approximately fifteen years’ (Filer 1990:76)? If there is one piece of evidence which should relate to the validity of this hypothesis, it might appear to be the recent compensation dispute between BHP and the people living along the Ok Tedi and Fly rivers. But consideration of the Ok Tedi case also serves to reveal the variety of local contingencies which are bound to affect the operation of any ‘general laws’ or ‘tendencies’ in a country like Papua New Guinea.

The occurrence of the Bougainville rebellion certainly inspired some of the people harbouring a grievance against Ok Tedi Mining Limited to express their feelings in terms remarkably similar to those which had previously been used by Francis Ona and his supporters. One letter written to a national newspaper shortly after the Panguna mine had been shut down included the following sentiments.

We, the people who live along the Fly River, will make sure our river system is brought back to normal ... rinsed clean by the blood of the greedy foxes upstream. We will make sure they drink the waste themselves, and their blood will be poured into the Fly to bring it back to normal if the National Government continues to ignore us. It was ignorance of the same kind that the Government is displaying over Ok Tedi that has led to the Bougainville crisis. The government never listened to the landowners’ calls, but treated them like rubbish. And now what has happened? Francis Ona’s mob is on the move and the government is shivering like a sick monkey, hiding at the back of the empty safe for which it sacrificed its country. So—a job well done, Francis Ona: Keep it up and get rid of those greedy whites and the mentally affected government. You’ve got silent supporters from Western Province (Post-Courier 9 October 1989).

At the same time, OTML and its partners in government had drawn their own conclusions from the rebellion and agreed that the company should establish a new funding mechanism (the Lower Ok Tedi Fly River Development Trust) to compensate the people living downstream of the mine. This may have moderated the form and extent of local hostility, but it obviously failed to prevent the litigation which eventually forced the company to make a far more generous settlement. If the local landowners resorted to court action rather than armed struggle, this choice might be explained by the fact that the mine had been operating for less than ten years when the action began, so their
grievances had not yet reached the pitch of intensity which existed on Bougainville, but it might also have been due to the moderating influence of the various foreign stakeholders responsible for internationalising the dispute. There was certainly no history of secessionist sentiment in Western Province which could have served to aggravate local feelings of environmental injustice, but there were substantial numbers of West Papuan refugees living in the area most seriously damaged by the discharge of mine waste, and their presence undoubtedly compounded the pressure on subsistence resources (Kirsch 1989, 1993).

The one feature of the Ok Tedi dispute which is least consistent with my own model of local social disintegration is the absence from this dispute of those communities which have so far been the main recipients of those mine-related benefits which are dedicated to ‘local landowners’. These are the people, roughly 1,500 in number, who hold customary title over the Special Mining Lease, the Tabubil town lease, and a tailings lease which is restricted to the area around the ill-fated Ok Madiam site. These people have no reason to complain about the discharge of waste material into the river system because they are living upstream of the damage, but even in 1989, five years after the government had allowed OTML to begin mining operations without the tailings dam which has previously been required, these were still the only people receiving any form of compensation from the company. Furthermore, the relatively small size of this landowning group meant that each of its individual members had been getting a larger share of the whole range of benefits reserved for local landowners than their Bougainvillean counterparts. If the intensity of feeling behind the Bougainville rebellion was partly due to the inability of the local community to distribute the economic benefits of mining in an equitable manner, then we might expect to find a higher level of resentment amongst these upstream ‘landowners’ than amongst the downstream people who had a very much smaller share in the economic benefits of the Ok Tedi mine.

It is certainly true that the ‘upstream people’ have launched the occasional ‘strike’ against the mining company—most notably in March 1988, when their action incidentally provoked Francis Ona and his followers on Bougainville to a new level of aggression in pursuit of their own claims. However, in the first five years of the mine’s operation, their protests were primarily directed against the presence and behaviour of the outsiders hired by the mining company, not
against the fact or value of the damage done to their physical environment. It was only after the outbreak of the Bougainville rebellion, in June 1989, that the Ok Tedi landowners began to demand a substantial increase in their compensation and rental payments from the company, and even then the demands were not motivated by any obvious desire to emulate the Bougainvillean example, but rather by the national government’s own stated desire to renegotiate the whole spectrum of landowner benefits in all its mining and petroleum projects. In this case also, the company learnt its own lesson from the Bougainvillean example, and began to distribute the cash benefits to individual landowners rather than to clan agents or community leaders who might later be accused of misappropriation. Although the mine has not yet reached its fifteenth year of operation, there is very little evidence to indicate a recent intensification of social conflict within the upstream community, nor much sign that they shared or supported the justified resentment of the people who bore the brunt of the downstream damage and proved most resolute in their pursuit of a new compensation deal.

The Ok Tedi case lends rather more support to O’Faircheallaigh’s claim that social conflict within landowning communities is a direct outcome of damage to their natural environment and can be mitigated by the success of their own struggle for reasonable compensation. However, the validity of this point depends in part upon the definition of the groups involved, since traditional political communities in Melanesia are much smaller than the ‘landowning groups’ whose identities are forged by the process of mineral resource development. The series of ‘deals’ between the government and OTML were framed in terms of an abstract exchange of economic benefits for environmental losses which signally failed, for many years, to take account of the spatial distribution of these gains and losses amongst the local populations most directly affected by the operation of the mine. The Ok Tedi case reveals a complex and enduring pattern of political and economic fragmentation within the general category of ‘project impact area people’ which may create a greater menace to the mining industry than any process of social stratification within their ‘natural’ political communities. This process of spatial polarisation, extending across the boundaries of those areas which the ‘landowners’ and the government have agreed to set aside for mining and related purposes, may also help to explain the spread of support for the militant cause on Bougainville in ways which previous analysis has overlooked.
Mount Kare: the mine that got away

Mount Kare, located obstinately on the border between the former colonial territories of Papua and New Guinea, is an excessively remote and miserable place which became famous overnight when a passing ‘landowner’ discovered large nuggets of gold along the banks of a nearby creek in January 1988. During the course of the next two years it was the scene of a remarkable ‘grassroots gold rush’ in which a small army of 10,000 Papua New Guinean prospectors and camp followers removed gold worth an estimated 150 million kina with simple tools and bare hands (Ryan 1991). While some people saw this as a splendid demonstration of self-reliance, others were more concerned by the inability of the government to either regulate the lucky strike or divert a portion of its output into the long-term development of the adjoining districts and provinces.

All this activity took place within the boundaries of Prospecting Authority 591, which the government had granted to CRA’s local subsidiary, CRA Minerals (PNG), back in 1985. Indeed, it is most unlikely that the discovery would have been made if CRA had not already established its exploration camp in the area. On one interpretation of the Mining Act, the company also had a legitimate claim to some of the gold which was being removed so brazenly from beneath its nose. Given the numbers of people involved in the removal exercise, the pursuit of this claim with a distant and visibly impotent government would not have made much sense. CRA’s executives therefore decided that their best option was to form a joint venture with the ‘true landowners’ of the gold rush site in order to mine those quantities of alluvial and colluvial gold which had not already been taken by these landowners and their ‘guests’. In this way they also hoped to reduce the extent of outside interference with their exploration work in the much larger territory covered by PA 591, where it was now reasonable to assume the existence of a substantial hard-rock deposit associated with the new-found wealth of surface material.

Since the gold rush site was located in wild alpine grasslands which formed a substantial (though not impassable) barrier between the settlements of the Paiela people in Enga Province and the Huli people in Southern Highlands Province, the number of people who could (and did) claim some share of its ownership was much larger than it might have been if the fact of ownership had previously had any
significant economic value. Nevertheless, the company’s consultants were able to establish the existence of sixty-one ‘landowning sub-clans’ from both sides of the border, and on this basis to construct and register an elaborate hierarchy of business groups and landowner companies whose peak body, the Kare-Puga Development Corporation (KDC) was duly incorporated in May 1989 and entered into the necessary joint venture agreement with its own architects in April 1990. The new joint venture company, Mount Kare Alluvial Mining (MKAM), was a cost and profit-sharing arrangement in which CRA’s own subsidiary, Mount Kare Holdings (the holder of PA 591) held a 51 per cent controlling interest. In September 1990 the State granted a Special Mining Lease (SML) to Mount Kare Holdings and entered into a Mining Development Contract with MKAM.4

By this time, the easy pickings of the gold rush had been largely picked. But these had only served to wet the appetites of several local businessmen whose own coffers had swelled by their participation in a range of ancillary activities. This group of local capitalists had excellent political connections: most of them were either past, present or potential members of the National Parliament or the Enga Provincial Assembly. They saw no reason why their participation in the development of the Mount Kare prospect should be jeopardised by CRA’s determination to erect a metaphorical fence around the ‘true landowners’ of the area and a real fence around their own mining camp. In sundry combinations and alliances, they did all they could to wrest the fabled golden prize from the wicked multinational monster in its mountain hideout.

They first sought to dissuade the government from granting the SML by claiming that CRA had ‘caused’ the Bougainville rebellion—hardly a novel idea but one which was guaranteed to raise additional support in the national political arena. They also took a leaf out of Francis Ona’s book by complaining that CRA had manipulated the definition and organisation of ‘landowners’ to exclude its own opponents—an argument which persuaded the Justice Minister to suggest that ‘all CRA applications should be stopped and careful landowner studies made’ before another mining lease was issued to the company (Post-Courier 20 August 1990). Meanwhile, in July 1990, an Engan politician persuaded Parliament to amend the Mining Act by granting ‘landowners’ an automatic right of ownership over all minerals which lay within a certain distance of the surface of the ground. Some MPs may have supported this amendment because they thought it merely gave legal sanction to what had already taken place at Mount Kare, but the KDC
directors published a full-page advertisement in the national daily newspaper in which they claimed that it was part of a 'conspiracy' by certain politicians 'to break up the KDC-CRA negotiations and tempt landowners with promises of a better deal with companies with which they have business dealings' (Post-Courier 16 August 1990).

Perhaps the advertisers already knew what was about to happen when the SML was actually issued. In the following week, the KDC Chairman jumped the metaphorical fence and initiated legal action to challenge the validity of the lease. This was done at the instigation of two other dissident landowners who rapidly added their own names to the proceedings and threw in an extra constitutional challenge to Section 7 of the Mining Act, which declared that all mineral resources were the property of the State. While this case was bouncing back and forth between the National and Supreme courts, the dissidents persisted in their efforts to win over individual members of the KDC board while making loud complaints about CRA's 'divide-and-rule tactics'. To reinforce their point, in March 1991, they organised an armed raid on the MKAM mining camp and forced the manager to sign a written undertaking that CRA would build a road from Paiela to Porgera. And in August 1991 the Minister for Minerals and Energy told Parliament that he had asked Cabinet to deal with CRA's application for a renewal of its prospecting authority (PA 591) because he and his departmental secretary had both been subject to death threats and he felt that 'certain elements of Mt Kare landowners were threatening another situation similar to Bougainville' (Post-Courier 29 August 1991; Times of PNG 12 September 1991).

The dissident landowners had lodged their own application for the same glittering prize through a company called Amadio, which had entered into an agreement with two small Western Australian prospecting companies, Ramsgate Resources and Menzies Gold, to share the costs and benefits of removing CRA from Mount Kare. In effect, Ramsgate and Menzies had agreed to foot the bill for the various court battles in which Amadio's directors were engaged, and had promised their 'landowning' partners a 50 per cent share in any mining operation which they managed to establish in the wake of CRA's departure. When Cabinet decided to renew CRA's hold on PA 591 for a further two years, the validity of the decision was naturally added to the list of issues in the litigation which Amadio's new benefactors had agreed to fund.

Impatient perhaps with the slow progress of their legal action, the
dissident landowners organised another, bigger raid on the MKAM mining camp one night in January 1992. This time they forced the workers at gunpoint to set fire to the installations and equipment, stole all the gold and cash they could find in the company safe, and left behind a note telling CRA to get out of the area. The Prime Minister, Rabbie Namaliu, asked for 'the reaction of those Opposition leaders who have sought to be involved in the question of mine ownership' (Post-Courier 13 January 1992), but the only reaction he got was a series of verbal attacks on his own government's failure to address the demands of the 'true landowners' or prevent CRA from using its customary 'divide-and-rule tactics'. As in the case of the earlier raid, some of the truly divided landowners were duly arrested and charged on a number of counts, but most of the charges were eventually dropped or mislaid. One of the individuals charged in connection with the second attack was also one of the plaintiffs engaged in the legal battle over the mining lease and the prospecting authority, and the publicity generated by his encounters with the law may have helped to secure his entry to Parliament in the national election of June 1992.

By this time the dissidents were also claiming control of Kare-Puga Development Corporation—a somewhat hollow victory (even if it was real) because the company was almost immediately placed in receivership by its main creditor, the PNG Banking Corporation, on account of 'grave concerns held by the bank over the much publicised litigation which has contributed to delays in re-opening the mine site' (Post-Courier 29 June 1992). Yet this was only a minor setback when compared with the political complexion of the new coalition government formed in the wake of the national election. Not only had the new Prime Minister, Paias Wingti, been the Opposition Leader who refused to condemn the January raid, but his Engan Minister for Mining and Petroleum, Masket Iangalio, appointed as his personal adviser the very man who had brokered Amadio's deal with Ramsgate and Menzies. The Minister made noises about his sincere desire 'to help the landowners settle their differences', but CRA's executives could see the writing on the wall. They offered to transfer the whole of CRA's stake in MKAM to the 'properly identified landowners through their originally established ownership structure' on condition that Amadio and its Australian 'financiers' were persuaded to desist from their legal challenge to CRA's hold on PA591 and excluded from any beneficial interest in the alluvial mining operation which had recently been recommissioned in an effort to clear KDC's debt to the bank.
The Minister at first seemed sympathetic, for he could see that 'CRA was a bit fearful that the West Australian crowd might get in there and manage this on behalf of the people' and therefore gave his 'undertaking that this will not be the case' (Post-Courier 12 November 1992). But two weeks later he made a statement in Parliament accusing CRA of bribery, corruption, manipulation and misrepresentation, and would clearly have nothing more to do with them. In February 1993 the company announced that it would suspend the alluvial mining operation 'as an act of goodwill in accordance with the wishes of the Minister' (Post-Courier 25 February 1993). By the end of March they had grown so weary of the whole business that they declared force majeure and literally walked (or rather flew) away from both the mining lease and the prospecting authority. With a nice touch of irony, the Minister described this as a 'provocative act' and an 'ill-conceived move' (Post-Courier 29 March 1993).

Within a few days of CRA's evacuation, Ramsgate’s Managing Director announced the conclusion of a new ‘management contract’ under which the Australian partners would help KDC to pay its debts as soon as the hard-rock rights were in the bag, and apparently had some reason to think that 'it would be futile for anyone else to apply for the exploration licence' (Post-Courier 14 April 1993). But he was wrong. Come October there were three different 'landowner groups' in competition for the licence, each with its own joint venture partners, and the Mining Registrar therefore conducted a ballot under Section 100 of the new (1992) Mining Act to determine which of the applications would be dealt with first. The company which won the ballot, Matu Mining, was the local subsidiary of another Australian company, Carpenters Pacific Resources, which had picked up the support of a landowner faction which had previously been on CRA's side of the fence. Not to be outdone, Amadio’s supporters in government produced an amendment to the Mining (Transitional Provisions) Regulation which would have the effect of invalidating the issue of the licence to anyone except the holder of the Special Mining Lease which KDC had inherited from CRA. And so began another round of lucrative employment for the lawyers of Port Moresby. While the matter has remained before the courts, there has been no further exploration or development of Mount Kare's mineral resources except for what little remains to be captured with buckets and spades.

There are two morals which I should like to extract from this tortuous saga. The first is the cumulative absence of any distinctive...
moral value or any sign of 'indigenous heroism' from the mutually frustrating and denigrating endeavours of the various stakeholders. And the second is the sheer variety of 'strategies and tactics' by which the actors brought about the stalemate none of them had wanted. The Melanesian way of menacing the mining industry is thus revealed as one which has a multitude of menaces but very little in the way of moral messages or purposes.

In your face or behind your back

After the second armed assault on the Mount Kare mining camp in January 1992, the national government decided to create a special police mobile squad, to be known as the Rapid Deployment Unit (RDU) to provide 'round-the-clock' security for the country's mining and petroleum projects. The first members of the new squad graduated from their three-week training course at the beginning of June and were promptly deployed to Porgera, whose proximity to Mount Kare was assumed to create a special need for their services. This caused a good deal of confusion in the local community because Porgera already boasted a regular police force and a police mobile squad, as well as the company's own security force. The mining company agreed to accommodate the new squad (with an appropriate deduction from its tax bill) in the absence of any spare government housing. But the management had cause to regret their act of hospitality in October 1992 when an RDU member allegedly shot and killed a local 'landowner', thus provoking an armed assault on the company's residential compound which cost about 1 million kina in repairs and improvements to security installations, and which also frightened a number of staff and workers into tendering their resignations.

Whether or not the victim of this random yet typical act of police violence was a 'landowner' in the strict sense of the word is not clear. Many of those who joined in the attack were recruited from the large number of 'squatters' or 'outsiders' attracted to Porgera by its wealth of economic opportunities and social services, and who now greatly outnumber the original inhabitants of the area. In this overcrowded and volatile social formation Bonnell argued:

> There are plenty of Porgerans with grievances against the mine and vast numbers of idle outsiders ready to fuel these grievances or join in demonstrations...Many come for the excitement and form the bulk of the ever ready rent-a-crowd that join in the fights and riotous
behaviour which have become a standard feature of payday (Bonnell
1994:90-1).

The author of this comment spent three years working in PJV’s
Community Affairs Division, and most people familiar with the work of
that outfit will attest to the accuracy of her analysis. The ‘rampage’ of
October 1992 is only an extreme example of the episodic violence which
is a hallmark of ‘political’ relationships between all sections of the local
community, and over which it is the function of the company’s
community liaison staff to pour large quantities of metaphorical cold
water.

Many commentators, inside and outside of the industry, would say
that the ‘siege mentality’ which has been typical of the corporate
posture at Porgera and Mount Kare is simply a response to the regional
political culture of the central highlands of Papua New Guinea, where
the constant threat and occasional use of violence is the normal form of
‘negotiation’ or ‘dispute settlement’. In the period since Independence,
central highlanders seem to have developed a form of ‘law and order’
which features a combination of excessive compensation claims,
criminal acts of extortion, riotous mob behaviour, punitive police raids
on local villages, and the conduct of ‘traditional’ tribal feuds with hand
grenades and M16s. Although this may sound like a recipe for anarchy,
it is a situation in which mining companies can and do continue to
operate by bargaining their way through successive confrontations as if
they were unusually wealthy tribes or clans whose wealth contributes
in equal amounts to the creation and resolution of additional public
order problems.

There is certainly much less evidence of outright confrontation
between company and community representatives in other parts of
PNG. For example, the anthropologist who was engaged to assess the
social impact of the Wapolu gold mine in Milne Bay Province wrote that
the local villagers had a ‘colonial history of neglect and quiet
disillusionment’ and a ‘cultural disposition to be mild and unassertive’
which was liable to disguise and prolong the growth of their
resentment at the damage caused by the mining operation.

The outburst, if and when it comes, might seem distorted,
disproportionate, and not necessarily directed at a solution to the
problem. Their anger is unproductive and inclined to be self-
destructive. Being hurt, they will hurt themselves further to try and
hurt the cause of their resentment. How this could manifest if there
was a deep groundswell of resentment against the Company I can
only speculate. But it would not generate (as in the Highlands) a
decorated threatening mob. More likely one would see a campaign of resentful obstruction: the withdrawal of labour and services, studied avoidance of the camp, and quietly sabotaged roads (Young 1987:4).

The superficial or initial absence of hostility need not imply a different level, but only a different form, of resentment and resistance. Some of the company and government personnel who negotiated the development of the Porgera mine would say that it is easier to strike meaningful agreements with the leaders of a ‘decorated threatening mob’ than with people whose reticence borders on passive resistance. And the eruption of the Bougainville rebellion suggests a ‘deep groundswell of resentment’ may prove much harder to manage.

Although Papua New Guineans themselves contribute to the maintenance of such stereotypical contrasts between highland and lowland (or island) cultures, the volume and form of violent action against mining and petroleum companies is not simply a function of this regional diversity. First, the movement of people and ideas between different parts of the country provides a constant source of novelty or unpredictability in the approaches which local community leaders can make to the negotiation of mineral resource development. And second, the mining industry, like other sectors of the modern capitalist economy, is constrained by forms of violence which owe more to the current formation of national institutional relationships than to the vagaries of regional custom. It was not only the pent-up anger of militant landowners but also the institutionalised violence of the ‘security forces’ which put an end to the mining industry on Bougainville, just as it provoked the armed assault on Porgera Joint Venture’s (PJV) residential compound in 1992. Wildcat ‘strikes’ by mineworkers also tend to involve a measure of personal intimidation and physical destruction which would be regarded as a serious threat to public order in many other national settings, but which Papua New Guineans seem to accept as part of the definition of a ‘strike’, even if their leaders still deplore the ‘strikes’ of workers and landowners alike as part of a lamentable decline in people’s ‘respect for leadership and authority’. In this respect the mining industry is menaced by a general breakdown in ‘law and order’ which both reflects and reinforces a national crisis of governance.

The resource dependency syndrome

It is not difficult to construct a definition of dependency which allows us to describe Papua New Guinea as the owner of a mineral-dependent
economy. Such descriptions have often been related to a version of ‘dependency theory’ which seeks to explain the backwardness or underdevelopment of certain developing countries in terms of their subjection to specific forms of multinational capital—in this case mining capital (Girvan 1976; Cobbe 1979; Tanzer 1980). The substantial presence of mining capital in Papua New Guinea clearly does have some negative effects on other sectors of the national economy, mainly because of the way that it affects the domestic market in various factors of production, but if we can therefore say that the mining industry constitutes an economic menace in its own right, it is not this economic form of resource dependency which threatens the industry itself.

The Melanesian way of menacing the mining industry includes a psychological or cultural form of resource dependency which partly reflects the simple economic fact that an ever-increasing proportion of Papua New Guinea’s national income has been collected in the form of mineral resource rent, but which also draws part of its inspiration from the cargo cult mentality which post-colonial anthropologists are no longer allowed to talk about, and which, for the sake of political correctness, we might choose to describe as a millenarian desperation for development. Stürzenhofecker has provided a graphic illustration of this state of mind in her portrait of a Duna community whose male members

blend received notions regarding powerful spirits with rumours regarding the finding of oil resources, in such a way as to move from the picture of a sacred landscape, whose fertility must be preserved for the future, to a picture of an exploitable landscape available for manipulation by a company... Their peripheral location, coupled with rumours of the centralizing potential of company development, have given them an almost apocalyptic vision of what such a form of development could bring to them, regardless of the likely ecological consequences (1994:27).

Although there may still only be a minority of the rural population which actually does receive some form of resource rent, the vast majority now seem to subscribe to the belief that their land does contain some valuable resource—whether gold, oil, diamonds, or the truly visible logs—and that their only chance of development lies in their share of the rent to be collected from the extraction of these resources by some multinational company. If and when the company comes, the expectation of deliverance within its field of operations is far too great to be satisfied by the actual conduct of its business, however many special deals or preferences are bestowed upon the local population,
since the business it is doing (unlike business in the Melanesian sense) is bound to be directed to the bottom line and not to the consumption or destruction of excessive wealth in the creation of new personal relationships. But while people may not like the experience of development which they actually get from the mining companies (or the logging companies), and can readily be drawn to express their feelings of disappointment, anger and frustration, they are not cured of their addiction to the drug, they do not choose the path of self-reliance or alternative technology, they simply want the ‘company’ to give them more, or else to have another company to keep them company.

Bougainville probably was a special case in this respect, because CRA’s arrival was not seen as a sign of impending deliverance by any significant fraction of the local population. In the sunset of Australian colonial rule, independence was the natural focus of their aspiration for development, just as it was in many other parts of Papua New Guinea, with or without the addition of millenarian overtones. In those parts of the country where the experience of colonial rule had been more limited and less oppressive, as it had been in the vicinity of the Ok Tedi project, people had other ideas (or no idea) of the relationship between self-government and large-scale mining when they first encountered these two distant concepts. And by the time a foreign mining company made its appearance on Lihir island in the early 1980s, many people there were seriously disillusioned with the institutions of their nation-state and saw the company’s arrival as the outcome of their own communal cargo cult. To understand why mining companies have taken (or been given) more and more of the responsibility for meeting local expectations of development which have been less and less amenable to corporate manipulation, one needs to recognise the existence of a vicious circle connecting the resource dependency syndrome to the apocalyptic elements of Melanesian Christian culture and the secular decline in the legitimacy of the post-colonial regime.

**An unstable policy environment**

One of the more perspicacious remarks made in the wake of the Mount Kare raid in January 1992 came from the national Police Minister, who said it confirmed police predictions that ‘terrorist activities on mines and petroleum installations were going to happen about this time before and after national elections’ (Post-Courier 16 January 1992). The national election of June 1992 did take place almost exactly mid-way
between this raid and the rampage through PJV's residential compound in October that year. National elections in Papua New Guinea have been held at five-yearly intervals since 1972. The political cycle which has developed over this period is one in which all matters of public policy have increasingly become the hostages or victims of an unstable succession of coalitions between national politicians whose own electoral survival commonly depends on their ability to reward a very small local constituency with the maximum possible share of government resources. Each successive election has witnessed an increase in the total number of candidates, a corresponding reduction in the proportion of votes required to win a seat, an increase in the number of sitting members who have lost their seats, an increase in the number of winning candidates who have claimed to be independent of the growing number of political parties, and an increase in the intensity of the 'horse-trading' by which a new coalition government has been formed after the declaration of results (Saffu 1996). And in each of the quinquennial political cycles since 1977, the ruling coalition established after the election has been defeated by a parliamentary vote of no-confidence when one or more of its component factions has crossed the floor and joined the previous Opposition.

In this form of parliamentary democracy, the fluctuating personal interests of individual ministers and their own political patrons and clients have come to undermine the capacity of public servants to maintain the coherence of existing sectoral development policies. In the year preceding an election, all Members of Parliament, whether in government or opposition, try to outbid their prospective opponents by repudiating all existing policies for which they have no personal responsibility in order to recapture some of the permanently disenchanted voters in their own electorates. And in the formation of new coalition governments, the main economic portfolios are often allocated to individuals who have already built their political reputations around a commitment to radical innovations in departmental policies. Successive Ministers of Minerals and Energy (or Mining and Petroleum) have alternately supported or opposed one or more of the major multinationals which dominate the industry in Papua New Guinea, while candidates standing for election in the growing number of electorates which actually host some form of mineral resource development will almost invariably seek to make some political capital out of the distinctive nature of their own relationship to the developer. Although this form of political competition gives mining
companies good cause to perceive the country's policy regime as a cross between a revolving-door and a roller-coaster ride, in which they can expect to be described as 'wild pigs', 'golden rats' or 'economic terrorists' at certain points in the national political cycle, it has also had the effect of destabilising or decomposing the technocratic policy regime which was designed to maximise the share of mineral resource rent being invested for what the National Constitution describes as 'the benefit of future generations'.

Back in 1989, as part of its own effort to avoid a repetition of the Bougainville rebellion and secure a greater degree of local support for the development of new mining and petroleum projects, the national government established a tripartite process of negotiation between national, provincial and local stakeholders which soon came to be known as the 'Development Forum' (West 1992). The price which has since been paid for this new level of 'popular participation' has been the development of a zero-sum, short-term, adversarial pattern of relationships between government agencies and local communities as they continually struggle over the distribution of material benefits which can be debited to project revenues.

Each new forum has increased the share of these benefits which accrue from a specific project to its own 'landowning community', and has correspondingly reduced the share which is retained by the national government. This means that each new mining and petroleum project is liable to be developed under terms and conditions which immediately threaten the deals already done to facilitate the development of all existing projects. In this context, the government is unable to exercise its legitimate role as an agency of effective development planning in project impact areas, but normally stands condemned for its own failure to keep whatever promises it has made in some previous round of negotiations. This kind of failure provokes a corresponding resentment on the part of local communities, whose leaders are thus encouraged to make additional demands on the developers who have increasingly become the surrogate for government itself. And so the wealth, power and authority of the State appears to be trapped in a permanent crisis of governance. (Filer 1996:23)

Other policy measures, most notably the provisions of the new Organic Law on Provincial Government and Local-level Governments (1995), have taken further steps to redistribute mineral revenues from the national government to a small élite of 'lucky-strike' communities and the various 'unofficial stakeholders' who function as their advocates or parasites. Industry spokesmen now complain at regular intervals about
the consequent growth of economic inequalities and political conflicts between ‘landowners’ and other ‘project impact area people’, even while they chafe under the government’s expectation that the companies themselves should carry more of the financial burden of maintaining social order in their fields of operation. This is not something which the companies really want to do, nor something for which they are well prepared, but it happens either at the insistence, or due to the neglect, of the other stakeholders in the policy process, even while these same stakeholders reserve the right to criticise, sue or assault the mining company’s executives at the same time—activities in which they receive a good deal of encouragement from the climate of public opinion in Australia and the other countries where these companies are domiciled.

Conclusion

Speaking at a seminar in Germany convened by radical church groups and non-governmental organisations to reflect upon the problem of environmental degradation in Papua New Guinea, especially the damage caused by the Ok Tedi mine, the Chairperson of the Papua New Guinea Council of Churches described the problem of governance in her country as one in which local loyalties and traditions inhibit the capacity of politicians and public servants to follow the maxims of distributive justice at a national level.

Thus they may opt for the personal morality of service to kin and friends first rather than the impersonal morality of service to the nation—which in fact means service to non-wantoks. In this sense corruption can be seen as a moral act, or at least not simply an immoral act, in that corrupt politicians are often opting for one set of moral duties rather than another (Muingnepe 1994:104).

And that presumably is why Papua New Guinea’s politics is so fragmented, parochial and insular and produces political behaviour and attitudes at the national level which in most cases appear incomprehensible and contradictory to national interests (ibid:105).

She might have added—though this would certainly have put the cat amongst the pigeons—that those Papua New Guineans who have proved themselves best able to pursue the maxims of distributive justice are more likely to be found in the management of ‘foreign’ mining companies than in the ranks of government at any level. In other words,
the corporate sector—including even the mining sector—has ethical standards which may not be as lofty as those of the Papua New Guinea Council of Churches, but seem to be somewhat higher than those practiced by the various agencies of government.

Once we consider the mining industry to be one of the last bastions of bureaucratic rationality in the State of Papua New Guinea, then we should perhaps be less inclined to represent the multinational companies as unscrupulous and dirty beasts, and think of them instead as tame elephants performing in a circus without a ringmaster, or wild elephants consuming the resources of a national park whose gamekeepers are all ivory-hunters in disguise. It is fairly easy to conclude from such analogies that Melanesian society has an in-built tendency to resist any form of bureaucratic or corporate regulation, whether by the state or multinational capital, but rather more difficult to conjure up a sustainable alternative. Although we may detect a superficial resemblance between the way that Melanesian villagers and Western environmentalists perceive the pollution of the mining industry, we need to bear in mind that the Melanesian perception (and the actions which stem from it) owes much less to the desire for a ‘clean natural environment’ than it owes to the search for a new social and economic order.

Is there another form of development whereby the people of Papua New Guinea can (if they wish) escape the clutches of the resource dependency syndrome? In theory (and in the discourse of the coffee shop), there may be something beautiful and small and user-friendly which will do the trick. But in practice it is not so clear. In the discourse of the coffee shop, indigenous peoples living in harmony with nature should not really need development of any kind, since we all know that ‘development’ is an unfashionable social construct ripe for deconstruction (Escobar 1995). If the people of Papua New Guinea are crying out for development, shall we then declare that they are suffering from some form of false consciousness, that they do not know their own true needs, and what they do need is a serious dose of such new-fangled medicines as participatory rural appraisal to open their eyes to the wonders which they have inherited from their stone-age ancestors?

The technocrats in the mining industry and the environmentalists in the coffee shop are both liable to beg the question posed in the aftermath of the Bougainville rebellion—whether mining projects in Papua New Guinea have a uniform and predictable impact on their local social
environment, or whether the vagaries of local and national history dictate that there can only be a series of unique relationships between projects and communities, or between a set of stakeholders whose own identity is constantly at stake. Any attempt to construe the real needs and desires of the national population will normally be based on the assumption that these relationships do have regular and general features from which deductions can be made about the merits of specific policies, but when we actually document the multitude of menaces to the corporate strategies of mining capital at national, provincial and local levels, it is much harder to figure out the general direction in which this history of resistance is leading the various stakeholders.

My own conclusion would be that the struggle of these indigenous peoples is not a conscious or deliberate battle against the demons of mineral imperialism, but an internal struggle which threatens the fabric of their state and has the accidental or unintended effect of creating an increasingly problematic investment climate for the mining companies. The problem here is not the contemporary fact of capitalist exploitation, but the very limited scale of cooperation which has always been characteristic of Melanesian society, and which Papua New Guineans nowadays refer to with the one word 'politics'. Despite the best (or worst) efforts of Western colonialism, the political fragmentation of Melanesian society has continued to defy the binding powers of fear, trust, shame or guilt. The Melanesian way of menacing the mining industry is not just a failure to cooperate with the industry itself, which many people might applaud as a heroic act of resistance, but a lack of mutual cooperation in the pursuit, and even the definition, of that 'development' which everyone agrees they want.

Notes

1 All references to the Post Courier are to the daily English-language newspaper of that name.

2 These figures are all taken from the Bank of Papua New Guinea's Quarterly Economic Bulletin. Confusion sometimes arises because the mining companies record their payments to government as being made in the year before the government records its receipt of them. Government records show that BCL contributed substantially more to non-grant revenues in 1989—the year in which it ceased operations—than it did in 1988.
Tony Regan, personal communication, 1995.

CRA had already submitted its own development proposal and environmental plan to the relevant government authorities at the end of 1988.

References


Thomas, M., 1995. 'BHP finds itself in the firing line', Post-Courier, 4 October.


The South Pacific region, as described by the noted Samoan anthropologist Epeli Hau‘ofa (1993, 1994), ‘is a sea of islands’, not a widely scattered multitude of isolated ‘islands in a far sea’. Contrary to the notion (informed by an overenthusiastic application of island biogeography) that island life is above all characterised by splendid isolation, the ocean expanses between the islands and archipelagoes of the Pacific should be seen as linkages between these small land masses. For those who live on the island coasts of the South Pacific, the sea does not divide, nor is it a deterrent to contact (Hviding 1994). Indeed, as commented by a scholar on Pacific Islands navigation, and as attested to by the well-documented accomplishments of Pacific Islands seafarers through many centuries, the open ocean expanses between seemingly distant archipelagoes are ‘...highways rather than barriers’ (Lewis 1972:15).

Epeli Hau‘ofa’s reappraisal of the maritime interrelatedness of the South Pacific world also serves as a reminder that, ancestral seafaring aside, it is the sea that holds the key to the future of Pacific Islands peoples, as custodians of as much as 12 per cent of the world’s oceans (South 1993:106). Pacific Islanders are, with good reason, concerned about the wellbeing of their vast ocean and the living things in it, as evidenced by very recent fears related to me by telephone from friends
in Solomon Islands that radioactivity and other harmful effects of the French nuclear tests in Eastern Polynesia, 5,000 kilometres away, would eventually damage not only migratory tuna stocks (on which the Solomon Islands national economy depends) but also, by way of prevailing currents, reach Melanesian reefs to the detriment of the so far relatively poison-free fish and shellfish stocks there. Beyond their role as highways for contact, the seas of the South Pacific contain some of the richest, most abundant living aquatic resources of the world. The huge, globally important migratory stocks of skipjack and yellowfin tuna that roam the South Pacific and represent enormous economic potential are one facet of this resource abundance. The successes of the Forum Fisheries Agency in exercising and protecting island nations’ combined sovereign rights over tuna resources, against the opposition of formidable distant-water fishing nations such as the United States and Japan (Bugotu et al. 1990; Herr 1990), point to the continuing key role played by the sea and its resources in forging and maintaining links throughout the South Pacific region.

In this paper I will not deal with the much-publicised international legal, economic, and biological matters relating to industrial fishing on the high seas of the South Pacific (Doulman 1987; Herr 1990). Instead I will focus on the coral coasts of the region, and discuss Pacific Islanders’ own knowledge and management of the multitude of nearshore marine resources on which their small-scale, village-based fisheries are based. Islanders’ close relationships to the coral reef and lagoon environments, and their time-honoured social institutions for regulating the usage of these environments, constitute probably the most important set of parameters for future sustainability of small-scale reef-based fisheries in the South Pacific. Few Pacific Islands coasts do not support a coral reef of some sort (Wright 1993), and around many of the larger islands there are very extensive barrier reef and lagoon systems, while other areas are dominated by coral atolls with only tiny strips of land. The extensive coral reef ecosystems around Papua New Guinea, Solomon Islands and Palau help to make the Indo-West Pacific region one of the world’s ‘hot-spots’ of marine biological diversity (Norse 1993).

Although the nearshore fisheries resources of the region are rather small in global terms, their past, present and future importance to Pacific Islanders are, to quote Bob Johannes, a leading authority on the small-scale fisheries of the South Pacific
of greater importance per capita than in perhaps any other region in the world. As well as being the main local source of animal protein, fisheries are also often viewed as the main potential source of foreign exchange (other than foreign aid) in much of the region, since land-based resources are often very limited (Johannes 1989:86).

In assessing the prospects and challenges for sound future development and management of small-scale fisheries in the Pacific Islands, Johannes additionally notes that there are ‘unusual opportunities...in the form of an indigenous framework for marine resource management and an undervalued but sometimes very rich indigenous knowledge base’ (Johannes 1989:85). In this paper I aim briefly to illuminate these unusual opportunities. Let us first turn to some prevailing views of fisheries management and their tenuous, even conflicting, relationship to the ways in which the coastal peoples of the South Pacific relate to their fisheries.

**Fisheries management: diverging perspectives**

Many long-established biological approaches to fisheries management have largely ignored the role of fishing people, considering them to be somewhat alien elements in otherwise well-ordered statistical models. It goes without saying, however, that people, both those who fish and those otherwise involved in fisheries, contribute directly and importantly to the fisheries systems themselves, as recognised by more recent ecological or ‘bio-economic’ approaches to fisheries (McGoodwin 1990). Still, there has been a tendency to give a rather static role to people, most notably in the kind of analysis that takes for granted the eventual destruction of fish stocks by overfishing. A further dominant assumption of Western approaches to fisheries management has been that access to the resource, fish, is free and that no single participant in the fishery can prevent others from exploiting the same fishing grounds. This view also takes for granted that any fishery must be characterised by intense competition which will inevitably lead to overfishing and the eventual depletion of the resources, the so-called ‘tragedy of the commons’ (Hardin 1968).

However, recent debates on the management of so-called ‘common property’ resources, not least with reference to fisheries, have revealed the historical and geographical specificity of ‘open access’ to resources (Ruddle and Akimichi 1984). For small-scale nearshore marine fisheries, which on a global scale have a productive output for human
consumption roughly equal to that of industrial marine fisheries, some degree of regulated access actually appears to be the rule rather than the exception (Hviding and Jul-Larsen 1995). These regulations are invariably enforced at the local level, from a basis of community institutions and social practices. Research by social scientists and marine biologists during the past 15 years has documented the widespread existence of local, traditional systems of marine tenure, where defined areas of inshore seas and reefs are owned or otherwise controlled by local communities (Ruddle and Johannes 1990). By regulating access to and use of marine resources, such systems function as fisheries management systems. A particularly large variety of marine tenure systems is found in the Pacific Islands. More often than not in this region, coastal villagers claim and exercise strong traditional rights over nearshore fishing grounds within recognised marine boundaries. Such institutions of customary marine tenure² regulate fishing in a number of ways—by limiting access to resource areas, by restricting the use of various fishing methods, and by regulating the capture of certain species. Co-existing in Pacific Islands societies with often highly sophisticated local knowledge of the marine environment, customary marine tenure systems guide and constrain villagers as to where they may go fishing and how they may do so; whereas environmental knowledge tells them where and how they ought to fish to obtain the best catches.

Customary marine tenure in the Pacific Islands

A notable aspect of customary marine tenure in the South Pacific is that the associated institutions are multi-purpose in nature and not usually tied solely to fisheries. In fact many local institutions and traditional practices (such as conflict resolution mechanisms or religious taboos) may have positive implications for the management of fishery resources even if their explicit purpose is a different one, and so their potential contributions to the sustainable management of marine resources should not be dismissed. However, many of the relevant community-level institutions also contain practices that from an outside perspective are similar to the main principles of Western, scientific management. Examples of such practices are the delineation of exclusive fishery zones with limited entry, specific fishing gear, species and size restrictions of seasonal and/or spatial extent, prior appropriation rights, and concepts of sole ownership based on communal or cooperative
institutions. In the Pacific Islands many such strategies existed long before their adoption in Western fisheries management, and these intentional and unintentional management mechanisms overall tend to be firmly based in the long historical evolution of customary law.

Only a few of an increasing number of documented customary marine tenure systems in the Pacific Islands can be mentioned here. On Yap in Micronesia, trespassers who fish without permission in an area not controlled by their own group are stopped and punished by clan leaders. Such conflicts, and requirements to ask permission before entering the fishing grounds of others, are very common throughout the island Pacific. On the remote atoll of Ontong Java in Solomon Islands, the local council has devised a system where stocks of trochus shell and bèche-de-mer are tabooed for one year at a time in an alternating fashion. In the large lagoon of Marovo, also of Solomon Islands, local clans variously enforce a number of prohibitions on fishing that involves nylon gill nets, plant poisons, dynamite and even underwater spearguns, and certain prime fishing locations where reef fish aggregate are subject to temporary closures.

These examples are far from unique. A comparative research project carried out at the University of Bergen by the author in collaboration with Kenneth Ruddle and R.E. Johannes has compiled and synthesised information on customary marine tenure systems in more than 100 locations throughout the Pacific Basin (Ruddle et al. 1992). Several documented cases involve challenges of a contemporary, 'modern' nature, such as the intensified exploitation of marine resources through commercialisation, and the introduction of new potentially over-efficient technologies. Increasingly, it is being asked whether customary marine tenure systems may form a practical basis for achieving sustainable development and management of inshore fisheries in the Pacific Islands.

A strong awareness not just of the existence of customary marine tenure systems, but also of their potential relevance, is to be expected in a region where most national fisheries officers have themselves grown up in coastal villages. This awareness concerns the need to include customary marine tenure, and traditional knowledge of marine resources, as important factors in today’s fisheries development. Indeed, customary marine tenure in the Pacific Islands may be considered an inescapable factor, in that it is so deeply embedded in the wider aspects of cultural identity and community life. As commented very pragmatically by two experienced biologists with a long-standing
involvement in the management of small-scale coastal fisheries in the South Pacific and other regions: 'It is important to note that the social and political setting of a fishing community is not a problem; rather it is a situation. It would prove very costly and time-consuming to try to change that situation' (Munro and Fakahau 1987). Consider that, unlike the European legalist concept of ownership, where property is private and alienable, fishing grounds contained within Pacific Island customary marine tenure systems are generally communally-held property, inherited as ancestral title through generations, and cannot simply be sold, or otherwise transferred to outsiders. This close association between groups of people and their resource areas, and the resulting social and political initiatives and mechanisms, has profound implications for the development of fisheries and coastal aquaculture and for the licensing of larger-scale resource development enterprises, and can hardly be escaped by those who wish to develop and manage a fishery subject to customary marine tenure. While customary marine tenure systems certainly may inhibit the development of large-scale capitalist enterprises and the wholesale transfer of fishing rights to non-locals, it can conversely be argued that customary marine tenure systems have considerable potential for furthering locally appropriate development, decentralised and low-cost management, participatory planning, and other such popular goals of the present development debate.

The dynamics of customary marine tenure: a Solomon Islands case

To highlight such opportunities and constraints posed by customary marine tenure for the contemporary management and development of fisheries and related activities, I here present some information on one particular system, of the Marovo Lagoon of the western Solomon Islands (cf. Hviding 1988, 1996a; Hviding and Baines 1994). In many ways, the Marovo system, involving a local population of some 10,000 people, and 700 square kilometres of reef and lagoon, is typical of traditional resource management systems in Oceania in that a number of defined clans control resource use within defined areas of land and sea, termed puava (territory, land, nourishing soil). Thus, the tasks of village resource managers are not confined to fishing, but closely integrate the domains of land and sea through complementary and overlapping systems of land and marine tenure. Such integrated land-
and-sea ‘estates’ are known from many parts of Oceania and include the Fijian vanua (Ravuvu 1993), the Yap tabinau (Lingenfelter 1975) and the Hawaiian ahupua’a (Meller and Horwitz 1987). The situation in the Marovo Lagoon is of considerable interest in that traditional guardians of puava increasingly occupy themselves with a variety of large-scale issues relating to contemporary resource development. Lately, commercial fishing enterprises, tuna baitfishing, coastal aquaculture, tourism, and even land-based activities, such as logging and mining, have all involved the Marovo system. At the same time, inter-village regulations on access, technologies and species continue to unfold and adapt to changing economic and ecological circumstances (Hviding 1996a; Hviding and Baines 1994).

Among Marovo villagers, a number of requirements apply in asking permission before entering fishing grounds other than one’s own. Often, commercial canoe-based fishing by villagers is subject to stronger restrictions than is subsistence fishing. A number of fishing methods are subject to a variety of prohibitions and restrictions, and varying restrictions apply to the exploitation of resources like trochus, pearl shell, bèche-de-mer and other commercial marine products, as well as to turtles, crayfish, giant clams, important reef fishes in spawning aggregations, and even freshwater eels.3

During the 1980s, the people of Marovo engaged in negotiation and conflict with representatives of a diverse number of outside commercial enterprises. Among them was a Taiwanese vessel catching giant clams, originally invited into the lagoon through a joint venture with an urban Marovo entrepreneur, but quickly expelled by village resource managers. In a subsequent case, a fishery development enterprise initiated by the Seventh-day Adventist Church, involving a fish freezer and at first having somewhat narrowly defined goals in terms of increasing the flow of tithe money from villagers to the church, was greatly modified after confrontation with traditional resource managers. These modifications, all stemming from local initiatives, included: a more equitable sharing of decision-making power; quotas on certain easily depletable fish; a prohibition on purchasing fish caught by dynamiting; accommodation of seasonality in fishing intensity; explicit roles given to women’s groups and youth groups; and a division of responsibility whereby each reef-holding clan would enforce infrastructure not provided for by the customary marine tenure system, such as storage, transport and marketing facilities.

Throughout the 1980s and until today, the intensive use of the
Marovo Lagoon by the Solomon Islands' industrial tuna fishery as a major source of live baitfish has been subject to much heated discussion. Some sections of the lagoon have at various times been declared off-limits for the tuna catcher boats. Issues at stake have been the distribution and amount of royalty payments to reef-holding groups, social conflict with tuna boat crews, and concerns over ecological consequences of baitfishing. Another permanent non-local presence in the Marovo Lagoon is represented by the modest development of diving-based tourism. This has increasingly involved local demands that expatriate diving operators seek permission and pay fees for entering reef areas. Among more ephemeral foreign visitors, foreign yachts sailing through the lagoon have repeatedly been told not to anchor in certain areas, partly because these areas may have a traditionally sacred status and should not be disturbed, and partly because tourists were suspected of the uncontrolled gathering of rare shells and precious coral.

The Marovo puava represents but one example in which traditional practices of natural resource use and management in the Pacific Islands take an integrated view of terrestrial and marine resources. Islanders held such a view, and practised resource management accordingly, generations before the Western world realised the importance of what is now called ‘integrated coastal zone management’. Indeed, in a number of locations in seaboard Melanesia, strong contemporary resistance to foreign mining and logging companies has its roots precisely in the explicit concern that river-carried pollution from land-based resource extraction will be detrimental to the inshore marine environments of reef and lagoon. In 1987 the multinational giant Unilever was forced to close down its logging operations in Solomon Islands after resistance from land-holding clan groups reached a climax involving the dynamiting of machinery and violent threats. The moving force behind this resistance was erosion of topsoil in logged areas and consequent sedimentation of nearshore reefs and mangroves, highly important sources of fish and shellfish for village subsistence. Logging has since commenced on a tract of government-held land but remains disputed by the groups that control the lagoon and the adjacent customary land areas. Those same concerns have repeatedly prevented mineral prospecting by foreign companies in the steep valleys and mountains facing the lagoon (Hviding 1993b).

It is important to note here that the conflicts between Marovo resource managers and outside parties have not necessarily ended up
halting or prohibiting the outsider’s activities. In a number of instances, such as tuna baitfishing, diving tourism and commercial fishing by locals, the community-based initiatives carried through the customary marine tenure system have led to mutual accommodation by both parties, and often to a type of commercial development considered more in line with local preferences. In many ways, the local insistence on autonomy in deciding on development issues involving the lagoon and its resources has led to a form of participatory planning, where local communities play a major role in the continuous process of formulating goals, organising activities and monitoring consequences. This approach also characterises several Marovo communities’ increased collaboration since the early 1990s with varied representatives of conservationist NGOs.

It is also notable that local initiatives involving reefs and marine resources in some instances come prior to any concrete negotiations with outside parties, basically being fishermen’s responses to new, perceived possibilities. A fairly recent issue, that of giant clam mariculture and seaweed cultivation, has produced a variety of new marine tenure arrangements from reef-holding clan leaders, involving the zoning of reefs and allocation of blocks to individual families, and based on the assumption that coastal aquaculture will be increasingly adopted in the near future (Hviding 1993a). Also, in early 1991 the leaders of one clan proposed that an ecologically complex barrier reef passage controlled by them be closed to most fishing and set aside for purposes of scientific research.

All this points to the fact that customary marine tenure systems are not just institutions involved with traditional village fishing: they also constitute part of Pacific Islanders’ mechanisms for handling the wider world, in economic and political terms. Further, the Marovo situation emphasises the need to view fisheries management in the Pacific Islands in relation to a number of contexts that are not specifically fisheries-related, both with regard to the traditional perceptions and politics of resource use and to modern development issues. The ecological integration of terrestrial and marine ecosystems and the economic complementarity of land and sea resources are cornerstones of indigenous world views. Also, it is clear that fisheries management and marine tenure has to be seen in relation to land resource management and land tenure. It should be pointed out that in the South Pacific there are few fishing villages as such, with most coastal villagers leading a lifestyle where fishing and agriculture are combined.
In project designs, however, fisheries development is often considered as something separate from the wider concept of rural development. The case just described from the Solomons of participatory planning in a fishery development project is an example where villagers themselves insist on a more integrated rural development approach. To illustrate these points further, it is worth going down to the grassroots (or reef flat) level for a view of the issues of gender and age in relation to customary marine tenure and other forms of traditional resource management in Oceania.

**Gender, age and the management of coastal resources**

It may appear that traditional fisheries management is the sole privilege of chiefs and other elderly men but this interpretation should be treated with caution. Whereas the traditional division of labour often dictates that men spend more time fishing than women, neither fishing nor gardening is usually the exclusive domain of either gender. Women certainly fish, though frequently closer to the village and with less visually impressive technology than men do. And in the highly important reef-gleaning for shellfish and other invertebrates, which often supply a major proportion of protein in household diets, Pacific Islands women are undisputed masters of both knowledge and practice. This intensive use of coastal shallow waters by women, and by children, both girls and boys, is much more significant to the wider issues of customary marine tenure than may be apparent at first sight (Hviding 1993a).

Returning to the Marovo Lagoon, it is the women who often voice the strongest concerns over pollution of reefs and mangroves by land-based logging and mining. So in the daily local discourses that lead to decision-making and initiatives in the enforcement of marine resource management, women tend to play a major role in focusing on the future well-being of the entire coastal zone. Further, decline in quality, mean size or abundance of food fish is quickly commented on by Marovo women, who usually gut and prepare the fish brought ashore by the men, as is common in the Pacific Islands. When perceiving such declines, women voice their concerns to the decision-making men and suggest management measures that give better protection to the fish stocks in question. It is also notable that women’s knowledge of lunar spawning cycles is often very precise, relating to the fact that they observe the gonads of gutted fish and relate what they see to their
intimate knowledge of lunar stages tied partly to menstrual cycles. This important potential source of information appears to have been overlooked by most, including those directly engaged in traditional fisheries research.

The question of age should also be addressed briefly. I suggest that, in a majority of Pacific Islands customary marine tenure systems, it is the young men who are usually the more active and far-ranging fishermen, and who thereby monitor stocks, confront trespassers, and handle traditional fishery regulations on a day-to-day basis. The experience of younger generations, then, informs and strongly influences the fishery management decisions made by senior men.

Knowledge and management of coast resources

From some descriptions of customary marine tenure systems, it might appear as if they were aiming at regulating the exploitation of marine resources according to ‘scientific’ criteria. This is not the case, since the specific criteria of Western science are embedded in the heads of Western scientists and not generally in those of local fishers. This in no way implies that people who fish lack ideas and concepts about causal connections and processes in the natural environments upon which they depend. On the contrary, ample documentation exists to prove that fishing people know a lot about the behavioural patterns of fish and the consequences which environmental processes entail for fish stocks. In fact, local people often have much more detailed and elaborate knowledge about fish behaviour and its relations to environmental processes than Western scientists. Some biologists who have spent considerable time with fishing populations have documented environmental knowledge of staggering complexity and accuracy (for example Johannes 1981). In fact, this is only to be expected, considering how intimate daily observations are accumulated, verified and expanded over decades and centuries and transmitted as oral traditions. However, local people’s observations of natural phenomena are not always interpreted in the same way and according to the same criteria as those of a Western scientist. What is significant to a local fisherman is not necessarily so for the scientist and vice versa. Each will therefore often tend to interpret their observations differently, and to classify the aquatic environment and its inhabitants in different terms (Carrier 1987).

For example, turning again to the Marovo Lagoon, the people there,
who depend on a coral reef environment of great biodiversity, have names for more than 400 fish taxa (Hviding 1995). A large number of these are very specific and in a one-to-one correspondence with Western-scientific species definitions. However, Marovo people apply but one single term, kepe, to a myriad of ‘Western’ species of butterflyfish, coralfish and similar small, flat-bodied colourful fishes of the reef. In contrast, they use more than a dozen distinct names to refer to the Skipjack Tuna (*Katsuwonus pelamis*), while recognising that these are all varieties of one and the same fish. While the multitude of small colourful reef fish subsumed under kepe are insignificant in terms of food and otherwise, the Skipjack Tuna is the most highly-prized food fish of Marovo people, to the extent of being considered a marine deity, and its capture is dependent on complicated knowledge of its seasonal movements and schooling and feeding patterns. We might expect people to have complicated classifications for the Skipjack while giving little attention to naming largely similar and locally unimportant small coral reef fish. On a more unexpected note, the small catfish eel (*Plotosus anguillaris*) and the stonefish (*Synanceia horrida*) share the same name, nou, in Marovo. This seems strange until one realises that they are both equipped with highly venomous spines: the fact that they are both venomous and potentially dangerous for fishermen diving or walking on the reef is the reason for assigning them to the same local ‘species’. No one in Marovo would actually suggest that they are one and the same fish. Finally, the Marovo people classify two different species of the mangrove bivalves Geloina as the male and female variety of one local species. These mangrove molluscs, collected in large quantities by village women, are among the most important daily protein foods of many coastal households, and it is important that the two main varieties be distinguished in terms of their somewhat different habitats, seasonal abundance, and taste (Hviding 1993a).

The Marovo Lagoon examples represent widespread patterns whereby

- one Linnaean, Western-scientific species may be classified as one local ‘species’
- a large number of Western species may be lumped together under just one local taxon
- dissimilar Western species are assigned to the same local ‘species’ category
- a male–female distinction is imposed on two rather closely related Western species.
There are many more possible permutations of these patterns, and the Marovo example should just serve as a cautionary note to, for example, fisheries scientists and fisheries officers in their discussions with local people about the composition, state and other aspects of the aquatic resource base.

Moving beyond local fish taxonomies, we come to the question of the accuracy and validity of local people's observations of and statements about aquatic environments and resources. Again, biologists have pointed out the high degree of accuracy in such knowledge of coral reef and pelagic fish in the Palau archipelago of the Western Pacific, and shown how fishermen are able to predict and pinpoint accurately the time and location of seasonal and lunar aggregations for spawning and other purposes for several dozen important food fishes. Much of this was previously unknown to Western science. However, the fact remains that local people's observations, though generally correct, may be misinterpreted by outsiders. Pacific Islanders' observations of events and processes in the natural environment do not take place in a void. Phenomena are perceived and interpreted according to people's more general conceptions about human life and its relationship to nature. Through this, models of environmental relationships are being constructed, maintained and changed in ways that combine what people 'know' about natural and social processes with what they 'know' about supra-natural ones. Often the different phenomena are so closely interrelated that it becomes necessary to question whether the distinctions between nature, society, religion, magic and science represent the way people think (Hviding 1996b). However, the last cited example points to possible overlaps and convergences between Western-scientific and non-Western approaches to environmental phenomena, despite the widely different foundations of their approaches. We shall see that this question of convergence and possible compatibility may be carried over into specific management issues.

Outsiders confronted with the multitude of types of aquatic resources management models represented by customary marine tenure systems and their inland, riverine counterparts may be struck first of all by the 'non-natural' aspects of these systems, mainly because Western (or Western-trained) scientific observers tend to think about and relate to nature and its resources in a very different way from that of the local managers and fishermen. Consequently the local or 'folk' models of aquatic resources and their management may be refuted and dismissed as superstition based on something other than 'scientific fact'.
Such ways of thinking and speaking about things are in no way incompatible with the fact that these same people have well-developed environmental and fisheries-related knowledge which informs their decisions to prohibit the fisheries in these specific locations. From a number of locations in the Pacific Islands, available documentation indicates that certain coastal areas are considered taboo because of the presence of dangerous spirits may also be important spawning grounds and nursery areas for key species of food fish (for example Johannes 1978; Wright 1990). Some open-minded scientists do state that in spite of all their ‘exotic’ attributes ‘folk’ models contain and are inspired by ‘real’ scientific knowledge and understanding. It is therefore logical to assume that customary marine tenure systems not only may function as management tools, but also that to some extent they are really about management as such, reflecting a genuine concern among indigenous people to preserve natural resources. ‘Local’ and ‘scientific’ models for resource management may thus be compatible despite having different underlying foundations. In this respect, it is interesting to compare management models developed by scientists for the preservation of coral reefs in Australia to customary marine tenure systems that exist in very similar ecological conditions.

Local and scientific coral reef management models compared

The people of Marovo Lagoon have for centuries practised forms of marine resource management that show great similarity to the management plans recently devised by Australian scientists and politicians for the Great Barrier Reef. The 120 kilometre chain of barrier reef enclosing the Marovo Lagoon’s 700 square kilometres of inshore waters is divided into a number of named zones, also embracing adjacent lagoon areas. Each is owned by a distinct kin-based group whose members and affiliates may fish and collect reef animals within the zone, subject as we have seen to fluctuating restrictions pertaining to fishing gear, target species, and other variables. Such zones, delimited by known boundaries marked by reef and underwater topography and identified by the fisherman through visual triangulation, are subject to limited entry. This implies that anyone not a member of the owning group must seek temporary permission to fish there, or alternatively obtain longer-term use rights akin to a fishing
license. Within each zone of general usage, there are certain areas in which all fishing and collecting is permanently excluded, in consideration of sea spirits and fishermen’s ancestors, whose powers are believed to reside in the area. This, with reference to management plans for the Capricornia Section of the Great Barrier Reef Marine Park (an area slightly larger than the Marovo Lagoon), is strikingly similar to what the Great Barrier Reef Marine Park Authority (GBRMPA), though for different reasons, designates a ‘Reef Appreciation Area’ (Kelleher and Kenchington 1982). Also distributed throughout the barrier reef of Marovo are specific sites where spawning aggregations of important food fishes are known to occur seasonally. These may be closed to all fishing, or to fishing for the particular species in question, during the spawning season. This, by comparison, is what the GBRMPA calls a ‘Seasonal Closure Area’. Then there are temporary closures in the Marovo Lagoon of larger areas of reef within a tribal zone, either pertaining to all fishing and collecting activity or to target species such as trochus shell, in order for stocks to build up. This is what the GBRMPA would call ‘Replenishment Areas’.

From the perspective of Pacific Islanders such as the Marovo Lagoon people then, the modern management plans for the Great Barrier Reef could actually be interpreted as approximations of their own traditional systems. This case of overlap in substantial form between customary and modern, ‘scientific’ management systems is far from unique. A rather similar picture would emerge if material on traditional management of the coastal lagoons of West Africa (for example Weigel 1985) were to be compared with GBRMPA plans, and, for that matter, the Marovo Lagoon system. It is a sobering thought that Pacific Islanders, West African lagoon dwellers, and Western fisheries and coral reef managers independently came to design similar measures, and furthermore that the Pacific and African villagers, from their own specific view of the world, reached this result generations before Western scientists, planners and politicians did.

Thus both ‘scientific’ and ‘local’ models of the environment and its management may have certain shared fundamental attributes, despite having emerged from strikingly disparate foundations in terms of social and cultural contexts. In the argument about fundamental similarities between ‘scientific’ and ‘local’ models, we find that their forms have so many similarities that it becomes impossible to refuse the management-related character of one without also dismissing it for the other.
Custom, development and national policy

Moving away from the village reef flat, some remarks on the wider political context of customary marine tenure in the contemporary and future South Pacific are required. Customary marine tenure systems do not exist in a political or legal vacuum. On the contrary, their capacity for handling emerging development issues is subject to some level of government recognition of traditional rights. In their government policies, a number of Pacific Island nations state in various ways that tradition or ‘custom’ must be given due attention in matters of development. Such recognition is important for promoting decentralised village-level handling of important issues involving the sea and its resources. In the case of Solomon Islands, for example, the devolution of power from national government to Provinces facilitates local management initiatives from customary resource managers through the Area Councils.

Although customary marine tenure in the Pacific may be referred to as systems of ‘traditional resource management’ based in ‘customary law’, this does not mean that tradition is something static, rigid and non-changing. Rather, tradition, as it exists in the rapidly changing worlds of indigenous peoples, is a system of knowledge and rules which has strong roots in local history and experience, but being unwritten and not codified, also has the flexibility to adapt to changing social, political, economic or ecological circumstances. Thus, far from being overwhelmed by commercialisation and resource scarcity, many customary marine tenure systems in Oceania appear to have considerable capacity for handling and adapting to new circumstances, thereby becoming potentially important tools in the contemporary management of fisheries and of the coastal zone in general.

Development of fisheries in countries refusing to recognise customary marine tenure systems clearly demonstrates that these systems do not vanish. Rather, they continue to evolve and change according to the new political conditions that emerge. Confronted with local realities, government representatives simply cannot overlook customary resource management institutions. They exist, as pointed out by Munro and Fakahau (1987), as a ‘situation’, and unless government is in a position to impose its policy fully and convincingly people will continue to think, act and relate according to the frameworks of customary systems.
Significantly, a number of Pacific Island nations have given formal legislative recognition to customary resource rights. For example, elements of the Constitutions and Fisheries Acts of the relatively young Pacific states of Papua New Guinea, Solomon Islands, Vanuatu, and Fiji provide considerable recognition, either implicit or explicit, of customary marine tenure and associated marine resource rights (Pulea 1993; Hviding and Ruddle 1991). Under such circumstances, being recognised as a form of customary law, customary marine tenure systems may function as powerful mechanisms for maintaining local-level, community-based control over inshore marine resources and their management and development. The systems may also have considerable potential as decentralised management measures, enforced in a flexible manner by the groups that are directly involved in the long-term use of the resources.

The Pacific Islands region does indeed offer unusual opportunities for the sound development and management of nearshore small-scale fisheries.

Notes

1 For an exhaustive description of the nearshore marine resources of the South Pacific, as well as analysis of their usage, management and future potential, see Wright and Hill 1993.

2 In customary marine tenure (CMT), ‘customary’ refers to a system considered by its practitioners to have emerged from ‘traditional’ and to have continuous links with the past even though it adapts to handling contemporary issues; ‘marine’ refers to the system as dealing with coral reefs, lagoon, coast, and open sea and including islands and islets contained in this overall seaspace; ‘tenure’ refers to political control through a social process of interacting activities concerning decision-making with regard to territory, access to resources and regulations of their exploitation (Hviding 1991).

3 The latter points to the importance of taking an integrated approach to aquatic resources and their management in a diversity of Pacific Islands contexts, embracing the large river systems found in Melanesia.

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Pacific Islanders who wanted a glimpse of their future were once given Bible stories, but today a more useful gift would be an air ticket to Honolulu in the Hawaiian islands. There Pacific Islanders would find a realisation of, on the one hand, all their wildest dreams of material wealth and freedom from customary restraint, and on the other, all their worst nightmares of demographic submergence and loss of cultural identity. In Hawaii it is not just peoples and cultures that have been transformed by the process of globalisation. It is also the agricultural landscape—the focus of this chapter—that has been transformed, not once but many times. We can summarise the landscape’s transformation as being, in extreme cases, a transition from taro garden to golf course. Taro and golf can be seen as the first and the latest stages of transformation, in a distinctively Hawaiian type of ‘ecological succession’. Through this succession the natural capital of the undisturbed tropical rain forest is converted into the cultural landscapes of indigenous horticulture, alien agriculture, and global leisure (Table 10.1).

In this chapter I focus on the earlier stages in this transformation. Not everywhere in the Pacific is threatened by the golf course and tourist resort scenario. Indeed, in the western part of the region, particularly in Melanesia, traditional agroforestry systems are still
being maintained and extended in preparation for the new needs of the twenty-first century. What controls the ecological succession is not really time ('stage reached') or space ('location', 'land resources') so much as socio-political structure. The taro garden, the golf course, and indeed the stages in between, are all cultural landscapes in which large amounts of capital are invested. What varies between these landscapes is the form of capital that people are investing, and that in turn reflects major contrasts on the scale at which they are mobilising capital, in terms of both social and spatial mobilisation. I argue that the key variable in explaining contrasts in Pacific Island land use today is socio-political organisation. To be more explicit, what matters is not the environment or how much time has elapsed since European contact, but how widespread has been the adoption of those types of social organisation that allow different forms of capital to penetrate into the agricultural sector.

### Table 10.1  The land use succession in Hawaii

<table>
<thead>
<tr>
<th>Successional stage</th>
<th>Time (chronology in the Hawaiian islands)</th>
<th>Space (equivalent examples in present-day Pacific)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Tropical rain forest</td>
<td>Before initial settlement</td>
<td>Remote corners of some of the larger islands, especially Papua New Guinea</td>
</tr>
<tr>
<td>Hawaiian agro Polynesian forestry (taro)</td>
<td>Polynesian settlement until circa 1850</td>
<td>Outer islands of Polynesia and less developed parts of Melanesia</td>
</tr>
<tr>
<td>Chinese market gardens (rice, vegetables)</td>
<td>Late 19th century</td>
<td>Smallholders in the hinterland of towns and tourist resorts</td>
</tr>
<tr>
<td>American plantations (pineapples)</td>
<td>Early to mid-20th century</td>
<td>Patches of alienated land under coconut, cocoa, sugar cane, oil palm</td>
</tr>
<tr>
<td>Japanese business (hotels, golf courses)</td>
<td>Post 1980</td>
<td>The New Pacific?</td>
</tr>
</tbody>
</table>
What is ‘capital’?

Capital exists in a variety of forms. In the Pacific before European contact, as elsewhere in the world, men and women used their spare time not only for ritual, family life and the enjoyment of leisure, but also to invest their efforts and skills in order to safeguard their future livelihood. They did this by creating new productive capital in the form of tools, hunting equipment, fishing nets, boats, baskets, mats and many other things. None of these products should be thought of as having an exclusively ‘economic’ rationale. From Tikopia, a Polynesian outlier in the eastern Solomon Islands, Raymond Firth provides for us an example of the multiple forms of capital in the pre-industrial, pre-European era. On Tikopia manufactured items were sometimes used as the equivalent of ‘productive capital’, but sometimes they were used for purely social or political purposes, as cultural capital.

Pandanus mats, used for sleeping purposes, and bark-cloth, used for blankets and clothing, are employed to facilitate the production of such articles as canoes, troughs and sinnet cord; food, both cooked and raw, and food-plants such as coconuts, are essential elements in the maintenance and reward of producers. On the other hand sinnet cord, used in fishing and for the lashing of canoe and house timbers, and wooden bowls, used in the preparation of food, are sought and accumulated for transfer in large amounts on such non-productive occasions as funerals, marriage, and initiation ceremonies. Even such fixed productive items as canoes, troughs and bonito hooks can be handed over as indemnity for services of a non-economic kind. It is as if in our society clothing, bedding and plates and dishes were poured into the productive system to pay for the making of tables, chairs, boats, and motor-cars; while on the other hand the habit of giving kitchen utensils as wedding presents were extended to embrace the presentation of ploughs and workmen’s tools, and business men accumulated machinery partly for the purpose of meeting their social obligations (Firth 1939:237–8).

All forms of capital perhaps need to be considered in this way. It is not only on remote islands that gifts and prestige are important motives that lie behind the reproduction of wealth. Indeed, the capital invested in a golf course is an entirely ‘non-productive’ use of land, labour and wealth. It is partly a business, designed to make money out of the rich and famous, but to own such a thing is partly a display of social position. Like productive capital that is diverted to become a wedding gift on Tikopia, tourism investments tell us much about the relentless pursuit of social status in human affairs.
Throughout human history, wherever agriculture becomes the predominant mode of subsistence, capital formation begins to focus on the land itself. Investments to improve the productivity of land can be regarded as creating landesque capital when the more secure or more substantial production that results is a benefit that is enjoyed not just in the short-term but also in the longer-term future. Terracing, land drainage, tree planting and irrigation works are among the more spectacular forms of landesque capital formation, and there are good examples of these landscape improvements in almost every part of the Pacific.

European contact bought with it the market economy, and this meant new opportunities to use money to build up capital in other forms. Productive capital was streamlined by the access provided in the colonial period to new technology—steel axes, new crops and tools, larger boats, better types of fishing tackle, new domestic animals particularly the horse, and later mechanisation in various forms. Ultimately money could allow access to finance capital, although at first banking services, stocks and shares and the other tricks of capitalism were introduced to the Pacific for the benefit of the colonial settlers. Those settlers who remained and became more integrated into local communities have served as role models for a new pattern of entrepreneurial activity available to those islanders most anxious to embrace new forms of agrarian ‘capitalism’.

If we revert to our simplified ‘successional model’ of Hawaiian land use and its changing social organisation, we can see that the four stages identified signal a switch in the predominant forms of capital employed. These changes are connected to the ever-increasing scale of economic organisation, as land use serves first local, then urban, then regional and finally global needs and values (Table 10.2).

What exactly is landesque capital? How was it formed in the Pacific, and why have some island landscapes that were once so rich in this indigenous form of wealth been transformed, whilst others still survive? This question will be tackled in this chapter, first by means of a theoretical discussion, and then through a selection of case studies from three different parts of the Pacific.

**Landesque capital and sustainable development**

‘Save the forests: save the planet’. This headline, printed in large red letters on the front cover of *The Ecologist* magazine for October 1987,
Table 10.2  Forms of capital: natural, landesque, productive and finance

<table>
<thead>
<tr>
<th>Land use</th>
<th>Main form of capital</th>
<th>Social organisation</th>
</tr>
</thead>
<tbody>
<tr>
<td>Taro garden</td>
<td>Landesque</td>
<td>Local subsistence and surplus for chiefs</td>
</tr>
<tr>
<td>Market garden</td>
<td>Landesque and productive</td>
<td>Peasant production for urban markets</td>
</tr>
<tr>
<td>Pineapple plantation</td>
<td>Productive and finance</td>
<td>National agri-business</td>
</tr>
<tr>
<td>Resort and golf course</td>
<td>Finance</td>
<td>Multinational tourist industry</td>
</tr>
</tbody>
</table>

provided the caption for an evocative photo image of tropical rainforest destruction. The picture might have been taken in Brazil, or perhaps Thailand, or even Papua New Guinea. But it didn’t matter exactly where in the world it was happening. The global forests represented the planet’s natural capital, and in the late 1980s environmentalists of all kinds were united in growing alarm about the loss of biodiversity, global warming and sea-level change. The planet’s capital needed urgent protection, and the conversion of rain forests into window frames, hamburgers or even rice fields provided a convenient symbol for the escalation in mankind’s self-destructive capacity. Radical ‘green’ action was needed for the protection of nature, by means of nature reserves, carbon taxes, exclusion zones, and the policing of nature reserves. Those prevented from realising income from natural capital as a result of these conservation policies would be compensated through the process of ‘sustainable development’, the term that was suddenly on everyone’s lips following the publication of the Brundtland Report in that same year, 1987. In this way environmentalism emerged, in the late 1980s, as the new moral discourse of the West.

Ten years later none of the planet’s environmental problems have gone away and some have become even more urgent, but the emphasis on environmental policy is now much more on how sustainable development can be achieved than on how natural capital can be protected. ‘Manage the forests: save the planet’ is perhaps a less attractive slogan, but the consensus now is that management, not protection, is more likely to achieve at least part of the green agenda.
Actions based on this slogan would change the tropical rainforest’s status from self-sustaining wilderness to a regulated cultural landscape, in much the same way as the boreal forest of Scandinavia now accommodates, simultaneously, sustainable forest, hydro-electricity generation, reindeer herding, tourism, hunting and fishing, and, to some extent, the conservation of biodiversity. If we really have to reduce complex arguments into slogans, then I would argue that instead of this focus on the forest, a more useful slogan would be ‘sustain landesque capital: save the planet’.

It was also in 1987 that two geographers, Piers Blaikie and Harold Brookfield, published an influential book entitled *Land Degradation and Society* which pointed the way towards understanding some of the concepts of sustainability that we now so urgently need. They introduced into the environmental debate the term ‘landesque capital’ (Blaikie and Brookfield 1987:9), with a discussion from which the following definition can be distilled.

Landesque capital is formed when land management is designed to secure future production beyond the present crop or crop cycle through improvements in land capability, in the form of investments that have a long life such as stone walls, terraces, field drains, water meadows, irrigation systems and regional drainage, and reclamation systems.

By implication Blaikie and Brookfield (1987:74) also saw tree-planting as a form of landesque capital investment, which extends the concept beyond the various engineering structures that they listed, and into the field of forestry and agroforestry. In tracing the origins of tree cultivation in the Pacific, Yen (1990: 262) has emphasised the relative permanence of planted groves and orchards and their dependability. Tree capital reduces the risks of relying upon slash-and-burn agriculture, which can fail because of its vulnerability to drought, flood or pest attack.

A decade has now passed since the publication of Blaikie and Brookfield’s (1987) book, and in all regions of the world, not least in the Pacific Islands, it is becoming urgent that we look hard at the preconditions for landesque capital formation. We need to understand better how and why people make successful investments. We also need to know whether success comes more easily when the people concerned act as individuals or when they act collectively within communities, or perhaps are encouraged to act because of interventions by larger-scale institutions, by external agencies, or by government. It is becoming clear that in large areas of the world such investments will provide the only
secure basis for soil conservation and sustained production. Some societies and environments have made such investments in the past, creating what we might call ‘cultural landscapes of landesque capital formation’. These also deserve careful study, so that we can uncover the social, ecological and institutional circumstances in which such investments took place in the past, in societies whose current land use practices may be much less sustainable.

Why should anyone invest in landesque capital, when the societal forces responsible for non-sustainable development (including golf courses) are so powerful? For example, under what circumstances have the men and women who manage small slices of the global commons in Polynesia or Melanesia been willing to invest effort, organisation and ingenuity in the formation of landesque capital, leaving behind them swamps, soils and slopes with an enhanced value for future production? The historical experience of land managers in a region such as this is not trivial, idiosyncratic or irrelevant to the huge global dilemmas that we now face.

**Landesque capital and despotism**

Despite the new emphasis in economics on the management of ‘natural capital’ (Jansson et al. 1994), at the theoretical level the formation of landesque capital is a relatively under-developed concept. However, at the empirical level there is, not surprisingly, an abundant literature on particular landesque investments such as terracing, irrigation and afforestation. From this literature it immediately becomes clear that strictly economic explanations may not be sufficient to account for the creation of landesque capital, and that we therefore need to expand our investigation to consider other factors.

In this connection irrigation has received the most attention, stimulated by the polemical writings of Karl Wittfogel (1955, 1957). His thesis was that a large-scale system of irrigation requires complex management, which in turn requires a pre-industrial form of ‘despotism’. Authoritarian control emerges in embryonic form as a means to re-order the landscape so as to boost production, but then the very success of irrigated agriculture in turn helps to magnify the powers of authority, creating what Wittfogel calls the ‘despotic hydraulic society’. According to most accounts, the reality of some Pacific Island societies at the time of European contact was that, in some ways that we choose now not to emphasise, they were also
despotic. In Hawaii the intricate taro pondfields that were later abandoned to Chinese rice farmers and market gardeners, and which today are being drained for shopping malls and golf courses, came about originally in a highly stratified society in which a rigid division of labour between the sexes, drastic taboos, and the divine rule of chiefs were integral parts. Was this a form of agricultural intensification driven by Oceanic (rather than Oriental) despotism?

Wittfogel proposed that these 'hydraulic civilisations' emerged most strongly in circumstances of semi-aridity and where social control was exercised by a bureaucratic and managerial élite. Using examples from the Sumerian civilisation in Mesopotamia, the Indus Valley, Ancient Egypt, and the Shang valley civilisation of China, he argued that initially some form of hydro-agriculture can emerge without coercion, being based instead on local co-operation. However all of the larger-scale forms of irrigation require management at a level higher than that of the individual farm. Landesque investments of this kind can therefore only occur in the presence of a stratified social system and some degree of coercion.

Moreover, this incipient stratification is likely to be magnified further by the opportunities provided for hydraulic control. Water can be provided to downstream users by the managerial élite, or water can be withheld. Once a society is dependent on irrigated agriculture, those who have control over the water can use it to their advantage. Maintenance of the irrigation works and the extraction of surplus production will require extra work from the agrarian population and this they may be unwilling to provide, but in this situation of hydraulic control the necessary increase in labour input can be enforced.

Wittfogel claimed to build his ideas on the proposal of Marx and Engels, that there existed a distinctive 'Asiatic' mode of production. In the Pacific some scholars have come close to claiming the existence of an 'Oceanic' type of agriculture, based on root crops, agroforestry and the pig, and a conceptual and gendered separation of the 'wet' (taro) from the 'dry' (yams, etc.) sphere of production (Barrau 1965; Yen 1990; Kirch 1994). In relation to the Asiatic mode, there is in fact a major dispute among Marxist scholars about the status of some of Marx's own writings on this theme. Maurice Godelier, for example, would regard Marx's statements about 'Oriental despotism' and the stagnation of Asian societies as the 'dead parts' of Marxist theory (Bailey 1981). Theoreticians like Hindess and Hurst (1975) see nothing
in the relations of production under the supposed Asiatic mode that is not also present in Marx's feudal mode of production, and furthermore they see nothing in Wittfogel's account that is actually based on theory. Instead, they regard it as an empirical description and generalisation that is supposed to correspond to historical realities in Asia. Their review of the numerous empirical critiques of Wittfogel show that his model probably should be dismissed as unreliable speculation, or even as Orientalist distortion, an attempt to give the East an alien character different from the West in every respect.

If we leave on one side the Marxist theoretical debate, it seems that the empirical controversy has focussed in particular on the institutions of power within the state which, Wittfogel claims, gain increasing control over the use of water. In this model, 'the limits of intensification are determined by the ability of one class to force members of another class to work' (Brookfield 1984: 20). The managerial élite enforces its hydraulic despotism through sheer necessity, rather than enforcing its will through ownership of land or the possession of military force: 'government-led hydraulic enterprise is identical with the creation of agricultural life' (Wittfogel 1957: 109). The formation of landesque capital is seen as something that requires particular coercive relations of production, and without these relations the investment cannot be maintained. The idea is provocative and capable of expansion to include gender relations, for example. However, empirical testing of this model in China and Sri Lanka suggests that we should question Wittfogel's assumption that all complex activities that need some sort of co-ordination also need heavy-handed managerial control (Hindess and Hurst 1975: 215). Perhaps, as Leach (1959) argues for the Dry Zone of Ceylon, irrigation agriculture is compatible with other forms of socio-economic relations than the particular one which Wittfogel identifies.

In Melanesia we have examples of agricultural terracing and water control systems that could be interpreted in terms of coercion, especially if we enlarge the concept of coercion between social classes to include the mobilisation of female labour to serve the interests of male prestige. Some of the landesque capital found in the Central Highlands of New Guinea falls into this category, for example ditching and mounding for the production of sweet potatoes. Similarly in Fiji we find today traces of large-scale systems of water management, creating raised fields for growing taro in deltaic and valley-floor swamps. These systems were constructed in pre-European times under chiefdoms that are perhaps
not far from the Wittfogel model of social control. But even these examples of landesque capital may need to be interpreted differently.

Even though some of them are substantial in extent, most of the water control that we see in Melanesia is actually the functional equivalent of Wittfogel’s (1957: 18) ‘hydro-agriculture’ based on small-scale operation, rather than corresponding to his ‘hydraulic agriculture’ based on major works. Terracing, ditching and pondfields are usually minor works, and as such can be built up incrementally through the efforts of individuals or small groups of people who work together co-operatively without needing coercive social control. The presence of such features might therefore be the outcome of quite different processes. We need to consider landesque capital as perhaps just a more visible form of technical innovation, designed to shift agriculture towards a higher level of intensity. The motive of the family unit or the community responsible could simply be to achieve subsistence security, perhaps in circumstances of population pressure or in a situation of political insecurity because of endemic warfare.

**Landesque capital’s transformation: three case studies**

To investigate the diverse forms in which landesque capital investment has taken place, and perhaps to demonstrate its diverse rationale, requires that we move from the theoretical to the empirical level. The Pacific Islands provides many examples of the ingenious ways in which different ecological niches have been successfully exploited, to meet various social needs. Three examples are considered here, taken from Papua New Guinea, Solomon Islands and Fiji. In each case the system of land use is examined from a historical perspective, to see how and why landesque capital has been formed in the past. This perspective is then used to assess the extent to which current land-use practices involve either old or new forms of landesque capital. History is interesting for its own sake, but it seems possible also that we can learn from the past, which in the Pacific was a time when sustainability was not a political slogan but a matter of everyday survival. To achieve sustainable development today we must devise land use practices which absorb improvements and so encourage re-investment, but preferably in the context of existing cultural norms and agricultural practices, rather than being imposed from the outside. This may require a synthesis of the old and the new.
The upper Wahgi Valley, Papua New Guinea highlands

In January 1933 Michael Leahy, his fellow gold prospectors and their long line of carriers were trekking through the broken terrain of what is today Simbu province in the Highlands of Papua New Guinea. When Leahy reached the top of yet another grass-covered ridge, he at last gained a view westwards into what he called ‘the Promised Land’ of the Wahgi valley.

Beyond the thickly populated grass ridges in front of us stretched a wide, flat grass-covered valley with clumps of trees planted by wood-hungry villagers. The western end was lost in the blue haze of distance and smoke from the hundreds of villages, new garden clearings, and grass fires... New Guinea’s unknown interior was not, after all, an uninhabited jumble of cloud-shrouded mountain ranges but the most thickly populated and fertile area of New Guinea... (Leahy 1991:70).

Leahy’s main interest was in gold not agriculture, but repeatedly he remarks on two of the characteristic features of this Wahgi landscape: intensive sweet potato cultivation, and plantations of yar trees, or *Casuarina oligodon*. Both represented investments in landesque capital made necessary by the density of population, and the resulting intense competition for land and resources. The people were, as Leahy recognised ‘wood-hungry’ because of the destruction of montane forest cover in the valley. The valley was also densely settled, and to feed this population the main staple food, sweet potato, was planted in ‘distinctive gardens laid in checkerboard squares’ (Leahy 1991:75).

This account suggests that the intensification of sweet potato gardening in the Highlands was the result of a ‘Boserupian’ crisis of subsistence. Ester Boserup (1965) showed that pre-industrial cultivators using manual techniques encounter diminishing returns to labour as their fallows become shorter. In order to minimise self-exploitation they will choose the most extensive land-use system possible that matches both their subsistence needs and their resources of underused land. Intensification is therefore seen by Boserup as a reluctant response to population pressure or land shortage.

Accompanying this process, or instead of it, most scholars would now recognise also some role for surplus or ‘social production’ (Brookfield 1972). In New Guinea the role of big-men in mobilising labour, in particular female labour, in order to achieve surplus through landesque capital investments is a key factor. A surplus of sweet
potatoes was absolutely necessary if a man was to engage in large-scale pig husbandry, which in turn became the means for him to participate in regional exchange systems (Golson and Gardner 1990). In other words landesque capital formation in the Waghi valley was partly the outcome of local population pressure, but in part too it was organised so as to boost the prestige of a big-man and his faction. The subordination of women to achieve the necessary labour input was an integral part of this process. Anthropologists have disagreed about the extent to which the large work load imposed on women really represents 'exploitation' in a situation of distinctively Melanesian 'despotism' (Donaldson 1982; Sillitoe 1984). However it is clear that draining, mounding and mulching practices did create 'capital' in the sense that they did improve the land for more than one crop cycle. Moreover, for such investments to take place usually a pre-condition was the capacity of men, often big-men, to mobilise female labour on quite a large scale.

The first white men in the Highlands soon recognised that these valleys promised the possibility of wealth from other forms of investment: 'Even if no gold or mineral deposit was eventually found, high-priced tea and coffee could be grown here, as they were in the Kenya highlands' (Leahy 1991:75). In pursuit of these goals, the first Australian colonists gained access to land and labour through superior control over sources of symbolic wealth in the form of shell valuables. Tons of shells were flown in by aeroplane, and until their value was debased by hyper-inflation, they became the means for the white men to acquire almost any goods or services. Leahy recalls paying compensation to a girl who had been raped by three of his native carriers, and also compensation to the girl's father.

I gave to the father a gold lip shell, a fabulous present in that society, and the girl a handful of small shells. Everybody appeared satisfied at our very proper sense of propriety and concern with preserving female chastity... The next morning the old man brought along all the female youth and beauty of the village and said that if we had any more gold lip shells we could rape the lot (Leahy 1991:77–8).

The type of cowrie shell called *giri giri* was purchased on the New Guinea coast, one pound weight costing six pence and yielding about 300 shells. A few handfuls would buy the prospectors all the daily food they needed. When the Leahy brothers were panning gold near Mount Hagen in 1936 they employed over 200 highlanders, and they needed about 500 of the large kina shells every month to meet their food and labour bills (Connolly and Anderson 1987:51, 250).
In the 1950s highlands big-men began to turn away from traditional valuables and towards money, as a better way to achieve status. Coffee trees, which originally were grown in plantations by the Australian colonists, were soon being planted by highlanders in their mixed vegetable gardens. Coffee production put some money into everyone’s pockets, but in particular it began to enrich those big-men who gained control over the land and the female labour needed to pick the berries, or organise marketing (Brookfield 1968; Bourke 1985). In the Eastern Highlands cattle projects appeared equally successful, until destabilised by disputes and problems caused by damage to gardens because of the absence of secure fences (Grossman 1984). The planted groves of *Casuarina* that Leahy had noted in 1933, which were needed then by every local clan to provide for its needs of fuelwood and timber, became less vital to the domestic economy. Pacification, chainsaws and road transport made accessible the montane forests that grew at higher altitude, and instead of *Casuarina* the better soils were planted with coffee. The needs of big-men began to include such items as beer, clothing and transport.

Meanwhile on the valley flats an expansion of the exchange economy, the improved sweet potato varieties now available, and steel spades all encouraged a move into the wetlands that previously had been little used. New landesque capital was formed by reclamation of land that, the archaeologists discovered, had actually been the focus of much earlier drainage activities, some of them dating back at least 6,000 years (Golson 1977; Bayliss-Smith 1996). The earlier phases of drainage were probably based on crops like taro (*Colocasia esculenta*), a wetland species that seems to have been largely abandoned when the sweet potato, a superior dryland crop and a better source of pig fodder, was adopted two or three hundred years ago (Golson 1982). Calculations show that a phase of intensification of taro cultivation through drainage activity, which took place 1,200 years ago, could have sustained local population densities of up to 157 persons per square kilometre, as high as those that have become widespread in the Wahgi valley since the spread of sweet potato cultivation (Bayliss-Smith and Golson 1992).

What motivated this drainage activity? Population pressure was originally assumed to be the explanation, by observers such as Clarke (1966) and Golson (1977). However, in the past as in the present, the production of surplus for the prestige economy is as plausible an explanation for landesque capital formation as explanations which
emphasise environmental degradation, population growth and a subsistence crisis (Golson and Gardner 1990; Bayliss-Smith and Golson 1992). Almost certainly we should envisage both processes as taking place side by side, and mutually reinforcing each other.

The upper Wahgi valley today continues to be the focus of agricultural intensification, involving not just more and different inputs but also land improvements, especially through drainage, mounding and tree crop planting. The process is fuelled by growing shortages of land and by escalating ambitions for wealth, but it is made possible by a social organisation which facilitates a division of labour. The divisions between big-men and followers, and those between men and women, are long established features of Highlands society. The societies encountered by Europeans in the 1930s were only ‘egalitarian’ in a certain sense. Variations in social status were substantial, but status had to be achieved by men rather than it being inherited. However, to remain prominent, a big-man had to prove his merit by repeated demonstrations of political skills, bravery, oratory and charisma, and his capacity to attract loyalty from his followers would not long survive the eclipse of these powers.

Today, as wealth takes on more permanent and more tangible forms (land planted with coffee, herds of cattle, consumer goods, money in the bank), the status of leaders may be changing towards a system in which the sources of power are to a large degree inherited rather than ascribed. In the Mount Hagen area Andrew Strathern (1971:209) showed that already by 1965 a surprisingly large number of big-men were actually the sons of former big-men, rather than being self-made through a pure system of ‘meritocracy’. In his sample of 61 minor big-men half (31 men) were the sons of former big-men, while in a sample of 36 major big-men, only nine had not ‘inherited’ their position from their fathers. In the 1960s it was kinship rather than capital that was being manipulated by fathers, because of their ability to arrange favourable marriages for sons (especially in the case of only sons). Today, the evidence suggests that other assets may well be involved in the formation of this more stratified society of inherited privilege. Perhaps only the continuing strength of communal land tenure prevents a full-scale ‘enclosure movement’ taking place, in which estate owners privatise their capital assets and begin to employ labour, imitating the exploitative model of capitalist labour relations that was provided by the Australian plantations in the colonial era.
The Marovo Lagoon, Solomon Islands

In the New Guinea Highlands the effect of European contact was to 'democratise' access to wealth, and the system of values was able to shift from symbolic wealth in shells to bankable income from coffee in the space of one generation. One rather intensive system of production gave way to a different, but equally intensive system, and the social structures and agricultural landscapes of the past were able quickly to adjust to the new circumstances. Elsewhere in the Pacific the same opportunities for adjustment have presented themselves, but intermittently and over a much longer period. In between short periods of opportunity and eager innovation the islanders have often experienced long periods of stagnation.

Typically, quite soon after European contact the former social structures and value systems began to be transformed under the combined onslaught of traders, missionaries and government officials. However, in many areas secure replacements for the old sources of prestige, value and cultural meaning have been slow to arrive. As a means to generate the new wealth various cash crops have been adopted, but all too often their success has been short-lived. The innovation is then abandoned, following boom and bust in the world economy, or epidemics of pests and diseases, or the collapse of marketing arrangements because of abrupt changes in colonial policy or the outbreak of war. The Dutch and Germans, Australians and British, have come and gone. Japanese or American soldiers appeared, and then just as suddenly disappeared. In the age of 'development' strange and exciting projects spring up, but then abruptly the funding is withdrawn. Today the Japanese are back, but as an economic superpower offering fabulous prices for forest trees that formerly had so little value that they were left to rot when felled as part of shifting cultivation cycles. Marovo Lagoon in Solomon Islands can provide for us a case study of these vicissitudes, which ultimately have led to a stagnation in the agricultural economy and the virtual abandonment of all forms of landesque capital other than that which is invested in trees.

Marovo Lagoon is the name given to the eastern part of New Georgia island, the adjacent islands of Vangunu and Gatokae and the barrier islands that enclose the lagoon itself. Today there are about 10,000 people in Marovo living in small villages situated on the fringes of a lagoon that covers more than 700 square kilometres, and with an extensive hinterland of forested lowlands, foothills and mountains
covering about 2000 square kilometres. In terms of land area alone the average population density was just 3 persons per square kilometres in 1969 (Wall and Hansell 1975), although this figure has probably doubled over the past 30 years. However, the nineteenth century witnessed such an extreme depopulation that even now the present Marovo population may not have reached its pre-contact level. The account that follows is mainly based on a forthcoming monograph that focuses on the use of Marovo forests, past and present (Hviding and Bayliss-Smith, in preparation), based in part on baseline surveys of the village economy and diet (Bayliss-Smith 1993). In addition Hviding (1995) has published an environmental dictionary in English and Marovo languages, and in another recent book (1996) he provides a magnificently comprehensive ethnography of Marovo with a particular focus on the use of the sea.

Our account of the agricultural system begins with the situation as reconstructed at European contact, circa 1840. Marovo society was then divided between ‘people of the coast’ and ‘people of the bush’, with an active exchange system between the two groups based on taro-for-fish transactions. Since about 1910 all settlement has been coastal, but this coast/bush dichotomy is still quite pervasive in Marovo even though everyone today, men and women, participate in both spheres. Everyone fishes in the lagoon and also gardens in the forest, but it is in the former bush communities that knowledge of the forested interior is most extensive. The oldest informants today in ‘bush’ communities such as Bisuana confirm the picture that is painted by historians such as Bennett (1987), in stating that agriculture in the past was radically different from the present system of semi-permanent gardens dominated by sweet potato and cassava cultivation. It was formerly the taro gardens that were the main source of food, together with cultivated pana (*Dioscorea esculenta*) and other yams and bananas. Other important foods were *Canarium* nuts, both wild and planted, and many wild leafy greens and fruits. The bush people’s lives revolved around daily agricultural tasks: in those days, said one old man, ‘before the coming of mission and government [that is before about 1900] there was time for garden only’. The most labour intensive of the agricultural tasks was the cultivation of taro.

Some taro was grown in swiddens, but the greater part of production derived from terraced pondfields known as *ruta*, into which water was led from small streams. The planted beds were surrounded by wooden fences or stone walls, to retain the water. The irrigation
channels were sloping and the pondfields were compartmentalised so the cultivator could manipulate the flow of water. The irrigated taro pondfields had adjacent hamlets and ancestral shrines, and the taro gardens were also associated with cultivated groves of *Canarium* nut trees. These clusters of agriculture and settlement were located up river valleys and sometimes deep in the forest, and even high up in the volcanic crater of Vangunu. There were in addition more open sites of dryland taro swiddens and yam gardens, where the land would be rotated in a typical agroforestry cycle.

This process of forest ‘domestication’ results in the land being enriched with scattered groves of useful trees, and with permanent ‘hotspots’ of taro production. It represents a build-up of landesque capital, but one that depended on a continual investment of effort for its maintenance. Another old man from the bush people of south Vangunu expressed it as follows.

Taro is big work to keep it productive. Growing taro is like feeding a child. It is hard work to maintain *ruta*, and that is why people stopped. Cassava and sweet potato are easy—you just hoe and plant, and they grow everywhere. The people of old worked hard. And they had time to work (Cited in Hviding and Bayliss-Smith, in preparation).

Traces of *ruta* that were mapped by Tedder (1976) in Kusaghe, north New Georgia, cover about 100 hectares. She estimates that this Kusaghe system was cultivated alongside an approximately equivalent area that was under swidden cultivation, and together the agricultural system could have supported at least 1,000 people at a population density of 42 per square kilometre. In addition to meeting subsistence needs, *ruta* are remembered as having supplied a surplus for feasts and for barter. As in the case of intensive agriculture in the New Guinea highlands, a considerable mobilisation of labour was required, which must have involved some centralised leadership and sophisticated small-scale engineering work. Some degree of coercion can also be inferred in Marovo from linguistic distinctions between chiefs and commoners, and from the existence at least in coastal communities of foreign captives who were kept as slaves for forced labour. As in New Guinea, socio-political explanations for the formation of landesque capital are more convincing than the strictly economic rationale implied by Boserupian models of intensification.

The abandonment of *ruta* in Marovo coincided with a number of changes in the late nineteenth century. If we were to seek economic explanations we would emphasise the role of population decline in
agricultural disintensification, in the context of dryland swiddens becoming more attractive. They were easier to clear with the new technology of steel axes, and if planted with sweet potatoes their swiddens were now capable of producing food for several years without a fallow. A socio-political model would emphasise the collapse in the authority of chiefs in the new colonial world of gunboats and missionaries, and the decline in the exchange value of taro as copra, calico, tobacco and money began to dominate exchange transactions. A basic geographical factor was the fact that the Marovo bush people, many of them depleted and demoralised by the effects of warfare, had migrated to new coastal sites, protected by the Pax Britannica but remote from the ruta. The last remaining bush population on New Georgia was a community in 1923 of less than fifty people in Kusaghe, and they were then still practising ruta cultivation but it was soon afterwards that they abandoned the terraced pondfields (Tedder 1976). In their coastal villages the gardeners focussed their efforts on the new root crops, in particular sweet potato, and it was in these gardens that they planted coconuts in order to make copra.

If we consider these changes in terms of capital formation, we see an investment that had become relatively expensive and unrewarding to maintain (irrigated pondfields) being abandoned, in favour of the much greater perceived benefits obtainable from new forms of investment. The low labour requirements of the new subsistence regime (sweet potato and cassava cultivation) subsidised new activities. Initially this subsidy may have helped in the escalation of canoe construction and warfare (McKinnon 1975), but later on we see the establishment of copra production, the commercialisation of marine resources, church building, and for some people periods of absence working on plantations. In the new market economy of the twentieth century, the whole basis for prestige began to change with new roles and new forms of value. Access to prestige was, in a sense, democratised by the money earned from cash crops and wage labour. Some of the money was frittered away, but some was re-invested in small items of domestic capital (knives, bowls, pots and pans), in larger items such as houses and boats, and in communal projects such as schools and churches, which can be seen as urgently needed for the restructuring of cultural capital. Spare time was being invested in expanded patterns of mobility, in new forms of trade and exchange, and in the formation of some new landesque capital through the planting of coconuts as a cash crop on
coastal land. In this situation the maintenance of *ruta* became a luxury that Marovo society could no longer afford.

In the last twenty years this new economy has begun to falter. The price of copra has fluctuated and fallen. Education, the growth of urban employment elsewhere in Solomon Islands, and the much higher levels of consumption associated with modernity have, for some, made rural incomes seem inadequate and village life styles unrewarding. In this context the Marovo people see great potential for realising value by logging rainforest trees, many of which have grown up in the past century on the abandoned fields and settlements of the former bush population. With the Marovo people having adopted a more coastal orientation since about 1910, the natural capital of the neglected forests has been accumulating. The present generation are determined to cash in on this accumulated investment that is really a by-product of the twentieth century coastal economy. In the absence of government help in organising small-scale ‘walkabout sawmills’, realising this benefit is likely to occur through agreements with overseas logging companies. It is unfortunate that the logging companies seem destined to retain such a high proportion of the value of the logs that they will export from Marovo to Asian markets, but in a sense this unfair division of profits merely repeats the injustices perpetrated by European traders and the copra economy of the early twentieth century.

**The Rewa Delta, Viti Levu, Fiji**

In Oceania the most spectacular examples of landesque capital in prehistory are to be found in the area south and east of the ‘Anopheles line’, which separates Polynesian, Fiji and New Caledonia to the south and west from the islands of west Melanesia on the other side. One of the ways we can rationalise this distribution of capital formation is to correlate it with the distribution of large-scale political/linguistic units, centred on chiefdoms. This political geography in turn is correlated with features in prehistoric demography, in particular the prevalence of malaria north and west of the Anopheles line and its absence to the south and east. Groube (1993) has pointed to the devastating effects on human demography of the different forms of malaria spread by *Anopheles farauti* in west Melanesia, in particular in lowland New Guinea, the Bismarck archipelago, the Solomon Islands and northern Vanuatu.

In this zone of endemic malaria it is clear that the agricultural resource base could have supported much larger populations than
existed at European contact. Without such dense populations, it is argued, neither subsistence demand, nor the intensity of exchange activity, nor the stability of leadership were such as to encourage investments to secure greater levels of agricultural production. Even though relatively sparse populations, for example those in Marovo, had the technical means to produce surplus taro from irrigated and terraced pondfields, in this region of endemic malaria examples of such intensification are relatively few and the scale of capital formation is always somewhat limited. However, as soon as we move to higher altitudes beyond the climatic tolerance of *Anopheles*, as in the New Guinea highlands, we find intensification on a grander scale, and when we turn to those areas of Oceania that were beyond the *Anopheles* mosquito’s biogeographical range we find evidence of very substantial terracing, irrigation and wetland drainage. The most famous examples include New Caledonia (Barrau 1956; Sand 1996), the high lands of Polynesia especially Hawaii (Kirch 1984, 1994), and Fiji (Parry 1977, 1981; Bayliss-Smith et al. 1988). It is the Rewa delta in Fiji that provides our third case study.

Our knowledge of the agricultural economy of Rewa comes from the work of John Parry (1977), a geographer who was the first to identify on aerial photographs of the delta evidence of over 600 defended settlement sites and associated areas of intensive cultivation. The Rewa river drains the wetter half of the largest island in Fiji, Viti Levu, and its delta covers an area of 250 square kilometres. The prehistory of this area is poorly known, and is likely to remain so as early occupation levels are buried beneath the silt that the Rewa deposits when in flood. Because it is so low-lying the area can be hazardous and difficult to cultivate, but the soils are potentially highly productive. In the nineteenth century this was one of the most densely populated areas in Fiji, or indeed in the whole of the south Pacific (Parry 1977:1). It was noted for its fertile and intensively cultivated land, for its powerful and well organised chiefdom, and for its endemic state of warfare. The characteristic Rewa settlements of this period were ring-ditch fortifications, which were linked by natural channels and canals dug to provide access for canoes. Seeman visited the area in 1860, and he described one canal that connects the Navuloa river (distributary) with the Navaka. The canal measured two miles long and sixty feet wide.

[It is] probably the greatest piece of engineering ever executed in these islands, affording a proof of how thickly they must have been populated to allow such an undertaking, at a time when there was
nothing but staves to dig the ground, hands to shovel it up, and baskets to carry it away...It was made long ago [circa 1810, according to Parry], and for the purpose of carrying out a military stratagem (Seeman 1862:83).

The Rewa chiefdom, after long wars with Bau, was only overthrown because of an overwhelming attack in June 1845, launched treacherously on the political nucleus of the polity by sixty double war canoes arriving from Bau. Parry (1977:72–3) used two methods to estimate the population of the Rewa delta before the area was conquered and laid waste by Bau. His survey of the number of nucleated settlements in various size categories suggested a population of 35–40,000, while a second method using the carrying capacity of the cultivated area of wetland produces a figure of 36,700. These population figures represent a density of 260–300 per square kilometre, which might seem excessive until the scale and productivity of the agricultural system is considered. To avoid the problems of a persistently high water table, over vast areas ditches were dug and the spoil heaped up to form island beds, which were then maintained and fertilised by cleaning out from the ditches the accumulated organic debris and mud as a rich source of compost. Two different types of garden are distinguished by Parry on two different soils types. The grid-iron beds were probably for *dalo* or taro, while reticulated beds were probably for *via kana* or giant swamp taro (*Cyrtosperma chamissonis*) and *via* (*Alocasia macrorrhiza*).

These raised fields produced a surplus of taro and other food that was a source of tribute, and the means for sustaining an elaborate structure of local chiefs, regional chiefs and a paramount chief, with privilege and status finely graded at each level in the hierarchy. ‘Despotism’ does not seem too strong a word to describe the discipline imposed by the divine power of the chiefs, although co-operation and self-interest as well as coercion were obviously important, particularly in the construction of the engineering works associated with ring-ditch fortifications. Those defeated in war were almost always either enslaved or cannibalised. Parry (1977:74) speculates that the intensification process in Rewa was driven by a Boserupian process of population growth, but all of his evidence for the system’s maintenance in the mid-nineteenth century relates to the relentless organisation by the chiefs of surplus production and the communal construction of canals and defence works.

Capital was also invested in trees, including sacred groves: in the case of *vesi* (*Intsia bijuga*), ‘no trees are allowed to be cut down, lest the
anger of the gods should be involved' (Macdonald 1857:234). The dearth of population and absence of trees on the Wai Levu (main) river between Navuso and Naitasiri was noted in August 1856, eleven years after Rewa had been defeated by Bau, when the Royal Navy made their hydrographic survey of the delta.

Very few cocoa-nut trees are to be seen, although their importance and value are well known to the people. This is attributable, however, to the continued warfare of former times: when a town was besieged the resources of the people, including bread-fruit and cocoa-nut trees, were cut off by the enemy (Macdonald 1857:237).

Macdonald also noted (1857: 235) that a high-ranking Bauan chief, Roroi Ravulo, had recently cut down a particularly sacred vesi tree at Mhuretu in order to provide an upright post for a new Methodist chapel. This would appear to be an attempt by Roroi Ravulo to transplant the symbol of the god Bureru into the house of the new Christian god. We can see this as an example of how, at a time of traumatic change, the cultural capital of pre-colonial Fiji was hastily being converted into new forms. However, in the case of Rewa the pace of change was overwhelming. Its defeat in 1845 was followed by a long period of political decline and depopulation through disease, followed by land alienation to European settlers. In 1877, two years after the catastrophic measles epidemic, Horne (1881) describes the Rewa delta as being a cultural landscape in transition.

The greater part of it belongs to settlers, some of whom have fields of fine healthy looking sugar cane, and others have herds of well-fed cattle. The land which lies between the two rivers...had been previously cultivated by the Fijians; but it is now covered with a thick young forest. These, together with the many abandoned dalo or taro patches, lead to the belief that the country was once more populous than it is now (Horne 1881:30-31).

Some disintensification was inevitable, but what in fact happened was a wholesale abandonment of the intensive system of agriculture. The collapse of the Rewa polity that organised this system was so complete that its geographical extent now has to be reconstructed from aerial photographs, and its political basis must be pieced together from historical accounts and oral histories. The actual agricultural system of Rewa has either been converted to cash crops (initially sugar cane, today vegetables or rice), or it has reverted to swamp grassland, invading bush, and (in the twentieth century) an economy of extensive cattle grazing.
The alienated land in Rewa is now mainly settled by Indo-Fijians growing a range of commercial crops. The Fijians in the delta have also become more commercially oriented, benefiting from the proximity of Suva as a market. John Overton (1988, 1993) studied changing land use patterns in two Fijian villages, Draubuta and Cautata. In addition to the usual mixed cropping centred on root crops and bananas, rice was also being grown on the floodplain as a new cash crop in bunded paddy fields. In the 32 households that were starting to grow rice, Overton (1988:156) found that this crop occupied on average 1.35 ha out of total farm holdings of around twenty hectares. To encourage farmers with this initiative, the land regarded as suitable for rice had originally been drained and levelled by the Ministry of Primary Industries, but the paddy fields that had originated in this way were then owned and managed on an individual basis.

Increasingly the Fijians in Rewa retain as communal (mataqali) land the hilly terrain on the edge of the floodplain used for growing root crops, whereas the wetland of the delta is sub-divided into individual holdings. This change in land tenure reflects the formation of a more individualistic society, in which a proto-peasantry and a rural proletarian have emerged despite the rhetoric of communalism (Bayliss-Smith et al. 1988). The maintenance of landesque capital in rice paddies is now a matter for the individual farmer, and John Overton has shown that farmers must now look to capital in other forms to facilitate the process of wetland management:

Capital is a major constraint [in Darubata and Cautata]. Bullock teams, ploughs, and, occasionally, the cost of land clearing are major costs for villagers who have few savings and often restricted access to other sources of income. The shortage of implements ranked on a similar level to land shortage as a barrier to future expansion (Overton 1988:157).

Labour was recruited by farmers locally, and was being paid either in cash or in kind: cigarettes, meals, kava (yaqona), and more rarely a share in the rice harvest. The willingness of some labourers to accept non-cash payments within a structure of kinship-based reciprocity, was something that assisted the ‘capital-scarce’ rice farmers to get established.

Although these farmers are now de facto peasant proprietors, de jure they have no land title. Therefore they cannot use land as security to raise capital, not even to obtain loans from the Fiji Development Bank. The unavailability of credit and the lack of productive capital have
become obstacles to progress, and these constraints together with low prices discouraged many of the smaller rice farmers in the late 1980s (Overton 1993). Agricultural investment no longer depends on the heroic efforts of labour organised by more or less despotic chiefs. Today's Rewa farmers must seek new ways to generate surplus to satisfy their aspirations to status, by finding new strategies for capital formation. For major engineering works they now look to central government for assistance, but for their everyday sources of productive and finance capital they are very much on their own, each farmer acting as an increasingly autonomous entrepreneur. In this brave new world of capital restructuring, the agricultural achievements of the past are so remote as to be not even a distant memory.

Conclusion

The empirical evidence from the three case studies seems to suggest that a combination of environmental constraint and socio-political coercion is the best explanation for why landesque capital was formed in the past. Difficult environments certainly stimulate agricultural intensification, as Brookfield (1972, 1984, 1986) has emphasised. Our case studies show that the difficulties can stem from an absence of forested land for swidden agriculture, timber and wood supplies (Upper Wahgi valley), from a lack of access to marine resources except through barter arrangements (Marovo bush), or from soils having low agricultural potential in waterlogged wetlands (Rewa). The precise agricultural response differs, but in each case difficult environments have to be substantially reworked: swamp drainage and Casuarina groves; taro pondfield systems and Canarium orchards; and raised fields, ditches and canals, in the three areas respectively. In each case it is tempting to view this evidence in the light of Wittfogel's hydraulic model, if we enlarge the concept of despotism to include subordination to the power of big-men and chiefs, and to the emergence of marked inequality in gender roles. Nor should we forget that the organisational requirements of wetland drainage and valley-side pondfields are actually quite different from those of large-scale irrigation, and that much can be achieved by the incremental efforts of individual households working co-operatively, without centralised control (Brookfield 1986).

The landesque capital formed in the colonial period are agro-ecosystems that are perhaps the most productive and sustainable that
have yet been devised in the Pacific region. There is much in the agro-technology that we should admire, but it is quite apparent from our three case studies that these systems need to be substantially modified if they are to fit the Pacific societies of the twenty-first century. It is striking how quickly the old forms of landesque capital have been modified or have collapsed once the socio-political conditions of its formation were altered in colonial times. Therefore, to study the way these intensive systems have changed in the historical period is probably going to be more profitable than trying to reconstruct their prehistoric origins. The story of their maintenance, modification or abandonment can tell us much about the changing role of ‘capital’ in Pacific agrarian societies. The example of Hawaii, where Japanese-funded golf courses are now spreading across bankrupt commercial farms that in a bygone era were intensively cultivated for surplus taro production, shows that the restructuring of landesque capital in the islands is continuing at an accelerating rate. This restructuring is now just another symptom of the globalisation of the Pacific, and therefore, in a sense, it is just the latest episode in a very long saga.

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Land-use is an issue that exercises humans everywhere. It is necessary to choose, wherever you live, between different possible uses, whether to use land as a golf course, crop field, conserved forest, or whatever. But it is quite another issue to assume that these land-use choices are informed by the same maximising logic the world over, which is the danger in employing Western economic concepts. The consideration of land as primarily a productive resource and the use of the notion of capital, as suggested by Bayliss-Smith’s use of the landesque capital concept, prompts this caution.

While socio-political organisation features prominently in land-use decisions in the Pacific, as elsewhere, it does so in a quintessentially Oceanic fashion, reflecting the emphasis placed on egalitarian as opposed to hierarchical relations. In this regard Pacific attitudes to land stand in stark contrast to Western ones, which reflect a hierarchical capitalist order in which land is seen as an economic resource to be exploited to produce goods for sale at a profit on the market. Bayliss-Smith’s use of the term capital for land resources intimates this perspective in the Pacific too, where the local political economy is of a radically different kind, based largely on subsistence production (domestic mode of production or DMP) with the surplus channelled into gift exchange (socio-political mode of exchange or SME). The
implications of this difference for land use and investments in land improvement are profound, and we should beware of underestimating them by using technical terms drawn from studies of capitalist market economies, which might lead us to make inappropriate assumptions.

Many of the things produced in Oceanic cultures are not capital assets in an economic sense but social assets with political import. The difference in emphasis is critical and if misplaced it invites confusion. A look at Raymond Firth's monumental corpus on Tikopia, prompted by Bayliss-Smith's reference to it, provides a salutary lesson in the problems of reading Western values into Pacific economic behaviour. Firth is well known for his opinion that capitalist economic concepts have universal applicability. But his interpretation of material objects as capital assets results in some supposedly economic behaviour appearing embarrassingly uneconomic. He assumes that Pacific exchanges have an underlying material *raison d'etre*, prompted ultimately by the desire to have some object to use or consume in a primary economic sense, although his interpretation is not of course this starkly straightforward. The Tikopia do not engage in exchange in an impersonal way to obtain the material objects they require: for instance if someone loses a canoe paddle they rarely, if ever, simply approach a stranger who has a spare and barter food for it. The buyer and seller are frequently related and social considerations, not mere economic ones, influence their behaviour and exchange rates. Here, as Firth observes; 'an element of interest in social advantage rather than material gain plays a large part' (1965:345), but he still tends to interpret their dealings as materially motivated exchange transactions, with calculation of prices made awkward because they fluctuate with relationships.

This, as I understand him, is largely how Firth interprets Tikopia exchange, underplaying the use of the same objects in more obviously ceremonial exchange transactions. While he is aware of ceremonial exchange as we would expect in a student of Malinowski, and tells us that the concept of reciprocity '... is one of the foundations of Tikopia social relationships' (1965:348), he pays relatively little attention to this important aspect of their social life. His material-orientated approach prompts him to point out that ceremonial exchange is a significant channel for the distribution of goods, reducing the volume of utility-motivated or economic transactions (where our price notions might apply) because it involves goods which also feature in everyday production and consumption. But the effect he notes 'is not so much to
provide the necessities of life as to give a stimulus to production above the subsistence level' (1965:320). This contravenes materialistic economic assumptions. It would be analogous to us stepping up our production of cars not to use them but to hand them around as gifts! The nearest parallel is prestige car production to advertise material success. Why should ceremonial exchange stimulate production above the subsistence level? According to Firth because 'it embodies satisfactions not directly arising from the nature of the goods themselves, but from the fact of exchange in itself' (1965:358).

In other words, we have production stimulated above subsistence needs to supply goods to satisfy some ill-defined urge to exchange. This must have far-reaching consequences for the economy as a whole. It would be like us buying up large amounts of food, electrical goods, footwear or whatever and then giving them to relatives not for them to use or consume necessarily but to reaffirm social relations with them and those from whom we purchased the items. Our gift purchasing, as Firth notes, is considerably more modest, only comprising a tiny proportion of the total volume of our economic transactions (Davis 1972). Here I think lies the reason for him overlooking the significance of ceremonial exchange on Tikopia. Roughly comparable transactions feature negligibly in our lives and consequently our capitalist-economic model, which he is concerned to apply to Tikopia, virtually omits them. He fails as a result to pay them sufficient attention in their own right, omitting to follow through the significance of the distinction between the symbolic value of social exchange and the utilitarian value of economic exchange.

Although Firth senses that there are incongruities between classical economic thinking and Tikopia behaviour, he fails, I think, to explore their implications. While he can write 'that it is impossible by formal economic analysis to understand either the exchange system of these people or how the uneven distribution of goods tends to be levelled out. Social norms at every turn condition the economic situation' (1965:318), he repeatedly slips back into a formal analytic frame. He ends up with some embarrassing apparently uneconomic-economic behaviour, which he cannot adequately account for. For instance, when someone gave two betel mortars to a man who needed them to present in a funeral payment (an SME transaction), the borrower repaid him with two newly made mortars, one for himself and the other for his father, plus a basket of food. According to Firth this 'is the equivalent of goods for goods with a basket of food as an acknowledgment of ... the loan'
(1965:316). But when the lender's family repaid this basket of food the day after they received it, returning the interest on the loan so to speak, Firth calls it 'a good example of the operation of exchange on two levels of economic and of social interest' (1965:316). There is more, I think, to be accounted for here than this micro-economically-informed statement suggests. Similar inadequacies become apparent when we consider the payment of men who work on the building of a canoe. They receive food and various objects (such as bark-cloth, sinnet, and so on) in payment for their labour, which Firth interprets as their 'wages'. But the men who receive these goods have contributed many of them to the payment in the first place, and have, in effect, brought along their own 'wages'. This results, Firth says, from the 'concept that to put one's labour at the command of another is a social service, not merely an economic service' (1965:303). It would clearly revolutionise our economic system if people not only worked for no pay as a social service but also brought along their own reward: obviously we need to rethink some of our capitalistic assumptions.

A crucial difference between the objects that the Tikopia exchange and the shell ornaments handed around by the Trobriand Islanders in the much discussed *kula* exchange system is that they have both a utility and a social value. For example, the prized bonito-hooks of the Tikopia, their sinnet cord and carved objects like bowls, betel mortars and canoes, all have utilitarian functions and so can be conceived in some contexts as unambiguously falling into the material economic domain. But the Tikopia exchange exactly the same objects in ceremonial, *kula*-like contexts, where the main focus of interest is not their utilitarian value (although this must be present in an implicit sense) but their symbolic social value as tokens of relationship and sociability. The Tikopia make no distinction between utilitarian and ceremonially exchanged objects and when they receive or make them they do not know whether they will in the future give them in exchange or put them to ordinary technical use. Their wealth production is mundane property manufacture too.

What about the production of the objects exchanged by the Tikopia? These are all locally made, many persons having the skill and available resources required. Capitalist economic theory would lead us to expect people to be busy making them for their own daily use, to 'purchase' other consumable goods and to enhance their social reputations by generosity in ceremonial exchanges, but strangely enough this is not so for the Tikopia. Hence there is no monopoly on the production of bonito
hooks, which the Tikopia value highly; anyone can make them and the raw materials required are common (with the possible exception of turtle-shell which must anyway be in more than sufficient supply because, as Firth tells us, the Tikopia use it to make ear-rings, which are of considerably less value). After outlining the manufacture of bonito-hooks, Firth says, ‘I have always thought it remarkable that the Tikopia do not make more bonito-hooks. The question why some sharp individuals do not accumulate a stock for trading purposes and why all men do not put in more labour in the production of them is difficult to answer’ (1965:342). This question may be difficult to answer from the viewpoint of formal economic theory, which Firth insists on applying so closely to the Tikopia, but it is one which we have to answer in order to understand their political economy. Unfortunately he did not investigate the production of material objects with such questions in mind, and can only offer us an hypothesis relating to the Tikopia philosophy of life that dulls what he sees as this otherwise ‘natural’ human urge, for the acquisition of material goods.

Without the necessary ethnographic evidence we cannot follow up this issue any further. But clearly we have revealed a crucial gap, which, so long as it remains unfilled, frustrates our understanding of Tikopia society. This might stand as a general comment on Firth’s account, which is not always convincing in its attempt to apply the concepts of capitalist economic theory, deploying them in contexts where they are either inapplicable or demand considerable rethinking. The Tikopia economy, Firth tells us, ‘is complex along its own lines, rich in personal relationships and in concepts of exchange of goods and services, but arranging these to fit a scheme of wants dictated by a variety of cultural values’ (1965:354). He fails, I think, to pay enough attention to these ‘cultural values’ and how they condition Tikopia behaviour in ways that mark them off from us, to whom capitalistic economic theory applies. Instead we have only a tinkering with bits from the classical micro-economic model, the taking of some assumptions about human behaviour and related theory and an attempt to match these to a culture previously foreign to capitalism, ignoring embarrassing contradictions and questions that appear to fly in the face of these ideas. The bonito-hook example illustrates what I am driving at. Neither the raw materials nor the skill to make these highly valued objects is scarce in any sense but, enigmatically, regardless the Tikopia are not busy producing them. Capitalist economic theory is not going to prove helpful in explaining what they are up to, for their
behaviour turns this on its head. Imagine us all having gold in our back
gardens which we cannot be bothered to dig up, other than very
occasionally. An economist would say that this is a stupid analogy
because if we all had gold in our gardens it would no longer be scarce
(a crucial assumption in the deductive model) and so would no longer
be valuable. In that event, why do the Tikopia value bonito-hooks?

The situation on Tikopia regarding the manufacture of bonito-hooks
or other transactable goods is not strange for the Pacific. The position is
strongly reminiscent of the production of the shell armbands in the
Trobrriad Islands, which feature in the renowned *kula* exchange
institution, and are less manufactured than brought into transactional
existence through exchange (Malinowski 1922). Likewise the wealth
objects in the Highlands of New Guinea, such as shell valuables and
stone axe blades, are transacted into existence and not produced
(Sillitoe 1988; Burton 1989). The implications for Melanesian political
orders are of paramount significance, and cast doubt on the application
of Marxist concepts, as Bayliss-Smith attempts, which assume the
existence of hierarchies and exploitation. The notions of Marx relate
directly to capitalism, as reflected in the title of his most influential
work, *Das Kapital*, concerning primarily the control of capital by a few,
so affording their exploitation of the labour of the majority. This concept
of capital is not applicable, I think, to the Pacific, being antithetical to
egalitarian political economies, and rendering inapposite speculation
about despotic leadership. Despots do not go with such decentralised
acephalous orders, just as political and economic equality are
unachievable in class societies. The productive arrangements of
Oceania concern the diffusion of economic and political power,
working against its concentration in a few hands.

These comments have a further bearing on property relations in the
Pacific, as intimated in the examples of the Tikopian betel mortar and
cano construction transactions, which relate to notions of capital.
While there is some debate over the applicability of concepts drawn
from Mauss’ s classic work *The Gift* (1990), particularly pertaining to
inalienability or otherwise of exchangeable goods (Carrier, in press,
Strathern, in press), it is generally agreed that ideas relating to the
possession of property in the Pacific are of a notably different order to
those found under capitalist economic conditions, where the notion of
privately owned property is prominent. In the Pacific, people entertain
more flexible ideas about property ownership, often allowing a wide
range of relatives the use of some things while restricting the right of

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disposal to one party. And regarding the objects that feature as wealth in ceremonial exchanges, the notion of property ownership is unhelpful because in an important sense nobody ever owns these things but only enjoys temporary possession of them, and the social renown that this brings, before passing them on to someone else in another exchange transaction. In a sense they ‘are owned’ by everyone who handles them on behalf of their society, both living kin, deceased ancestors and unborn descendants, on through time. This attitude to things has some significant repercussions regarding notions of capital, as it does on arguments about the alienability or inalienability of the products of people’s labour. And it is compounded when the manufacture of objects occurs in an interminable series of steps which obfuscate production and give the impression that people transact them into existence.

The issue of property brings us to land, which together with capital and labour comprises one of the factors of production of classical economics. It raises another issue, to which Bayliss-Smith’s use of the concept of landesque capital in the Pacific (after Blaikie and Brookfield 1987) draws our attention, namely land tenure, where Pacific practices again stand in stark contrast to Western capitalist concepts. Land is not only a factor of production in an economic sense, for although central to subsistence livelihoods it is also important emotionally, as a component of people’s identity. In a sense they belong to the land as much as it belongs to them, having a sense of identification with their land which has profound implications—far beyond its place as an essential productive resource in a particular land use regime. Land is a permanent resource which Pacific Islanders manage in a highly effective and generally sustainable way. New Guinea Highlanders, for example, cultivate land repeatedly with fallow rests of varying duration, without apparently exhausting its potential to produce (Sillito 1996). The land has an eternal aspect, connecting them with the past and the future, imbuing human life with meaning, giving it continuity with what went before and what is to come. All kin, including dead ancestors and unborn descendants, depend on and use the same land. As a powerful symbol as well as an essential resource, connection with the land gives people a sense of eternal existence, as links in an everlasting chain anchored in that location generation after generation. This is also frequently manifest in a strong spiritual connection with place, often featuring ancestral spirits who continue to frequent the land on which they lived. When people view a neighbourhood they see a landscape of social relations connecting
them to those who occupied the land in the past and those who are currently there, with social relationships embedded in place as an aspect of their identity.

The theme of continuity also serves to promote the stable existence of local communities. A considerable degree of informality and mobility characterises Pacific society, and land acts, anchor-like, to extend a sense of continuity to communities. Although community relationships shift and change as people come and go, the land goes on forever, a never changing location. While the land tenure system nominally controls access to land, it scarcely constrains families’ choices and is not restrictive. If a family wishes to garden an area for some reason but has no rights to it, its members will probably be able to secure temporary rights to do so, for the broad land tenure rules ensure that all families can find adequate cultivable land to meet their needs. This more or less open access to land, under a tenure system laying down only broad rules to guide behaviour, makes inappropriate capitalist notions of market competition over land as a scarce resource. Rights to land are one of the principal arenas in which people activate relations of kinship to one another, which define obligations controlling access. Another arena already alluded to concerns the direction of, and responsibility for, wealth transactions on prescribed social occasions. In these kin-structured exchange contexts personal identity is created and status validated in the present, whereas issues pertaining to land rights root social life in the past and give it continuity. The activation of rights to cultivable land features centrally in the constitution of local groups, as people come together on land where they can claim cultivation rights through kinship or marriage to the land holding corporation. Land and resource management is an important feature of kin relationships.

People may claim rights to cultivable land in a number of ways. They may cultivate any land unclaimed by others on the territories where access rights belong to a community kin group to which they are related. This may include virgin forest and areas of secondary regrowth to which no one claims prior rights, that is where no relatives have gardened in living memory. Once a man clears and gardens an area, use title passes to his kin and descendants, so long as the title is remembered, which presupposes recultivation at intervals to keep it alive. Kin may stake a prior right to any such garden land, perhaps sharing it with siblings or other close collateral kin, depending on
genealogical connections with the previous gardener. Claims by children to land cultivated previously by their parents usually take precedence. When necessary, other claims are nominally negotiated according to the closeness of the relationship between previous and aspiring gardeners. While the principles of descent supply a framework for controlling access to land and ordering people’s claims, they are not absolute and do not restrict them to particular areas of land (Panoff 1970; Brown et al. 1990; Carrier, in press). These priority rights to use land may pass through either or both males and females, with persons claiming rights to land cleared before by their father’s, mother’s or wife’s parents, often through as many generations as can be remembered and acknowledged, or even through relationships which are not considered strictly appropriate for such claims. Sometimes families ask to garden land to which they have no rights as defined by these principles, usually because it is convenient for them, for example the land is near to their homes or other gardens. The granting of such requests depends upon circumstances such as whether or not the owners have plans to cultivate the areas themselves and their relationship with those making the request, but commonly permission is granted. If no descendant gains prior rights to an area farmed by a forbearer, his successors do not formally forfeit their claim on the land. The loss of first-claim rights is a gradual process. So long as some members of the community recall the site’s previous cultivation, any kin descended from the gardener(s) could potentially claim the right to cultivate it, and only when such rights slip from the collective memory does the land pass back by default into the general community pool. Some disagreement over who has priority access to land is inevitable, given the flexibility of these principles, and a certain level of disputation is integral to the land tenure systems, publicly resolving differences and reaffirming the legitimacy of kin corporation guardianship. But the number of serious disputes, as opposed to earnest negotiations, over rights to land are relatively few, considering the broadness of the options facing farmers and the system’s dependence on oral traditions and memory. Furthermore, even when disputes occur and the consensus of public opinion finds against those intending to cultivate any parcel of land, they are unlikely to forgo the opportunity to farm the site as long as they publicly acknowledge that they have no inheritable rights. This correlates with the generally broad and flexible land tenure system, that while certain principles control
people's rights to land, in actuality they can gain access to nearly any site which they are likely to want to cultivate.

The up-shot is that certain small groups of people do not have exclusive access to large tracts of arable land and any tendency towards a land-holding monopoly is subverted both by the expectation that temporary cultivation rights are likely to be granted on request, and also by the dispersal of land holdings across any region. This open access to land flies in the face of Marxist assumptions about certain social groups struggling to gain control over this factor of production, particularly fertile and highly valued areas. The position of political leaders, persons and families of higher social standing also promotes questions about the notion of authoritative leadership, let alone despots exploiting the labour surplus of others by controlling access to land. The families of men who differ in their social standing evidence no difference in the rights through which they claim access to cultivable land. While people recognise certain renowned persons above others, such as the big men of Melanesia and chiefs of Polynesia whose social standing depends in large part on their roles in the ceremonial exchange and redistribution of wealth, the claims of these people to the areas their families have under cultivation are no different to those of others. They all behave the same in this respect, regardless of status.

Regarding development, or rather changes to more commercial land uses, whether plantation crops or golf courses, the traditional land tenure practices of people in the Pacific are commonly cited as barriers by those favouring market intervention. The attitudes of people to their land, particularly that they cannot own it as individuals but only claim rights to use it, are thought by some to be major obstacles to economic development (Acquaye and Crocombe 1984; Knetch and Trebilcock 1981). In the opinion of many politicians, local land tenure hinders development and needs to be changed (Barrows and Roth 1990), some planners maintaining that individual tenure is essential to promote people's incorporation into a monetary market economy. It is assumed that traditional tenure systems discourage people from making improvements to land, putting in the labour and investing capital to increase productivity in the landesque capital mode, to integrate themselves into a cash-crop market. Another commonly cited drawback is that they result in numerous small fragmented holdings, individuals having plots dotted about a territory, not arranged contiguously, militating against economy-of-scale developments such as mechanisation (Rimoldi 1966; Rutz 1978). But some of these ideas are
founded on a misinterpretation of local land holding practices as graphically illustrated by Bayliss-Smith's discussion of certain land management practices in the Pacific, notably the sophisticated irrigation arrangements found in some regions for taro cultivation (Kirch 1982; Spriggs 1984). There is no practical difference between traditional and freehold land ownership, as no one can usurp continued use from one generation to another. The claiming of priority rights to parcels of land on the territories of the kin-founded corporations to which they have a legitimate relationship, which they maintain so long as they use the land, results in the land effectively belonging to people. But the tenure systems differ significantly from the capitalist one in not placing in the hands of any individual land-user the right to dispose of land. Nobody can sell land to someone who is unrelated to the kin-group in which ultimate trust over it resides when priority rights lapse. Developers think that holding land in this way impedes economic change further because it cannot be used as collateral to secure loans to finance developments (enabling financial institutions to seize the land to cover the debt in case of default).

These ‘problems’ with indigenous tenure arrangements reveal genuine and profound differences between local subsistence orders and capitalist industrial economies, the former depending on a kin-group constitution and kinship obligations, and the latter on company law and individual contracts (Sack 1974; Simpson et al. 1971; Walter 1978; MacWilliam 1988). Pacific Islanders act as if they belong on their land, not own it. We can anticipate conflict in attempting to interpret the kin ordered system according to the commercial image, where they stand on antithetical assumptions and promote opposed values. One strategy is to offer people the opportunity to convert their rights into legally registered individual ownership, (for example Papua New Guinea's Tenure Conversion Ordinance removing land from the entailments of the customary land tenure system). But people are reluctant to change their land rights, being unwilling to interfere with their entitlements because this would interfere with their social position too, changing their place in their community (Epstein 1969). Land for these people is not merely an economic asset, it is a fundamental component of their social and political orders, underpinning the continued existence of their local communities. To meddle with customary land tenure; to try and individualise rights to land so that it can enter the market and change hands in economic transactions, is to attack the continued existence of social groups and communities (McKellin 1991).
These observations should not only urge caution in attempting to apply formal economic concepts like capital to these socio-political orders, but also compromise attempts to use Marxist inspired interpretations of capitalist economic theory. The kinship identity and sentimental value placed on land puts this resource into a context where notions of landesque capital demand careful appraisal, for we are not just considering any changes to be improvements to a productive resource as a capital asset. In the same vein, people produce and handle many things not as economic capital but as social assets, objects of tremendous symbolic value that feature centrally in their socio-political orders, which are so constituted as to thwart the emergence of political-economic hierarchies of despotic control and exploitation. Even the ritually founded hierarchies of Polynesia were benign in this respect and, as Bayliss-Smith intimates, Wittfogel’s hydraulic Asiatic despotism is as misplaced as Friedman’s free market monetarism. While land, labour and artifacts are universal features of human society, their relationship to one another, and people’s relationships through them, is multifarious. The process by which different cultural traditions interact with and transform one another over time is likewise one of kaleidoscopic variety. Whether an appreciation of Pacific Islanders’ attitudes to their land can save the planet from our technological depredations and contain our species’ burgeoning population explosion is altogether another issue, although it has the merit at least of being a sanguine alternative in the face of the usual doom and gloom commentaries on these issues.

References


Building on local culture for development: community participation in natural resource management

Hugh Govan

The ancient university of Melanesia

The last few decades have seen increasing calls for changes in the approach of the industrialised nations towards development (Cernea 1991; Chambers 1983, 1992; Moris and Copestake 1993; Pomeroy 1994). Calls have been made for a shift from the assumption prevalent in industrial countries that they know the best ways to achieve development towards an approach where local people are encouraged to be active in choosing their own strategies for development. Despite all the talk there is still much room for the application of such theories in practice, particularly in the Pacific Islands which often seem to be one of the last bastions of the old top-down approaches. Bernard Narakobi, one-time Papua New Guinea Minister for Justice put it succinctly: ‘there is a need for those bringing change to study first with respect and humility at the eternal...the timeless...the ancient university of Melanesia, the village, where courses are offered in living’ (McIntosh 1991:5–7).

One of the reasons that these new bottom-up approaches have not been readily adopted lies in the training that many ‘specialists’ receive. Western scientific training does not usually encourage the sharing of control over technology or policy development. Where attempts are
made at all to incorporate the local human and physical situation the strategy is often to embark on extensive programs of physical and social data extraction. Thus large amounts of data are extracted in an attempt to integrate all the relevant factors. Ezekiel Alebua, Prime Minister of Solomon Islands in 1988, whilst welcoming a new technological aid project, staffed mainly by Western scientists, warned that they should ‘...beware the paralysis of analysis’.

One alternative is the full involvement of local communities, the very people that it is intended to help. This apparently obvious step to the non-specialist, represents a serious challenge to scientists and the like who have to consider a complete change of attitude. Although much has been written on these topics for the social science ‘market’ little has been published for or about the South Pacific region and virtually nothing for technical specialists there. The intention of this article is to start to address this lack and to offer an insight into the untapped potential for community involvement for the work of scientists and specialists.

The cult of ‘projects’

The most commonly heard criticisms of conventional top-down approaches to development are that they lack adaptability and fail to fit local situations. Another problem is that such paternalistic approaches, by not fostering participation, create dependencies on implementing agencies. Who has not come across the local perception that ‘projects’ equal hand-outs?—a very tangible form of cargo cult.

The much mooted advantages of involving local communities appear to be wide-ranging and convincing. Local communities may have the chance to define their own needs and objectives. The process prompted by community involvement may actually speed up the diffusion of the technology or strategy. This approach may be more efficient: local people can draw on existing, sometimes massive, funds of indigenous information specifically relevant to their surroundings.

Local participation seems to be a very good way of achieving an integrated approach without massive programs of data extraction. Direct involvement of all the stakeholders across a wide cross section of the community ensures that decisions better reflect local social, economic and environmental conditions. Needs, values, local knowledge as well as economic factors are incorporated into the planning
process by the affected parties themselves, in other words the relevant factors are integrated from within rather than by outsiders. The scope for local involvement is wide, covering areas such as research, development and transfer of technologies and the development and implementation of policy and community education. A number of examples of activities in these fields taking place in Melanesia are discussed in the following sections.

Community involvement in technology development

A first step towards participation could be for local people to be completely involved in the initial research into new technologies. However when projects do talk about participation this frequently takes the form of questionnaires or consultation with villagers on an agenda defined by outsiders. The outsiders are usually under no obligation to take on board the people’s views. Although this approach may be better than nothing, it is superficial and does not represent real involvement. A similar situation arises when local people provide labour or other resources in exchange for material incentives but are not really involved in the learning process, for example in farming trials. In such a case people may have little reason to carry on the activities if the incentives end. In the following example of research and development carried out by local people in collaboration with outsiders a real attempt was made for participants to be involved in the experimentation process.

Case study 1: local involvement in aquaculture development (Govan 1993, 1995; Hviding 1993)

Situation. Giant clams have traditionally played an important part in the diet and culture of Pacific Islanders. By the late 1970s poaching and over-harvesting, driven by the high prices that the muscle of these clams fetched in South East Asian markets, had seriously threatened the survival of the larger clam species. In the early 1980s a number of aid-funded projects started up in the Pacific region, staffed almost entirely by expatriate scientists, with the aim of developing the technology to produce clams in hatcheries. The idea was that baby clams could then be farmed by coastal villagers and eventually sold on the international market thereby generating much needed revenue and reducing the pressure on wild clam stocks.

One such project started in Solomon Islands in 1986 and by late...
1987 the first batches of baby clams were being produced in the hatchery. At this stage virtually nothing was known about how to farm these clams in the sea or what methods if any would be most acceptable to coastal dwelling Solomon Islanders. In order to investigate these issues it was decided to involve local villagers early on in the project through a number of farming trials.

**Action.** The first issue faced was who the participants should be, how they were to be selected and what commitments should the project and participants make to each other. A number of options were examined—ranging from paying participants selected by the project to opening up the scheme to anybody who was willing to make a financial commitment.

Ultimately the method adopted was to publicise the project on national radio, in the papers and during extensive field trips. Interested villagers were encouraged to express their interest and show their commitment to participating through written letters of application. In an attempt to avoid bias towards literate applicants it was emphasised that letters need not be in the applicant’s own handwriting. A large number of letters were received, many written for the applicants by local government officials, students, plantation foremen and so on.

The letters were answered further explaining the experimental nature of the trials and the commitment the project and participants were expected to make. This was followed up as soon as possible by a visit from project staff in which discussions were held with the village, local chiefs or reef owners as deemed appropriate by the local people. The project undertook to supply baby clams, cage materials and regular advice and support. The participants agreed that if the operation was a failure the materials and clams would be returned, otherwise they became their property.

**Results.** Within a year 12 trials had been established in a number of different areas over a wide geographical and cultural range. Soon a large amount of information was flowing, concerning not only aspects of clam growth and survival in a variety of habitats, but also local knowledge of the biology and ecology of giant clams. This was the product of generations of ‘research’ by people whose livelihood depended on intimate knowledge of resources surrounding the islands.

Farmers were enthusiastic and appeared to be not only motivated by the prospect of financial gain but also in a number of cases were interested in conservation of the larger clam species. In general the
technology involved was quickly understood, in part because of the local knowledge participants had of the ecology of the clams and the animals likely to prey on them.

Initially the learning curve was steep, after a year almost half the participants had withdrawn from the program, in some cases because of unpredicted rearing problems such as high predation or storm damage and in other cases because the participants did not feel the inputs required justified the potential gains. However, the lessons learnt were applied in further rounds of trials, most of which are still in progress. A number of participants have now received substantial amounts of cash from their first harvests. The framework for establishing participatory trials is still in place and is now being used for work on other aquaculture projects such as pearl oysters and sea cucumbers.

The benefits for the research project were clear, not only was a wealth of biological data obtained but the technology being developed was modified in order to be more appropriate to local farmers. The benefits to the local farmers were not so clear for the early years, especially to those whose trials had failed. The experimental nature of the trials had been clear to participants and by and large they were all content with the *traem nomoa* (try it and see) approach and did not grudge the effort invested. The project did appear to have an impact in terms of clam conservation, not so much due to re-stocking as to increased awareness of marine conservation and management issues.

A number of problems with the approach were identified, both by the researchers involved and in a review by a social anthropologist commissioned by the project. The research institution had difficulties incorporating the ‘soft’ data obtained from villagers into existing conventional research frameworks. This lack of flexibility was compounded by similar attitudes from donors who were looking for hard results to an established timetable. Another problem was the delicate balance between collaborating with the participants and using them, which could have easily been upset by changes in project personnel or approach. Finally, most of the early participants were male entrepreneurs. The approach used did not make it easy for women and other groups to be involved.

In the coastal aquaculture example much depends on the eagerness of local people to be involved. Although they were involved at an early stage in the research they had relatively little input into the conception
and planning of the overall project. The project was keenly accepted even though the short term material incentives were negligible. Other incentives may have to be taken into account such as the prestige of being involved in a development project.

The question of participant selection is a thorny one. For the stated objectives of the project in this case it was acceptable and possibly preferable that the process was biased towards entrepreneurs as these were more likely to be able to carry out experimentation of their own and accelerate the research process. Sooner or later, though, the project had to face up to the conversion of the research into a development package that would have to be distributed more equitably.

Trying out giant clam farming was not viewed as being particularly labour intensive and it used small areas of reef that would not otherwise be productive. Whether the technology comes to form an important option in the repertoire of money-earning opportunities available to villagers remains to be seen but will depend to a great extent on the economics of the operation and the returns to villagers on their investment in money and labour.

The following example of community involvement in the use of new technology hinged on village level economics as well. Here the local processing of forest timber had to prove itself not only desirable in environmental terms but also in terms of the income generated compared to the sale of logging rights to large foreign companies.

Case study 2: Wokabaot somils for sustainable forestry (McIntosh 1991)

Situation. In the early 1980s it became apparent that logging operations carried out in the Melanesian Pacific Islands by large overseas companies were causing immense damage not just to the environment but also to local culture. Initially it was this social damage, in the form of introduced corruption, financial rip-offs and accelerated loss of local culture, that prompted the South Pacific Appropriate Technology Foundation (SPATF) in Papua New Guinea to look for alternative and less damaging ways for local people to benefit from their timber resources.

Action. The response of SPATF was to develop a portable saw mill which could be dismantled into modular parts, carried to a tree and used to saw timber of a quality acceptable at least for domestic use. The wokabaot somils were manufactured locally (in Papua New Guinea) and
between 1982–1989 more than 400 had been manufactured and distributed, mostly in Papua New Guinea but a few were in operation in Solomon Islands. Typically villages worked together to raise half the price of the *somil* and formed a business group to take out a loan for the other half. The *somil* was often used in the building of a community building such as a school or a church or in the construction of local housing. Other spin-offs also developed.

**Results.** The program was considered a success. At its best the *somil* became a program in integrated development. The income generated (or the savings on the purchase of milled timber) meant that the young men operating the *somils* had less reason to move away to the city in search of paid employment. By keeping it small-scale and local other social problems caused by large-scale logging were largely avoided. The reasons given for the success of the program were, the rapid pay-back on capital investment, the common ownership of land, the availability of local financing and spare parts backup and training by SPATF workers of users in maintenance and marketing. Stress is placed on the fact that the program must be market driven—if the market insists on sustainably produced timber then the producers will follow.

In order to assess the environmental implications of the program an external review was commissioned. The study pointed out that, although the mills by their very size and method of operation, were one of the best ways of harvesting tropical forests sustainably, they were still open to abuse, albeit on a smaller scale. To counter this it was recommended that sustainable forestry techniques be added to the training course as village people had little previous experience of modern logging or indeed first hand experience of western technology.

The review recommendations resulted in the formation of the Village Development Trust which provides the sustainable forestry training in conjunction with provincial forestry departments and forest related institutes as part of the *somil* purchase price. A recent environmental audit found no adverse environmental impact where the sustainable forestry techniques were being used.

There are currently over a 1000 *somils* in Papua New Guinea alone. Many villagers have turned down offers from logging companies because they would rather harvest timber themselves—getting longer term profits and protecting their environment. The technology involved in the portable sawmill project fills a need that local people have identified. Although the project is environmentally and socially more...
sustainable than the sale of harvest rights, the move towards a cash economy means that Melanesian rainforest villagers do measure results in monetary terms. The strength of the project is that it is based on this principle.

Community development of policy and management plans. The strong community and family ties that prevail in Pacific cultures and the systems of land and sea ownership seem like excellent building blocks for community involvement in development. However, these apparent strengths have often been cited by colonial masters and, more recently, by national government as obstacles to development. Traditional resource management strategies have either been ignored or disregarded on the basis that they would not stand up to modern commercial pressures. The following example suggests that this is not true, given a flexible people-oriented approach.

Case study 3: Vanuatu co-operative fisheries management (Amos 1991; Johannes 1994)

Situation. Recent international fishery disputes in the North Atlantic and elsewhere highlight the general failure of western fisheries management methods to work even in the areas where they were developed. It comes as no surprise then that these methods are even less successful in the South Pacific where nations can ill afford the costs entailed in data collection and enforcement.

However, marine resource management has been practised in many Pacific Islands for centuries in the form of customary marine tenure although this has not always been recognised by central government. Apart from this lack of support, village-based management has also been hindered by certain gaps in biological knowledge, gaps which became more important with the advent of commercial fishing which placed pressures not commonly encountered on the traditional systems. Furthermore, although much information has been gathered by western and local scientists on different marine resources such as baitfish, giant clams and trochus, little of this has filtered down to the villagers. In recognition of the factors listed above, Vanuatu’s Fisheries Department has started to develop a co-operative approach to fisheries management. The initial focus was the economically valuable and locally important trochus (topshell) fishery which was threatened by over-exploitation.

Action. The seeds of co-operative management were sown in 1990
when Moses Amos, a trochus specialist of the Fisheries Department, offered to provide advice to local trochus fishers and reef owners. The response was enthusiastic and soon Moses was combining local stock surveys with informal sessions in which a two way flow of information was established between the resource owners and the Fisheries Department. Based on the information available the villagers could decide what measures to adopt to ensure that trochus did not become seriously over-fished. Measures included stricter enforcement of government size limits and the establishment of trochus refuges and closed seasons. The Fisheries Department did not try to force rigid management on the villagers but left the final decisions to be worked out locally based not only on biological knowledge but also on local social and economic concerns.

**Results.** Within three years village-based marine conservation experienced a remarkable upsurge. This was evident in the application for the first time in living memory of fishing taboos which were explicitly conservation oriented. Although the Fisheries Department had concentrated on trochus conservation villagers had begun to introduce regulations controlling the harvest of many other species and were commonly introducing 1 to 5 year fishing closures.

An external review of progress highlighted that village fishers were keen to experiment with management methods by trial and error but some important biological aspects were unknown to them and knowledge of these could save much time and effort. The same review also pointed out the need in the Pacific for better training in fisheries extension programs so that workers learn to ask and listen as well as talk and demonstrate, how to evaluate local information and how to provide information that villagers require. Also, an extension program must consider how to explain village fishers’ customs and knowledge to the rest of the fisheries division and those higher up. This example adds support to the view that once people identify their own problems and instigate their own courses of action the resulting strategies are much more likely to be locally accepted and effective.

The case studies examined so far all emphasised the need for local people to gain more awareness about issues that affect them. The in-depth knowledge of local conditions is not sufficient in itself to allow interaction with the fast encroaching modern world. Villagers may find it difficult to plan for the future without enhanced skills in analysing their own situations and the range of options available. The last
example concerns one organisation which aims to provide villagers with access to just such skills by increasing awareness and community education.

**Case study 4: Solomon Islands Development Trust (Roughan 1990)**

**Situation.** In the years following the independence of the new Pacific nations, development accelerated. Non-government organisations (NGOs) played a major role and were by and large welcomed, partly because they had access to overseas resources which could be channelled into the emerging nations but also because they kept out of local politics, refraining from criticism.

In the early 80s a new style of NGO started to appear such as Vanuatu’s Nasonal Komuniti Development Trust and the Solomon Islands Development Trust (SIDT). These NGOs were indigenous organisations whose interests went far beyond small grass roots development projects to the tackling of environmental issues and ensuring sustainable development. They sought development through empowerment which was to be achieved by developing the villagers capacity in relation to the surrounding world. A major goal of SIDT was to encourage public discussion and build awareness in villages of problems, difficulties and issues that they faced.

**Action.** SIDT operated through the recruitment of local people who received regular and intensive training to become mobile team members. The task of these mobile teams was to tour the country conducting village level workshops sharing their understanding that development should be a locally directed process based on local culture rather than the common perception of development as something driven from the outside with massive funding. Because one of SIDT’s main goals was the strengthening of village life and empowerment of villagers great care was taken to recruit local villagers for the mobile teams with an emphasis on women.

As time went by SIDT extended its repertoire of development education tools including not only many graphic and visual techniques to be used at village meetings but also theatre and regularly produced and well-distributed newsletters and educational comics.

**Results.** Thousands of village workshops have been conducted throughout the country. Such workshops were attended by 18,000 villagers in 1988 alone. In many remote areas local people have more
contact with SIDT through the mobile teams than with government officials. SIDT publications have been distributed throughout the country and have been adopted in many schools for their social science curriculum. The extent of SIDT’s grass roots contact was tested when it was able to produce, at short notice, more than half the personnel needed to carry out a nation-wide disaster survey in the wake of Cyclone Namu.

The extent to which SIDT has brought about increased awareness and better patterns of living is more difficult to measure but SIDT did undertake a review to determine the impact of their activities. They found that although the workshops were popular many people did not necessarily alter their behaviour as a result. SIDT has now altered their methodology, basing Village Demonstration Workers in the villages to provide ongoing support and training.

The signs are that SIDT is having an effect not only in villages but also at the level of national development policy, recent government initiatives have included more villager participation and human resource development. SIDT is frequently consulted formally and informally by other organisations setting up rural development projects. Indeed SIDT has devoted considerable time and effort to strengthening links between NGOs. Another measure of the perceived impact of SIDT may be the frequently strong reactions to SIDT from Government and large industrial interests such as logging or mining companies. One of the reasons for this reaction is of course the strong vested interests in natural resource exploitation but another reason may also be doubts about who is setting the development agenda for SIDT, whether outsiders or a radical local minority.

This type of organisation has some of the closest grass roots ties that are possible to achieve. The creation of awareness and fostering the capacity of villagers to plan are keys to the involvement of the community in development. Ideally such an organisation would interact closely with other development projects. This is the case with SIDT but there is no real substitute for projects themselves making sure that they interact at the community level.

**Involving people—means or an end?**

As illustrated by the preceding examples, local people can be involved in development at different levels. Community involvement can be used
as a tool to help design more appropriate technologies or, at the other end of the spectrum, it can be the objective, ultimately empowering people and enabling them to make their own decisions. Either way the complex array of factors affecting local communities are integrated by the most qualified people. Who better to build on local culture but the people themselves?

Community participation can be extremely effective, even in what are essentially technical projects. From the scientist’s point of view the advantages are plain in terms of achieving more appropriate and sustainable results. However it is important to be aware of the importance of the process as well as the output. At whatever level people are involved, the process enhances awareness and self-esteem, improves access to outside information and ultimately empowers. This is a fact that should not be ignored and if the developing agency is not prepared to take on board the full implications of this empowerment then the project should not be attempted as the potential for raising expectations and causing disillusionment is high.

Some issues and concerns

The case studies and discussion presented above raises a number of issues and concerns that should be considered before a program of participation is implemented.

- **Role of outsiders.** The role of outsiders has to be carefully considered. Too much presence, or in some cases any presence, may make the process of local empowerment more difficult. Outsiders may play a useful role in providing access to information and enhancing the exchange of information. In the case studies outside reviews provided much useful information that may not have been obvious from within.

- **Participation empowers.** Whether this is good or not depends on who is empowered and how they use their power. There may be a responsibility to check carefully who is involved and maybe even to ensure that the weaker are empowered. Of course this may have to be balanced against other objectives as for example in case study 1.

- **Politics of empowerment.** The political implications of empowering local people, of reducing dependency on central and foreign governments and their agencies, may not be popular with existing power structures.
• **Communication must be good.** Good communication must be emphasised, not only within the local groups and between these and the external agency but also within the external organisation itself.

• **Flexibility of donors and external agencies.** The fundamental concepts regarding involvement of local people should permeate through to the institutions and even the donors. There is a need for both to be more flexible and it is highly desirable, if not indispensable, for there to be adequate institutional support.

• **Institutional support.** Local groups interacting in a wider arena will need some support from national or regional organisation, government, legislation or policy framework. These concerns and fears of the consequences of failure should not discourage agencies from attempting to increase local participation. The concept of experimentation is not exclusively a Western one, indeed results from workers in the Pacific suggest that local people are comfortable with trying out new approaches, *traem nomoa* in Pijin, provided that these trials respond to perceived needs.

**Traem nomoa or failing forwards**

The potential in the Pacific for local participation in development projects is enormous and so far largely unrealised. Owing to the benefits provided by the process as well as the potentially enhanced end-products it seems important to encourage agents of development to adopt more participatory methods wherever possible. If communication is good between the parties involved then experimental, trial and error approaches can be extremely valuable provided a flexible approach is taken, errors are acknowledged and lessons are learnt.

This highlights, as do case studies 2 and 3, the need for new training and forms of education. Western-educated people often experience difficulty, especially if in authority, in observing and understanding the knowledge of the locals rather than advising or implying advice in their questions. Such training needs to counteract the tendency of Western science to produce general theories that miss out the reality in specific cases. It is necessary to learn self-critical awareness, how to share information and to avoid merely extracting information and how to be relaxed in these situations. In brief: outside knowledge should be ‘on tap’ ‘not on top’.
The situation back in the West

Recently an Indian student, after a study tour in the United Kingdom and a field trip to see community forestry initiatives in Wales, stood up in an inter-national workshop and asked: ‘how come the UK Government is funding and providing expertise for community-based programs overseas when it fails to achieve even minimum standards of community involvement at home’. The lessons learnt at the university of Melanesia could be applied fruitfully nearer to home as well.

In fact, the benefits of community participation are not relevant just to the developing world. Resource managers, such as those of the coastal zone in the United Kingdom and North America, are attempting to involve local people actively in order to achieve sustainable development. Unfortunately local people in the West have usually long lost any traditions they may have had in community resource management making the task that much more difficult. Many Pacific societies are still in time to build on local culture.
Notes

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References


Ecotourism and national development

Peter Burns

This chapter discusses the pros and cons of using ecotourism as part of national development in the South Pacific. It commences with a wide-ranging context-setting about the nature of tourism and tourism planning as it pertains to so-called developing countries. This is followed by a discussion about ecotourism itself, including certain symbolic meanings that the word seems to carry and the confusion that surrounds it. This leads on to what the ‘hosts’ and ‘guests’ expect from ecotourism. I will argue that, for the Pacific Island nations, ecotourism does have a role, but that this role has limitations, including a lack of planning expertise at a national level that is being exacerbated to some extent by the region’s official advisers, the Tourism Council of the South Pacific.

Planning for tourism as a part of national development

There are two main strands to the debate on the role of planning for tourism in national development since it began in earnest in the late 1960s to early 1970s. These two streams can be likened to schools of thought. The first is the powerful and well-rehearsed argument concerning the economic and growth benefits to be gained from tourism through various multipliers and high tourist arrival numbers.
Emphasis is on gross national receipts in a nation’s tourism account. This I call the ‘Tourism First’ school and is best signified by Archer (1977), after his seminal work on applying the Keynesian multiplier mechanism to tourism. A classic example of this genre is to be found in the 1973 Tourism Development Programme for Fiji, where the Hawaii-based consultants sought to turn Fiji into a mini Hawaii by recommending a visitor arrivals target of some 853,000 by 1981 (in fact the arrivals for 1981 were 152,000 with the arrival figure for 1991 being 259,000). This type of brutalist approach remains the dominant paradigm for the European Union-funded Tourism Council of the South Pacific (TCSP). While it is true that the Suva-based TCSP has no authority, their budgets (especially in relation to marketing) and the dominance of foreign advisors tend to legitimise and justify the economic approach to tourism. The slogan for TCSP and this school might well be ‘Tourism is Good for You’. The approach is underpinned by trickle-down economics, with the focus on developing tourism as opposed to developing regions, places or nations.

The second school of thought, which I will term the ‘Development First’ school is epitomised not by a tourism planner, but this time by a development sociologist, de Kadt, who has visited tourism from time to time over the past two decades with an analytical eye, most notably in 1976 with his critique of tourism as a developmental agent for developing countries. This school of thought takes a multi-disciplinary approach to the consequences of tourism. De Kadt and his like place emphasis on the net benefits to the nation in question set against a broad range of costs, including the social, cultural and environmental. They seek to ensure that the whole story is told by considering economic leakage and by highlighting the components of these financial outflows. Their approach can be described as holistic in that they acknowledge the difficulty of disaggregating economic impacts from other impacts of tourism. The focus here is on development seeing tourism as a means of achieving national social and economic goals.

**Defining tourism for the purposes of planning**

‘Tourism is a fundamental force behind the production of new cultural forms on a global basis... it is also an ideological framing of history, nature, and tradition that has the power to reshape culture and nature to its own needs’ (MacCannell 1992). Given this kind of power, those that have any sort of responsibility for planning or managing tourism
need to have a holistic understanding of the phenomenon and its implications. This, together with an awareness of the emerging planning philosophies that are gaining ground within the tourism process, is the bedrock upon which long term responsibility and thus sustainability will be built (Burns and Holden 1995).

It is important at the outset to clearly define our view of tourism. Should we simply call it a product? We might then include in this things that perhaps shouldn’t be included, village life, unique religious ceremonies, and other private aspects of culture and lifestyle. The word ‘product’ implies something that is there to be marketed, wrapped and sold. In similar vein, if we define tourism as an industry, this implies that there exists a clear entity, things may be categorised as being part of the tourist industry or not. In complex, industrial societies, we know that this is simply not possible (Burns 1995).

However, and somewhat paradoxically, tourism can be described both as an industry and a product, and needs to be so treated for the twofold reason that it is both multifaceted and holds a high priority in the economic development policies of many countries. For tourism to be successful, that is economically viable, environmentally sustainable, and socially acceptable, good planning is an imperative. But for fully comprehensive and integrated planning to be possible, the whole of tourism activity needs to be included. Hence, the practice of referring to all components of a tourist trip, which in combination make up the overall tourist experience, as a product. There is fragmentation of supply (tourism is characterised by its high composition of small businesses). Yet the many components are interdependent and complementary. Tourism planning then, (among other things) involves matching the supply of different parts of this tourism product, both in capacity and standard, to the various demands of the tourists themselves. To justify public sector investment (for example, for transport and other infrastructure, destination promotion, incentives, training schemes) and regulation (for example, development area zoning, enabling legislation), the many commercial and other components have to be treated as an industry or at the very least, as an economic sector.

**Tourism planning: a central dichotomy**

The central questions of tourism planning remain: who is it for, and what is its purpose? These should be answered through an integrated
set of responses. First, tourism planning is for the local residents, conducted within a framework set by the agents (planning authorities) of their elected officials (politicians). But, second, it is also for the developer who wants to know what else is going to be built in the immediate locale (in terms of competition and suitability) and to ensure optimum land usage. Third, integrated tourism planning will optimise land use beyond the needs of one particular developer, or set of shareholders. Finally, tourism planning can insist on long-term environmental planning, and awareness of social/cultural sensitivities (a kind of psychological conservation for the residents).

It can be argued that this approach to tourism planning could act to preserve the long-term viability of tourism by protecting the components that make up the attraction of a particular area from over-use. However, it should be noted that tourism plans are unlikely to be successful if prepared in isolation. They are most effective when set within the context of, and comprising one component of, overall regional or national physical and socioeconomic development plans. By aiming to produce a diverse economy, with tourism as one of a number of diverse economic sectors, there is a greater choice of stability. Over-reliance on tourism places destinations in a vulnerable position given the fluctuating and often fickle nature of tourist demand. This is especially the case for Pacific Island nations with their smaller-scale economies (including MIRAB economies shaped by Migration Remittances Aid and Bureaucracy, for example Milne 1992), limited domestic markets and other economic/trading factors that mitigate against their competitiveness in exports.

Planning for a sector like tourism necessitates government intervention. The specific approach to planning will reflect the role which government assumes in respect to tourism. At one level there is passive involvement: the government neither discourages nor encourages tourism. It enacts basic enabling legislation, such as on air traffic agreements, and employment of expatriates (Burns 1993), and offers general development incentives, though not necessarily aimed primarily at tourism. At another level, a government may become actively involved in tourism development through adopting specific policies, aims and objectives for tourism, by offering investment incentives for resorts and other large tourism projects, by encouraging air traffic agreements aimed at increasing tourist flows (the ultimate being an ‘open skies’ policy) and through other measures such as increased marketing via an enlarged national tourist office. Finally, a
government may also pursue a developmental role by providing appropriate infrastructure and facilities for such development, initially constructing and perhaps even operating hotels and other tourist facilities and services if the private sector cannot be induced to do so.

While governments take the lead in national or regional tourism planning, the process of planning involves a wide range of diverse interests, each of which have to be taken into account, including:

- commercial interests (direct—developers, investors and operators; indirect—suppliers of goods or services to tourism enterprises or tourists)
- the international travel and tourism trade (airlines, tour operators, travel agents)
- the host population
- tourists themselves
- the destination’s environment ‘supporters’.

The concerns of these various players are often summarised as:

- sustainable economic development (including profit for the visitor industry) to ensure the stability and well-being of civil society
- the generation of a number of ‘worthwhile’ jobs (those that give reasonable returns in exchange for labour) so as to provide financial security, and personal satisfaction for individuals and families
- visitor satisfaction, so that tourists will enjoy their vacation, return and recommend the destination to friends.

Often, however, the concerns of the destination’s environmental supporters are either marginalised (so that they are seen as being ‘against development’) or trivialised (for instance, with the perception that environmentalists are somehow ‘hippies’). This is where ecotourism has an advantage. Because of its symbiosis with the natural and cultural environment, a broad swathe of society might begin to make links between environmentalism, sustainability and appropriate forms of business. So, ecotourism might, in the most optimistic sense, be seen as contributing to societal education: promoting the notion that the environment can, and must, be used on a sustainable basis.

Whatever the role assumed by government, momentum in tourism development will only exist if there are satisfactory shareholder dividends and operating profits. Given that all politicians have re-election as a priority, satisfying their constituents, whether these run tourism-related businesses, work in tourism jobs, or are simply voters
who encounter lots of tourists in their daily lives, is a key considera-
tion. A major challenge therefore, is to ensure that tourism planners
develop schemes to encourage long-term commitment based on
operating profits, rather than on inflated property prices or land
speculation—neither brings advantage to the majority of residents.

**Ecotourism: the pros and cons**

The rise in popularity of ecotourism over the past decade has been
due to both ‘pull’ and ‘push’ factors. Pull, in the sense that there has
been a general recognition at all levels (governments, communities
and individuals) of the need to protect and preserve the environment.
Some of this increased awareness has been self-induced through the
aesthetic consequences of pollution, while some has emerged through
global pressures from NGOs and high level policy-setting such as
Agenda 21. The push factors can be attributed to changing consumer
habits, demands and expectations. The baby-boomer generation and
their children claim a special awareness of the symbiotic relationship
between use of place and space as a consumable asset and the need for
a long-term view ‘if the planet is to survive’. The emergence of
ecotourism is the travel industry’s response to these factors.

Ecotourism is defined as ‘environmentally responsible travel to
experience the natural and cultural areas of a region while learning
about and promoting conservation and economically contributing to
local communities’ (Adventure Travel Society 1995). This is an
interesting definition of what remains essentially an economic
exchange. First there is the cynical viewpoint that part of the
‘responsible travel’ will undoubtedly involve air travel by ozone
depleting jetliners! But even so, the linking together of nature and
culture is something that is particularly well-suited to the Pacific
Islands. Polynesians, Melanesians and Micronesians all hold views
that reinforce the links between ‘ocean, land and sky’ seeing people as
merely part of that continuum.

There are at least five positive characteristics that can be attributed
to ecotourism

- it is an activity based on experiencing natural resources
- it is a business based in the local community (and thus
  seemingly non-exploitative)
- it is underpinned by a philosophy of respect for place and
culture
it can be seen as a strategy for rural development (and thus has possibilities of countering urban drift and village boredom)

finally, it is symbolic of the debate that surrounds tourism and the environment.

In a sense, those that choose to consume tourism through ecotourism are making a powerful symbolic gesture.

On the other hand, there are certain negative aspects to the idea of ecotourism. In the first place (and as was alluded to in the introductory remarks about ecotourism) it is for the most part driven and dominated by a Western desire for self-fulfilment. Thus, as the method of self-fulfilment changes with fashion from lying on a beach to ‘experiencing nature’ the method of consuming Pacific Islands changes. No longer satisfied with the beach, or duty free shopping, our post-modern tourist has to experience the authentic atmosphere of real village life and communicate with nature and unspoilt cultures. The second negative aspect is that ecotourism (given that it has no legal definition) is subject to abuse by market makers.

Anyone can attach an ecotourism label to their business. The usual interpretation is that any business that takes place away from city centres or in a rural setting is given the label as a sort of market response to consumer fashion. There is no obligation to fulfil the social and economic philosophies promoted by the genuine ecotouristic businesses. A third potential failing of ecotourism is that the exchange, in the end, is an economic one. It cannot be a social exchange because for the most part the participants are unequal partners. It is unlikely that a Sepik Valley villager will be able to visit a rich tourist in Germany, Italy or Switzerland (for a fascinating insight into this aspect see Denis O’Rourke’s film ‘Cannibal Tours’). Ecotourism as a business (the ticket and accommodation have to be purchased) is framed by capitalist ideology, even if it doesn’t wish to be. A particular problem facing governments and the issue of ecotourism is that it is, by its nature, low volume. The corollary of this is low taxes and therefore a low yield at a national level (though the net flows of income at village level are very useful to augment income). The final problem and the enigma of ecotourism is that while it has an intrinsic market value for certain consumers, its core characteristic (that of being low volume, low impact) means a concomitant characteristic of poor economies of scale when it comes to marketing the product.

It can be seen that there are pros and cons to both the central
philosophies and practical implementation of ecotourism that in the end tend to balance themselves out when the business is carried out in circumstances of respect and openness.

**Ecotourism: the promises, aspirations and expectations**

The promoters of ecotourism, which in the case of the Pacific are often NGOs of various sorts and government departments seeking to broaden their touristic base and to create economic opportunities in rural areas, imply that such development carries certain promises for local people. A parallel set of promises is developed between those who market ecotourism and their clients, the ecotourists. This section discusses promises, aspirations and expectations held by what can be termed ‘hosts’ and ‘guests’ in the tourism equation. However, before dealing with this matter, it is worth asking why it is necessary to put the two words ‘hosts’ and ‘guests’ in quotation marks. It is a question of definition and assumptions. The words themselves can carry symbolic meaning, in that a host may be one who gives freely and a guest is one who receives such hospitality without necessarily incurring any obligation. The difficulty in using the words without the quotation marks is that the transaction in tourism does not represent exchange of the kind the words generally imply.

The first ‘promise’ of ecotourism insofar as the ‘hosts’ are concerned is quite straightforward. It is to do with the creation of paid and unpaid employment and economic diversification (perhaps involving a shift of resource allocation) at a village level. This reflects ecotourism’s potential for rural development. Second, there is an argument for seeing links between ecotourism and aspirations about cultural revival. Interest shown by outsiders in traditional ways may well revive cultural practices that are being marginalised under the shadow of modernity. This leads on to a third aspiration: that of natural resource awareness and conservation (which may come about for much the same reasons as cultural revival). In addition to these aspirations, there is often an expectation of what tourism professionals term ‘low-impact, high-yield tourism’, whereby tourists are given the maximum opportunity to spend money and contribute while causing the minimum social and environmental impact. Finally, there is a problem of boredom for villagers, especially rural youth. For them, an
influx of visitors to a village carries an expectation that interaction with ‘guests’ may help allay some of that boredom. Ecotourism thus has the potential to alleviate some of the tendency for urban drift.

Insofar as the ecotourist is concerned, the set of promises, aspirations and expectations is, I suggest, far more complicated. Ecotourists aspire towards recreation (a word with heavy symbolic attributes in a Christian context), life-enhancement and personal growth. As a part of this, they are promised ‘educational encounters’ and the expectation of going away from a place knowing more than when they arrived. The ecotourist may well be demanding in this desire for knowledge and anticipate high quality interpretation of sites and sights; wanting to know details of when, how and where. Finally, like any tourist they, will expect value for money. This does not mean cheap holidays, but the price/quality ratio must be acceptable.

Ecotourism: today’s situation

Given the characteristics of ecotourism and the nature and level of development within the South Pacific Islands, it is clear that, in principle, the Pacific is well placed to take competitive advantage of this market niche. For the more touristically advanced islands, such as Fiji and Tahiti, ecotourism can be part of the tourism product mix (what marketing specialists might refer to as horizontal integration). In Fiji, this is already happening with the development of ecotourism policy statements. For the smaller island nations, such as Kiribati and Tonga, ecotourism can offer an effective tool for development, as its nature coincides with many of the development objectives currently in place. However, moves must be made at a regional level to protect the term ‘ecotourism’ from market abuses. This is a singular failing of the TCSP which has become dominated by ‘go for growth’ rhetoric that pays attention to the needs of the travel trade (including both visitors and transnational tourist corporations based in metropolitan countries) while ignoring the central development needs of the Pacific Island nations: in effect, encouraging a shift of development focus from the local (where it should be located) to the global.

An overview of ecotourism thinking in five Pacific Island nations is presented in Table 13.1. I now turn in a little more detail to the case of Fiji and the policies developed by its Ministry of Tourism. Four
Ecotourism policy statements are used to illustrate the relatively advanced stage of planning that Fiji has reached. These state the intentions to

- bring to the forefront of our tourist product opportunities and activities in the area of Fiji’s natural and cultural heritage so as to complement the existing attractions offered through existing plant
- set ecotourism in a synergetic relationship with natural and cultural heritage conservation and recognise it as a major driving force in achieving the sustainable development of the tourism industry and therefore a key component in the national program for sustainable development
- ensure that Fiji’s indigenous communities are given encouragement and opportunities through government policy and training programs to involve themselves in the tourism industry at a responsible and senior level
- modify Fiji’s existing tourism marketing strategy to provide further information on the intrinsic qualities of the country as a whole with sensitive inclusion of culture and nature as elements of significance and interest in their own right.

These policies are interesting in that they demonstrate an awareness of the principles of ecotourism as being more than a business function. The first policy is an attempt to recognise a fundamental weakness of ecotourism (as explained above), its lack of economies of scale and inability to generate sufficient tax revenue to help government achieve national development objectives. Here, ecotourism is seen as part of a product mix. Fiji is big enough to accommodate both luxury resorts and village-based ecotourism. The second policy fits comfortably with the Adventure Society’s definition of ecotourism, but takes it further by bringing in the notion of sustainable development at a national level. The third policy has, given Fiji’s recent political upheaval and the resultant inter-ethnic tensions, a potentially political or ethnocentric angle depending on the exact interpretation of the phrase ‘indigenous communities’. Another problem with this policy is that the low-key nature of ecotourism means that it will not create many ‘senior’ positions. Village activities (especially within a Melanesian context) work best through co-operative arrangements with traditional leadership. The final policy is more ephemeral and has to do with promoting Fiji as a destination. While much of this work is in
### Table 13.1 Ecotourism profiles for five Pacific Island nations

<table>
<thead>
<tr>
<th></th>
<th>Ecotourism status</th>
<th>Ecotourism impediment</th>
</tr>
</thead>
<tbody>
<tr>
<td>Fiji</td>
<td>Has tourism departments within Ministry of Tourism; Native Land Trust Board; Forestry Department. Room for both 5-star resorts and ecotourism. Clear recognition of ecotourism as a tool for rural development.</td>
<td>Lack of co-ordination; too many rural tourism business failures; too much ‘bandwagon jumping’ (for example anything rural is ecotourism).</td>
</tr>
<tr>
<td>Vanuatu</td>
<td>Sees ecotourism as a major strategy in regional/rural development; as a factor in cultural revival and as a conservation tool. Has an NGO working at grassroots level in outer islands.</td>
<td>Lack of cohesive, comprehensive guidance from government (mixed) signals about tourism: lack of ability to promote product; serious land disputes; endemic malaria.</td>
</tr>
<tr>
<td>Samoa</td>
<td>Ecotourism as a rural development tool especially for the outer islands. Successful village stay program; successful ecotourism operating framework and strong support from government.</td>
<td>Lack of tourism awareness hampering further development (giving rise to land issues, confusion over what tourists should give to individuals in villages).</td>
</tr>
<tr>
<td>Kiribati</td>
<td>Ecotourism offers one of few development alternatives (given general lack of resources).</td>
<td>Problems in reliability of air access; lack of business and marketing awareness may hamper development.</td>
</tr>
<tr>
<td>New Caledonia</td>
<td>Ecotourism is seen as part of a Melanesian cultural revival and is contributing to the amelioration of urban drift.</td>
<td>Economic structure means price/quality ratio imbalance: colonial problems still dominate development agenda; tourism is a sensitive issue.</td>
</tr>
</tbody>
</table>

Source: author’s fieldwork.
the hands of the Fiji Visitor’s Bureau (which has its own governance) much marketing is also carried out by the private sector over which the Ministry has no control insofar as the images projected are concerned. This last policy is unlikely to lead anywhere unless it is made clearer.

**Ecotourism: options and prospects**

It is an axiom of tourism planning that luxury, five-star tourism will create maximum employment, skill development and tax revenues. It is also a fact for developing countries that such tourism relies heavily on imported goods, services and very often management expertise, all of which create economic leakages. Ecotourism on the other hand, can be operated so as to virtually eliminate imports, thus maximising net gain. This is particularly important for rural areas, as the income (and net gain) is channeled directly to the village and leakage to middle-men is low. However, equally low is the skill development (apart from the skills required in interpreting the natural and cultural environment). If five-star tourism can be described as high-impact, then clearly ecotourism has the potential to be low-impact, provided that the ideals and rationale are not distorted in the face of the temptation to meet demand beyond sustainable levels. Ecotourism, of all business enterprises, must accept the notion of limits to growth.

For most Pacific Island nations, a mixed product approach is one that satisfies government’s need for tax revenue and foreign exchange and rural needs for development and employment. Horizontal integration also means a measure of protection against the vagaries of the market, with less reliance on a particular market segment. There are also two further advantages from ecotourism, first that it does not require elaborate (and thus expensive) infrastructure, and second, that it can be used in regional development, allowing a focus on areas that for historic or natural resource attribute reasons have lagged behind the rest of the country, such as outer islands in the case of archipelagos, or interior highlands in the case of the larger (mostly Melanesian) countries. As for any other form of economic activity, the responses should be as unique as each set of circumstances.

Ecotourism is clearly a viable development option for many Pacific Island nations. However, it is not (just as the 1970s mass tourism boom was not) a development panacea. Ecotourism should be seen as a development tool: that is, it should be people-centred, aimed at
poverty alleviation and the creation of productive employment, and framed by the ethos of sustainable economic growth (Burns and Holden 1995). The notion of social responsibility that frames ecotourism is an amorphous concept because there are so many players involved, with differing and often conflicting interests which link the motivating factor of success with the regulating factor of responsibility (Table 13.2).

The problem is that the complexities arising from ‘amorphous concepts’ make tourism’s success virtually impossible to secure to everyone’s satisfaction. It is clear that definitions of both success and responsibility in respect to tourism have to be seen as kinds of balanced compromises, requiring qualitative as well as quantitative criteria.

<table>
<thead>
<tr>
<th>Player group</th>
<th>Concept of successful tourism</th>
</tr>
</thead>
<tbody>
<tr>
<td>Governments</td>
<td>Increased standards of living in rural areas brought about through jobs, micro-business development and (to some extent) government revenues, each of which will contribute to social stability, long-term sustainability and cultural integrity.</td>
</tr>
<tr>
<td>Private sector</td>
<td>Generation of profits and returns on investments within an ethical framework at a village level, ensuring that each member of the society has the potential to contribute and that the community as whole gains rather than the individual.</td>
</tr>
<tr>
<td>Holiday maker</td>
<td>A trip that fulfils expectations (in terms of personal growth and self-fulfilment) at a ‘fair’ price and with ‘appropriate’ levels of service. For ecotourists, the trip should not damage the local socio-cultural environments and ecosystems.</td>
</tr>
<tr>
<td>Resident community¹</td>
<td>Profitable (for those seeking financial benefit from tourism) but also unobtrusive, causing minimum disruption to psychological and ecological carrying thresholds while giving value for money vacations.</td>
</tr>
</tbody>
</table>

¹ Resident community includes entrepreneurs and those likely to benefit from tourism and environment supporters seeking to monitor progress.

Source: author’s fieldwork.
Conclusion

The case of ecotourism demonstrates that economic growth and commercial gain are not the only essential yardsticks in tourism planning. Failure to preserve and protect the natural resources of the destination will serve to shorten its 'product life cycle', by reducing its drawing power for tourists attracted to any form of tourism. Ignoring the need to maintain cultural and social integrity can rapidly create negative attitudes towards the tourism industry, and tourists themselves in extreme cases, on the part of local residents. A simple credo for all tourism planning (including ecotourism) might be that each of the following three criteria need to be met

- economic viability
- socio-cultural acceptability
- environmental sustainability.

Private profit is not sufficient ground in itself to justify tourism development nor will such a motivation shape a responsible and sustainable industry that is capable of making a contribution to national development. The priorities for those thinking their responsibility through to the next millennium increasingly are framed through viewing locations as having a natural carrying capacity, in much the same way as any fragile environment. There is a broader realisation that the value of tourism is measured by its net positive economic impact per visitor rather than by the aggregate number of visitors. This is an appropriate motto for ecotourism planners and consumers into the twenty-first century.

References


The relationship between undernutrition and poor health status has been emphasised in international conferences (FAO/WHO 1992; Asian Productivity Organisation 1991). But availability of sufficient calories is neither a necessary nor sufficient condition to break the link between diet and ill-health. Although the South Pacific is generally not an area of calorie shortages, changing diet has been perceived as a major cause of development dilemmas and ill-health in the region since the late 1970s (Bonnemaison 1978; Hau‘ofa 1979; Thaman 1983). The region has been going through a dietary and life-style revolution which has brought with it a number of health problems which resemble those of richer economies but often with greater intensity and significant local variations. Generally, Pacific Islanders appear to have significant vulnerability—perhaps even genetically based—to diseases linked to diet (FAO 1991—the statistics in the rest of this chapter rely on this source).

Malnutrition or undernutrition in children is an issue of health concern in the smaller Pacific Island countries. However, there is no straightforward methodology to describe the magnitude of the nutritional problems, and thus it is difficult to make comparisons between countries. Child malnutrition can be caused by a lack of specific nutrients in the diet such as iron, vitamin A, iodine, or vitamin
B2. Specific nutrient deficiencies are probably rather uncommon in the Pacific region, although cases of vitamin A deficiency are consistently being reported in Kiribati, the Marshall Islands, and also the Federated States of Micronesia. Malnutrition or undernutrition can also be caused by an overall low quality of the diet of children: low in protein, low in various items, low in certain minerals, and also low in total energy content. The overall result of such diets, often in combination with infectious disease, may be relatively low height and weight for age. There has been patchy evidence of various forms of child malnutrition, notably around weaning, indicating the need to promote breast feeding and adequately resourced, easily accessed, primary health programs.

But in the Pacific region, the nutritional wellbeing of adults is as much a concern as the nutritional status of children. The concern is much more a problem of unbalanced diets and overnutrition, than a problem of undernutrition. While information on weights and heights of adults, in various age groups, has been collected in several Pacific countries, chronic problems in practice, such as selection of standards, cut-off points, and structure of survey samples make precise comparisons difficult. But there is widespread evidence that adult malnutrition is associated with a number of disorders, such as diabetes, hypertension, cardio-vascular disease, and also gout. Evidence indicates a very high level of diabetes in Nauru, and intermediate levels in Kiribati, Fiji and Niue, though there are relatively low levels in Tuvalu and Vanuatu.

Understanding the causes of these worrying statistics must recognise that the study of human nutrition is not an exact science and there are debates over the most basic principles that should guide nutritional analysis and evaluation (Payne and Cutler 1984). The nutritional wellbeing of individuals or a group of individuals depends on a large number of factors, but these can be divided schematically into three main areas: food supply, food consumption, and biological utilisation of food.

The overall food supply in a country or region is composed of two main factors: total food production, and total food imports. For most Pacific countries, reliable information on food production is scarce. However, data on food imports is generally available and thus estimates of the average contribution of imported food to the diet can be made. A few examples can illustrate that data on food imports can be used as indicators for trends in agricultural production as well as dietary patterns.
Data on levels of food imports in French Polynesia over a period of forty years leaves little doubt that, on a per capita basis, food production in French Polynesia has been steadily declining over this period, and has reached almost negligible levels. Information on imports of various types of meat to Western Samoa strongly suggests a remarkable increase in imported meat consumption (in particular mutton and poultry). Information on the levels of various food imports in Kiribati in the period 1974–1983 indicates relative stability over the last 10 years, suggesting that locally produced food has at least maintained its average level of contribution to the diet of the people of Kiribati. But overall, an association between high food imports and low nutritional status has been noted by many commentators and positively links economic and nutritional policies. A cross-section of the overall level of food imports in some Pacific countries in the 1980s shows relatively low levels of food imports, expressed in US dollars per capita per year, for the Solomon Islands and Kiribati, intermediate levels for Vanuatu and Tonga, and relatively high levels for Fiji, and in particular the Federated States of Micronesia.

Food consumption data, when available, provides more direct information on actual dietary patterns, as food import figures are aggregate international trade data and information on food consumption is collected at the individual or household level. Thus, utilising the data from food consumption surveys, it is possible to recognise differences in dietary patterns, including differences between regions. For example, information on the dietary pattern (in 1973) in an urban and a rural location in the Solomon Islands shows the rural diet was largely based on root vegetables, while the urban diet was based on rice, bread, and both fresh and canned fish and meat. While the urban diet seems to be poor in fruits and vegetables, the rural diet is likely to be rather low in protein. Further, a survey on Village Agricultural Activity, which was a component of the Vanuatu 1983/84 Agricultural Census, revealed five-fold differences in expenditure on rice between the various Local Government Regions in Vanuatu.

In urban areas, where most people buy their food from shops or markets, the choice of the types of food which will be purchased, depends on factors such as taste, convenience, and most importantly, relative prices. Information on prices per kilogram for rice, and for customary staple foods such as taro, cassava, sweet potato and breadfruit in Tonga, Solomon Islands, Pohnpei (Federated States of Micronesia, FSM), Vanuatu and Fiji shows that in terms of relative
prices, Tonga and Pohnpei were at the two opposite extremes in the mid-1980s, with rice, on a per kilogram basis, being four to five times more expensive than locally produced rootcrops in Tonga, and with Pohnpei as the only place where rice, on a per kilogram basis, is cheaper than locally produced taro or breadfruit. It is in this respect not surprising that rice consumption is very low in Tonga, but a dominant food in Pohnpei (FSM).

Apart from food supply, and food consumption, there is a third factor which influences the nutritional status of an individual, the biological utilisation of food. In the case of diarrhoea, resulting from gastrointestinal infection, consumed food is inefficiently utilised. It is mainly because of the risk of infection that breastfeeding is of extreme importance for the protection of the growth of babies. In particular in a situation where clean water is not easily available, the feeding of improperly prepared infant formula, or other breastmilk substitutes, is one of the main causes of diarrhoea in small children, and, if this occurs repeatedly, growth retardation. Data from five countries suggests that retardation of growth in particular occurs after the first birthday, the period around when breastfeeding often ceases. Information on trends in breastfeeding practices in the Trust Territory of the Pacific Islands in the period 1953–1973, and in Fiji in the period 1977–1980 reveal a strong tendency for breastfeeding to decline.

It is clear that decisions in various sectors such as agriculture, education, and macroeconomic policy, will have impact on the health and nutritional wellbeing of the population. Nutrition is a vital health issue and actually needs little direct health action.

In the area of food production, agriculture ministries and departments have an important role to play in providing extension services to farmers and assistance in the growing of food crops. Crucial decisions have to be made regarding the distribution of scarce government investment resources between cash crops for exports and food crops for local consumption. In the area of food consumption, much will depend on government food price policies. Tariffs are one instrument that influences relative prices between locally produced and imported food.

It is in particular the role of national Departments of Health and Education, and also various non-governmental organisations, to provide information to the general public on the importance of healthy food for everybody. But most importantly, health and nutrition policies in the complex environments of the Pacific Islands will only be effective when objectives, targets and strategies are adjusted to the conditions
and needs at the various levels in the country, regions, provinces, islands, municipalities and villages. Only through a continuous dialogue between national and local governments and the mass of the people will national nutrition, and hence health policies be effective. Some specific examples will illustrate the variations on this common theme found in Polynesia, Melanesia and Micronesia.

**Health-nutrition stress and consumer choice**

Undernutrition in terms of low calorie intake over significant periods of time is rare in Tonga. An unpublished study in 1982 associated with Hurricane Isaac relief programs did find young children who were significantly underweight by the criteria of weight for age and/or weight for height but no firm conclusions can be drawn on the existence of systematic undernutrition even on a small scale.

If international weight for height criteria are used many adult Tongan men and women have weights in excess of 120 per cent of the standard. Also Tongans living in the capital Nuku‘alofa show a tendency to be overweight in comparison with rural areas (Koike 1984). Even if a healthy but obese index is adopted with ‘rural’ Tongans as the standard, then the fact that ‘urban’ Tongans are significantly heavier at similar heights is a matter of concern. This is in the context of low energy output relative to energy input as much as energy intake in itself. Also it may be that ability to absorb nutrients differs due to environmental health differences between ‘rural’ and ‘urban’ areas.

The question of obesity is entangled with observations on changing diet structure and concerns about morbidity patterns. Whether morbidity is changing or is being better monitored in some areas is always an issue in analysing health statistics but the evidence in Tonga is worrying. Several serious non-communicable diseases do appear to show either greater prevalence in Tonga compared with other countries or in ‘urban’ compared with ‘rural’ populations in Tonga. Rates of incidence of hypertension, diabetes mellitus, coronary disease and gout as well as anaemia in pregnant women and dental caries in children are regularly attributed to changes in diet (Kagawa Nutrition College 1981; Johnson 1983).

Thus, any analyst might be willing to accept the argument that reducing the consumption of calories, sugar, salt, saturated animal fats and refined carbohydrates in Tonga is desirable in terms of health and that such a general reduction will not expose large numbers of Tongan people to the risk of undernutrition. More research is needed into the
causes of current patterns of morbidity among Tongan people in Tonga and among Tongan people who have migrated to other countries (Coyne 1984).

Tonga is not alone in the region in having large numbers of emigrants in richer economies and it is worth briefly considering at this point the impact of high levels of migration on dietary patterns in the island themselves. The process of change based on migration and remittances has implications for dietary choice in many of the islands, notably those in Polynesia and Micronesia.

International migration is a fact of life for many smaller Pacific Island economies. For several countries, there are now more nationals living outside than inside the national boundaries. Migration is unlikely to decrease from those economies where it is already a significant factor, such as Tonga, and new populations are likely to be joining the flows.

The States of the Federated States of Micronesia were spared this drain of people during the Trusteeship period. But, even here, the risk is that the pressures felt at the household level, if new cash income-earning opportunities do not emerge, will engender an emigration response taking advantage of the right to migrate freely to the United States. From such migration will come a flow of remittances and invitations for others to follow. The economy will move towards balance by losing consumers and gaining remittances. It will also lose potential producers of course and the process will tend to be cumulative.

The food self-sufficiency and nutritional implications of such a response to economic pressure are clear from the experience of other Pacific nations. The migrants will have gone to the major source of imported food (about 80 per cent of food imports come from the United States). They will inevitably consume even less customary food with likely loss in nutritional and health status, especially as the migrants will be relatively poor by US standards (see Coyne 1984; Thaman 1983 for attempts to summarise the literature on migration and nutrition as part of the general urbanisation issue). Also, migrants' remittances (and evidence from other nations suggests remittances will be substantial) will pay for more imported food in the FSM diet. Remittances will take over the role of a portion of the US government grants during the Trusteeship period. Continuing high levels of food imports to FSM and associated ill-health for Micronesian people (at home and in the United States) will be an undesirable feature of moves towards a remittance-based economy. The migration feature of the Compact may prove to be
its most important economic restructuring element but with negative social and health side-effects. Avoiding, or minimising, this outcome through a ‘virtuous spiral’ of increasing local food production to provide more incomes to keep people in FSM eating nutritious local food is a better, though challenging, alternative.

Migration, resulting remittances, aid inflows and the rentier incomes all play roles in encouraging and facilitating a dietary shift towards imported food and drink items combined with an associated tendency towards a more sedentary lifestyle. This shift is at very different stages in the various economies of the region but most advanced in Polynesia and Nauru. The drift is in the same direction everywhere with similar health implications, as can be seen in Melanesia, in the Solomon Islands in the 1980s. However, the health implications of shifts among people in Melanesia may not be as extreme as among people in Polynesia if genetic potential is part of the explanation for the alarming health responses among Tongans.

**Food import penetration in the Solomon Islands**

This section uses data on household consumption which was systematically collected by the Solomon Islands Statistics Office in 1982. The sampling basis was close to being representative of the whole of Solomon Islands society and thus allows a tentative national baseline to be constructed against which policy measures could be evaluated in the future. Up to 1982, concern about diet and forms and extent of malnutrition in the Solomon Islands have been expressed primarily by health workers. Understandably such concern tended to concentrate on child undernutrition, especially around the ‘weaning’ period between one and three years of age, where clinical symptoms have been observed by health workers. This, and the closely related vital issue of limiting bottle feeding of babies to a minimum, must be high on any health policy agenda in the Solomon Islands and the Health and Education Ministries can justifiably claim that requests for resources to tackle these issues merit high priority in government spending.

The focus of this section is on dietary differences and changes at the household level in the Solomon Islands and shows how levels of resource availability and involvement in the cash economy appear to affect dietary patterns. The central question asked is will there be an
inevitable transition from one pattern of diet (often called traditional, local, rural) to another (often called Western, imported, urban) in the Solomon Islands as a result of economic growth and consequent monetisation of the economy?

More imported food generally means a diet consisting of greatly increased proportions of refined sugar and saturated fats from fatty meat and dairy products, with higher energy intake. But more energy and less dietary fibre in conjunction with reduced physical activity places stress on the body which can produce ill-health, lower life-time productivity, and, in general, a lower quality of life.

However, if the original diet contained little animal derived protein or was highly restricted in variety of foods, then the transition might have some desirable nutrition effects which may offset some of the undesirable ones. But there is no reason to believe that people living in the bio-diverse environment of the Solomon Islands are regularly deprived of energy or protein, except under extreme conditions such as post-cyclone situations.

The changes that were occurring in the 1980s were uneven in terms of their impact on the various islands and among differing groups in the urban area of Honiara. These processes are continuing with the increasing commercialisation of the natural resource base in the Solomon Islands. Changes in economic opportunities and social status with respect to imported food tastes combine in complex processes of movement towards a new diet at differing rates with differing degrees of enthusiasm. A most worrying feature of the Honiara statistics is that, in terms of per capita consumption, carbohydrates, refined sugar and saturated fats appear to be still increasing at the highest income levels. On the more positive side, animal protein and the variety of fruits and vegetables is probably increasing and a fibre intake from local root crops is maintained, though at a very low level compared with the average rural intake. These results suggest that Solomon Islanders are at risk of what might be crudely defined as ‘over-nutrition’. But it must be remembered that the measures here are in value terms, not in physical quantities so such a conclusion must be treated as only indicative.

This conclusion can be examined further if we compare the Honiara 1982 Household Income and Expenditure Survey (HIES) with the Honiara 1976 results of the survey for the retail price index. There was a 7 per cent growth in per capita GDP at constant prices between 1977.
and 1982, assuming this income growth was operating proportionately to the 1982 cross-sectional comparison of income strata. The major points were

- canned meat maintaining its percentage
- fresh fish consumption expanding at the expense of canned fish more strongly than might have been predicted from the cross-section data
- root crops holding their own against rice in percentage terms
- sugar and dairy products reduced in percentage terms.

There is a tentative explanation of these movements in terms of relative price changes between the last quarter of 1977 (when a new retail price index was implemented) and the last quarter of 1982. Those products whose prices went up by less than the overall food index seemed to have performed better in overall expenditure terms than might have been predicted on income change alone: those which went up in price more than the index performed marginally less well. Such results can only be treated as indicative but they suggest consumer decisions do have some relative price sensitivity, and that this effect operated in a nutritionally positive fashion between 1976 and 1982.

The concept of a ‘transition’ from one diet to another due to impact of economic growth and monetisation does seems to fit the data presented in this paper. But this general conclusion must be qualified in a number of respects.

- Though every rural region consumes some imported food, there are still great differences in diet patterns between Provinces depending on natural resource availability, and probably even greater differences at more local levels. These diets may produce very different nutritional stresses putting different groups at risk. Concern about the ‘grand dietary transition’ should not dominate food and nutrition policy to the extent that it ignores people living on primarily locally produced food, who may face particular nutritional problems.

- Degree of monetisation is significantly associated with diet patterns. A more monetised rural area will be consuming greater proportions of purchased food-stuffs than a less monetised rural area. While there is undoubtedly an element of mutual causality, this result does suggest that the rural consumer demand for purchased food-stuffs is strong and that development programs which increase monetisation through cash crops or wages will result in reduced food-crop
production, more food imports, and nutritional risk unless countervailing action is taken.

- Increased incomes anywhere will lead to considerably more food being demanded in total with different items expanding more strongly at different income levels in different places. No absolute ceiling on consumption appears to have been reached for any other major imports which give rise to current nutritional concerns.

- Consumer decisions appear to have some price sensitivity and thus an active price policy in favour of more nutritious foods may have some impact.

Some broad tentative policy recommendations follow directly from these conclusions. First, different poorer rural areas will need different food and nutrition policy initiatives. Livestock projects, artisan fishing projects, fruit and vegetable projects will be more appropriate to deficiencies in one area than another. Health, Agriculture and Lands, Education, Fisheries, Home and Provincial Affairs and non-governmental organisations need to arrive at coordinated local plans which identify nutritional needs and feasible projects, and ensure local people are committed to projects as being in their own interest.

Second, more affluent, monetised, rural areas need to be stimulated to put cash into chemical fertiliser, livestock feed, and improved planting material to produce more food in the future rather than directly purchasing food for immediate consumption. Getting the agronomically correct agricultural inputs distributed widely at the right price with appropriate credit conditions is an immense challenge for the Ministry of Agriculture and Lands, the Ministry of Commerce, Trade and Industry, the Development Bank, and the developmental non-governmental organisations.

Third, people in Honiara and monetised higher income rural areas need health monitoring for undernutrition and overnutrition problems. Increased supplies of nutritious local foods may be produced by allowing enterprising producers to obtain higher prices and discouraging excessive food consumption, along with higher tariff and non-tariff barriers to non-nutritious imported foods.

However, a simple higher food price policy will put poorer households at risk. Trade unions and other non-governmental organisations can play an important role in monitoring the impact of price policies on lower income, wage-earning households in Honiara and on plantations and other estates. Getting relative prices right for
rich and poor consumers must involve the Ministries of Finance, Health, Trade, Commerce and Industry.

**Are imported food items nutritionally essential?**
**a case-study of The Federated States of Micronesia**

The First National Development Plan of the Federated States of Micronesia claims that in 1983 the bulk of imported items were essential items (FSM 1983:77). The definition of the term ‘essential’ is always difficult for an economist. Given any possibilities for local substitution in use, then, at some relative prices, local products will be substituted for imported products, especially in the food sector where such clear potential exists.

Three different approaches to the term ‘essential’ in the specific area of food and nutrition may help clarify policy issues. First, an imported food item is qualitatively essential if it contains a nutritional component which cannot be obtained within the local environment at any price. Looking at high islands and atolls together in all the States of FSM, no imported food item is ‘essential’ in the sense of providing nutrients non-producible in FSM though the vitamins in imported fruit and vegetables may be highly desirable given local and seasonal production problems. Second, an imported food item is quantitatively essential if there is no hope of raising production of a nutritional substitute to a level where it is available to the whole population. Again, looking across all islands and all States, there is so much underutilised potential in agriculture (US Department of Agriculture 1982) and fishing beyond the reef, that it is difficult to argue the case for proven necessity in the medium term even though imported rice has become a preferred staple which bananas, breadfruit, locally produced rice, and root crops will have problems completely displacing. Third, an imported food item is distributionally essential if local substitutes will only become theoretically available to households without land and with low cash incomes at a price they cannot afford.

Existing data are not sufficient to assess how many people are exposed to risk in this way and no consumer price index exists to monitor the impact of price changes on low-income households. A basic nutritious diet for low-income households may need to be kept accessible through pricing, welfare, and importing policies. However this can hardly justify permitting every kind of foodstuff to enter FSM or any other Pacific Island economy at nominal tariff rates regardless of nutritional content or place in a low-income diet.
If few food imports are in any sense ‘essential’ in nutritional terms and the overall economic situation demands a large reduction in all imports, then a policy to reduce food imports considerably is highly desirable. Two possible policy options exist. One, to ban or impose quotas on import items which are judged to be actually harmful nutritionally, this should not be ruled out though it is up to nutritionists to make the case. Two, to raise duties differentially over time to take account of nutrition, production, and consumption factors. Duties have the advantages of raising government revenue even if they fail to reduce imports unlike quotas where financial benefits go to private traders. Without some data on trader and consumer price responsiveness it is impossible to predict the impact of increasing duties.

Working from the consumer side with protectionist barriers to limit inappropriate food imports is only part of the action required to ensure a healthy population in the smaller Pacific Island economies. On the more positive side is the need for action to develop nutritious food production on an economically sustainable basis. Ministries of Agriculture and Land will have to improve knowledge of costs of production to help assess whether prices give producers a sustainable return.

The need for initiatives in food production

The desire to achieve a higher nutritional and health status for the people of the Pacific can be translated into a policy of substituting locally produced food for imported food. In Tonga, the substitution of fresh fish for mutton flaps and canned fish and canned meat, coconut oil for imported cooking oils, and a mix of root crops for wheat flour, all meet the criteria for improving the nutritional status of Tongan people, though the substitution of cassava for wheat flour is not as clearcut a question of relative nutrient content. Cassava has lower nutritional value per unit weight than wheat flour and nutritional status may be improved only because cassava has a greater bulk per calorie (that is a lower energy density), which may give an adult who is tending to obesity the feeling of being ‘full’ at a lower level of calorie intake (putting to one side the advantage that consuming cassava increases dietary fibre intake).

Raising local food production significantly is a desirable condition for improving nutritional conditions, though it should be kept in mind that the mix of products is important. Also it must be remembered that
access to food is not guaranteed by increased production itself, and food security in a long term view may be put at risk by over ambitious short-term production increases which reduce soil fertility or fresh water availability.

In the longer term, sustaining access to a nutritious diet means sustaining the ecosystem. Higher food prices may also encourage farmers to remove trees and bring new land into cultivation rather than intensifying production on existing land. Tree loss has been identified as a problem on Tongatapu (United Nations Pacific Energy Development Programme 1985). Growing a variety of common food crops intercropped or in rotation using non-mechanised techniques is generally less demanding on the soil than growing specialist crops using machinery and chemical agents. But if yields per hectare are to be increased this will require increased density and/or increased frequency of planting, given that yields per plant are unlikely to increase dramatically according to recent agronomic research (Breen 1985). Maintaining fertility may require appropriate fertiliser or the use of legumes (Wilde and Hewitt 1983). Thus moving towards greater food crop production does not, in any sense, guarantee that the ecosystem will be protected. This protection requires its own monitoring system.

This argument applies with even greater force to fishing. Catch rates and minimum size of species to preserve stocks are not known and higher prices may encourage over-fishing. Here again the impact of a higher food price policy will require careful monitoring.

The problem of tree removal is seen in the rising cost of fuel for cooking in Tonga. Raising food production does not guarantee that the food will be in a convenient form for consumers at the time and place when they need it and in a variety of palatable forms. The convenience of wheat flour, bread, butter, canned fish, canned meat, and refined sugar for consumers with time or fuel shortages is obvious. There is a need to meet these demands by consumers through developing appropriate techniques of local food processing, preservation and presentation. Mixing cassava flour, wheat flour, and added nutrients in bread would be one way of achieving this. More widely, the Ministry of Labour, Commerce and Industries could encourage enterprise in private sector small-scale catering aimed at groups unable to return home for meals, assistance being on the condition that local foods were used to the maximum extent and nutritional advice was followed.

All the islands of the South Pacific region have very different agricultural systems probably giving rise to distinctive diets. These
diets will have varying strengths, vulnerablities, and weaknesses as far as nutritional values are concerned. Current diets in rural areas are probably not uniform in local food content nor equal in nutritional worth. In addition it can be said with less certainty, that in several rural regions the diet is not self-sufficient in the sense that imported food is consumed on a day-to-day basis. Local agricultural systems differ greatly in the amounts of staples, fruit and vegetables, and livestock available per household. Those regions at the lowest levels are likely to have significant numbers of households who are highly vulnerable to undernutrition if imported food is not consumed in significant amounts on a day-to-day basis. Overall, reducing the dependence of rural people on imported food does not only make macroeconomic sense, but is also important for household, regional and national food security, where transportation of bulk goods can be difficult in terms of emergency.

The demand for imported food in rural areas is made effective through a variety of channels. Rural people get cash from a number of sources: copra, cocoa, food and kava sales, and remittances from money-earning urban-based relatives with or without reciprocation in kind. The notion of a self-sufficient, well-nourished, healthy rural society which could be benignly ignored at the macroeconomic level because it could never spend more on imported goods than what it had immediately earned from exports is to be questioned in all aspects. The case for an active, locally sensitive policy in the rural regions of a country like Vanuatu aimed at import-substitution and greater food self-sufficiency is strong in terms of the health of the population and the economy.

**Nutrition in public policy and the project cycle**

Health planning in the South Pacific has had a strong nutritional component. Fiji’s Eighth Development Plan highlighted the ‘promotion of proper nutrition’ (Fiji Central Planning Office 1980:267) as the first priority of primary health care. More generally, the 1980s saw significant efforts in nutritional education as part of health policy across the region. In practice, however, health policy in general has been uneven in its impact, primarily in terms of spatial distribution, but also in terms of access for lower income households as market forces have been used increasingly to allocate health care resources.

Overall, outside the formal health sector, nutrition as a vital aspect of a healthy society and a healthy economy has not been a resource...
priority for the public sector. Specific policy development for nutrition has been largely allocated to Food and Nutrition Committees bringing together some civil servants from various ministries plus representatives of NGOs and academics with interest in the health field. In general, the Health Ministry provided the secretariat, usually a trained nutritionist, and was regarded as the lead agency with the biggest stake in the field.

If national Food and Nutrition Committees (FNCs), or their equivalents are to take appropriate responsibility for nutrition matters, it is crucial that they have opportunities to comment systematically on program and project proposals not only in the health field but in the broad sphere of agricultural and marine resource development. In order to achieve that position to comment, it is useful to think in terms of a general procedure which all programs and projects have to follow into which the FNC can be fitted. This procedure is commonly conveniently summarised in terms of a project cycle.

In its most abstract form, the project cycle is seen as a number of stages through which all programs and projects must pass with movements between stages involving distinct decision points on whether to continue with the program or project. The simplest model has sequential stages of identification, design, appraisal, implementation and evaluation. It is a cycle because final, impact evaluation is meant to feed back into identification of a new, appropriate project or a new, adjusted phase of a program.

The term 'monitoring' is often placed between implementation and evaluation with a feedback flow into implementation. But for the purposes of this note, monitoring by the FNC as an activity is treated as desirable at any and every stage of the cycle and is therefore not included in the cycle as a specific stage. More elaborate forms of the project cycle might distinguish between economic and financial appraisals.

At its best, the elaborated project cycle ensures that programs and projects competing for resources come to precisely known, appropriate decision-makers act promptly and simultaneously. At worst, the project cycle introduces some administrative order into potential chaos at the cost of some speed in otherwise arbitrary decision-taking.

Any agency on the fringe of decision-making with little or no independent resources, such as an FNC, has a real interest in establishing a project cycle in which it has a specified position. Hopefully, many other agencies will also accept the principle of orderly decision-making.
though this cannot be guaranteed for large Ministries or Departments with administrative autonomy and independent resources.

The rest of this discussion will assume that the principle of a project cycle and an active planning role for government is accepted and shows how a FNC might monitor and evaluate programs and projects at various stages in the cycle in order to shift the emphasis towards a goal of greater self-reliance in food. The policy focus is not concerned with nutritional projects and programs directly initiated by the FNC itself but with exercise of influence on projects and programs in agriculture and marine resources conceived by the conventional agencies for developing these sectors.

**Program and project identification, design and appraisal**

FNCs are generally in no position to be able to identify agriculture and fisheries programs and projects for themselves. The Committee secretariat may be engaged in full-time ministerial or departmental posts often in the health or education sectors. Realistically, the best hope of FNCs influencing identification of agricultural and fisheries programs and projects is through playing a role in evaluation of current programs and projects and thereby influencing the often colonially acquired, externally oriented attitudes which filter out local food-related objectives.

However, the design stage is much more promising for FNC intervention. At some time in this stage, a document will exist which describes the components of a program and project and the broad objectives. If the FNC can systematically receive these documents for comment then there is a real opportunity for modifying the broad agriculture and fisheries strategies in the direction of greater food security and improved nutrition. The major problem probably will be to persuade the Ministries and/or Departments involved to submit all proposed programs and projects rather than only those which are preconceived as being food and nutrition related.

The point cannot be made too strongly that all agriculture and fisheries programs and projects have local food and nutrition implications. Resources such as cultivable land, marine resource stocks, labour time, credit, extension advice, management skills, entrepreneurial drive and community spirit are never all in such abundance that competition for resources between increasing exports and increasing local food availability can be ignored.
Exports are attractive to agriculture and fishery sector planners in smaller countries. The natural resource base in land or sea usually appears underutilised and there is often an assumption of actual or potential labour time underemployment. These assumptions suggest that exports can be increased at no cost to local food production. These extra exports will then provide the immediate foreign exchange which the country needs to improve the external balance of payments situation. The implicit example which lies behind this model is the copra model, copra has been the mainstay of many islanders' cash incomes for more than a century now. But copra as an example for possible exports, such as coffee, cocoa, spices, and sophisticated aquaculture or specialised marine products, has non-transferable characteristics.

Coconuts are a tree crop which need little attention until the moment cash is desired. The trees and the coconuts have many domestic, including local food and drink, uses apart from being sold as copra. The export product is durable and can be sold in virtually any amount and at any quality if the producer is willing to accept a lower price. Copra is the exception rather than the rule for export products. Many export products do not have flexible local use and are vulnerable to rejection on grounds of quality, quantity, or punctuality.

Furthermore, even where export products, including copra, have become well-established, there appears to be an increasing tendency for producers to use the cash incomes to purchase imported food and so the positive net impact of the export products on the agriculture and fisheries contribution to assisting the external balance of payments is less than appears in most export-oriented program and project documents.

One response to these problems has been the renewed advocacy of plantations, estates, or fishing complexes for export production. Usually such programs and projects will involve a large 'nucleus' specialised facility plus an element of obtaining supplementary raw materials from non-specialist small-producers. The question of competition for resources then becomes much clearer and political conflicts emerge. Shifting cultivation and artisan fishing tend to range over areas now threatened with alienation to the nucleus facility leading to tension and conflict resulting in both unit costs of exports rising above predictions and local food production falling below past performance.
But it would be undesirable and unrealistic for FNCs to, in effect, repeat a dogma 'exports bad, local food good' to every proposal which came before them (Biswa and Pinstrup-Andersen 1983). Rather FNCs could seek to make suggestions which would give a better balance within every agriculture and fisheries program and project. This balance can be sought in a number of ways, but some objective indicators to be explicitly stated in the program or project design could be

- **natural resources allocation**, for instance, garden plots for workers on plantations/estates, a limited percentage of smallholders' land assumed to be under export crops, continuing access for artisan fisherfolk to marine resources for food

- **labour time allocation**, for instance, assumed hours of export-oriented work per day, number of days per week, piece-work payments arrangements to allow women to choose time allocation, seasonal complementarity between labour peaks for export and local food production

- **institutions for community involvement**, for instance, a local food and nutrition committee meeting regularly with program or project management, collective agreements which include nutritious food availability

- **allocation of extension advice and credit**, for instance, notes of guidance to field extension officers on time allocation, handbooks on improving both export and local food production, equivalent credit conditions and funds for export and local food production improvements.

An FNC could seek to include any or all such elements at the design stage, arguing that local food production is desirable in itself or for improving nutrition (surely a universal development ideal) and that seeking a balance between increasing exports and local food products is a very practical recognition of the reality of day-to-day life for most people in the small Pacific Island countries.

If this advice is ignored at the design stage then the FNC could still persist in asking to see a formal program or project appraisal document. Such documents are often difficult to interpret due to the use of technical economics and accounting terms. But with some technical assistance, which a representative from the Central or National Planning Office should be able to provide, an FNC would usually be able to look critically at the assumptions made. There are three usual areas of vulnerability.
• Failure to properly discount flows of costs and revenues

Programs and projects with large set-up costs, little revenue in the first few years, and a time horizon of ten to twenty years are liable to have low internal rates of return, that is they could only afford to pay a low rate of interest if the program or project were financed through a loan. By comparison appropriate adaptive technology for local food production may show a higher rate of return even if the annual revenues are lower, providing they come immediately.

• Failure to make sensitivity tests

Export programs and projects are probably subject to greater risks than local food programs and projects. Yields are likely to be lower and later than predicted: prices of imported inputs are likely to rise faster than prices of exported outputs. A sensitivity test uses possible lower or upper estimates of values of major variables to give the range of possible outcomes.

• Failure to specify evaluation procedure

As a last resort, an FNC can attempt to ensure that an undesirable program or project (from a food and nutrition viewpoint) is rigorously reviewed as soon as possible. Too often, failing programs and projects are shored up by time extensions, resource additions, and amended objectives, which postpone full evaluation indefinitely.

The implementation of policies

Even if no formal monitoring personnel are attached to a program or project, the management will be collecting data for its own purposes during implementation. Any program or project will have to account for expenditure and larger programs and projects should be collecting additional data to make management efficient internally and effective externally.

For programs and projects operating in food and nutritionally vulnerable regions or with vulnerable groups, an FNC has an interest in encouraging management to collect indicative data on food and nutrition status and feeding it regularly through to the Committee. With no resources of its own to collect data frequently, an FNC must use other eyes and ears to obtain information, which can then be integrated with occasional, representative statistics from, for instance, national nutrition status surveys and agricultural censuses.
To persuade even a sympathetic program or project management to collect and disseminate information which is not immediately required for financial accountability or managerial control requires arguments which show advantages to the management itself. Two arguments which might be advanced are

- the data needs to be collected anyway and all the FNC is requesting is that it be summarised, for instance, sales of inputs and purchases of outputs to small producers are recorded for financial accountability (these could be aggregated to indicate changing activity by location, size of transaction, regularity of transaction), diaries of visits by field extension officers could be similarly aggregated by location and purpose

- the data could assist management to defend itself if targets are not met, for instance, programs and projects oriented towards exports frequently meet obstacles from small producers because of failure to understand the producers' activity in their entirety, as a multi-faceted system, if management collects data on all the activities of the program's or project's target population then it may have explanations of below target performance, rather than subjective excuses along the lines of people's laziness, customs, or stupidity!

The project cycle stage of external/objective evaluation is a real opportunity for an FNC to obtain information and influence future program and project identification. Evaluations can be seen as taking place at three levels.

- **Evaluating effort of employed personnel.** Did field extension workers visit producers as frequently as planned? Were productive inputs distributed as planned at the stated price? Were outputs collected and marketed efficiently?

- **Evaluating effectiveness.** Were the productive inputs appropriate for producers? Could significant variations in weather and prices have been anticipated? Was field extension advice actually useful to producers?

- **Evaluating development impact.** Does the target population have a higher quality of life at the end of the program or project than at the beginning? Are the people better fed? Do they have less risk of food shortages?

Obviously an FNC has an interest in ensuring that particular impact questions are asked and that final impact evaluations are conducted.
Most external funding agencies will be sympathetic to such requests if they are using 'logical framework approaches' or modified versions to structure their analysis of programs and projects (Cameron 1993). These approaches explicitly recognise the development 'impact' level of evaluation. Ministries, departments and project management are likely to be less sympathetic as evaluations become more expensive (and more potentially threatening) and the wider the terms of reference.

**Conclusion**

The argument here is that Pacific Island societies have unnecessarily high risks of ill-health because they are not making full use of the capacity of their environments to provide healthy diets suitable to their cultural, and possibly genetic physiological, potentials. Some of the factors, such as smoking and alcohol abuse and early cessation of breast-feeding, are recognisable in many societies, and issues of control over advertising and irresponsible promotions are virtually global. But South Pacific people do appear to face special problems, partially due to the peculiar form that the process of 'modernisation' has taken in the region. Nutritional factors put demands on health and other caring services, which, for instance, could be better used to enhance the quality of life of the disabled and women sufferers from violence (Coleridge 1993; Heise et al. 1994).

Action on producing for better nutrition offers many possibilities for economic and ecological policies which are rational in terms of sustainable development. Generally, these policies will tend to discourage use of low quality imported food. Where communities are strong and agriculture and fishing still have prestige, then greater self-provisioning is an option. But access (and not just in terms of nominal affordability) to nutritious food produced can be in-region, and not necessarily in-community. More market-oriented ecologically sensitive changes in land use and innovations in nutrition-oriented preservation, processing and transport are consistent with nutritional improvement. On the consumption side, there are international models of interactive, community-based approaches which would be highly relevant to the region (International Course for Primary Health Care Managers 1991). Examples of innovative Primary Health Care and Rural Development practices can be found in the public and NGO sectors within the region (Bamford 1986).

Changes in diet pose a grave health threat, perhaps the greatest
health threat, in the South Pacific region. Such self-induced ill-health and its related health care costs suggests a peculiar variation on the syndrome described by Illich in the 1970s (Illich 1976). The changes in diet are a reflection of more general cultural, economic and ecological pressures on overall sustainability. Thus, the policy response to improve health in this critical area has to be multi-dimensional and permeate the whole of the planning cycle as part of a general case for quality, service-oriented, locally sensitive, good governance, public sector action across the whole South Pacific region in the interests of the people and the ecology on which their all round health depends.

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John Cameron’s paper explores many of the key health issues which face Pacific Islands nations today, including breast and bottle feeding, and the contrasts in nutritional value between processed, imported foods and locally grown natural foods. He also deals carefully with the need for a project-based and business approach to developments in health knowledge and practice. But this contribution would have been enhanced had it acknowledged the possibility that certain cultural practices in parts of the South Pacific, and their resistance to change, might be a factor in the prevalence of certain diseases and malnutrition. Although Ruth Lechte (1978) suggests that statistical inaccuracies might cause exaggeration of some differences in urban/rural practices, it is useful to recognise differences in nutritional patterns between urban and rural communities. Attention should be paid to the difficulties of ensuring widespread and lasting health education, and its accessibility to all parts of the community. Margaret Mackenzie (1978) holds that...experts from colonial powers, international agencies, and universities seem to have bequeathed the worst of all worlds in health and in food to the people they want to help.’

Seventeen years ago, the Brandt Report (1980) drew attention to the relationship between macroeconomics, trade and finance and adequate food and nutrition. While he speaks about the need for a holistic
approach to nutrition and health, Cameron does not make the interdisciplinary connections which would have been particularly welcome at a conference on this subject.

Cultural patterns of feeding are very persistent in parts of the Pacific, and in areas such as rural Fiji. It is not uncommon to find that children as old as five are still taking breast milk, to supplement local shortages of other foods. Such shortages may result from lack of money and employment, because food needed by the family has been used for some ceremonial purpose, or simply due to agricultural shortage. Whatever the underlying reason, when such shortages are combined with the custom of the men having first choice of the food, women second and children last (still the prevalent, though not the exclusive, pattern in many villages), the potential for undernourishment is evident. This pattern is repeated in other parts of the Pacific too, such as Vanuatu and Tonga. Studies in the 1970s and early 1980s of differences in nutritional patterns between indigenous Fijians and Fijian Indians also showed that while Indian children had a protein rich breakfast of pulses and bread (roti and dahl), many Fijian children had only boiled rice and tea. At the time this was linked to differences in school attainment levels between the two races. Many years later, these differences in practice still persist.

The cultural pattern of ‘more is better’, can also add to the risks where foods such as sugar are concerned. Most people who have worked and lived in the Pacific are familiar with the large amounts of food which people eat (for example the interesting concept of over-nutrition which Cameron applies to Tonga and Nauru). Great store is set throughout the Pacific in quantity, whether in relation to food, gifts or anything else. Applied to Western processed foods, and sugar in particular, the potential dangers are clear. In both Nauru and Tonga I have witnessed as commonplace, the habit of putting three or four dessert spoons full of sugar in a piala (small bowl) of tea. Many of the people doing this know intellectually that it is bad for them, but the pervasive ‘more is better’ element of the culture, dominates their routine day to day behaviour.

Patterns of child discipline may not be unconnected with the re-emergence of malnutrition. When only traditional foods were consumed children could eat almost anything that was available without risk. It was all fresh, and was protein and vitamin rich, with the complex carbohydrates provided by taro yams and so on. Consequently, other than the pecking order referred to above, there was little need to
control in any active sense a child’s food intake. However, with the advent of the over-sweet and ‘moreish’ Western foods, children eat in the same way, that is whatever they want. So instead of being given a stick of sugar cane, they demand and get an ice-lolly (sugar-flavoured water) from the village co-op, common even in the rural areas. These small examples serve to indicate the importance of the cultural impact on eating behaviour and the pressing need for research.

It would have been interesting to learn more about differences between rural and urban dietary patterns, and levels of sickness and nutrition. If differences exist, as common experience suggests, are they a result of greater affluence in towns, where the consumption of Western foods makes up a higher proportion of the total food intake, or are they a result of the townspeople being denied easy access to the nutritious traditional foods, which are increasingly expensive to purchase in the towns? In the villages, is it that people prefer trying to sell the local foods which they grow or catch, so that they have some ready money to buy Western foods or consumer goods, not recognising, as Cameron points out, that the tinned and processed foods have a much lower nutritional value than traditional foods?

Much has been done on the health education front, some of it very successful, but even where the health trainers are local people, often as soon as they move on to their next posting or village, the old problems reassert themselves.

Although many of the rural areas are difficult to access, even the most remote village usually has a radio. There is almost always a local language program (although this in itself is problematic in Melanesian countries which have hundreds of different languages) — but is there sufficient usage of local language programs for purposes of health and nutrition promotion? English language programs, or other publicity material such as the educational leaflets which proliferate in Western doctors’ surgeries, are not adequate. Although most people throughout the Pacific Islands speak some English, and although it is the language of business and government in many countries, it is very much a second language, especially in the rural areas. People do not listen to English language programs, nor do they read any material written in English which reaches a village. It would be useful to consider suggestions about the best ways of reaching all parts of the population with sufficient intensity, conviction and duration for information about good nutrition and common, introduced health hazards to influence and change everyday eating habits.
Finally, it is worth reaffirming Cameron’s point that there is a need for cross-disciplinary consideration of health issues in all aspects of development. For instance, when the development of factory fishing began, was consideration given to how or whether this would affect the inshore fishing which is undertaken by islanders? On recent visits to Fiji, Vanuatu, Cook Islands, and earlier visits to Nauru and Tonga, I have heard complaints that there is now a scarcity of good-sized fish in the inshore waters. This means that people catch less and eat less, or they are faced with fishing farther afield, which in turn may mean that they need bigger boats, which they cannot afford to buy. In Fiji, for instance, much of the local fishing is done within the reef, and the boats used are not suitable for open ocean use. In the Solomons the mass logging that is currently causing concern is leaving soil unprotected, to be washed down into the sea where it is killing the reef, the fish and shellfish which make an important contribution to the local diet. In Fiji, on the drier side of Viti Levu, local people are talking about the effect of the many small stands of pine trees on the moisture levels in the soil. Whether or not there is truth in this is not yet established. But if it is true, what effect will it have on the sort of crops that can be grown, and hence on local diet?

A fuller consideration of these cross-sector issues and their relative importance should be a priority in the formulation of future health policies in the Pacific. While Cameron shows that much has already been done, much remains to be done, and the real complexity, pervasiveness and depth of some of the issues has still to be recognised.

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Changes in the global environment: uncertain prospects for the Pacific

Tom Spencer

Over the last century global mean surface air temperature has increased by 0.3–0.6 °C. Over the next 100 years, as a result of human activities, increasing atmospheric concentrations of carbon dioxide and other ‘greenhouse gases’ are expected, in the probable absence of concerted international efforts to reduce emissions, to lead to a warming of 1–4.5 °C (Kattenberg et al. 1996; Nicholls et al. 1996). The ensuing environmental and socioeconomic impacts of this large-scale experiment in climate manipulation has made ‘global environmental change’ one—perhaps the major—research question on the scientific agenda into the next millennium.

A major strand of this research effort has been the mathematical modelling of climate-ocean response to enhanced greenhouse gas forcing. One outcome of this work has been the derivation of a series of sea-level rise scenarios covering a range of timescales to 2100 AD. This paper evaluates this ‘sea-level debate’, the environmental consequences of sea-level rise, and a suite of potential confounding factors in the context of the Pacific Ocean basin and its margins. It updates and builds on the author’s earlier assessments which should be consulted for more detailed information on the structure and functioning of coral reef ecosystems (Spencer 1994, 1995). The approach is scientific: though what is described has important implications for human (and thus
policy) issues. There are a great variety of both continental and oceanic islands in this region but the focus here is on coral atolls. These structures, supporting on their rims islands of largely unconsolidated sands and gravels only a few metres above present mean sea-level, are thought to be particularly vulnerable to future sea-level rise and considerable concern has been expressed as to their environmental future (Pernetta and Hughes 1990; Wilkinson and Buddemeier 1994).

Nearly all ‘popular’ sea-level rise scenarios—and many scientific ones—predict enhanced flooding (and ultimately island ‘drowning’); reduction of coral island areas by increased wave attack on higher water levels, and saline intrusion into island freshwater lenses. Implicit in such assessments is the loss of ecological and geological performance by coral reef ecosystems.

**Future sea-level rise: a changing context**

On the timescale of interest (10–100 years), the linkage between global warming and sea-level rise results from

- the thermal expansion of seawater
- the increased melt of land-based ice.

Together these processes increase the volume of water in the world’s oceans. In the 1980s, the combination of these effects was expected to raise the sea-level to between 56 and 367cm by 2100 AD, with many authors opting for a best guess estimate in the range 100 to 150cm (Buddemeier and Smith 1988). It is on such figures that the scenarios outlined in the introduction have generally been based, although in fact more recent research has changed this basis. By 1990 the best estimate for sea-level rise to 2100 AD had fallen to 66cm and subsequently most reliable estimates have stabilised at about 50cm (Figure 16.1; French et al. 1995; Warrick et al. 1996); it seems that the earlier calculations underestimated the complexities, and thus overestimated the magnitude, of the ice melt component (Meier 1990). The uncertainties involved remain huge: little is known about how heat is transferred within the three-dimensional ocean and the detailed response of the Greenland and the Antarctic ice sheets to sea-level change is poorly understood. Thus the range from the current highest (+ 110cm to 2100 AD) and lowest (+ 13 cm) estimates for near-future sea-level rise span an order of magnitude difference (Warrick et al. 1996). Nevertheless, in general the envelope of uncertainty has also been progressively reduced over the last decade (Figure 16.1). Finally, these revisions suggests that
the detectability of the ocean-warming signal, previously estimated at 2015 AD (Woodworth 1990) will be pushed back even further. No acceleration of sea-level rise has been observed this century (Gornitz and Solow 1991; Douglas 1992).

**Past sea-level rise: importance of historical context**

One should not be seduced into the view that sea-level rise is no longer a significant concern for the twenty-first century. In fact, its continuing importance is clear from a consideration of predicted future rates of sea-level change against the immediate historical record. Such an analysis is not straightforward as there is great difficulty in arriving at a global sea-level trend for the last 100 years. The historical database contains records from in excess of a thousand tidegauge stations worldwide (Woodworth 1991). Unfortunately, the geographical distribution of these stations is highly uneven (and does not favour the centres of the large ocean basins), many records are short (typically 30 years or less), a substantial subset of stations also record land movements resulting from on-going ice loading/unloading effects from the last glaciation, tectonics and coastal sedimentation, and, in a further subset, sea-levels

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**Figure 16.1** Downward revision of best guess estimates and range of estimates for predicted sea-level rise to 2100 AD

![Diagram showing predicted sea-level rise from 1983 to 2100 AD with best guess scenarios.](image-url)
are affected by atmosphere/ocean dynamics at inter-annual and inter-decadal timescales. Indeed, several authors have been pessimistic about the possibility of estimating the rate of global sea-level change for the last 100 years (Pirazzoli 1993; Gröger and Plag 1993). However, Gornitz (1995) concluded that the average rate of sea-level change over this period has been a rise of between 0.3 and 3.0 mm per year and Warrick et al. (1996) arrived at a figure of 1.8 mm per year, with a range from 0.1 to 2.5 mm per year. The latter author’s estimate that of the total rise of 10–25 cm, 2–7 cm has been the result of thermal expansion and 2–5 cm from accelerated ice cap and glacial melting, with perhaps an additional contribution from the anthropogenic modification of the hydrological cycle4 (Gornitz et al. 1994; Sahagian et al. 1994).

**Implications**

The implication of these findings is that although expected sea-level rise is now much less than previously envisaged, it nonetheless represents a 4 to 5-fold increase over the rate of change in the immediate historical period. Furthermore, it is clear that coral reef ecosystems show high ‘responsiveness’ to environmental change: evidence from Southeast Asia and the Great Barrier Reef reveals that even under relatively stable environmental conditions, inter-decadal shifts in dominant wind and wave climates lead to changes in the size, position and morphology of sedimentary accumulations on reef platforms (Spencer 1994). Putting together these sea-level rise revisions and their historical context suggests that scenarios of future global environmental change which simply predict catastrophic inundation and erosion of low-lying coral islands upon rapid sea-level rise are likely to be inadequate. Rather than this essentially passive behaviour, coral reef systems will probably be modified in more subtle ways, as new relationships are established between more gradual sea-level rise and bioconstructional and bioerosional processes.5

Identification and analysis of these changes will be challenging for at least three reasons.

- First, it will be necessary to disentangle the signal of climate (and sea-level) change from the contemporary natural variability of the climate system. In some areas of the reef seas, these natural perturbations, such as the periodic ocean-atmosphere reorganisations of the equatorial Pacific known as El Nino Southern Oscillation (ENSO), dominate the climate
and sea-level record. An added complication is the possibility that the frequency and magnitude of ENSO, and of other events such as the dynamics of tropical cyclones, might themselves be affected by climate change.

- Second, there is no reason to assume that reorganisations in reef systems will be smooth, progressive and irreversible in the face of environmental change. Sudden changes in system state may occur as internal thresholds are exceeded. Of particular concern is the potential for ‘phase shift’ (Done 1992) between ‘hard reefs’ built by corals and coralline algae and ‘soft reefs’ characterised by fleshy algae; the former have the ability to track sea-level rise through building on their own foundations whereas the latter do not. Why some systems are more prone to these shifts than others, and why some systems recover coral cover rapidly after such perturbations and others do not, are questions that require more detailed investigation.

- Third, future sea-level changes will impact not on wholly natural systems but on reefs ‘pre-stressed’ by human activities, themselves highly subject to regional variation.

The response of corals to sea-level rise

Any analysis of the response of coral reefs to accelerated sea-level rise must start with the building blocks of the reef framework—the reef-building corals themselves. Although it is possible to measure the growth of individual coral colonies directly, it is more meaningful to assess the response of complete reef systems to sea-level change.

One way to do this effectively is to look at the performance of reefs with respect to sea-level change over long geological timescales. Major fluctuations in the sea-level over the last one million years have been controlled by the periodic growth and decay of major ice sheets. At the height of the last glacial period, 18,000 years ago, water locked up in land-based ice masses resulted in a sea-level 125m below that of today (Fairbanks 1989). Rapid ice melt after 14,000 years BP (all the extended ice masses had disintegrated by 6,000 years BP) was accompanied by rapid sea-level rise (Barbados: Bard et al. 1990; Papua New Guinea: Edwards et al. 1993; Tahiti: Bard et al. 1996). Thus this postglacial period can be used, at least as a partial analogue, to investigate the relations between coral reef growth and sea-level change. These
Relations have been quantified through the radiocarbon dating of the tops and bottoms of vertical cores drilled into coral reef structures. Rates of time-averaged vertical reef accretion can therefore be compiled for a range of Pacific Island types for various time periods over the last 8,000 years (Figure 16.2). This synthesis does not show those ‘give-up’ reefs (terminology of Neumann and Macintyre 1985) which were drowned out by postglacial sea-level rise. Recent drilling into two sets of failed reefs around the Caribbean island of Barbados suggests that these structures terminated their growth towards sea-level at 14,000–13,800 and 11,500–11,000 years BP, when sudden pulses of meltwater accelerated sea-level rises to maximum rates of 40–50 mm/year (Bard et al. 1990). A second series of reefs were left behind by sea-level but were then able to ‘catch-up’ (Neumann and Macintyre 1985) as sea-level stabilised after 6,000 years BP. These reefs show a sedimentary record dominated by high rates of vertical growth; they characterise the right hand side of Figure 16.2. Reef platforms flooded towards the end of the period of postglacial transgression only had to cope with low and slowing rates of sea-level rise and were thus able to adopt a ‘keep-up’ (Neumann and Macintyre 1985) strategy; these reefs thus occupy the left hand side of Figure 16.2.

This type of behaviour also characterises the contemporary behaviour of many reef systems on the Great Barrier Reef and in the Pacific basin. Measurements of variations in the chemistry of waters passing through reef systems can be used to infer calcium carbonate gains. Although there is a great deal of variability in such additions on any reef platform, spatial averaging suggests that complete reef systems are currently growing vertically at ca. 1.0 mm/year (Figure 16.3). This figure parallels that of the historical tide gauge record described above and thus indicates a ‘keep-up’ style to contemporary reef behaviour. This in turn results from the fact that atoll intertidal reef flats (from whence much of this data comes) are constrained in their vertical growth by subaerial exposure at low spring tides. If sea-level accelerates upwards, and water depths increase, over the next century will Pacific reef systems be able to switch to a more ‘catch-up’ oriented mode of operation? The recent geological dataset shows that these reefs undoubtedly have the potential to grow vertically at much greater rates than at present. Will this potential be realised? Or will other constraints come into play to prevent a full and rapid response to sea-level rise taking place and so reduce the effectiveness of these structures in protecting the fragile land areas of this ocean’s atolls?
Constraints on reef system responses to sea-level rise

There are two major sets of controls which may prevent Pacific coral reefs from reaching their growth potential and thus accommodating the effects of sea-level rise. Increased mechanical stress and increased physiological stress on reefs are both related not so much to sea-level change but rather to changing sea surface temperatures (SST). As in the case of sea-level rise, near-future temperature change is predicted to be significantly greater than that of the immediate past. Although 'runaway' temperature change is thought to be unlikely as evaporation and cloud formation feedbacks come into play as ocean temperatures rise (Ramanathan and Collins 1991), recent models suggest that the reef seas may experience a rise in SST of 1–2°C by 2030–2050 (from 1795 baseline; Mitchell et al. 1995). Although there are enormous difficulties in constructing a historical record of SST change, increases in global average SSTs on decadal timescales since the 1860s appear to fall between 0.3 and 0.6°C; as elsewhere, the upward trend in the Southern

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**Figure 16.2** Rates of Pacific Ocean basin and basin margins post-glacial coral reef growth from dated drillcore material by tectonic setting (Great Barrier Reef)

<table>
<thead>
<tr>
<th>Reef Type</th>
<th>Rate of Sea Level Rise (mm a⁻¹)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Fringing/Barrier</td>
<td></td>
</tr>
<tr>
<td>Indo-Pacific atolls</td>
<td></td>
</tr>
<tr>
<td>North GBR</td>
<td></td>
</tr>
<tr>
<td>Central Great Barrier Reef</td>
<td></td>
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<tr>
<td>South GBR</td>
<td></td>
</tr>
<tr>
<td>Belize Barrier Reef</td>
<td></td>
</tr>
</tbody>
</table>

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Hemisphere dataset has been highly irregular (Figure 16.3; Nicholls et al. 1996). However, it is not mean temperature increases \textit{per se} that will be important in the near-future but rather the fact that temperature rise will cause certain critical thresholds to be reached and then exceeded.

**Physical constraints on coral response to sea-level rise**

**Tropical cyclones and ocean warming: models and predictions**

Tropical cyclones require a threshold SST, variously set at 26.0–28.6°C, for initiation and development. Thus—although temperature is by no means the only control on cyclogenesis\(^8\)—the possibility of increased
storm magnitudes and frequencies on ocean warming has attracted both popular and scientific attention, not least because tropical cyclone impacts are an important determinant of coral reef growth histories and island morphologies in some regions of the Pacific Ocean basin (Figure 16.4). Simple models of the cyclone energy cycle permit the establishment of a relationship between potential storm intensity and SST. Thus an increase of SST of 3°C might lead to a 30–40 per cent increase in hurricane intensity (Emanuel 1986; Raper 1993). This is important because while storms can be organised into hierarchies of increasing magnitude and decreasing return period, the relations between storm magnitude and reef response are not similarly linear. Thus tropical cyclones with windspeeds in excess of 120–150 km/hour generally produce limited storm damage which can be repaired in 2 to 10 years whereas severe hurricanes, with windspeeds in excess of 200 km/hour, are capable of flattening reef topographies such that more than 50 years may be needed for full reef re-growth (Stoddart 1985).

Figure 16.4 Predominant cyclone tracks in relation to major coral reef areas

Predicted environmental impacts of changing cyclone magnitudes and frequencies on reef island corals and morphology have been considered with respect to two geographical settings. First, a decrease in the return period of cyclones of a given magnitude has been predicted for the core areas of the existing cyclone regions. Thus, for example, with ocean warming the 950 mb cyclone at Darwin, north Australia, currently a 1 in 100 year event, might become the 1 in 40 year event (Love 1988). Second, Emanuel's (1986, 1987) climate modelling (using a relatively simple doubling atmospheric carbon dioxide model) has suggested that increases in SST might extend the cyclone-affected regions into areas currently rarely affected by such storms. Impacts on coral reefs in these two geographical areas are likely to be different but both can be explained by reference to the relationship between cyclone frequency and coral growth rate (Massel and Done 1993). At a storm-frequent site, a coral growing at a typical rate of 10 mm/year will encounter a wave capable of dislodging it within a decade. Increasing storm frequencies in such an environment will simply further reduce the size of colonies present and the contribution that they can make collectively to reef accretion (although coral debris may contribute to reef growth through the incorporation of storm debris). Somewhat paradoxically, therefore, increased storm incidence may lead to less storm-by-storm impact than before (Scoffin 1993). At a storm-rare site, by contrast, a coral growing at the same rate should survive for 100 years before encountering the wave that destroys it. When this event happens it may well be catastrophic for the reef as a whole because of the long period of preceding reef growth. This is well illustrated by an example from French Polynesia: between December 1982 and April 1983, the Society Islands and the northern Tuamotu Archipelago were affected by six tropical cyclones after a largely storm-free period from 1906. The destruction and transport of 75 years of coral growth on the atoll of Tikehau effectively removed and severely modified the deep and shallow reef communities respectively, leaving the prospect of a long recovery time for reef structure (Harmelin-Vivien and Laboute 1986). If the climate-cyclone model of Emmanuel (1987) is correct—and there are conflicting arguments on this point (Lighthill et al. 1994; Bengtsson et al. 1985)—then this future awaits other coral islands lying just outside the current cyclone belts.
An ocean warming signal in the cyclone record?

A rise in severe cyclone activity in the environs of Fiji, Tuvalu, Solomon Islands and Vanuatu (Nunn 1990) and the southwest Pacific (Grant 1981) has led to speculation about the appearance of the ocean-warming signal in the Pacific basin. However, a careful and comprehensive basin-wide analysis (Raper 1993) has suggested more complex ocean-atmosphere dynamics. For the Pacific Ocean, only the eastern North Pacific and the Australasian regions showed consistent, well-founded relationships between seasonal mean tropical cyclone frequency and SST for the period 1910–1980. Even in these regions there were difficulties: in the eastern North Pacific there was a spatial separation between the areas of SST influence and the storms themselves whilst in the Australasian region, increases in storm numbers may have been related to changes in data coverage and consistency (Nicholls 1992). Overall it appears that it is changes in atmospheric circulation systems which drive changes in storm incidence not simply variations in SST.

ENSO complexities

In the Pacific, a major perturbation to the ocean-atmosphere circulation system is that introduced by the operation of the El Nino Southern Oscillation phenomenon. The Southern Oscillation is a measure of the difference in atmospheric pressure between the South Pacific High (typically characterised by pressure measurements at Tahiti) and the Indonesian Low (from pressure recorded at Darwin, north Australia). In the ‘cool’, or La Nina, phase of ENSO, the Southern Oscillation is strongly positive and the pressure differential generates strong southeast Tradewinds. This easterly wind stress piles up warm water in the western Pacific and drives an upwelling process along the coast of South America. This results in anomalously cool surface waters in the eastern Pacific, extending westwards as a cool tongue along the equator. In the ‘warm’, or El Nino, phase, the Southern Oscillation becomes strongly negative and the reduced pressure differential causes the Trades to slacken (and even reverse to westerlies at times). The warm waters of the western Pacific ‘slosh back’ across the ocean, capping the cool upwelling waters in the central and eastern Pacific.
(Figure 16.5). These oceanographic events are accompanied by major reversals in rainfall patterns and shifts in the locus of cyclogenesis and subsequent tracks of storm development. In a ‘cool’ phase cyclone formation occurs between 145° E and 180° W whereas in ‘warm’ phases cyclones originate in a broad band between 145° E and 120° W (Drosdowsky and Woodcock 1991). In the exceptional ‘warm’ phase of 1982–1983, the median location for cyclogenesis was 11° S 162° W as opposed to the median co-ordinates for all cyclones on record of 14° S 170° E (Revell and Goulter 1986; Figure 16.6). Thus any analysis of changing storm frequencies in the Pacific, and any prediction of near-future storm activity, must take these large scale oscillations into account.

Figure 16.5  Ocean-atmosphere characteristics of the El Nino-Southern Oscillation Phenomenon

Notes: (a) Cool, of ‘La Nina’, phase. (b) Warm, or ‘El Nino’, phase.
Physiological constraints on coral response to sea-level rise

ENSO events also bring into focus a second set of potential constraints on future coral responses to global environmental change: there appear to be strong relationships between ocean temperatures and coral health. Corals, like many tropical shallow marine organisms, have narrow thermal tolerances and live near the upper limit of that tolerance, being adapted to local mean maximum summer temperatures (Jokiel and Coles 1990). When this threshold is exceeded (perhaps accompanied by associated changes in solar irradiance and/or other environmental...
factors) corals respond by whitening or 'bleaching'. Bleaching is the visible manifestation of the loss of symbiotic unicellular algae, zooxanthellae, from coral tissues and/or the loss of photosynthetic pigmentation from the zooxanthellae. The zooxanthellae play a key role in photosynthesis and carbon fixation and their loss or reduced function is accompanied by reduced skeletal growth. Furthermore, bleached corals show reduced reproductive ability which may slow coral recruitment after disturbance (Glynn 1993).

An ocean warming signal in the coral bleaching record

Significant warm season ocean 'hot spots' (+1°C above long-term mean monthly SST) detected from satellite imagery for the period 1983–1991 have been shown to have correlated with coral bleaching episodes (Goreau and Hayes 1994). These relationships have now been confirmed by in situ measurements of similarly elevated water temperatures and bleaching levels of 40–72 per cent of live coral colonies on the outer reef slope at Moorea in the Society Islands (Figure 16.7; Hoegh Guldberg and Salvat 1995). After a comparable event at Moorea in 1991, 20 per cent of the bleached corals subsequently died (Gleason 1993). Larger temperature excursions of +3 to +4°C can produce mass bleaching of reef communities and coral mortality rates in excess of 90 per cent, as occurred in the ENSO-related warming in the eastern Pacific in 1982–83 (Glynn 1990). The aftermath of this extreme environmental perturbation has been to replace the eastern Pacific coral community with one dominated by crustose coralline algae and rapidly-expanding populations of grazing sea urchins. As a result, a system previously characterised by reef growth (for example, net deposition of calcium carbonate of 8,600 kg/year at Uva Island, Pacific coast of Panama) has been replaced by a bio-eroding reef framework disappearing at 4,800 kg calcium carbonate per year (Eakin 1996).

It has been argued that bleaching episodes prior to the 1980s were related to small-scale, geographically isolated events whereas many of the bleaching events witnessed in the next decade were complex in character and covered large geographical areas (Williams and Bunkley-Williams 1990). Furthermore, the frequency of coral bleaching episodes appears to have increased markedly in recent times. In the period 1876–1979 there were 3 major events, in the 1979–1990 period, 63 events (Glynn 1993), although this may be due to a more comprehensive and better trained network of reporting scientists rather than a real change.
in event frequency of this magnitude. Nonetheless, there has been speculation that these episodes represent an early signal of global warming in the oceans. This may be so, but rather through a response to changing ENSO dynamics rather than a secular trend in sea surface temperature.

Global environmental change and ENSO: complex feedbacks

Warm phase ENSO events release considerable heat and thus affect global temperatures: during a typical ‘El Nino’ the entire global tropics warm by 1°C. This warming shows up in changes in sea surface temperature on inter-annual timescales and is an important contributor to climatic variability on inter-decadal timescales. Might the global climate change signal manifest itself through the climatology of this phenomenon?

Both instrumental and proxy environmental records suggest that the period from ca. 1920 to 1940/1950 was characterised by relatively few ‘moderate’ to ‘strong’ warm phase ENSO episodes. However, the periodicity of ENSO fluctuations appears to have shortened from ca. 5 years to ca. 4 years after 1965, with further changes after the mid-1970s (Nicholls et al. 1996). Since 1976/77 there have been more frequent warm phase events and few cold phase events (Wang 1995) and this trend has been further reinforced since 1989. The latest period has been highly unusual in showing consistently negative values of the Southern Oscillation Index and has no analogue in the 120 years of atmospheric pressure readings for the South Pacific region (Trenberth and Hoar 1996). One effect of this pattern has been to keep sea surface temperatures anomalously high thus increasing the likelihood of bleaching events taking place.

A key question for the future is how ENSO processes—and the patterns of ocean temperature, cyclone activity and coral bleaching clearly associated with them—will change with increases in global mean temperature. Modelling thus far has shown that ENSO-like fluctuations continue to occur with increases in atmospheric carbon dioxide and some models indicate the development of temperature differences between the western and eastern Pacific. These effects are small, however, compared to the overall warming present in the models. Detailed predictions are currently not possible, given the difficulty of resolving some of the key processes involved, such as equatorial upwelling (Gates et al. 1996; Kattenburg et al. 1996).
Conclusions

Where does the science of global environmental change leave us at the present time in assessing the environmental futures of the coral atolls of the Pacific Ocean? First, and in spite of a decade of sustained scientific effort, it is clear that there is still considerable uncertainty as to the likely course of environmental change over the next hundred years. This uncertainty becomes additive as one proceeds from atmospheric—ocean processes, through sea-level responses, to the response of the bioconstructional system that is the coral reef (Figure 16.6). Second, this uncertainty is overlain by an additional layer of complexity, how climate change will interact with the natural variability of the Pacific ocean-atmosphere system. Low-lying, shallow water island ecosystems appear finely tuned to ocean temperature variations which determine patterns of coral bleaching and storm damage but mathematical modelling of how these patterns will change in the future remains rudimentary. Finally, a third tier of uncertainty, that of the interaction of ocean-climate reorganisations with human activities must also be considered. The most important of these threats are likely to be degradation of water quality, by nutrient enrichment and sedimentation, and over-fishing and the resultant ecological imbalances between algae, bio-eroders and corals (Grigg 1994). These impacts, which can already be seen as severe in many locations, may tip reefs across the threshold from ‘hard’ framework to ‘soft’ ecosystem dominated by macroalgae10 or influence the recovery, or otherwise, of reef systems from the bleaching or storm perturbations mentioned above.

Understanding environmental futures in the Pacific will, therefore, be necessarily complex and will require the disentangling of long-term change, regional environmental variability, and regional and local anthropogenic impacts. This will be a considerable challenge for the next generation of environmental scientists.

Editorial notes

1 ‘Enhanced greenhouse gas forcing’—refers to the way in which the increased presence of certain gases in the atmosphere (including carbon dioxide, methane, CFCs and nitrous oxide) acts to reduce the long-wave radiation (‘heat’) given off into space from the top of the atmosphere leading to global warming.

2 Like other substances, sea-water expands as it warms. The increase
in the volume of sea-water through thermal expansion has probably made the largest contribution so far to the sea-level rising associated with greenhouse warming.

'Tectonics' refers to movements in the outer layer of the earth's surface.

'Anthropogenic modification of the hydrological cycle' refers to ways in which human activity may have altered the way in which the world's water is cycled.

'Bioconstructional and bioerosional processes' are the processes of reef formation and reef erosion, which involve living organisms.

Algae form a large group of plant-like organisms ranging from tiny single cells to huge seaweeds. Some have a close relation with corals and are involved in reef-building. But where 'soft' algae have become more prominent reef-building potential is reduced.

Calcium carbonate is being taken up from the water by the reef-building organisms, which use it to produce their external skeletons, adding to the reef structure.

'Cyclogenesis' is the creation of cyclones.

A lot of reef-building corals live in association with the small, round algal cells of zooxanthellae. Many tropical corals gain energy from them. The algae capture energy from sunlight by photosynthesis and pass it to host corals in energy-containing compounds.

'Macroalgae' are the larger 'seaweeds'.

References


Spencer’s contribution to this volume differs from other chapters in taking a natural science approach to one of the key areas in the assessment of the environmental future of the Pacific Islands. But he invites reflection on the human issues involved in environmental change. Approaching this task from a social science perspective, I find myself considering not only the human consequences and policy implications of the findings he ably summarises but broader issues of the way scientific data have been treated in decision-making on measures relating to climate change.

Remaining scientific uncertainties, made more challenging to resolve by the complex interactions of physical, biological and social systems, are clearly laid out by Spencer. How uncertainty should be treated has been a key issue in the history of the debate over responses to predicted climate change. Earlier broad uncertainties about the extent of human-induced climate change brought many different responses. Those speaking from the perspective of existing economic interests have invoked them as justification for a ‘business as usual’ approach. Difficulties in predicting the extent and time scales of effects allowed governments to avoid pressing forward with fundamental changes in energy use, possibly seeking no-regrets solutions (where measures
effectively pay for themselves through energy saving). For environmental campaigners the uncertainties called for a precautionary approach to avoid the possibility of the worst outcomes. One writer (Meyer-Abich 1993) has compared decision-making on global warming to the philosopher-mathematician Pascal’s famous ‘wager’ on the existence of God. If I decide that God exists when he does not, I may avoid certain acts but will have lost little by it. If I decide God does not exist when he does, I invite damnation. So, belief is prudent and rational.

Of course, the reality of assessment of options in environmental policy, is more complex than this. Much work has been done on the comparison of the costs of measures which might be taken to combat climate change—set against the likely costs, in damage and repair, of the impact of such change. Yet, even if one accepts a fairly narrow economistic approach to this problem there are difficulties for conventional cost-benefit analysis applied on a broad scale, especially when projecting into the increasing uncertainties of a more distant future. These difficulties have led some writers to seek other approaches, such as regret analysis. In this more relativistic approach choices are assessed in relation to a number of different possible future states of nature and ‘regret’ is calculated on the basis of the difference between the costs of a particular policies and their outcomes and those of the policy which would give the best outcome if the future state of nature had been correctly guessed (Read 1994). Different approaches to assessment can lead to differing conclusions about the desirability of particular policies. But, however, assessments are made, there are clear differences between countries in their perceptions of the costs of policy and the risks and costs of impacts. To stretch the theological analogy—the developed, industrialised nations tend to see themselves as having to make substantial sacrifices for unqualified belief. Many in the developing world feel that they are having virtue pressed upon them to atone for the sins of others, while certain countries feel themselves to be staring damnation in the face more directly than the rest.

Understandably, the SIDS (Small Island Developing States) of the Pacific fall into the last group. The potential threats to them from the effects of climate change will be familiar to many readers. Sea-level rising poses a very direct threat, particularly to low-lying atoll-based nations such as Tuvalu or the Marshall Islands, the continued existence of which is questioned under some scenarios, raising the spectre of
forced migration from ancestral lands. Water supplies are threatened, both through salination of fresh water lenses and possible changes in rainfall distribution and frequency. Agriculture in low latitude countries such as Kiribati is thought to be the most open to the risk of pressures of reduced rainfall and heat stress. Further problems are raised by the likely changes in the range and frequency of extreme weather events such as cyclones and droughts. Spencer’s discussion of coral bleaching is a reminder of possible ‘knock-on’ ecosystem impacts. The perception of elevated risk can have other economic consequences, for instance, problems securing investment or arranging insurance cover. Western Samoa experienced this problem after the cyclones of 1990 and 1991 (Leggatt 1994).

Spencer does offer some modestly encouraging news. The now favoured most likely rate for sea-level rising is considerably lower than once feared and coral reefs do have the potential for growth to keep up with such a rise. But his careful qualifications show that this is no cause for complacency. The rate of rise is still four to five times what it was in the recent past and the capacity of coral to respond to change can be compromised by a range of factors including the impact of storm damage, changing ocean temperature and the effects of human activity. Uncertainties remain about how different systems interact and what the final outcomes will be.

In case the ‘business as usual’ lobby takes comfort from these uncertainties, it must be remembered that they are now to be read in the context of increasing scientific conviction about the general proposition of human-induced climate change. The Intergovernmental Panel on Climate Change (IPCC) in its second Assessment Report of December 1995 concluded that the balance of evidence suggested a discernible human influence on the climate and recognised significant impacts from such change which would fall most heavily on the developing countries. Also, whilst noting the opportunity for most countries to apply no-regrets policies to reduce greenhouse gas emissions, it suggested that consideration of the precautionary principle offered good reason for moving beyond no-regrets.

As the Third Conference of the Parties to the United Nations Framework Convention on Climate Change (FCCC) approaches, it is clearly important that the lobbying of the Pacific Island states and their supporters must continue with full voice. Membership of the Alliance of Small Island States (AOSIS) has been of importance in strengthening
the hand of the Pacific nations in the major international negotiations. Although AOSIS has not been able to secure its target of a 20 per cent reduction in 1990 greenhouse gas emissions by 2005, its effective coalition with the European Union and 'green' members of the G77 group of developing nations was important in pushing forward the process of agreement on future policy at the First Conference of the Parties in 1995. It may be so again. Meanwhile the message of the Pacific states and AOSIS can be spread through other channels. Greenpeace, for example, have been active in this, while the World Council of Churches have been promoting a climate petition campaign co-ordinated in Europe by the European Centre for Studies, Information and Education on Pacific Issues (ECSIEP).

In the Pacific itself the South Pacific Regional Environment Programme (SPREP) has played a major role in information gathering and sharing, co-ordination and planning in the region. Spencer's references to the impact of human activities upon corals are a reminder that islanders do have a direct role in affecting the outcomes of climate change. It reinforces the importance of coastal management to the island states, of the need for environmental impact assessments, indeed of overall environmental planning which would consider the effects of such factors as agricultural run-off and sedimentation. There are opportunities here with the implementation of National Environment Management Strategies and in the implementation of the Rio Agenda 21. Financial support for continued monitoring, information sharing, education and implementation of environmental planning will be essential. Here, again, pressure on the international community will have to be maintained.

References


This chapter considers some of the many links which shape the pursuit of sustainable development in the Pacific. These links are at several levels and include those operating through international agencies, those between aid donors and recipients, and those between non-governmental organisations (NGOs). The examples given, which particularly favour Europe–Pacific connections, invite questions about which links can actually work to the benefit of the peoples of the Pacific in achieving goals of sustainable development. Colonial patterns of relations, the forms of the global economy and the changing patterns of 'great power' political interest have all been involved in determining the nature and form of the linkages. Here, the aim is to view them in the light of a Pacific understanding of sustainable development and environmental management.

Towards a Pacific understanding of sustainable development

As Suliana Siwatibau points out in Chapter 4, many different groups seek to define development in their own terms, and if the demand for 'sustainable development' has become commonplace there remain many interpretations of that term. One perspective recently endorsed by
many Pacific governments is that of the *Suva Declaration on Sustainable Human Development in the Pacific* (UNDP/Forum Secretariat 1994). In this ministers and representatives of 14 members of the South Pacific Forum adopted a view of sustainable development which they held to be consistent with the interests and aspirations of Pacific people as a whole. The Declaration states that the pursuit of development should not be limited to economic considerations but rather that there should be 'people-centred' development, a position consistent with the communal values of the Pacific way of life. The document stresses that the pursuit of human well-being means ‘maintaining the Pacific quality of life, which ensures economic, social and spiritual well-being irrespective of age, gender, racial origin creed and place of abode’ (UNDP/Forum Secretariat 1994:2).

The Suva Declaration recognises that sustainable human development requires action at different levels and the collaboration of many individuals and agencies. National governments are urged to support such development through its integration into policy, planning and programming. But, there is a declared aim to promote participatory and community-based development which enables ‘the majority of the people to participate fully in socio-economic life and be owners of their own development processes’ (UNDP/Forum Secretariat 1994:3). Traditional structures and institutions for community welfare and environmental management are a resource to be built on, drawing on their strengths. At the same time, the Declaration urges support for equity in the distribution of the benefits of economic growth and calls both for actions to support the advancement of women and for development programs which engage the needs of young people.

It is suggested that, in devising and implementing policy and plans necessary for sustainable human development, Pacific Island countries should seek a close working relationship between government agencies, NGOs, churches, local and traditional institutions, community organisations, donors and other concerned bodies. The wide range of international links involved in the promotion of such a view of development is reflected in the Declaration's call for continued technical and financial support for island countries from ‘concerned donor countries and funding agencies, United Nations bodies and specialised agencies, regional and sub-regional organisations and institutions, and non-governmental organisations’ (UNDP/Forum Secretariat 1994:3). However, there is a recognition that if present links are to serve the best interest of each Pacific country then not only do
these links need to be maintained, but there has to be the political will to redirect policies, plans and programs towards well-defined development goals, seeking to achieve a more effective response.

At the local level, the success of this approach rests on the widest possible sharing of the vision of people-centred development and on the will to implement appropriate policies. It calls for the greatest possible participation of people in any given society. The Pacific Way of arriving at decisions by consensus is worth preserving as it encourages such participation. Involving people in decision-making is a way of equipping them to be in charge of their own development, a kind of development which takes into account Pacific people’s attachment and sensitivity to their natural environment. The word *fenua* or *vanua* (the Fijian form) recurs in slightly different forms in a number of Pacific languages. It is an inclusive word which embraces the totality of people, their origin, their community, their land, soil and fishing grounds, with the customs and traditions which bind people together. It follows that when the land is destroyed the life of a community is equally affected. There have been traditional techniques to regulate the relationships between people and the resources of the land. From time to time ritual restrictions could be imposed on fishing grounds or coconut plantations to allow time for regeneration. In these ways island peoples sought to live in balance with their environment, in a sustainable relationship with it. Different varieties of environmentalism are often classified as ‘anthropocentric’—focused on human needs and interests, or ‘ecocentric’—focused on the well-being of the broader ecosystem. These two approaches can be difficult to reconcile. The human welfare orientation of the Suva Declaration makes it a distinctly anthropocentric approach to issues of sustainability (though it does contain a section concerned with support for environmental regeneration). If, however, we understand it against the background of a Pacific perspective which sees development as ‘human’ insofar as it is to do with communities ‘in relation to their environment’, the potential gap between perceived human needs and the requirements of natural environmental conservation can be narrowed.

Drawing on these ideas, the success of local and regional links for sustainable development rests on the degree to which they can help deliver a form of truly participatory development in which communities have a direct say in their future and control of their resources, and which enhances people’s ability to live in a balanced relationship with the natural environment.
International and regional agencies

The prominence given here to the idea of sustainable human development, as developed in the 1994 declaration, is a reminder of the major role assumed by UNDP in the promotion of a vision of sustainable development in the region. UNDP and SPREP (the South Pacific Regional Environment Programme) have been the two major agencies at the forefront of the search for sustainable development in the South Pacific. While UNDP is an autonomous arm of the United Nations, SPREP is an intergovernmental organisation owned and operated by the governments of 26 countries with direct interests in the region, including 22 Pacific Island states and territories. SPREP emerged from consultations in 1978 between the South Pacific Commission (SPC), the United Nations Environment Programme (UNEP) and the United Nations Economic and Social Commission for Asia and the Pacific (ESCAP). It was formally established in 1980 as a joint South Pacific Commission and South Pacific Forum initiative. The history of its birth hints at the range and complexity of linkages, institutional and intercountry, that are involved in the development of policy and programs on environment and development. It also highlights the then emerging recognition of the need for cooperation and coordination of effort in the pursuit of environmental goals and sustainability. SPREP, now an independent regional organisation, aims to promote cooperation and to offer assistance for environmental protection and improvement and the achievement of ecologically sustainable development. The SPREP Action Plan (The Action Plan for Managing the Natural Resources and Environment of the South Pacific Region), periodically reviewed, is central to the region’s environmental planning. Coastal management, conservation of biological diversity, climate change and sea level rise, waste management and pollution prevention, and environmental education all feature among its concerns (SPREP 1992; Fuavao 1995).

It was SPREP which organised the Pacific Island Developing Countries submission to the ‘Earth Summit’, the UNCED (United Nations Commission on Environment and Development) conference in Rio de Janeiro in 1992 (SPREP 1992). From that summit emerged Agenda 21, the action program for the achievement of sustainable development in the twenty-first century. UNDP was given the lead in capacity-building to assist developing countries in producing policies and plans towards that end, its response being known as Capacity 21.
The regional Capacity 21 ‘Programme for Sustainable Development in the South Pacific: building on national environmental management strategies’ began in 1994. SPREP, already deeply involved in the formulation of National Environmental Management Strategies (NEMS) was the executing agency.

The capacity-building program reflects many of the concerns found in the Suva Declaration and the *Pacific Human Development Report* produced in 1994 (UNDP 1994). It emphasises participation and use of local knowledge, including the knowledge of women and of NGOs. But it also seeks to improve the capacity of governments in the promotion of land and sea resource management and to ensure the integration of sustainable development aims into development planning, particularly into the financial planning of Pacific island countries’ development banks. The bulk of funding for the program came from Capacity 21 resources, though SPREP, the 6 participating island countries, and NGOs in kind contributions (UNDP 1993).

The UNDP/SPREP capacity-building initiative has run alongside other significant international programs. The South Pacific Biodiversity Conservation Programme (SPBCP) and the Integrated Conservation and Development Programme (ICDP) have backing from the Global Environmental Facility (GEF) the main financial mechanism for the UNCED agreements. The UNCED process was carried into the first global conference on sustainable development and the implementation of Agenda 21—the Global Conference on the Sustainable Development of Small Island Developing States, held in Barbados in 1994. This brought its own action program which has been reflected in development promotion activities in the Pacific. FAO (the United Nations Food and Agriculture Organisation) and SPREP arranged a consultation on sustainable agriculture, forestry and fisheries for South Pacific Small Island Developing States in 1996 as a contribution to this program.

Other recent UNDP activities include a Pacific Employment and Sustainable Livelihoods Initiative with an emphasis on the rural and subsistence economy as a source of employment (UNDP/RBAP 1996).

International and regional bodies have continuing contributions to make. Not least, the international activity helps to keep environmental concerns and issues of sustainability to the fore in the consciousness of national governments. While ideally governments maintain environmental awareness by sensitivity to and understanding of the needs and problems of the communities they serve, political realism suggests that there is a case for some ‘top-down’ influence here. In addition, where
there is a lack of institutional capacity at the national level, or a shortage of specific expertise or skills, whether scientific, legal or administrative, the international and regional agencies are important channels for resources. Their significance increases to the extent that they can help achieve genuine local, national or regional capacity-building. They can also be major sources or channels for funding. SPREP seeks donor assistance for its members. Two major SPREP projects assisted 12 island countries to develop National Environmental Management Strategies. Funding was found from the Asian Development Bank (ADB), the Australian Agency for International Development (AusAID), and the UNDP, with technical assistance provided by the International Union for the Conservation of Nature (IUCN). Program profiles from NEMS, projects which further the NEMS strategies, are submitted by SPREP to possible donors in specifying assistance needs (SPREP 1994).

While the language of co-operation and participation has increasingly become part of the programs put forward by international bodies, islanders’ recent experience of international fora has not always reflected this. Particularly in areas where Pacific Island concerns relate to global issues, such as climate change, there may be a sense of agendas being set without significant consultation, or full recognition of the Pacific perspective. It has been suggested that there is a form of ‘scientific neo-colonialism’—data gathered in the Pacific not being controlled or interpreted by local people, and, with government service privatisation and user charges, becoming less accessible (Hay 1996). Such criticisms underline the need for the international agencies to make sure that the rhetoric of participation becomes felt as a reality at all levels.

Bilateral and multilateral aid: Britain and the European Union

It can be argued that the former assurance of ‘favourable’ aid and trade conditions was a double-edged sword, allowing island governments to defer difficult decisions on important issues of development planning, and, by creating dependency, undermining real control of development. Yet well-directed development assistance funding remains a vital component in the search for sustainability in the region, while the old certainties of aid provision are fading. British and European Union links to the Pacific reflect the changing conditions.
British development assistance

The United Kingdom has a long history of association with the Pacific. Yet, in the past few years there have been reasons to question the level of British commitment to the region and to ask if the United Kingdom’s recent decision to withdraw from the South Pacific Commission points towards further reductions in Britain’s role in the South Pacific.

In recent years British contributions to development aid have increasingly been channelled through multilateral agencies. Mr Jeremy Hanley, then Foreign and Commonwealth Office Minister, told Forum leaders in Port Moresby in 1995 that Britain contributed about 16 per cent of the funding for European Union aid, from which Pacific countries would continue to benefit. But he also said that, with financial strictures and increased multilateral flows, the Pacific was likely to see a drop in the volume of bilateral aid. Indeed, British bilateral aid to the region has been steadily falling, from about £8 million in 1995/96 to an estimated £3 million in 1998/99.

Domestic policies of restraint in government spending helped to set the conditions for the redirection of the bulk of the more limited aid budget towards other targets, and it is difficult not to conclude that the distant Pacific, poorly reported in the British media, was seen as an easy target for cuts. UK-based NGOs connected with the Pacific have expressed concern about a funding gap which could not readily be met. In explaining plans for the reallocation of aid Mr Hanley said that, like other donors, the British government had become increasingly concerned that programs in the Pacific were not as effective as they might be (PISUKI 1995). Need and effectiveness are seen as the two fundamental criteria for aid distribution. This raises questions about how and in whose terms we assess the effectiveness of aid and, with the drop in the volume of aid, about whether government-sponsored links with the Pacific will become increasingly investment and market-led.

A continuing avenue for aid is the British government’s Overseas Development Administration (ODA). Besides running its own program, ODA contributes funding to UK NGOs working in the region. This includes about 75 per cent of the funding of Voluntary Service Overseas (VSO), through which personnel are sent to work in a number of fields including education, social and business development, natural resource development and construction. The reduced British aid program to the Pacific now focuses particularly on the areas of education and good government. A clear theme in recent years has been that of institutional development. This means, for example, assisting
the development of a Ministry of Health or a higher or primary education system, rather than building a hospital or a school. Such a policy echoes the proverb that it is better to teach someone to catch fish rather than to simply give a fish. The high level of participation required of the recipient government and the people who work within the institutions concerned in these arrangements do reflect an understanding of sustainable development with which many of us would agree. But success relies on the achievement of a local input, breeding commitment through involvement.

The overall goal of the British aid program as implemented by the ODA has been described as ‘the promotion of sustainable economic and social development in order to improve the quality of life and reduce poverty, suffering and deprivation’ (Clerk 1994:6). An emphasis on sustainability has clearly become central to the definition of ‘effectiveness’. On a number of occasions ministers have presented the argument that significant parts of the aid budget to the Pacific have gone unspent because it has not been possible to agree with Pacific Island governments on programs of sufficient quality to be convincing contributions to sustainable development. The commitment of some governments to policies for sustainable development has been questioned (PISUKI 1996). Such comments invite questions as to whether domestic policies in the United Kingdom and other donor nations would stand up to strong sustainability criteria. But, as other contributions to this book suggest, there have been very real failures among Pacific leaders in serving the development needs of the communities they represent. The vision of a near future in which donor governments with reduced aid budgets, using tighter sustainability criteria in their allocation, meet with governments of recipient countries unwilling or unable to develop and implement their own programs for sustainability is not a happy one. It requires effort on both sides to avoid such an outcome.

An existing development seen in the British case is a move away from government-to-government aid. British funding has in part moved towards regional projects such as support for fisheries through the South Pacific Commission or a Regional Rights Resource Team Project focusing on the status of women. But there is also some evidence of an interest in finding ‘cost-effective’ ways of delivering aid through groups such as NGOs. Britain has recently been giving support to Wan Smolbag, a touring theatre group from Vanuatu which deals with community issues. The opening of channels of aid to NGOs and community
organisations should be encouraged as a way of ensuring greater local involvement in development. Pacific NGOs, if given due recognition, could be effective partners in a sustainable development process generating local participation, redistribution of resources and continuity.

A rather different approach to development assistance is demonstrated by the Commonwealth Development Corporation (CDC), the investment arm of the British aid program operating in about 50 countries worldwide. CDC has had investments in the Pacific since 1960, initially in Fiji but now also in Solomon Islands, Papua New Guinea and Vanuatu. CDC is clearly market-led, operating chiefly within the private sector in projects in which it can expect to add value to its investment. Its investment choices are made on commercial and development grounds. CDC sees its role being enhanced in the move from aid and dependency to investment and self-reliance. The organisation can attract funds from the European Union for project preparation, appraisal and training and has used resources in promoting investment opportunities in the South Pacific. Because of overheads, minimum investments are substantial (£1 million in 1994). However, the use of financial intermediaries can be used to target smaller investments. One of CDCs investments in Papua New Guinea is the PNG Venture Fund, a company providing capital for medium-sized businesses.

CDC requires profit. Questions to be asked about this kind of approach concern the degree to which commercial priorities can be balanced with a sense of responsibility for sustainable development. Does the financial scale of operation undermine true responsiveness to local needs? To what extent can profitability and long-term community advantage be matched-up? To what extent can project appraisal be directed towards assessment of social and environmental implications? One of the CDC projects established in partnership with the Solomon Islands government and landowners involves a hardwood plantation on the island of Kolombangara, on land which had previously been logged. The move to start commercially viable hardwood plantations is an important development aimed at tackling the degradation of the environment caused by logging. But more fundamental challenges to purely market-led development must clearly come from elsewhere. In this case, what would be even more desirable is to have a Europe-Pacific policy agreement fundamentally opposed to destructive logging which has no regard to the need for sustainable forestry.
The European Union—Lomé and beyond

Out of the 25 South Pacific states, 12 have special relations with the European Union, including 8 belonging to the African, Caribbean and Pacific (ACP) countries who are signatories of the Lomé Convention, one British territory and three French overseas territories. The European Union is the second largest donor for the ACP countries, after Australia. But as more than 80 per cent of Australian aid goes to Papua New Guinea, the European Union represents the largest donor for the other seven independent ACP states in the Pacific.

The Lomé Convention provides a framework of international linkages of which Europe–Pacific links are one dimension. The African, Caribbean and Pacific countries concerned entered into contractual arrangements which have been in place since 1975. Basically the partnership is intended to promote trade and offer financial instruments for development projects in these countries, which are by and large beset by problems of small economies. It accords an important place to the respect of human rights and human dignity. The fact that the Lomé Convention has lasted two decades having weathered the changes in international relations demonstrates its usefulness as a framework for relationships for the regions concerned. Lomé has possibilities for South-to-South sharing of expertise and could transform old patterns of relations which have tended to be North-to-South. The political potential lies in the presence of many ACP missions in Brussels who could together apply concerted political pressure through Lomé on the countries of the European Union. This political pressure can be seen to have worked in mobilising a EU Assembly resolution on a peace delegation to Bougainville in 1992.

In fact, there have been a series of Conventions contracted for set periods. The current convention Lomé IV was signed in December 1989 and runs over a period of 10 years. There is therefore considerable interest at this time in the assessment of Lomé, and in its future beyond the year 2000. A recent NGO consultation on the Convention identified both benefits and limitations of Lomé. Among the positive features identified were the provision of infrastructure in many countries and access to foreign exchange through trade preference. This is particularly important for Fiji from which, under a sugar protocol, the European Union undertakes to continue to buy a specific quantity of sugar at a guaranteed price. Other benefits specified were the provision of technical assistance, the generation of employment for women (in areas such as the Fijian garment industry or Kiribati seaweed
production), and the operation of the Stabilisation Fund for Export Earnings (STABEX). In the Pacific substantial STABEX payments have been made for shortfalls in revenue from copra, palm products, coffee and cocoa.

One of the basic problems identified was the sheer lack of readily available public information on the Convention, and of guidance on access to funding for NGOs. Negotiations with government and EU delegations had proved difficult for some NGOs. Besides the problems of accessing funds and slowness in project implementation, the large sums involved in EU aid could produce administrative problems for those implementing projects. Doubts were also expressed at the consultation as to whether the principles expressed in Lomé IV, in areas such as sustainable development or the equity and empowerment of women, were being implemented in projects. There was a need for systematic project evaluation in relation to social benefits (Haijtink1997).

NGOs are pressing for a new Lomé Convention which continues to offer a good basis for partnership between Europe and the Pacific, but which addresses the problems identified. It has been suggested that some funding might be identified for micro-projects implemented by civil society, with a greater flexibility to approve smaller projects. In 1995 the European Union provided funds for a variety of projects in the Pacific; a cyclone warning system upgrade for the Pacific region, an Airport Development Program and Training in Kiribati, a micro-projects program including training in small business for women and a Design Study and Master Plan for Rural Water Supply Schemes. The total amount disbursed was 5,873,000 ECU. The largest portion went to a Pacific-wide cyclone warning system and training in Kiribati. There are some environment-related references in these projects and the micro-project focus on enhancing the role of women is encouraging. But there is still much to be done in pressing donors such as the European Union to move beyond conventional projects into areas which extend prevailing development wisdom.

Considering the broader economic links between Europe and the Pacific, I recall the debate in the 1970s over European sugar beet versus tropical sugar cane and arguments for ‘trade not aid’. Aid is often tied to donor-related preconditions which entail widening the gap between rich and poor. Could there be more encouragement given to the Pacific to trade with European countries? Pacific states may seem prosperous in relation to some other developing countries, but there is a strong case
for trade in sustainable produce and for allowing more room for it in the European market, whether it be timber or tuna. It is not too late to talk about more sustainable trade rather than aid. At the same time, EU links with Pacific Island states might offer the chance to set examples of standards meeting the same safety and environmental requirements as those in Europe, making them binding on Western companies seeking to invest in developing countries.

Non-governmental organisations

The importance of NGOs in the promotion of sustainable development is apparent from what has already been said of their relations with other bodies. The term NGO is applied to a wide range of organisations, movements, or centres of initiative which vary in their relations with governments. Some are more politically active and specifically concerned with the environment (of these Greenpeace is the best known); most are committed to activity intended to improve aspects of social life. In the past 10 years there has been a great expansion in the role of NGOs on the international stage and a dramatic increase in the number of non-church NGOs serving the Pacific. In traditional Pacific societies NGOs may be seen as rather alien and as a threat to the existing chiefly hierarchical arrangements. But NGOs do provide alternative ways of reaching people at the grass roots, particularly the new generations who are looking towards a more open society and have a different approach to decision-making.

International bodies such as the United Nations and Commonwealth agencies have sought to maintain and strengthen contacts with NGOs seeing them in many cases as more clearly representing the ordinary people than do the elected politicians. They have looked for voices which have something to offer beyond the often predictable perspectives of national governments. At the same time politicians’ electoral and other short-term interests are often not served in trying to promote policies needed for long-term environmental well-being, such as those aimed at reducing greenhouse gas emissions. To achieve international agreement it is valuable to have the support of NGOs who can promote the ideas concerned and lobby domestic governments.

The involvement of the European Union and UN bodies with NGOs could encourage those in power in Pacific states to act positively on issues which affect the future of the Pacific environment. Issues which need consideration include the formulation of a legal framework with provision for the protection of the environment; the funding of more
nutritional research and training in the exercise of healthy food choices, and the training of young leaders so that they may have a greater environmental awareness than that of some current leaders who are already hooked into relations of vested interest with overseas companies. The European Union could certainly be more proactive in working with NGOs to press Pacific governments to formulate positive economic and environmental policies.

Whatever ‘good government’ might mean there is a need for a more informed populace, politically more literate and equipped with the campaigning and lobbying skills required to enhance their role in the democratic process. The Solomon Islands Development Trust (SIDT) has recognised this. Widely seen as the most effective Pacific NGO, it has defined development as ‘empowerment’ rather than in terms of North–South transfers of resources. Empowerment means increasing villager’s capacity to better their positions by using political, bureaucratic and economic systems. Relations with government have not always been easy, particularly with SIDT’s efforts to publicise the unsustainable exploitation of natural resources and customary lands, in which politicians colluded with overseas companies. But it has won considerable official recognition—responding to government requests in areas such as a nutrition survey and a housing rehabilitation awareness project. It has worked to make effective communication links with government officials and village groups; so enabling development education to function as a 2-way process. Funding groups such as AusAID, UN organisations, USAID and the European Union have taken particular interest in SIDT’s ability to reach out to village populations. Such abilities can be of great value when there is a trend for Pacific and other developing country governments to be urban-centred with little or no outreach to rural areas and the grass roots in a sustained and creative way.

Education and the dissemination of information is an important part of SIDT’s role. The same is true of many other NGOs. One which deals with environmental and development issues alongside broad concerns for the rights of Pacific peoples is the Pacific Concerns Resource Centre (PCRC). Based in Suva, this is the secretariat of the Nuclear Free and Independent Pacific Movement. Besides environmental campaigning and work on economic development, other key areas addressed include demilitarisation, decolonisation, land rights and sovereignty. It enjoys the goodwill of the post-coup Fiji government but receives financial support from Bread for the World and Christian
Aid. The *Pacific News Bulletin* which it produces offers an update on current Pacific issues and addresses developments in all its areas of concern. The work of PCRC does offer useful reminders about the broader political and economic contexts within which decisions about sustainable development in Pacific states are taken.

Churches in the Pacific have for a long time been recognised for their potential role in promoting human development. Pacific Churches in their network of partnership within and outside the region, notably through the Pacific Conference of Churches (PCC), provide space for discussions and dialogue which can prompt constituent members to act on environmental matters and human rights. PCC, founded in 1966, was one of the first regional NGOs. Throughout its 30 year history the regional ecumenical organisation with Protestant and Roman Catholic membership has taken a consistent stand against French nuclear testing in French Polynesia and has been effective in rousing opposition from the World Council of Churches, its world wide constituencies and European based NGOs to this testing. Program Desks include Justice, Peace and Development, Women, Youth and Communication, Mission and Unity, and are staffed by individuals who are involved in carrying out training workshops on these issues throughout the region. Unfortunately the closure of the PCC Research Institute in Vanuatu during the 1980s has left the PCC bereft of its facility for research on development issues. Since Churches throughout the world need to be made aware of how such issues impinge on the lives of Pacific peoples, resources should be sought to assist in re-establishing such a facility.

Significant contributions have also been made by NGOs based outside the region. For instance, the Foundation for the South Pacific is involved in education, health and environmental issues in countries including Papua New Guinea, Solomon Islands, Vanuatu, Fiji and Kiribati. It was founded on a philosophy of working with local partners, with a holistic approach to development. The United Kingdom Foundation for the South Pacific (UKFSP) has been trying to promote a sustainable forestry program. They have been involved in the promotion of the *wokabout somil*, a small, portable sawmill which allows villagers to harvest their own trees selectively and so not sell their rights to commercial logging companies.

Two international organisations, World Wide Fund for Nature (WWF) and the Geneva-based International Union for the Conservation of Nature (IUCN) have considerable importance as lobbyists for the
protection of the natural environment and the inclusion of environmental perspectives in development policies. IUCN prepared the World Conservation Strategy of 1980, which underlies many of the later developments in international thinking about sustainable development. Their involvement in providing assistance to SPREP has already been noted. The WWF runs its South Pacific program from a Program Office in Fiji and a Liaison Office in Papua New Guinea. This includes support for the establishment and development of local NGOs concerned with environmental issues through a small grant scheme. A central element in the overall conservation program is the notion of Community Resource Conservation (CRC), an approach which recognises the importance of customary resource tenure and aims to promote community-based conservation measures (WWF 1996). WWF pursues both commendably local perspectives on sustainable development and makes its views heard at the international level.

The role of NGOs at the Rio Earth Summit in 1992 illustrated their potential international influence. Not so encouraging was the backlash next year when governments and UN bodies, particularly ESCAP in the Asian and Pacific region, appeared less happy to have NGO involvement in the Vienna Conference on Human Rights. Yet, despite opposition, Asian and Pacific NGOs made great gains at the conference, particularly in the area of human rights for women (Hill 1994:127). As the value of NGOs in the global community comes to be recognised, there needs to be a clear definition of the criteria for their representation at the international level, to ensure a true partnership with governments and international organisations.

Many factors contribute to the generally increasing significance of NGOs. In the new global economy new nation states run the risk of becoming pawns, their sovereignty within their own national boundaries being undermined. Such challenges to the state would be disempowering, rendering small Pacific states unable to control environmental degradation. In the region there is the emergence of global social problems such as the spread of AIDS, climate change effects, the rise in religious fundamentalism and the resurgence of ethnic conflict. More and more governments are conscious that in order to appear to be addressing these issues they need to enlist the support of their citizens. Pacific NGOs and their international partners have a role in enhancing the influence that civil society can bring to bear on governments.
The growth of networks

Given the number and diversity of agencies, groups and individuals involved in activities related to sustainable development, and considering the dispersion, small size and shared concerns of Pacific Island countries, there is a clear need for co-ordination and networking. Regional organisations have played their roles in this. Environmental issues have long been part of Forum meetings and SPREP's co-ordinating role remains of central importance. The South Pacific Commission, Forum Fisheries Agency (FFA) and the South Pacific Applied Geoscience Commission (SOPAC) are other foci for regional resource concerns with their own webs of connections.

Pacific NGOs have also recognised the value of linkages and networking. The Nuclear Free and Independent Pacific Movement (NFIP) developed from a small group of isolated NGOs in the 1970s. The Churches have links which go back further. One important more recent development has been the formation of the Pacific Islands Association of Non-Governmental Organisations (PIANGO), a regional umbrella for associations of NGOs at the national level. This had its origins in meetings in 1984 and 1986 arranged by the New York-based Foundation for the Peoples of the South Pacific and a meeting for NGOs from Commonwealth countries of the region organised by the Commonwealth Foundation. To avoid duplication in their networking efforts, the 2 initiatives came together to create PIANGO. Its founding conference, attended by delegates from 22 Pacific countries, was held in American Samoa in 1991. PIANGO is made up from independent National Liaison Units (NLUs), one from each country. These include bodies such as Development Services Exchange (DSE) in Solomon Islands, the National Association of Non-Governmental Organisations (NANGO) in Papua New Guinea, TANGO in Tonga, and Hiti Tau in French Polynesia. In their early years, NLUs have varied in their effectiveness. But the formation of PIANGO has provided a basis for the forging and expression of a common NGO vision in the Pacific as a basis for sustainable development.

PIANGO members at a 1994 meeting in Fiji stated that

Dignity, respect and protection of Pacific peoples, their cultural heritage, land, sea and national resources, and effective management to pass on to future generations of the Pacific are fundamental to the NGO vision for the Pacific region (Pacific NGO Call for Action 1994:6, quoted in Roughan 1994:149).
This NGO approach cross-cuts national and subregional boundaries. PIANGO has been able to promote regional preparations for major international conferences. It was, for instance, through PIANGO that the Pacific NGO Conference on Population and Sustainable Development was organised prior to the UN’s International Conference on Population and Sustainable Development in 1994. It has also tried to promote multi-centred projects related to sustainable development at the local level, focused on different NLUs. The existence of networking through PIANGO can also help in the formation of links with organisations beyond the Pacific wishing to share common interests.

Pacific-related organisations from outside the region have also forged wider connections. In Europe PIANGO has links with the European Centre for Studies, Information and Education on Pacific Issues (ECSIEP). ECSIEP is the secretariat of the Europe–Pacific Solidarity Network, a network of NGOs and church organisations in six European countries (the Netherlands, Germany, United Kingdom, Belgium, France and Switzerland). This network addresses issues and concerns in the Pacific region, especially those relating to environment and development. In the last seven years ECSIEP has promoted information-sharing through its *Europe-Pacific Solidarity Bulletin*, annual seminars and workshops. During the recent resumption of French testing at Moruroa, French Polynesia, it demonstrated solidarity with the Pacific people, in the collection of thousands of signatures all opposed to nuclear testing. ECSIEP has also been coordinating the European implementation of the World Council of Churches Climate Change Petition Campaign, aimed at persuading industrialised countries to agree on targets and timetables for the reduction of greenhouse gas emissions, and has been collaborating with the Pacific Concerns Resource Centre on consultations over the future of Lomé. With the secretariat based in the Netherlands, ECSIEP is able to secure grants from the European Union in Brussels and is seen, despite limited staff, as an active campaigner on Pacific environmental and human rights issues.

Can the Pacific-wide network and its extra-regional links be used to strengthen civil society and act as a watch dog for sustainable development? Hiti Tau, the NLU in French Polynesia, has taken a strong stand for the indigenous Maohi and against French colonialism. Following the end of nuclear testing in French Polynesia there is a comprehensive study underway of the possible consequences of the
tests on the health and well-being of the population which began in June 1996. The Église Évangélique, the main Protestant church, and Hiti Tau have collaborated in the survey with the support of the World Council of Churches in Geneva, the Peace and Conflict Documentation Centre in Lyon France, ECSIEP and the University of Wageningen in the Netherlands. Such broad-based co-operation to obtain data on the environmental and health situation amongst identified risk groups is imperative and can be a model for Europe–Pacific links amongst NGOs. New links could be formulated to help address the needs

- for an appropriate legal framework within which to challenge European and Pacific governments regarding use of the environment
- for developing nutritional research and training in exercise of choice for good food
- for the training of young people and future leaders in sustainable development.

There are also new dimensions to networking emerging. The concept of a Sustainable Development Network was included in UNDP’s Capacity 21 response to the Rio Earth Summit. Such networks, combining electronic communication with face-to-face contact and other forms of communication were seen as a potentially valuable tool for implementing Agenda 21. The intention was to establish links between governments, research bodies, NGOs, grassroots and entrepreneurial organisations, in part to connect information sources to information users, but also to allow dialogue (SDN Brochure 1992). A pilot Pacific Sustainable Network was established in 1994, with host computers linking organisations in three countries, Vanuatu, Fiji and Western Samoa. This project has operated through Pactok, an electronic mail network run as a non-profit organisation, and is intended to serve the NGO movement in the Asia Pacific region. Pactok also has host computers in Papua New Guinea and Solomon Islands. Computer access for regional NGOs also raises the possibility of access to the information resources of the global computer network of the internet and even of a presence on it. Hiti Tau has recently established its own internet web site.

**Conclusion**

No area could be more significant to the future of Pacific communities than that of sustainable human development. In pursuit of this existing
links will need to be actively maintained and new ones explored. The regional events which bring people together to explore shared objectives remain important. These include conferences, summits, training workshops and intergovernmental or NGO meetings. Continued financial and political support for these is necessary. PIAN GO needs to be strengthened as an instrument for regional networking and cooperation, able to bring members into consultation on environmental and development issues vital to the region and to explore possibilities of collaboration with other regional networks. The potential for networking is greater than ever before. There is a need in the islands for access to information on environmental issues, on markets for goods, and on the international economic interests that may be shaping their futures. But networking implies two-way flows. It is vital that networks be used to ensure that Pacific perspectives on environmental and development issues are heard more widely, and that those living in other parts of the world are helped to understand the significance of their own activities for the Pacific region. In the promotion of a truly participatory form of sustainable development the perspective of Pacific communities, perhaps expressed through NGOs, must also be heard at an early stage in international planning for development in the region. There needs to be collaboration in agenda-setting, not just implementation. Ultimately it is the quality of links rather than their number and growing technical sophistication that counts.

References


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Appendix: Pacific Islands links

Some organisations concerned with environment and development issues which provide useful links between the Pacific Islands and metropolitan countries, especially in Europe.

**Voluntary associations**

**Pacific Islands Society of the United Kingdom and Ireland (PISUKI)**

Society for people with an interest in the Pacific Islands.
The Secretary, PISUKI, 2 Elm Walk, Raynes Park, London SW20 9ED, UK

**German Pacific Society**

Society for people with an interest in the Pacific Islands.
President’s Office, Dr. Fred Steinbauer
Feichtmayrstrasse 25, D-80992, Munchen, FRG
tel +49 089 15 1158 fax 0049 089 151833

**Papua New Guinea Association**

Society for people with an interest in Papua New Guinea.
Jeremy Mansfield (PNG), 51 Bell Street, Shaftesbury, Dorset SP7 8AE
tel/fax +44 (0)17147 855078

**British Friends of Vanuatu**

Society for people with an interest in Vanuatu.
Richard B. Dorman, Friends of Vanuatu,
67 Beresford Avenue, Cheam, Surrey SM2 6ER, UK
tel/fax +44 (0)181 642 9627
Fiji–Europe Association

Society for Fijian residents and friends in Britain and Europe.
Phil Brown, 16 Marlow Mill, Mill Road, Berkshire SL7 1QD
tel +44 (0)1628 486587

Mwanean Kiribati Association

Society for Kiribati residents and friends in UK.
Myra Iererua, 12 Church Hill, Leamington Spa,
Warwickshire CV32 5AY, UK

Non-government organisations

Foundation for the South Pacific

Network of organisations linking metropolitan and Pacific Islands
countries in support of local development initiatives.
Constituent organisations include the following.

FSP International
FSP Regional Co-ordinator / FSP Regional Health Co-ordinator,
PO Box 951, Port Vila, Vanuatu
tel +678 22 915, fax +678 24 510, e-mail fsp@vanuatu.pactok.net

FSP Papua New Guinea
PO Box 1119, Boroko, NCD, Papua New Guinea
tel +675 3 325 8470, fax +675 3 325 2670, e-mail fpsp@peg.apc.org

Solomon Islands Development Trust (SIDT)
SIDT, PO Box 147, Honiara, Solomon Islands
tel +677 21130, fax +677 21131, e-mail sidt@welkam.solomon.com.fb

FSP Vanuatu
PO Box 951, Port Vila, Vanuatu
tel +678 22 915, fax +678 24 510, e-mail fsp@vanuatu.pactok.net

FSP Fiji
PO Box 451, Lautoka, Fiji
tel +679 662 535, fax: +679 663 414, e-mail kanaproject@is.com.fj
FSP Kiribati
PO Box 43, Bairiki, Tarawa, Republic of Kiribati
tel +686 28101, fax +686 28082

UK Foundation for the South Pacific (UKFSP)
4A Newmills Road, Dalkeith, Midlothian, Scotland EH22 1DU, UK
tel +44 (0)131 663 7428, fax +44 (0)131 663 7433,
e-mail ukfsp@cableinet.co.uk

Counterpart/FSP USA
Farragut Square, 910 17th Street, NW, #328, Washington DC 20006, USA
tel +1 202 296 9676, fax +1 202 296 9679, e-mail info@counterpart.org

Australian Foundation for the People of Asia and Pacific
PO Box 12, Crows Nest, NSW 2065, Australia
tel +61 2 9906 3792, fax +61 2 9436 4637, e-mail: afsp@mpx.com.au

Tonga Trust
Local NGO affiliated to FSP
PO Box 519, Nuku'alofa, Tongatapu, Tonga
tel +676 21494, fax +676 24898

Worldwide Fund for Nature (WWF)
International conservation organisation with a Pacific branch.
WWF South Pacific Programme, Private Mail Bag, GPO Suva, Fiji
tel +679 31 5533, fax +679 31 5410

Friends of the Earth New Zealand-Aotearoa
The branch of this international environmental campaigning organisation most involved in the Pacific Islands.
P O Box 5599, Wellesley Street, Auckland, New Zealand
tel/fax +64 9 303 4319, e-mail foenz@kcbbs.gen.nz

Greenpeace
Environmental campaigning organisation.
Greenpeace Pacific, Private Mail Bag, Suva, Fiji
fax +679 312 784, e-mail greenpeacep@pactok.peg.apc.org
Appropriate Technology for Community and Environment (APACE)
Volunteer-based organisation concerned with appropriate technology transfer, particularly low-impact renewable energy systems.
APACE, c/-University of Technology, PO Box 123 Broadway, NSW 2007, Australia
tel +61 2330 2554, fax +61 2330 2611
URL http://www.pactok.net.au/docs/apace/home.htm

Forest Management Foundation
Supports sustainable community forestry projects.
47 Aubert Park, London N5 1TR
tel/fax +44 (0)171 359 7183

Pacific Concerns Resource Centre
Co-ordinates campaigns and disseminates information for the Nuclear Free and Independent Pacific Movement.
PCRC Inc. Office, 83 Amy Street, Toorak, Private Mail Bag, Suva, Fiji
tel +679 304 649, fax +679 304 755

Pactok
Electronic mail network serving the NGO movement in Asia and the Pacific.
PO Box 49 Annandale, NSW 2038, Australia
e-mail robg@pactok.peg.apc.org

Green Light Trust
Environmental education organisation linking Britain with Papua New Guinea.
Lawshall Green, Bury St. Edmunds, Suffolk IP29 4QS
tel +44 (0)1284 828 754, fax +44 (0)1284 827 078

Pacific Heritage Foundation
Local sustainable community forestry project in New Britain.
P O Box 546, Rabaul, Papua New Guinea
tel +675 92 1294, fax +675 92 1381
National Community Development Trust
Provides assistance to small-scale community projects in Vanuatu.
P O Box 1511, Port Vila, Vanuatu
tel +678 22969

Ole Siosiomaga Society Inc.
Western Samoan environmental conservation NGO.
Matautu PO Box 744, Three Corners, Taufusi, Apia, Western Samoa
tel +685 21 993

Pacific Island Association of Non-Governmental Organisations (PIANGO)
An information dissemination body for Pacific NGOs.
c/o Hiti Tau, BP 4611, Papeete, Tahiti
tel +689 521371, fax +689 572880

Voluntary Service Overseas (VSO)
British agency providing skilled workers in support of development in poorer countries.
VSO, 317 Putney Bridge Road, London SW15 2PN, UK
tel +44 (0)181 780 2266, fax +44 (0)181 780 1326

South Pacific Action Committee for Human Ecology and Environment (SPACHEE)
Organisation promoting environmentally sustainable development.
c/o University of the South Pacific, PO Box 1168, Suva, Fiji
tel +679 313 900 ext 2465, fax +679 302 548, e-mail spachee@usp.ac.fj

Church and ecumenical organisations

Pacific Conference of Churches
Main inter-church body for the Pacific.
PO Box 208, Suva, Fiji
tel +679 311 277/302 332, fax +679 303 205
World Council of Churches
International Protestant ecumenical organisation involving many Pacific Islands churches.
Unit 4-Pacific Desk, PO Box 2100, CH1222, Geneva 2, Switzerland
tel +41 22 791 6087, fax +41 22 788 0067

Pacific Forum of the Council of Churches for Britain and Ireland
Anglican organisation linking churches in Britain and the Pacific Islands.
Inter-Church House, 35–41 Lower Marsh, London SE1 7RL
tel +44 (0)171 620 4444, fax +44 (0)171 928 0010

Papua New Guinea Church Partnership
Anglican organisation linking churches in Britain and Papua New Guinea.
Partnership House, 157 Waterloo Road, London SE1 8XA, UK
tel +44 (0)171 928 8681, fax +44 (0)171 928 2371

Research organisations

Centre for Asia Pacific Studies
Academic and business studies for East Asia and the Pacific Islands.
Dr. Neil Renwick, Centre for Asia Pacific Studies, Nottingham Trent University, Clifton Lane, Nottingham NG11 8NS, UK
tel +44 (0)115 941 8418 fax +44 (0)115 948 6319
e-mail roy.smith@ntu.ac.uk

Avenir des Peuples des Forêts Tropicales (The Future of Tropical Rainforest Peoples) (APFT)
European Union-funded ethno-ecology research program with a Pacific section.
Prof. Roy Ellen, APFT Pacific co-ordinator, Dept of Anthropology and Sociology, Eliot College, University of Kent at Canterbury,
Kent CT2 7NS, UK
tel +44 (0)1227 764 000, fax +44 (0)1227 475 471, e-mail R.F.Ellen@ukc.ac.uk
East–West Center Program on Environment

Researches on management of renewable resources and the environment in Asia and the Pacific.
1777 East–West Road, Honolulu, Hawaii 96848, USA
tel +808 9444 7272, fax +808 944 7298, e-mail env@ewc.hawaii.edu

International Institute for Sustainable Development

Promotes sustainable development through policy research and information provision.
161 Portage Avenue East, 6th Floor, Winnipeg, Manitoba R3B 0Y4, Canada
tel +204 958 7700, fax +204 958 7710, e-mail iisd@web.apc.org

National Centre for Development Studies (NCDS)

Research and graduate training in environmental development and management with emphasis in research on Asia Pacific countries.
Research School of Pacific and Asian Studies, The Australian National University, Canberra ACT 0200, Australia
tel +61 6 249 4705, fax +61 6 257 2886, e-mail ncds@ncds.anu.edu.au

Pacific Islands Development Program (PIDP)

Provides research data and services related to Pacific social and economic development.
1777 East–West Road, Honolulu, Hawaii 96848, USA
tel +808 944 7724, fax +808 944 7670

United Nations University (UNU)

Range of interests in environment and sustainable development, including sustainable resource management.
Toho Seimei Building, 15–1 Shibuya 2-Chome, Shibuya-ku, Tokyo 150, Japan
tel +81 3 499 2811, fax +81 3 499 28228

International Institute for Environment and Development (IIED)

Promotes sustainable development through research, policy studies and information provision.
3 Endsleigh Street, London WC1H 0DD
tel +44 (0)171 388 2117, fax +44 (0)171 388 2826

Appendix: Pacific Islands links
Committee of Concerned Pacific Scholars
Promotes collaboration between social scientists and conservationists.
Kathleen Barlow, Department of Anthropology,
University of Minnesota,
215 Ford Hall, 220 Church Street, SE, Minneapolis, MN 55455, USA
tel +1 612 625 2387, fax +1 612 625 3095
e-mail barlo001@maroon.tc.umn.edu

Government and intergovernmental organisations

Forum Fisheries Agency
Marine conservation and fisheries management body for Pacific Forum states.
PO Box 659, Honiara, Solomon Islands
tel +677 21124, fax + 677 23996

South Pacific Commission
Provides technical advice, training, assistance and information to governments and administrations in the region.
BP D5, Noumea Cedex, New Caledonia
tel +687 26 2000 / 26 2011 fax +687 26 3818

South Pacific Regional Environment Programme (SPREP)
Promotes co-operation in the South Pacific and offers assistance to members (including all Pacific island states and territories) to improve their environment and ensure sustainable development.
PO Box 240, Apia, Western Samoa
tel +685 21 929, fax +685 20 231, e-mail sprep@pactok.peg.apc.org

Department for International Development
British government agency for overseas aid.
94 Victoria Street, London SW1E 5JL, UK
tel +44 (0)171 917 0950 fax +44 (0)171 917 0523

US Peace Corps
US agency providing development assistance.
c/o US Embassy, 31 Loftus Street, P O Box 218, Suva, Fiji
tel +679 314 466
International agencies

European Centre for Studies, Information and Education on Pacific Issues (ECSIEP)

European Union-funded information organisation.
ECSIEP, P O Box 151, 3700 AD Zeist, The Netherlands
tel +31 30 6927827, fax +31 30 6925614 / 6927987,
e-mail ecsiep@antenna.nl

Netherlands Committee for IUCN

Administers small grants for NGOs to implement Netherlands government tropical rainforest policy.
TRP Secretariat, Plantage Middenlaan 2B, 1018 DD Amsterdam,
The Netherlands
tel +31 20 626 1732, fax +31 20 627 9349

United Nations Food and Agriculture Organisation (FAO)

UN body with special responsibilities under Agenda 21 for promotion of sustainable agriculture and rural development and combating deforestation.
Regional Office for Asia and the Pacific (RAPA),
Maliwan Mansino, Phra Atit Road, Bangkok 10200, Thailand
tel +662 281 7844, fax +662 280 0445,
e-mail fao-rapa@fao.org

Economic and Social Commission for Asia and the Pacific

UN regional commission concerned with strategy for environmentally sustainable development.
ESCAP, Environment and Natural Resources Management Division,
UN Building, Rajadammern Avenue, Bangkok 10200, Thailand
tel + 66 2 228 1510, fax + 66 2 228 1025/228 1000

United Nations Department for Policy Co-ordination and Sustainable Development

Follow-up to the UN Conference on Environment and Development programme of action.
United Nations, New York, NY1007, USA
tel +1 212 963 4669, fax +1 212 963 1712
United Nations Development Programme (UNDP)
Multilateral development assistance organisation with offices in more than 120 countries.
1 United Nations Plaza, New York, NY10017, USA
tel +1 212 906 5000, fax +1 212 906 5364, e-mail sdnhq@igc.apc.org
South Pacific Programme Office, c/o UNDP Private Mail Bag, Suva, Fiji
tel +679 303 239, fax +679 304 942

Small Enterprise Development Programme
UNDP regional programme promoting indigenous small businesses.
c/o UNDP Private Mail Bag, Suva, Fiji
tel +679 312 960, fax +679 300 248 / 301 718,
e-mail sed@pactok.peg.apc.org

Pacific Sustainable Development Networking Programme (PSNDP)
Electronic network linking organisations concerned with sustainable development (currently for Vanuatu, Fiji, Western Samoa).
Private Mail Bag, Nabua, Suva, Fiji
tel +679 370 733, fax +679 370 021, e-mail ssesega@pactok.peg.org

United Nations Environment Programme (UNEP)
Co-ordinates research and information for the United Nations.
PO Box 30552, Nairobi, Kenya
tel +254 2 621 234, fax +254 2 226 886/890
internet http://www.unep.org

UNEP Information Unit on Climate Change
IUCC-UNEP, Geneva Executive Centre, CP 356,
CH-1219 Geneva 10, Switzerland
tel +41 22 979 9242/4, fax +41 22 979 3464, e-mail iucc@gn.apc.org

Global Resources Information Database (GRID)
Major international database for environmental information.
PO Box 30552, Nairobi, Kenya
tel +254 2 333 936, fax +254 2 520 281
Programme for the Protection of Oceans and Coastal Areas
PO Box 30552, Nairobi, Kenya
fax +254 2 520 711

Commercial organisations

Just World Trading Ltd.
A fair-trade agency affiliated to the UK Foundation for the South Pacific importing sustainably produced timber and non-timber forest products. 4A Newmills Road, Dalkeith, Edinburgh EH22 1DU, Scotland, UK
tel +44 (0)131 663 7478, fax +44 (0)131 663 7433,
e-mail ukfsp@cableinet.co.uk / 106341.724@compuserve.com

Forest Stewardship Council
Forest conservation organisation promoting trade in sustainably produced timber, which can provide details of certified importing companies.
FSC International, 502 Avenida Hidalgo, 68000 Oaxaca, Mexico
fax +52 951 62110

Solomon Western Islands Fair Trade (SWIFT)
Timber fair trade organisation linking Solomon Islands Western Province with the Netherlands.
SWIFT, PO Box 82, Munda, Solomon Islands
tel/fax +677 6125 Stichting SWIFT Nederland, Postbus 80, 6970 AB Brummen, The Netherlands
tel/fax +31 575 564754
Timber sales: SWIFT Hout bv, PO Box 291, 6950 AG Dieren, The Netherlands
tel +31 8330 14364, fax +31 8330 20151

Appendix: Pacific Islands links
"...the conventional development model, followed by governments in our shared Pacific Islands region, is fundamentally inadequate for addressing the broad social, economic, environmental, political, and cultural development needs confronting the Pacific Islands today... the present approach to development in the Pacific Islands requires fundamental reframing and redirection" (Halapua, chapter 2).

This book consists of contributions from scholars all over the globe who are involved in particular development issues in the Pacific, whether locally or at a distance. But it begins, concludes and is in constant conversation with the voices of Pacific Islanders themselves.

The resounding theme of the book is the way Pacific Islands' links with the wider world, the cause of so many problems for its peoples and environments, may also assist in solutions. The contributors come from an array of backgrounds, and internal tensions—subtle, overt, theoretical and pragmatic—are rife throughout.

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