



CHAPTER 8:

Pacific

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The Pacific subregion¹ is comprised of Australia, New Zealand and more than 19 island countries and territories in three ethnic and biogeographic groupings – Melanesia including Fiji, New Caledonia, Papua New Guinea, Solomon Islands and Vanuatu; Polynesia including American Samoa, the Cook Islands, French Polynesia, Niue, Samoa, Tonga and Tuvalu; and Micronesia including the Federated States of Micronesia, Guam, Kiribati, the Marshall Islands, Nauru, the Northern Mariana Islands and Palau.²

This chapter focuses mainly on the island countries and territories. In a globalizing world, Pacific small island developing states (SIDS) are facing declining competitiveness that has been responsible for mixed, but generally poor economic performances. The challenges to the SIDS in this subregion and in other parts of the world have been well documented through the preparatory processes for global conferences that have focussed on the sustainable development of SIDS. The Barbados Programme of Action for the Sustainable Development of Small Island Developing States (BPoA) remains the key point of reference in the global dialogue on sustainable development in SIDS.

Climate change, land use changes and urbanization processes represent the most crucial threats to the extremely limited environmental carrying capacity of these countries. Recent assessments of the environmental and sustainable development conditions and trends show that despite the slow economic growth, the environmental pressures associated with economic activity and population growth have become unsustainably high. At the same time, the erosion of traditional lifestyles, expanding urbanization processes and a weakening of community-based decision-making processes have impacted negatively on the sustainability of natural resource use – the pressures exerted by waste and land-use changes could be the most critical in terms of their implications for the subregion. Already limited freshwater resources in the smaller islands have come under increasing pressure from waste, population pressures and sea level rise linked to climate change.

Cooperation among the Pacific island countries and their larger neighbours has been facilitated by a well-organized subregional institutional cooperation framework. However, the gap between subregional commitment and national action remains wide in some areas. These shortfalls require the international community to focus on more effective and relevant capacity-building, particularly with respect to land-use planning and expanding opportunities for improving human welfare that are low in environmental impact.

The Pacific subregion's island countries, or small island developing states (SIDS), share challenges resulting from their remoteness, limited natural resource base, vulnerability to climate change and natural disaster, as well as economic vulnerability. These features are the basis upon which SIDS across the world are accorded the special status enshrined in Principle 6 of the *Rio Declaration* of the 1992 United Nations Conference for Environment and Development (UNCED). The Global Conference on the Sustainable Development of Small Island Developing States was convened in Barbados in 1994 and formulated the *Barbados Programme of Action for the Sustainable Development of Small Island States* (BPoA). In 2002 the World Summit on Sustainable Development (WSSD) reaffirmed the special case of SIDS and underscored a series of SIDS-specific issues and concerns in chapter 7 of the Johannesburg Plan of Implementation (JPOI). In a follow-up to the WSSD, the United Nations General Assembly adopted Resolution A/57/262, which *inter alia*, called for a comprehensive review of the BPoA. This review, held in Port Louis, Mauritius in January 2005, adopted the *Mauritius Declaration* and the *Mauritius Strategy for the Further Implementation of the Programme of Action for the Sustainable Development of Small Island Developing States*.³

More than ten years after its adoption, the BPoA is upheld by Pacific island countries as the key reference point in their efforts to achieve sustainable development, and has formed the basis of intergovernmental negotiations on the formulation of other regional and global sustainable development agendas.

8.1 The economy

In 1999 the ADB noted that the economic performance of Pacific island countries had been mixed, but generally poor.⁴ Subsequent assessments by ESCAP⁵ and a look at GDP growth rates of most of these countries, relative to those of other regional countries, show that this description is still valid.

Many of these countries are heavily dependent on ODA and remittances, and because of their narrow resource and economic base, are

extremely vulnerable to changes in global economic conditions.

The public sector is responsible for 75 per cent of formal employment in Kiribati, and some 25 per cent of GDP in Palau. High rates of public expenditure are linked to the high cost of governing far-flung outer islands, particularly in archipelagic countries with limited transportation and communication infrastructure. Economic activity in this subregion is mainly based on exploitation of the natural resource base, which includes vast exclusive economic zones (EEZs) encompassing highly-valued fisheries and seabed minerals; coastal areas, which provide food and income, as well as serve as important cultural and spiritual reference points; forests, with which Melanesian countries are most richly endowed; and minerals, which continue to be exploited throughout Melanesia and provide significant revenue.⁶ Pacific countries rely heavily on their natural resources for agriculture, forestry, fisheries and tourism. Small scale industry related to processing of these resources is also an important contributor to GDP. Table 8.1 lists the main economic activities for some Pacific island countries, while table 8.2 shows the main economic indicators.

Traditional land tenure arrangements, and sometimes contested allocation of land rights, as well as partially monetized economies in countries such as the Federated States of Micronesia, hampers infusions of foreign direct investment that drives economic growth in other economies. Private sector investment is also limited by the poor recognition of the need to honor commercial contracts, and the existence of monopolies such as in the telecommunications sector.

In recent years energy demand has increased significantly. Energy security issues have risen on the development agenda of the Pacific island countries as oil prices continue to be volatile. Pacific island country energy use is dominated by imported fossil fuels; the ratio of petroleum imports to total exports is very large – for most between 40 and 80 per cent – and is as high as 500 per cent in some, leaving the Pacific island countries vulnerable to disruptions in fuel supply. Fuel prices tend to be 20 to 30 per cent higher than world market prices,

Table 8.1 Main economic activities of selected Pacific island countries

Country	Main economic activities
Cook Islands	Fruit-processing, Tourism, Finance (including offshore trusts), Copra, Citrus fruits, Clothing, Coffee, Fish, Pearls and pearl shells, Mining, Handicrafts
Fiji	Sugar, Tourism, Copra, Gold, Clothing, Timber, Fish and other food processing, Cottage industries
Kiribati	Fishing, Handicrafts, Copra
Marshall Islands	Copra, Fish, Tourism, Craft items (shell, wood, pearls), Offshore banking (embryonic), Coconut oil, Trochus shells
Micronesia (Federated States of)	Tourism, Construction, Fish processing, Craft items (shell, wood, pearls), Garments, Bananas, Black pepper
Nauru	Phosphate mining, Financial services, Coconut products
Palau	Tourism, Craft items (shell, wood, pearls), Commercial fishing, Agriculture
Papua New Guinea	Copra crushing, Palm oil processing, Plywood production, Wood chip production, Mining of gold, silver, and copper, Crude oil production, Construction, Tourism, Timber, Coffee, Cocoa, Seafood
Samoa	Fishing, Tourism, Timber, Food processing, Coconut oil and cream, Copra, Beer
Solomon Islands	Timber, Fish, Palm oil, Cocoa, Copra
Tonga	Tourism, Fishing, Squash, Fish, Vanilla, Root crops, Coconut oil
Tuvalu	Fishing, Tourism, Copra, Stamps/coins
Vanuatu	Fishing, Offshore financial services, Tourism, Food and fish freezing, Wood processing, Meat canning, Coconut, Cocoa, Coffee

Source: Based on ADB (2004). *Pacific Region Environmental Strategy 2005-2009: Volume I: Strategy Document* (Manila, ADB).

despite high levels of subsidy by Pacific island country governments.⁷

Approximately 50 per cent of the total energy used is nonetheless still from indigenous sources, mainly biomass (fuelwood, bagasse and coconut husk and shell), hydropower, geothermal and small amounts of solar and wind energy. More than 75 per cent of the total population still relies on biomass for cooking. However this proportion is decreasing with the rising demand for more convenient and modern energy sources. Electricity production is mainly from hydropower in Samoa, Papua New Guinea and Fiji and diesel generators in almost every island. The demand for electricity has not been met in many countries; Kiribati, Papua New Guinea, the Solomon Islands and Vanuatu remain particularly challenged.

Past attempts at deploying new renewable energy technologies to enhance energy security and

reduce energy costs have progressed slowly. Delays have been attributed to the existence of policy, financial, technical and institutional barriers and low levels of awareness and managerial capacity.

8.2 Social development

The total population of the subregion, including Australia and New Zealand, is over 32 million. The population of the Pacific island countries is about 6.3 million people, with Melanesia, Micronesia and Polynesia making up 8, 2 and 1 per cent respectively of the total subregional population and Papua New Guinea accounting for the majority of this.⁸

In Melanesia, population-to-land ratios are low and emigration is insignificant. Rapid population growth has caused towns to expand faster than urban infrastructure can be provided. Populations are also growing relatively quickly in rural areas, consequently increasing pressure on land. Polynesia

Table 8.2 Economic indicators: Pacific

	GDP growth rate, % per annum (1999-2003)	GNI per capita, US\$ (2003)	Consumer Price Index change, % per annum (1999-2003)	Unemployment rate, % (2003)	Merchandise trade, billion US\$ (2003)		Total debt /GNI (2003)	ODA rec'd, million US\$ (2003)	FDI, net inflows, million US\$ (2003)	Structure of GDP, % of GDP (2003)		
					Exports	Imports				Agriculture	Industry	Services
American Samoa	-	-	2.6	-	-	-	-	-	-	-	-	-
Australia	3.2	23 604	3.7	6.0	70.25	84.49	-	6 851	4	26	71	
Cook Islands	-	2 404	4.3	-	0.01	0.07	1.477	6	-	13	9	78
Fiji	2.2	2 759	2.6	-	0.5	1.09	0.117	51	29	15	25	60
French Polynesia	-	19 253	1.3	-	0.15	1.57	-	519	-	-	-	-
Guam	-	-	1.3	-	-	-	-	-	-	-	-	-
Kiribati	1.9	1 417	2.8	-	-	-	0.194	18	-	-	-	-
Marshall Islands	-	2 197	0.4	-	-	-	0.784	56	-	-	-	-
Micronesia (Federated States of)	-	4 045	-	-	-	-	0.133	-	-	-	-	-
Nauru	-	3 742	-	-	-	-	-	16	-	-	-	-
New Caledonia	-	16 355	1.7	-	0.73	1.57	-	454	-	-	-	-
New Zealand	3.6	18 548	2.4	4.7	16.53	18.56	-	2 438	-	-	-	-
Niue	-	-	3.8	-	-	-	-	9	-	-	-	-
Northern Mariana Islands	-	-	0.1	-	-	-	-	-	-	-	-	-
Palau	-	5 409	-	-	-	-	0.171	26	1	4	13	83
Papua New Guinea	-0.4	519	12.8	-	2.26	1.3	0.448	221	101	26	39	35
Samoa	4.5	1 811	3.2	-	0.09	0.15	0.475	33	-	14	27	59
Solomon Islands	-5.3	450	8.5	-	-	-	0.763	60	-2	50	7	43
Tuvalu	-	2 240	3.4	-	-	-	-	6	-	-	-	-
Vanuatu	-0.7	1 077	2.8	-	0.021	0.105	0.382	32	19	20	9	72

Source: See Annex V.

generally has higher population densities, slower population growth rates and significant emigration. In Micronesia, land areas are much smaller and average population densities higher. Urban settlements of Micronesia are growing the fastest among the Pacific island countries, and are therefore under much more intense pressure than in other parts of the subregion (see table 8.3). Climate change is likely to accelerate urbanization rates by increasing migration from outer islands to urban centres.

Managing the rapidly growing 'urban villages' has become a key national priority in many countries, with infrastructure development a major challenge. All areas are being impacted by the inability of water infrastructure development to keep up with urban population growth; the proportion of population with access to improved drinking water declined in Samoa and the Marshall Islands between 1990 and 2002. Increased anthropogenic pressures in watersheds means declining water quality, and more vulnerable populations in areas with low access to safe drinking water, such as Fiji, Kiribati, Papua New Guinea and Vanuatu (Table 8.4).

Poor economic performance coupled with population growth and accelerating urbanization has contributed to growing hardship in Pacific island countries, where poverty as measured by the percentage of persons below the poverty line, has increased.⁹ This situation is exacerbated by weakened traditional social support systems. Despite these problems, the Human Development Index indicates improvement in most countries for which the measure is available. There have been improvements in life expectancy at birth and reduced infant mortality rates, but at the same time, increased mortality associated with changing lifestyles, accidents, the resurgence and emergence of infectious and vector-borne diseases, and sexually transmitted infections.¹⁰ HIV/AIDS infection rates have risen in Papua New Guinea, identifying the country as a new hotspot of the disease. As noted by the ADB, the increased demand for health services has already stressed the weakened health-care systems.

The term "poverty of opportunity" as used by UNDP and the Pacific Islands Forum Secretariat¹¹ indicates lack of access to basic services, socio-

economic opportunity and freedom of choice.¹² The term encapsulates the social challenges facing Pacific island countries. As noted by the Pacific Islands Forum Secretariat's *Regional Strategy (2002-2007)*, this has been manifested in many ways, such as rapid emigration from some countries, high unemployment, youth crime and extraordinarily high rates of youth suicide in some Pacific island countries. Young school graduates find they have inadequate or inappropriate skills for the few waged jobs that are available and most lack opportunities to upgrade their skills because too few training programmes are available. Human resource development has been highlighted as a priority by the national assessment reports completed by Pacific island countries for the 10-year review of the Barbados Programme of Action (BPoA+10).

Declining agricultural productivity, increasing cash-crop production, and erosion of traditional lifestyles in many islands, have signaled the breakdown of traditional food production systems that once represented more environmentally sustainable agricultural practices and assured greater food security. The result is increasing dependency on imported food. While most countries show a decline in the proportion of undernourished, this figure is on the increase in Papua New Guinea and may also be increasing in Vanuatu.

Social and political conflicts arise from ethnic differences, land disputes, disparity of economic opportunity, and a lack of confidence in governments' ability to resolve differences in an objective manner. In Fiji and the Solomon Islands, for example, conflict has resulted in reduced foreign investment. Security now features among the priorities of the region, along with economic growth and sustainable development.¹³

8.3 Environment and sustainable development conditions and trends

Comprehensive reviews have been undertaken of the environment and sustainable development issues shaping the Pacific islands in the context of international processes related to the review of the implementation of the BPoA, the preparatory processes for the WSSD, and most recently through

Table 8.3 Urbanization indicators: Pacific

	Urban population, thousands (2003)	Urban, % of pop'n (2003)	Average annual rate of change, % (2000-2005)		Population of the largest urban agglomerations (2003)		
			Urban	Rural	Agglomeration	Pop'n, '000	% of urban
World	3 043 935	48.3	2.1	0.4			
Australia/New Zealand	21 479	91.0	1.3	-2.7			
Australia	18 152	92.0	1.4	-3.8	Sydney	4 274	23.5
New Zealand	3 327	85.9	0.8	0.3	Auckland	1 117	33.6
Melanesia	1 454	19.5	2.5	2.0			
Fiji	434	51.7	2.5	-0.6	Greater Suva	210	48.5
New Caledonia	140	61.2	2.2	1.4	Noumea	140	100.0
Papua New Guinea	753	13.2	2.3	2.2	Port Moresby	275	36.5
Solomon Islands	79	16.5	4.5	2.6	Honiara	56	71.7
Vanuatu	48	22.8	4.1	1.9	Port-Vila	34	70.2
Micronesia	363	69.1	2.6	-0.1			
Guam	153	93.7	1.7	-1.1	Hagåtña	140	91.8
Kiribati	42	47.3	4.5	-1.3	South Tarawa	42	100.0
Marshall Islands	35	66.3	1.5	0.7	Majuro	25	72.0
Micronesia (Federated States of)	32	29.3	2.0	0.3	Palikir	7	20.4
Nauru	13	100.0	2.3	-	Nauru	13	100.0
Northern Mariana Islands	75	94.2	4.3	-0.6	Saipan	71	95.5
Palau	14	68.6	1.7	2.9	Koror	14	100.0
Polynesia	277	43.6	1.7	0.9			
American Samoa	56	90.3	2.9	-2.4	Pago Pago	52	92.6
Cook Islands	13	70.2	2.5	-5.1	Avarua	13	97.0
French Polynesia	127	52.1	1.2	1.8	Papeete	126	99.1
Niue	1	35.5	0.5	-2.2	Alofi	1	100.0
Samoa	40	22.3	1.3	0.9	Apia	40	100.0
Tonga	35	33.4	1.7	0.6	Nuku'alofa	35	100.0
Tuvalu	6	55.2	3.0	-0.9	Funafuti	6	100.0

Source: United Nations Department of Economic and Social Affairs Population Division (2003). *World Urbanization Prospects: The 2003 Revision* (New York, United Nations).

Table 8.4 Social indicators: Pacific

	Australia	Cook Islands	Fiji	French Polynesia	Guam	Kiribati	Marshall Islands	Micronesia (Federated States of)	Nauru	New Zealand	Niue	Palau	Papua New Guinea	Samoa	Solomon Islands	Tonga	Tuvalu	Vanuatu
Total population, thousands (2005 estimate)	20 155	-	848	-	170	-	-	110	-	4 028	-	-	5 887	185	478	102	-	211
Population growth, % (2004-2005)	1.2	0.1	0.8	1.5	1.6	2.3	1.6	1.2	1.1	1.2	-0.5	2	2	0.9	2.5	0.3	0.5	1.9
Urban population, % of total (2003)	92.0	70.2	51.7	52.1	93.7	47.3	66.3	29.3	100.0	85.9	35.5	68.6	13.2	22.3	16.5	33.4	55.2	22.8
Slum population, % of urban (2001)	1.6	-	67.8	-	-	55.7	2	2	2	1	-	0	19	9.8	7.9	1	0	37
Human Development Index (2002)	0.95	-	0.76	-	-	-	-	-	-	0.93	-	-	0.54	0.77	0.62	0.79	-	0.57
Primary school enrollment rate, % (2001)	96	-	99.8	-	-	-	-	-	-	98.4	-	-	73	94.9	-	99.7	-	93.2
Poverty, population below national poverty line, % (1990-2002) ^a	-	-	-	-	-	-	-	-	-	-	-	-	37.5	-	-	-	-	-
Life expectancy at birth, years (2002)	79.1	-	69.6	-	-	-	-	-	-	-	-	-	57.4	69.8	69	68.4	-	68.6
Under-five mortality rate, per 1,000 live births (2001)	6	-	20	-	-	66	61	23	30	6	-	28	93	24	22	19	51	38
Population with dietary energy supply below minimum requirement, % (1999-2001) ^b	-	-	-	-	-	-	0	0	0	-	-	0	-	0	-	0	0	-
Access to an improved water source, % of population (2002)	100	95	-	100	100	64	85	94	-	-	100	84	39	88	70	100	93	60
Gender-related Development Index (2002)	0.945	-	0.747	-	-	-	-	-	-	0.924	-	-	0.536	-	-	-	-	-
Digital Access Index (2002)	0.74	-	0.43	-	-	-	-	-	-	0.72	-	-	0.26	0.37	0.17	-	-	0.24

Sources: See Annex V.

Notes :

^a World Bank, data downloaded from the United Nations Millennium Indicators Database on 12 April 2006 from <http://millenniumindicators.un.org>.^b FAO (2003), *Selected Indicators of Food and Agriculture Development in Asia-Pacific Region 1992-2002* (Bangkok, FAO Regional Office for Asia and the Pacific).

the development of the *Pacific Plan* (see section 8.4). UNEP's *Pacific Environment Outlook* published in 2005, and the ADB's *Pacific Region Environmental Strategy 2005-2009* published in January 2004, are the most comprehensive recent environmental assessments. Most assessments note that the smallness of the Pacific island countries, geographical isolation from markets and extreme vulnerability to natural disaster and external economic developments (among other conditions), together make sustainable development an elusive goal for these countries.

A few countries are engaged in implementing national sustainable development strategies, for example Fiji, Kiribati, Papua New Guinea, Samoa and Tuvalu. Many more Pacific island countries have developed National Environmental Management Strategies, established environment units within government administrative structures, and initiated the development of environmental legislation and policy. Most Pacific island countries now have national focal points for disaster management and preparedness, and are building on their national disaster plans. The preparations for the WSSD and the Mauritius Conference kick-started important national processes that could form the basis for institutionalizing consultative decision-making mechanisms. Coordination between NGOs and governments is steadily increasing, with governments increasingly recognizing the critical role of NGOs and civil society, and encouraging their engagement in the delivery of programmes that relate to community development. A significant number of activities targeting, mobilizing and engaging local communities and civil society have been reported, mainly in biodiversity conservation, natural resource management, solid waste management and disaster preparedness and health.

An increasing number of Pacific island countries has signed, ratified and or acceded to multilateral environmental agreements (MEAs), including the *United Nations Convention on Biological Diversity* and the *United Nations Framework Convention on Climate Change*, among others. Meeting the requirements of MEAs is a challenge for most countries, but especially so for

the Pacific island countries in which government administrations are already stretched thin. The observation has been made in different forums that human and financial resources have been spent in addressing MEAs and other international agreements, to the detriment of progress on more nationally-focused sustainable development policy.

There are many features that distinguish the sustainable development challenges facing the Pacific island countries from those of other subregions. This is a subregion in which the 'standard' approaches to natural resources management may not always apply. Levels of capacity for standard environmental monitoring or for the development of integrated planning, are inadequate. Environmental impact assessments (EIAs) serve as an example of the difficulty of adapting standard environmental management tools to the Pacific island context. Although the use of EIAs is increasing, it is often driven by donor requirements, with many countries yet to adopt national legislation. Others with newly-passed legislation are struggling with lack of technical expertise in environment agencies and the private sectors. Data and information as a basis for planning and policy formulation remains a key constraint.

Land tenure systems in which ownership is joint or unclear, and governed by management systems based on traditional community leadership structures, are common, but are increasingly being eroded by the growing monetization of Pacific island economies. Over 80 per cent of land and marine resources are held in traditional tenure arrangements.¹⁴ Such tenure arrangements coexist with land administration structures which are legacies of the subregion's colonial history which, in the last 200 years featured Australia, France, Germany, Japan, New Zealand, Spain, United Kingdom and United States of America. State administrative systems have been described as having, in some cases, little to no links to community level leadership, leaving a significant gap between nationally-sanctioned policy and on the ground implementation.

In addition, there are wider challenges that impact on the efforts of Pacific island countries to

Table 8.5 Environmental indicators: Pacific

	Australia	Fiji	Kiribati	Marshall Islands	Micronesia (Federated States of)	Nauru	New Zealand	Palau	Papua New Guinea	Samoa	Solomon Islands	Tonga	Tuvalu	Vanuatu
Protected areas, % of land area	0.17	0	0.02	0.01	0	-	0.2	2.93	0.04	0.02	0	0.28	1.1	0
Forest area, % of land area	20.5	45.5	38.4	-	34.8	-	28.2	76.1	70.1	-	90.3	5.5	-	36.2
	20.1	44.6	38.4	-	21.7	-	29.7	76.1	67.6	37.2	88.8	5.5	-	36.7
Land use, % (2002)														
Arable and perm. crops	6	16	53	56	51	-	13	13	2	46	3	67	-	10
Permanent pasture	52	10		22	16	-	52	7	0	1	1	6	-	3
Renewable water resources, m ³ /capita/year	24 707	33 707	-	-	-	-	83 760	-	137 252	-	91 039	-	-	-
Water withdrawal, m ³ /capita/year	1 224	84	-	-	-	-	549	-	13	-	-	-	-	-
Threatened species, numbers (2004)														
Animals	565	35	11	13	26	5	128	18	153	16	58	13	8	19
Plants	56	66	0	0	4	0	21	3	142	2	16	3	0	10
Access to improved sanitation, % of population														
1990	100	98	25	75	30	-	-	66	45	98	-	97	78	-
2002	100	98	39	82	28	-	-	83	45	100	31	97	88	-
Energy intensity, energy supply (kg of oil equivalent) per US\$1,000 (PPP) GDP	210	-	-	-	-	-	218	-	-	-	-	-	-	-

Sources: See Annex V.

achieve sustainable development. There is evidence that the sustainable development agenda of the subregion is evolving in response to the impacts of, and opportunities arising from, globalization, growing vulnerability, strengthened civil society organizations and new development challenges. New areas of emphasis in the dialogue on sustainable development include the high priority given to capacity-building. The focus on capacity-building has been sharpened to refer to the quality and type of capacity-building that Pacific island countries are seeking (capacity-building that ‘lasts’). As an extension of this, the general treatment given to “people” in the Pacific WSSD submission (under which health and governance issues are addressed), is now given greater focus and emphasis, with the specific areas of health and education highlighted as priority concerns, along with population growth and increasing consumption.

New issues not previously highlighted as specific priorities include security, which previously referred to food and water security, but now explicitly covers peace, political stability, and law and order, and recently, greater emphasis on support for trade and investment.¹⁵ The subregion faces the challenges of addressing these emerging areas on the sustainable development agenda. Policy interlinkage and integrated planning are consistently mentioned as necessary for dealing with the interactions between these issues and environmental protection imperatives, and are key to progress towards sustainable development in the subregion.

Table 8.5 lists environmental indicators for the countries of this subregion. The most important environmental pressures on the carrying capacity of the island states documented in previously-published reports by UNEP and the ADB highlighted in this chapter include the extraction and use of natural resources for commercial purposes, such as logging, commercial fishing activity and tourism, which are relatively recent in many of the smaller islands and which present a source of conflict. Key environmental pressures also include growing waste and pollution and urbanization processes along with climate change and land use changes.

Climate change and sea level rise threatens the existence of Pacific island countries; the atoll islands of the Pacific subregion including Tuvalu, Kiribati and the Marshall Islands are barely one metre above sea level, and at the current rate of sea level rise will be completely inundated by the latter half of this century. Coastal erosion and salinization of shallow aquifers and agricultural lands are already increasing. Since 2001, both the Governments of Tuvalu and of Papua New Guinea have announced plans to evacuate citizens due to the impacts of climate change. The people of the Carteret Islands of Papua New Guinea have seen their agricultural productivity decline drastically as a result of soil salinization linked to rising sea levels.

The Regional Workshop on Community-Level Adaptation to Climate Change held in Suva, Fiji on 21-23 March 2005 noted that the Pacific island countries were among the first in the world to implement community level climate change adaptation projects and stressed the need for participation of all stakeholders in designing action. While affirming the continued responsibility of Annex 1 country parties to the Kyoto Protocol for assisting with climate change adaptation efforts, participants agreed that the costs of adaptation, for example for building sea walls or upgrading rainwater tanks, or movement of communities to less vulnerable locations “can be manageable when shared amongst interested parties.”¹⁶

8.3.1 Land use changes

Land use changes reflect the pressures of expanding economic activity and population growth, and are implicated in deteriorating freshwater quality, coastal resource degradation, land degradation and biodiversity losses, among other symptoms of declining environmental sustainability.

Land-use trends are difficult to track, given the paucity of data. However, FAO data points to significant changes in land use in the Federated States of Micronesia and the Marshall Islands which will significantly affect their environmental, social and economic outlooks.

Forest cover decreased in all Pacific island countries except Vanuatu during the period 1990 to 2000, with the largest percentage declines in the Federated States of Micronesia and Samoa (Table 8.6). The most heavily forested islands are Palau, the Solomon Islands and Papua New Guinea, while forest cover reaches critical lows in Tonga. While agriculture and urbanization are responsible for loss of forest cover in some countries, production of timber is taking its toll.

Total forestry exports from the region in 2001 totalled some US\$ 2.4 billion (including the exports of Australia and New Zealand), with Samoa and Vanuatu recording hundred-fold increases in the value of their exports from 1991 to 2001. Roundwood production (Table 8.7) increased during the period 1992 to 2002 by some 40 per cent, with the largest percentage increases in production in Vanuatu and the Solomon Islands. Tonga decreased its roundwood production during 1992-2002, while increasing the overall value of its exports during this period. During the same period, exports from Papua New Guinea, Fiji and the Solomon Islands outstripped other Pacific island

Table 8.7 Roundwood production

	Roundwood production, thousand m ³		Change,% (1992-2002)
	1992	2002	
Australia	20 674.4	31 426.4	52.0
Fiji	306.8	383.0	24.8
Kiribati	-	-	-
Marshall Islands	-	-	-
Micronesia (Federated States of)	-	-	-
Nauru	-	-	-
New Zealand	15 065.0	22 613.0	50.1
Palau	-	-	-
Papua New Guinea	7 997.0	7 241.0	-9.5
Samoa	131.0	131.0	0.0
Solomon Islands	468.0	692.0	47.9
Tonga	4.6	2.1	-54.3
Tuvalu	-	-	-
Vanuatu	63.2	119.0	88.3

Source: FAO(2004). *Selected Indicators of Food and Agriculture Development in Asia-Pacific Region, 1993-2003* (Bangkok, FAO Regional Office for Asia and the Pacific).

Table 8.6 Forest cover: Pacific island countries

	Forest cover (2000)					Forest cover change (1990-2000)		
	Land area ('000 hectares)	Total ('000 hectares)	% of land area	Area per capita (hectare)	Forest plantation (% of total forest)	%	% of land area	Natural forest change (%)
Fiji	1 827	815	44.6	1	11.9	-2	-1	-13
Kiribati	73	28	38.4	0.3	0.0	0	0	-
Marshall Islands	18	n.s.	-	-	-	-	-	-
Micronesia (Federated States of)	70	15	21.7	0.1	-	-38	-13	-
Nauru	2	n.s.	-	-	-	-	0	-
Palau	46	35	76.1	1.8	-	-	-	-
Papua New Guinea	45 286	30 601	67.6	6.5	0.3	-4	-3	-4
Samoa	283	105	37.2	0.6	4.8	-19	-9	-
Solomon Islands	2 799	2 536	88.8	5.9	2.0	-2	-2	-2
Tonga	72	4	5.5	n.s.	25.0	0	0	-
Tuvalu	3	-	-	-	-	-	-	-
Vanuatu	1 219	447	36.7	2.4	0.7	1	1	1

Source: Based on data from FAO (2004). *State of Forest Resources 2005* (Rome, FAO).

countries. In 2001, Papua New Guinea's exports valued approximately US\$199 million, Fiji US\$18.9 million and Solomon Islands US\$ 47.7 million.¹⁷

Land under permanent crops has expanded significantly in the Marshall Islands and the Federated States of Micronesia (Table 8.8). This may be partly attributed to increased population pressures in those countries. Agricultural production index (Table 8.9) values show that agricultural activity has declined in many countries, but there has been significant expansion in the Solomon Islands, Papua New Guinea and Kiribati. The area of permanent pasture has expanded significantly in the Marshall Islands, the Federated States of Micronesia and Palau (Table 8.10).

In addition to agriculture and forestry, mining makes up a significant proportion of GDP

Table 8.8 Permanent cropland: Pacific island countries

	Area, '000 ha (2003)	% of land area	Change		
			'000 ha, (1992-2003)	% (1992-2003)	% of land area (1992-2003)
American Samoa	3	15	1	50	5
Cook Islands	2	8	-1	-33	-4
Fiji	85	5	5	6	0
French Polynesia	22	6	1	5	0
Guam	10	18	0	0	0
Kiribati	35	48	-2	-5	-3
Marshall Islands	8	44	8	>100	44
Micronesia (Fed. States of)	32	46	32	>100	46
New Caledonia	4	0	-2	-33	0
Niue	4	15	1	33	4
Palau	2	4	2	>100	4
Papua New Guinea	650	1	60	10	0
Samoa	69	24	2	3	1
Solomon Islands	59	2	4	7	0
Tonga	11	15	-1	-8	-1
Tuvalu	2	67	0	0	0
Vanuatu	85	7	0	0	0

Source: FAOSTAT online database, accessed on 12 November 2005 from <www.faostat.fao.org>.

Table 8.9 Agricultural production index, Pacific island countries

	Index, 1989-91=100		
	1998	2000	2002
Australia	125.5	128.8	110.9
Fiji	84.7	99.3	96.8
Kiribati	133.1	126.5	130.5
Marshall Islands	85.4	54.5	54.5
Micronesia (Federated States of)	-	-	-
Nauru	105.6	105.6	105.6
New Zealand	120.7	121.8	127.8
Palau	-	-	-
Papua New Guinea	117.7	128.9	120.3
Samoa	97.4	101.5	104.3
Solomon Islands	134.6	148.3	152.1
Tonga	91.5	97.5	97.5
Tuvalu	-	-	-
Vanuatu	126	100.7	87.6

Source: FAO FAOSTAT online database website, accessed on 12 April 2006 from <www.faostat.fao.org>.

Note: Index values relate to gross production of agricultural products relative to the referenced time period.

Table 8.10 Permanent pasture: Pacific island countries

	Area, '000 ha (2003)	% of land area	Change	
			% (1992-2003)	% of land area (1992-2003)
Fiji	175	0	0	0
Marshall Islands	4	4	-	22
Micronesia (Federated States of)	11	11	0	16
Palau	3	3	0	7
Papua New Guinea	175	30	21	0
Samoa	2	1	100	0
Solomon Islands	40	1	3	0
Tonga	4	0	-	0
Vanuatu	42	5	14	0

Source: FAOSTAT online database, accessed on 12 November 2005 from <www.faostat.fao.org>.

in Australia, New Zealand, Nauru, Fiji and Papua New Guinea and has significant land use impacts in the Pacific island countries. Tourism development has also increased environmental pressures, particularly in coastal areas.

8.3.2 Pollution and waste management

Subregional and national environmental reports highlight the accelerating generation of municipal waste and its changing composition as an important source of environmental pressure. Reflecting changing lifestyles and consumer preferences, an increasing proportion of wastes is now non-biodegradable. UNEP's *Pacific Environment Outlook* warns that this mix will become increasingly hazardous, with new waste streams such as e-wastes and automotive wastes. Improper use and storage of agricultural chemicals in the category of persistent organic pollutants (POPs), pesticide-, oil- and diesel-contaminated sites as well as other waste stockpiles, remain a problem.

The subregion's coastal and marine resources are threatened by waste and pollution originating from shipwrecks, marine accidents and spills, ships' waste and antifouling paints on vessels. World War II shipwrecks and other sources of war-related chemicals, including unexploded munitions are also sources of concern. Liquid wastes in the form of sewerage, animal waste and seepage from landfills are impacting on groundwater and coastal resources.

The ADB's *Pacific Region Environmental Strategy 2005-2009* reports some recycling activity in Fiji, and in Vanuatu and Tonga, waste collection charges have been applied. Refund systems have also been successful in minimizing waste, for example, by encouraging the retrieval and reuse of glass beer bottles. However, in general, capacities to deal with the problem of waste, lack of economies of scale to support economically feasible recycling, and generally limited scope of applying charges for waste disposal and collection, constrain the choice of feasible solutions. High water tables, dependence on freshwater lenses as a source of water, and limited access to suitable land because of traditional land tenure systems, also reduce the number of viable landfill and sanitation options. Responses to

the problem of waste that may be employed elsewhere are severely challenged in the Pacific island country context; creative solutions are needed. Under an ADB project, traditional land managers in Majuro, Marshall Islands, have developed solid waste management action plans. In Tuvalu, dry sanitation solutions to protect critical groundwater and coastal resources have been introduced with some success. The Fukuoka method of increasing aeration of landfills and accelerating decaying rates, as well as eliminating toxic runoff, deployed at the Tafaigata landfill in Samoa with support of the Japan International Cooperation Agency, is a proven low-cost waste management approach.¹⁸

Some Pacific island countries, including Fiji and Tuvalu have closed substandard dumps, developed improved facilities, and are removing stockpiled wastes with external assistance, such as from Australia. Despite these developments, landfill disposal will remain problematic for the subregion, and real progress will only be made when countries begin to find ways of drastically reducing and minimizing their waste streams. There is still significant work to be done to improve the legislative framework for waste and pollution management.

8.3.3 Freshwater resources

Despite relatively moderate economic growth and development in the last decade, there has been a steady increase in water demand. UNEP indicates that freshwater-related problems have been reported from as early as 1992, with the majority of countries experiencing shortfalls in supply or storage and an even higher number reporting groundwater pollution. The most important pressures on freshwater resources stem from changing rainfall regimes; sea-level rise and salt-water intrusion; increasing activity in watersheds, including deforestation; urbanization along with inadequate sanitation infrastructure; increasing water demand associated with urban lifestyles; aging water delivery infrastructure; and overall increasing pollution loads related to industrial and agricultural activity. The consequences include an increase in water-borne diseases and general hardship, especially for women and children. Although

water-borne disease are also reported in the “high” islands, the most critically affected are the small islands with limited surface water, high dependence on rainwater and fragile groundwater systems.

The following three areas were identified as broad challenges in ensuring a sustainable freshwater supply at the Kyoto Consultations for SIDS during the Third World Water Forum, and were also included in the United Nations Secretary General’s Report to the Twelfth Meeting of the Commission on Sustainable Development:¹⁹

- 1) Fragility of water resources due to small size, lack of natural storage and competing land uses, vulnerability to natural and anthropogenic hazards, including drought, cyclones and urban pollution;
- 2) Lack of resources including human and financial resources, which restricts the availability of experienced staff and investment, and effectiveness of cost-recovery; and
- 3) Complexity of water governance due to the specific socio-political and cultural structures relating to traditional community, tribal and inter-island practices, rights and interests, which are all interwoven with colonial and ‘modern’ practices and instruments.

As a result of these challenges, only a few Pacific island countries have enjoyed the investment,

management and united community support needed for a sustainable water supply. The unmet demand for access to safe water is highest in Kiribati, Papua New Guinea and Vanuatu (Table 8.4). The proportion of population with access to improved water decreased from 1990 to 2002 in the Marshall Islands and Samoa. The Federated States of Micronesia has among the lowest levels of access to sanitation in Asia and the Pacific, with the proportion of population served declining between 1990 and 2002 (Table 8.5).

The Pacific Islands Management Model is considered a best practice and involves strong community partnership (see box 8.1) to improve access to water and sanitation. Samoa has successfully introduced volume-based water fees, an initiative that has significantly raised awareness of the importance of wise use and conservation of water resources.

The ADB documents a number of successful local responses to the challenge of water resources management, including increased rainwater collection and wastewater treatment based on artificial wetlands. Community involvement in protecting water resources, will increasingly be needed to reduce pollution loads and strengthen land-use planning.

Box 8.1 Ebeye - best practice in Pacific island water and sanitation service delivery

Proper sanitation, adequate supplies of drinking water, and a dependable power supply are all interconnected and essential to human well-being. Ebeye is a very small island in the Marshall Islands in which the deterioration of water and sanitation systems reached crisis levels. In 1997, due to inadequate maintenance, the power plant and generators deteriorated causing the desalination plant to become inoperable. Water for drinking and cooking was then ferried twice a week from United States Army Kwajalein Atoll and distributed by water tank truck.

As a last effort to remedy this situation, the government in consultation with, and financed by, the Asian Development Bank (ADB), tendered a contract for management of the water utility in 1999. The contract was awarded to the American Samoa Power Authority, which was tasked with improving power and water production and distribution as well as sewerage systems. The Pacific Islands Management Model, as the project came to be known, is a hybrid of public and private sector approaches, fostering commercial principles and practices while allowing the government to fulfill its social responsibilities. The management paradigm adopted allows operations personnel from one island utility to support the delivery of water and sanitation services in another, through the provision of the right mix of managers, professionals and technicians.

Source: Malae, Abe UTU (2004). “Pacific Islands Management Model as Practiced at ASPA,” presentation at the United States of America Environmental Protection Agency Pacific Island Conference, 21-25 June 2004.

8.3.4 Coastal and marine resources – coral reefs, mangroves and fisheries

For most Pacific islands countries, watersheds, coastal areas, terrestrial ecosystems, freshwater and marine resources are inextricably linked. The coastal and marine resources and environments of Pacific island countries are the basis for the subsistence economies that still characterize many countries, as well as for the tourism industry and other marine-based industry. These resources are, however, under threat from urbanization processes, related waste and pollution, unsustainable commercial exploitation and land-use changes.

As reported by UNEP, Pacific island countries are experiencing declining fishery productivity from over-harvesting; destructive fishing practices; loss of habitat; shoreline development; sand mining; pollution; invasive species; serious declines in transboundary migratory species such as whales, turtles and dolphins; and climate change. Unsustainable fishing activity, as discussed comprehensively by both UNEP and ADB, is a major concern for almost all countries. As near-shore catches decline through over-exploitation and habitat loss, people resort to more innovative and destructive methods such as night spear fishing, and use of poisons and explosives. Access to Pacific island country fisheries by distant water fishing nations is responsible for high and growing exploitation rates, with limited economic benefit for Pacific island countries, which also remain vulnerable to poaching.

In most countries of the region, with the exception of New Zealand and Papua New Guinea, total fishery production has declined or remained constant. The Pacific subregion exported an annual average of 473,000 metric tons of fish and fish products during 2000-2002, an increase of 34 per cent on the annual average for the period 1989 to 1992. The largest increases during this period were seen in Papua New Guinea with decreasing exports in Solomon Islands. Also during this period, Tonga became a net importer of fish and fish products, joining Samoa.²⁰

Exploitation of deep-sea minerals offers potential benefits as well as dangers to Pacific island

countries. Exploration licenses covering more than five thousand square kilometers have been granted and more are under consideration. Support from the international community is necessary to assist national and regional efforts to assess resource information and to develop appropriate policies and legislative regimes.

Coral reefs and mangroves constitute a significant portion of natural capital represented by coastal and marine resources, and both are in significant decline. All countries in the subregion have shown a decline in mangrove forest cover between 1990 and 2000. With the possible exceptions of the Federated States of Micronesia, Palau, Samoa, Tonga, Tuvalu and Vanuatu, all lost over 20 per cent of their mangrove forests from 1990-2000, with Fiji, Papua New Guinea and the Solomon Islands losing smaller proportions, but still significant, mangrove forest cover during that period.²¹

Both ADB and UNEP have reported high risk rates for coral reefs, with the exception of those in the waters of Marshall Islands, Tuvalu and New Caledonia.²² The ADB outlines the key challenges facing reefs, mainly related to land use changes, destructive activities such as sand and reef mining, and over-exploitation, as well as pollution. The list includes climate-related catastrophic events such as coral bleaching events which seriously affected Fiji and the Solomon Islands in 2000 and 2001.²³ In Vanuatu there have been unconfirmed reports of more recent incidents of coral bleaching.

The ADB points out that no legislation in the Pacific is dedicated to conserving coral reefs, but in some cases, their protection is covered under national regulations governing fishing resources; traditional tenure systems remain strong and effective in Fiji and Vanuatu and are being revived in other Pacific island countries, such as Cook Islands, Samoa, Solomon Islands and Tuvalu. The Locally Managed Marine Areas network encourages communities to manage their coral reef resources in partnership with governments and NGOs.

The decline of mangroves and coral reefs is increasing the islands' vulnerability to cyclones and

storm surges. These storms are expected to increase in frequency and intensity as a result of climate change. Cyclones have already caused considerable damage on land and increased sediment loads onto coastal reefs of Fiji, Samoa and Vanuatu.

8.3.5 Natural disaster

Most of the countries depend on a narrow range of resources for export and subsistence and consequently the impacts of natural disasters are disproportionately high, often causing long-term damage to the entire economy. In 1993, an outbreak of taro leaf blight in Samoa, for example, completely destroyed this industry, depriving the country of export revenue.²⁴ The economic, social and environmental consequences are long-lasting, and the costs of rehabilitation as a percentage of gross national product, can be very high. Table 8.11 shows the types of natural disasters and countries most severely affected.

Hazards in the subregion include droughts, storm surges, floods, frosts, bushfires, earthquakes, tsunamis, landslides, volcanic activity and insect or vermin plagues. Improperly managed chemicals in school laboratories, hazardous materials and waste, absence of occupational health and safety guidelines, lack of cost-efficient disaster management technology for spills, fires, and chemical leaks, all increase the probability of a human-made disaster.

8.3.6 Biodiversity resources

There are distinct terrestrial ecosystems in the subregion, ranging from the diverse and highly endemic ecosystems of the large mountainous islands, to the less diverse ecosystems of the small low islands and atolls. This subregion has perhaps the highest marine biodiversity in the world, and the most extensive coral reef systems. Pacific island biodiversity is highly endemic, and at the same time, extremely vulnerable. Small population sizes limit their ability to recover from disturbances.

Table 8.11 Natural disasters in the Pacific, 1990-2000

Disaster type	Countries most severely affected	Countries affected and frequency
Tropical cyclones	Cook Islands, Fiji, Marshall Islands, Samoa, Solomon Islands, Tokelau, Tonga, Vanuatu	Cook Islands (14), Micronesia (Federated States of) (2), Fiji (12), Marshall Islands (4), Niue (1), Palau (1), Papua New Guinea (2), Samoa (4), Solomon Islands (6), Tokelau (2), Tonga (9), Tuvalu (7), Vanuatu (15)
Storm surges	Tokelau, Solomon Islands	Cook Islands (2), ¹ Samoa (1), Solomon Islands (2), Tokelau (1)
Floods	Fiji, Papua New Guinea	Fiji (4), Papua New Guinea (4), Samoa (1), Solomon Islands (1), Vanuatu (2)
Droughts	All countries	Fiji (1), Kiribati (1), Marshall Islands (19), Micronesia (Federated States of) (2), Nauru (1), Palau (1), Papua New Guinea (1), Solomon Islands (1), Tonga (2), Vanuatu (1)
Earthquakes	Papua New Guinea	Fiji (1), Papua New Guinea (1), Vanuatu (2)
Landslides (with a cyclone)	Solomon Islands	Samoa (1), Solomon Islands (1), Vanuatu (2)
Landslides (with an earthquake)	Papua New Guinea	Papua New Guinea (1)
Tsunami	Papua New Guinea	Papua New Guinea (1), Vanuatu (1)
Volcanic eruptions	Papua New Guinea	Papua New Guinea (3), Vanuatu (1)

Source: United Nations Development Programme South Pacific Office (2002). *Natural Disaster Reduction in Pacific SIDS*, Final Report for International Decade for Natural Disaster Reduction 1990-2000

¹ EM-DAT: The OFDA/CRED International Disaster Database, Université Catholique de Louvain, Brussels, Belgium. Accessed on 25 November 2004 from <<http://www.em-dat.net/>>.

Terrestrial, marine and inland coastal habitats depend heavily on the health of native forests. Although there has been much progress in conservation efforts in the past decade, there is still deep concern regarding the impacts of increasingly inappropriate land and resource use, discussed in earlier sections. Both the ADB and UNEP have extensively reviewed the status of Pacific islands biodiversity resources, giving key indicators including areas of land with protected status. The ADB has provided a comprehensive list of threats to biodiversity.²⁵ As noted by UNEP, and as shown in Table 8.12, birds are the most threatened taxonomic group. UNEP, based on the national assessment reports to the WSSD completed by Pacific island countries, has identified invasive and alien species as the major threat to biodiversity. Habitat alteration and loss related to land-use changes, overexploitation of natural resources and destructive harvesting practices as well as natural phenomena such as fire, floods and cyclones are also implicated.

Pacific island people continue to depend heavily on biological resources which can have strong

spiritual and cultural significance. This may account for the notable success of community conservation efforts in Papua New Guinea, Cook Islands and Samoa, which have more than 3.5 million hectares of various types of ecosystems under management.²⁶

The South Pacific Biodiversity Conservation Programme (SPBCP) focuses on integrated community level conservation of important sites. Under the SPBCP, seventeen conservation areas covering a wide range of tropical island ecosystems were established or strengthened in the twelve countries that participated in the project. This programme contributed to developing deeper insight into ways of empowering local communities to sustainably manage their biodiversity resources. Other achievements are highlighted in Box 8.2.

8.4 Subregional cooperation

Since the development of the BPoA in 1994, considerable effort at the national level has been complemented by subregional action and supported by the international community, in particular by Australia and New Zealand, as well as other countries and areas outside of the subregion.

Table 8.12 Threatened species by taxonomic group

	Mammals	Birds	Reptiles	Amphibia	Fishes	Invertebrates		Plants	Total
						Molluscs	Other invertebrates		
Australia	63	35	38	35	74	175	107	56	583
Fiji	5	13	6	1	8	2	0	66	101
Kiribati	0	4	1	0	4	1	0	0	10
Marshall Islands	1	1	2	0	7	1	0	0	12
Micronesia (Federated States of)	6	5	2	0	6	4	0	4	27
Nauru	0	2	-	0	2	0	0	0	4
New Zealand	8	63	11	1	16	5	8	21	133
Palau	3	2	2	0	6	5	0	3	21
Papua New Guinea	58	32	9	0	31	2	10	142	284
Samoa	3	8	1	0	4	1	0	2	19
Solomon Islands	20	23	4	0	4	2	4	16	73
Tonga	2	3	2	0	3	2	0	3	15
Tuvalu	0	1	1	0	4	1	0	0	7
Vanuatu	5	8	2	0	4	0	0	10	29

Source: IUCN 2003 Redlist.

Special effort has been made to build capacity, develop effective policy and plans, better coordinate national and regional action, take stock of the region's environment and natural resources, and reform national and regional arrangements, where necessary. These efforts are manifested *inter alia*, in the work of regional organizations such as the Secretariat of the Pacific Regional Environment Programme²⁷ (SPREP) and its Regional Action Plan (2005-2009); progress in integrating environment and other social concerns in the region's economic and public sector reform programmes through the Forum Economic Ministers Meeting; and the work of the Council of Regional Organizations (CROP)²⁸ and its working groups.

The subregional Tourism Policy Guidelines provide a good example of efforts to adopt a holistic, integrated approach to island development. The completion of the Implementing Agreement for Highly Migratory and Straddling Fish Stocks that led to the multi-lateral high level consultations concerning the conservation and management of critical tuna resources in the region and the establishment of a new Regional Tuna Commission have been critical achievements. One of the most significant developments of the past decade in the region has been the development of the Pacific Regional Ocean Policy, endorsed by Pacific region leaders in August 2002 and its Framework for Action, endorsed in 2004, both based on principles of international law, as reflected in the *United Nations Convention on the Law of the Sea* and other international and regional agreements. The policy presents a framework for the sustainable development, management and conservation of the resources and habitats. Other subregional cooperative initiatives include:

- The Waste Management Master Plan,²⁹ which sets out a ten-year programme for addressing waste management issues in coordination with donor agencies;
- The South Pacific Applied Geoscience Commission (SOPAC) initiatives to improve the regional coordination of efforts to address disaster management. A number of programmes have been planned and implemented at the regional and national levels;
- A Regional Invasive Species Programme established in 1998, and the subsequent development of a regional invasive species strategy;
- The Pacific Regional Action Plan on Sustainable Water Management established in 2002, endorsed by 18 countries, including 16 at Head of State level. The Plan not only provides a basis for coordinated action, it has also significantly driven water up the national and subregional agenda, and provided impetus and political support for action; and
- The convening of regional energy meetings; the development of a Pacific Islands Energy Policy and Plan (PIEPP) and the Pacific Islands Energy Policies and Strategic Action Planning (PIEPSAP) Project, which have assisted in the development of a number of national energy policies and the streamlining of regional energy projects and programmes; the implementation of the Global Environment Facility (GEF)-funded Pacific Islands Renewable Energy Programme (PIREP) for the development of a detailed

Box 8.2 Biodiversity conservation in Pacific island countries: achievements and initiatives

- 10.9 million km² of EEZ set aside as whale sanctuaries
- Increase in total area of ecosystems under conservation management
- Thirteen national conservation agencies in 13 Pacific island countries
- Five Pacific island countries formulating National Biodiversity Strategy and Action Plans
- Shift to community based conservation management
- Formulation of the *Action Strategy for Nature Conservation in the Pacific Islands Region, 2003-2007*
- Establishment of the Roundtable for Nature Conservation as a coalition of stakeholders and for better coordination of activity and funding in the region

Source: *Action Strategy for Nature Conservation in the Pacific Islands Region, 2003-2007*; website of the Convention on

project document that addresses the removal of barriers to the implementation of renewable energy and the subsequent ESCAP-developed Pacific Renewable Energy Training Initiative; and the SOPAC-implemented Promotion of Environmentally Sustainable Transport in the Pacific Islands project.

The October 2005 Pacific Plan for Strengthening Regional Cooperation and Integration is the main vehicle intended to give effect to the April 2004 *Auckland Declaration* of Pacific Forum Leaders which establishes a shared vision for the Pacific countries. The Pacific Plan identifies sustainable development as one of the key development objectives of the region, and recognizes the “limited capacity and fragile and vulnerable environments.” The Plan identifies the development and implementation of national sustainable development strategies, conservation and management of fisheries resources, waste management, implementation of the *Pacific Islands Energy Policy* and other actions relating to health, youth and sport as priorities for action to achieve this goal.

As in other subregions, the “on-the-ground” effectiveness of environmental cooperation initiatives, while necessary as the basis for mutual supportive action, has been questioned.³⁰ An “implementation gap” – i.e. a disparity between national economic development planning, governance processes at the provisional/outer island level, and, further down the line, local-level community development projects, has been noted.³¹

Nevertheless, significant action has been taken to improve the management of natural resources, biodiversity, and the impacts of climate change, in particular, in increasing awareness. There has also been some progress in waste management, specifically the identification and removal of hazardous waste stockpiles and the improvement of existing landfills. Capacity-building activities dominate implementation throughout all key areas of the BPoA across all Pacific island countries, with the most common capacity-building activities focusing on skills training, improved access to sustainable development information, and support

for planning activities. Engagement of local communities and civil society has improved, and traditional approaches have proven successful, especially in biodiversity conservation.

8.5 Conclusion

Until recently, people of the Pacific have enjoyed a generally favourable balance between population, resources, and the environment, and Pacific islanders have been fortunate to be free from absolute poverty. This situation is now under threat, as environmental degradation continues.

Subregional cooperation is yet to address the long-term sustainable development challenges facing the Pacific island countries. Integrated land-use planning is urgently needed, in light of the changes in land use taking place. Similarly trade and investment policy and promotion that recognizes the environmental and social sensitivities of each country and promotes environmentally-sustainable patterns of growth should receive more attention.

The challenge of changing consumption patterns should not be underestimated. In the Pacific island countries, even a slight increase in per capita consumption will constitute a serious burden on the subregion’s vulnerable environment and limited natural resource base. Forward-thinking measures for preventing unsustainable patterns of consumption and production from becoming entrenched while at the same time, maximising human welfare, must be identified. Economic planning frameworks must address the critical impacts of production and consumption activity on environmental sustainability.

End notes

¹ While Australia and New Zealand are recognized as integral to the Pacific subregion, this chapter focuses mainly on the island countries and territories. It draws on regional reports prepared for the United Nations Commission on Sustainable Development meetings (notably the “Pacific Submission to the Ninth Meeting of the United Nations Commission on Sustainable Development”, the “Pacific Submission to the United Nations Commission on Sustainable Development Seventh Meeting” and the “Pacific Submission to the United Nations Commission on Sustainable Development Eighth Meeting”); the World Summit on Sustainable Development, 2002; *The Barbados Programme of Action for the Sustainable Development of Small Island States* (BPoA); and the Ten-Year Review of the BPoA. Information for this chapter has also been obtained from research and from the Pacific island country national assessment reports (NARs). These NARs document the status of implementation of the BPoA and Agenda 21 and were used in the development of the Pacific Regional Position Paper for the World Summit on Sustainable Development, 2002 and the Ten-Year Review of the Barbados Programme of Action held in Mauritius, January 2005.

² The countries mentioned include those which are ESCAP member or associate member countries.

³ See the website of the United Nations Department for Economic and Social Affairs, Division for Sustainable Development, accessed on 14 January 2005 from <<http://www.un.org/esa/sustdev/sids/sids.htm>>.

⁴ ADB (1999). *Pursuing Economic Reform in the Pacific* (Manila, ADB).

⁵ See the ESCAP Economic and Social Survey series, accessed on 9 March 2006 from <http://www.unescap.org/pdd/publications/index_survey.asp>.

⁶ Pacific Island Forum Secretariat (2002). *Regional Strategy Paper and Regional Indicative Programme, 2002-2007* (Suva, Pacific Island Forum Secretariat).

⁷ Reference is made to the *Pacific Regional Submission to the Ninth Meeting of the United Nations Commission on Sustainable Development*. The *Pacific Regional Energy Assessment* (1992) showed the tremendous impact of petroleum imports on the economy.

⁸ Based on United Nations estimates and projections as revised in 2003 (*World Urbanization Prospects: The 2003 Revision* (New York, United Nations)).

⁹ ADB (2004). *Pacific Regional Environmental Strategy 2005-2009* (Manila, ADB).

¹⁰ ADB (2004), *ibid.*

¹¹ UNDP (1999). *Human Development Report 1999: Globalization with a Human Face*. (New York, UNDP); Pacific Island Forum Secretariat (2002). *Regional Strategy Paper and Regional Indicative Programme, 2002-2007* (Suva, PIFS).

¹² Abott, David and Steve Pollard (2004). *Hardship and Poverty in the Pacific* (Manila, ADB).

¹³ Pacific Island Forum Secretariat (2004). *Auckland Declaration of Pacific Forum leaders* (Auckland, Pacific Island Forum Secretariat).

¹⁴ ADB (2004), *op. cit.*

¹⁵ ESCAP (2003). “Subregional Paper: Pacific. Sustainable Development – Progress, Challenges and Priorities for The Ministerial Conference on Environment and Development in Asia and the Pacific, 2005,” presented at the Pacific Subregional Preparatory Meeting for the Ministerial Conference on Environment and Development in Asia and the Pacific, 2005, 21-22 October 2004 Apia, Samoa. Prepared in collaboration with SPREP.

¹⁶ The Capacity Building for the Development of Adaptation Measures in Pacific Island Countries project was funded by the Canadian International Development Agency and executed by SPREP during 2002-2005.

¹⁷ FAO (2004a). *Selected Indicators of Food and Agricultural Development in Asia-Pacific Region 1993-2003* (Bangkok, FAO Regional office for Asia and the Pacific).

¹⁸ For more information see SREP (2003). “Landmark for waste management in the Pacific,” undated press release, accessed in June 2004 from <http://www.sprep.org.ws/article/news_detail.asp?id=248>.

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²⁰ Based on data from FAO (2004a), *op. cit.*

²¹ Based on data from FAO (2004b). *State of the World's Forests 2005* (Rome, FAO).

²² Both ADB (2004), *op. cit.*, and UNEP (2005), *op. cit.* refer to Bryant, D., L. Burke, J. McManus, and M. Spalding (1998). *Reefs at Risk: A map-based indicator of potential threats to the world's coral reefs* (Washington DC, World Resources Institute). A more recent assessment may be provided by Spalding M.D., C. Ravilious and E.P. Gree (2001). *World Atlas of Coral Reefs* (Berkeley, University of California Press).

²³ Wilkinson, C. (2002). *Status of Coral Reefs of the World* (Townsville, Australian Institute of Marine Science).

²⁴ AusAID (2000). “Taro leaf blight, tackling the problem as partners,” in *AUSAID, Focus – The magazine of Australia’s overseas aid programme*, Volume 15, No. 2, July 2000 (Canberra, AusAID).

²⁵ Thaman, R.R. (2002). “Island Life in the 21st Century: Current Status and Challenges for Mainstreaming the Conservation and Sustainable Use of Biodiversity in the Pacific Islands,” presented at the 7th Pacific Islands Conference on Nature Conservation and Protected Areas, 8-12 July 2002, Rarotonga, Cook Islands.

²⁶ SPREP (2002). *Action Strategy for Nature Conservation in the Pacific Islands Region, 2003-2007* (Apia, SPREP).

²⁷ Formerly the South Pacific Regional Environment Programme.

²⁸ CROP includes ten regional agencies namely: Pacific Islands Forum Secretariat; Forum Fisheries Agencies; Secretariat of the Pacific Community; South Pacific Applied Geoscience Commission; University of the South Pacific; Secretariat of the Pacific Regional Programme for the Environment; Pacific Island Development Programme; Fiji School of Medicine; South Pacific Board of Education Assessment; and the South Pacific Tourism Organisation.

²⁹ See SPREP (2003). *SPREP Pollution Prevention: a 5-year strategy, 2004-2008* (Apia, SPREP).

³⁰ See ADB (2004), op. cit. and ESCAP (2004), op. cit.

³¹ See ESCAP (2004), op. cit.