

POVERTY, CLIMATE CHANGE AND HEALTH IN PACIFIC ISLAND COUNTRIES

**ISSUES TO CONSIDER IN DISCUSSION, DEBATE AND
POLICY DEVELOPMENT**

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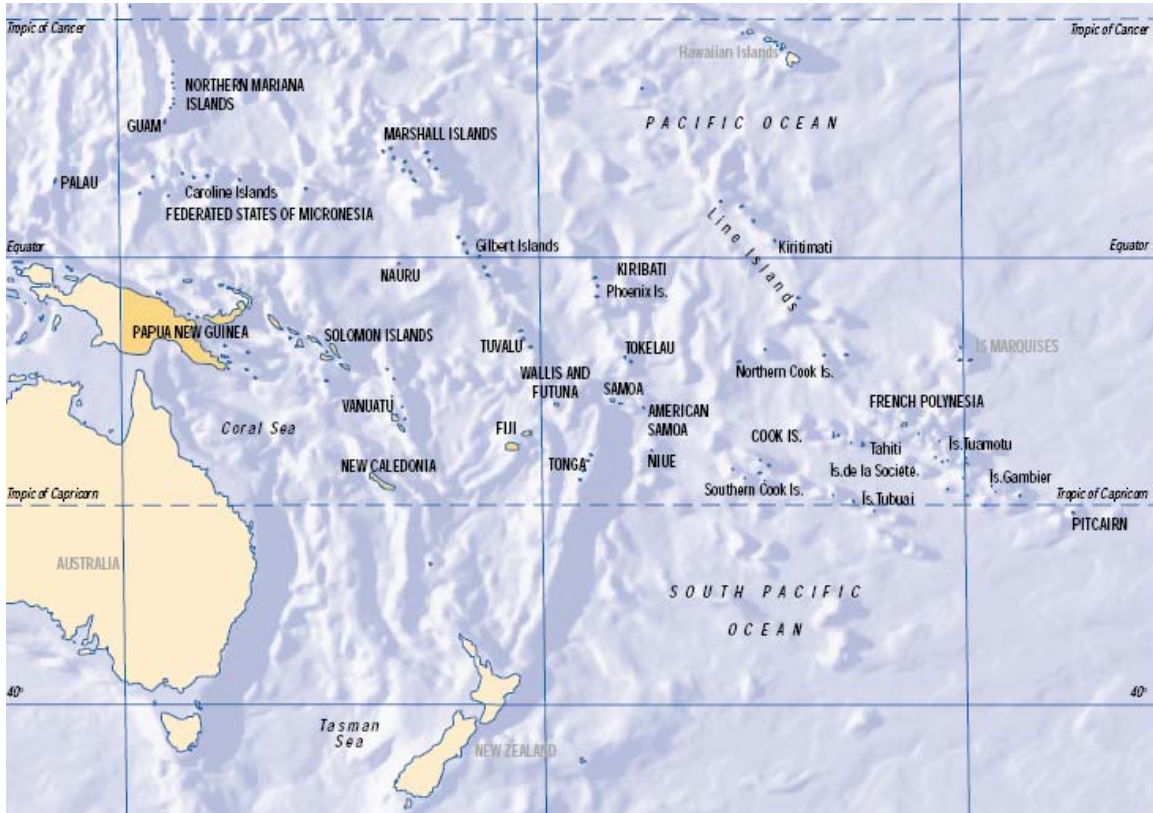
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MAP OF THE PACIFIC ISLAND NATIONS AND TERRITORIES



This map is from United Nations Environment Programme (2000). Pacific Islands environment outlook. SPREP 2000.

<http://www.unep.org/geo2000/region/pieo.pdf>

FORWARD

As a consequence of my own work in health policy and that of my colleagues at the Menzies Centre for Health Policy, it was inevitable that my attention and interest has been drawn to the impact of the environment on health, and in particular, the health consequences of global warming and climate change. (See Appendix 6 for a description of the relevant work of the Menzies Centre for Health Policy.)

These issues have become increasingly prominent in political and policy debates in both Australia and the United States (US). They play out with even greater economic and social consequences in the developing countries of the Pacific Ocean, where fragile environments, failing economies, poor population health and a shortage of needed workforce skills mean there are fewer resources to prevent and manage them.

This is a geo-political region where Australia and the US have major interests - territorial responsibilities, trade and security - reinforced by strong cultural ties as a consequence of the large number of Pacific Islanders now resident in both countries. Australia and the US are important sources of aid and technical support to these countries. Their leadership, cooperation and resources will be essential in the international effort to improve and sustain the environment and health status in Pacific Island nations and territories.

Even a brief survey of the literature shows that there is a plethora of initiatives in Pacific Island countries that are operated and funded by a wide range of government and non-government organisations and aimed at addressing environmental and health problems and the underlying issues such as poverty and governance that aggravate these problems and hinder their solution. However the volume of reports from these organizations is not matched by up-to-date data that facilitate planning and the measurement and evaluation of results. What data there are highlight that there is much more work to be done, and that timelines for action are increasingly short.

This paper does not aim to present policies and strategies that might be adopted by Australia and the US, separately and together, to address the environmental and health problems that confront Pacific Island countries. Rather, its purpose is to summarise the underlying issues and the available data. As such, it is hoped that this paper can serve as a useful resource in the course of the development of the needed policies and strategies, and will help generate informed discussion and debate towards these goals.

This paper is the third in a small series¹ that looks at current issues in health in Australia and the US and considers what the two countries can learn from each other about how to successfully tackle these issues. It is meant primarily as a resource for Australians, but hopefully will also be a useful summary for those in the US interested in this topic.

I am grateful for the support and encouragement of Professor Stephen Leeder of the Menzies Centre for Health Policy and Professor Geoffrey Garrett of the United States Studies Centre for this project.

NOTE:

The data provided in the tables in the Appendices have been collated from a variety of recognised sources, and where possible, sources have been checked against each other. A good, reliable and up-to-date source of a significant range of data is the World Fact Book webpages of the US Central Intelligence Agency².

¹ For previous papers see http://www.menzieshealthpolicy.edu.au/MCHP_V3/site/index.php

² <https://www.cia.gov/library/publications/the-world-factbook/index.html>

INTRODUCTION

The Pacific Island countries and territories, 22 in all³, comprise a small land area of only 553,959 square kilometres in the world's largest ocean, with a total population of around 8 million people. The states that comprise the Pacific Island nations and territories are traditionally aggregated into three major groups - Polynesia, Micronesia and Melanesia - that reflect the geography, culture and ethnic backgrounds of the indigenous inhabitants of the islands. (See Appendices 1 and 3 for further information).

More than 35 percent of the people of the Pacific Islands live and work in towns, and the rate of urban population growth throughout most of the region is high. Overall, eight of the 22 Pacific countries are now predominantly urban; by 2020 more than half the population in a majority of these countries will live in towns⁴. Arguably this urbanisation is not being undertaken in ways that are sustainable, protective of the environment, and conducive to improved health outcomes.

In addition, significant Pacific Island populations now live abroad, primarily in Australia, New Zealand and the United States. This diaspora helps the local economy through remittances home, but undermines the skilled workforce capability in critical areas such as health.

The Pacific region continues to display the symptoms of a fragile development process. Importantly, economic growth remains low, even after allowing for some recent improvement⁵. The region's relatively high annual population growth rate of 2.1% means that little progress is being made in raising per capita incomes. Progress towards the achievement of the unfulfilled Millennium Development Goals appears to be losing momentum in a number of countries⁶, and the impact of the global financial crisis will further slow this progress.

³ The discussion in this paper is confined to the 22 members of the Pacific Community. This does not include Timor L'Este, which is sometimes present as an observer nation at meetings and forums.

⁴ <http://siteresources.worldbank.org/INTPACIFICISLANDS/Resources/Chapter+1.pdf>

⁵ UN Economic and Social Commission for Asia and the Pacific (2009). Economic and social survey of Asia and the Pacific 2009.
<http://www.unescap.org/pdd/publications/survey2009/notes/pacific.asp>

⁶ Asian Development Bank (2008). Working in fragile environments: A midterm review of the Pacific Strategy (2002-2009).
<http://www.adb.org/Documents/CPSs/PAC/2008/CPS-PAC-2008.pdf>

The Pacific Islands are among the most environmentally vulnerable countries in the world and a recent World Bank report⁷ has heightened awareness of the consequences for the region of climate change.

Climate-associated disasters such as tropical cyclones, flash floods and droughts impose serious constraints on development in these islands, and affect food availability and food security⁸. Climate change imposes an additional stress that will exacerbate current problems facing agriculture and food security, energy requirements, workforce retention, public health, protection of the environment and indigenous flora and fauna, and national government stability and security.

The impacts of these climatic and environments disasters are hardest to address in the smallest and most isolated Pacific Island countries, many of which also carry the burdens of poverty: low levels of household income, lack of piped water supply, poor sanitary conditions and growing incidences of lifestyle-related diseases.

A good summary of the issues that need to be considered around the effects of climate change on small islands and what communities can do to respond to those effects is found in the report summarizing the key findings and recommendations of the Pacific Islands Regional Assessment of the Consequences of Climate Variability and Change (the Pacific Assessment)⁹. The Pacific Assessment was conducted in 2000 and 2001, but most of its findings hold true in 2009.

While much has been done to address both climate change and health issues in the Pacific Islands region, for the most part these efforts have been led by environment departments and officials in the first instance and health departments and officials in the second. Relatively little effort has been devoted to creating an integrated approach to these issues, incorporating the full range of stakeholders.

Pacific Island countries will need the support of the international community to achieve a coordinated and sustained approach to tackling these difficult issues. Australia and the US both have a major presence and have made significant investments in the Pacific area, and their leadership and resources will be essential in this effort.

⁷ World Bank (2006). Not if but when – Adapting to natural hazards in the Pacific Islands region. Policy Note.

<http://web.worldbank.org/WBSITE/EXTERNAL/COUNTRIES/EASTASIAPACIFICEXT/PACIFICISLANDSEXTN/0,,contentMDK:20803029~pagePK:141137~piPK:141127~theSitePK:441883,00.html>

⁸ UN Food and Agriculture Organization (2008). Climate change and food security in Pacific Island countries.

<http://www.fao.org/docrep/011/i0530e/i0530e00.htm>

⁹ The Pacific Assessment http://www2.eastwestcenter.org/climate/assessment/climate_draft2a.html

DEMOGRAPHICS

INFANT MORTALITY AND LIFE EXPECTANCY

In many Pacific Island populations, little is reliably known about levels and causes of death, particularly among adults. A paper published in 2004¹⁰ found that life expectancy in the region ranged from 51-58 years in Papua New Guinea to 73-77 years in Guam and 70-76 years in New Caledonia. Infant mortality rates were lowest in Guam and New Caledonia (less than 10 deaths /1000 births) and relatively high (60-80 deaths /1000 births) in several countries across Melanesia, Micronesia and Polynesia.

LABOUR WORKFORCE

Labour force participation varies greatly across nations and territories in the Pacific as well as between men and women. The concept of unemployment in the rural areas of many Pacific Island economies is difficult to define, but it is likely that under-employment rates are very high in most countries.

Economic activities are treated differently in different countries. Some countries consider all those engaged in subsistence activities as economically active, while others include only those who indicate that they are working for cash. The treatment of women's activities also varies. In general, formal sector employment tends to be concentrated in urban areas and is dominated by the public sector. Most rural employment is informal or based on subsistence production and cash cropping¹¹.

With these limitations in mind, data from the International Labour Organization for 2006 gives employment participation rates for the population aged 15 and over as 60.12 percent for Polynesia, 67.11 percent for Micronesia and 70.24 percent for Melanesia¹². (For employment levels for individual countries see Appendix 4.)

EMIGRATION

The limited prospects for economic growth and employment opportunities in the Pacific Island countries, combined with disparities in economic development and welfare

¹⁰ Taylor et al (2004). Contemporary patterns of Pacific Island mortality. *Int J Epidemiol.* 2004; 34(1):207-214
<http://ije.oxfordjournals.org/cgi/content/full/34/1/207>

¹¹ United Nations Economic and Social Council (2008). Economic and social policies to address labour market trends in Pacific Island developing countries and territories.
http://www.unescap.org/EDC/English/Specialbodies/PIDC10/PIDC10_1E.pdf

¹² Department of Education, Employment and Workplace Relations. Answer to Question on Notice from Senate Standing Committee on Foreign Affairs, Defence and Trade. 20 November 2008.

between these countries and the larger developed countries on the Pacific rim, have led to substantial migration within the region and internationally.

Almost all of this migration has occurred since the 1960s¹³. Much of the largest migration streams have been from Polynesia, especially Samoa and Tonga, and there is currently increasingly rapid migration from the independent Micronesian States that were once linked closely to the US. For the smallest states, including Cook Islands, Niue, Pitcairn and Tokelau, migration has been particularly dramatic with the majority of the ethnic population now living overseas.

In some contexts in the sub-region, international migration has been viewed as a kind of 'safety-valve', reducing pressures on national Governments to provide employment opportunities and welfare services, especially in conditions of high rates of natural population increase and low rates of economic growth¹⁴.

According to the International Organization for Migration, approximately 400,000 people of Pacific island ethnicity lived abroad in the mid-1990s¹⁵. At that time emigrants accounted for 75 per cent of the Polynesian population; and 30 to 40 percent of the population of Samoa and Tonga were estimated to be living abroad. Most of these international migrants were in New Zealand (170,000). Significant numbers were also found in the United States (145,000), in Australia (84,000) and Canada (16,700).

LABOUR MOBILITY

As rapid population growth and limited natural resources, together with the effects of natural disasters such as cyclones and floods, have rendered subsistence agriculture a dwindling source of livelihood, many people in the Pacific Islands have looked to increased labour mobility and migrant worker schemes as a source of income. Indeed, it has been suggested that income earned from workers abroad is likely to provide a more sustainable source of revenue than international aid, and help integrate these island communities into the global economy¹⁶.

¹³ Connell J (2003). Migration in Pacific Island countries. Chapter II in Migration Patterns and Policies in the Asian and Pacific Region. UNESCAP Asian Population Studies Series No 160. <http://www.unescap.org/esid/psis/population/popseries/apss160/apss160chap2.pdf>

¹⁴ Ibid

¹⁵ International Organization for Migration and the United Nations (2000). World Migration Report, 2000. <http://www.iom.int/jahia/Jahia/cache/offonce/pid/1674?entryId=7279>

¹⁶ Chand S (2004). Labour mobility for sustainable livelihood in Pacific Island states. http://www.irfd.org/events/wfsids/virtual/papers/sids_satishchand.pdf

Australia has adopted a cautious approach to proposals to bring seasonal workers in from Pacific Island countries, despite the impact of current worker shortages on harvesting¹⁷. The Rudd Government argues that “*a labour mobility pilot should not be considered a panacea for the challenges of unemployment and under-development in the Pacific. “Instead, any program to bring Pacific island workers to Australia would need to be tailored to contribute to our other efforts to find a longer-term solution to these challenges, and to the long term social needs of the contributing states”*”¹⁸.

In August 2008, the Australian Government confirmed it would offer 2,500 visas to workers from Tonga, Kiribati, Vanuatu and Papua New Guinea to come to Australia for up to seven months a year to work in the horticultural industry¹⁹. This program is to be reviewed in 18 months; it is not clear how the Global Financial Crisis and the resulting employment losses will impact on future Australian support for this program.

The New Zealand Recognised Seasonal Employer (RSE) scheme has been operating in New Zealand’s horticulture and viticulture industries since June 2007²⁰. Although New Zealand employers took some time to adjust to the new scheme, the results so far demonstrate that transformational change is occurring in the New Zealand horticulture industry. Tax avoidance and use of illegal workers is diminishing, RSE employers have been reporting large productivity improvements, and employers are recognising RSE’s potential as a social sustainability brand. Labour requirements for kiwifruit (picking, packing) and wine (pruning) have been met in the first ten months of the implementation of the RSE scheme. Overstaying by RSE workers has been managed through early intervention and swift responses to problems. Only one RSE worker has remained illegally in New Zealand to date²¹.

¹⁷ The World Bank (2006). At home and away: Expanding job opportunities for Pacific Islanders through labour mobility.
<http://web.worldbank.org/WBSITE/EXTERNAL/COUNTRIES/EASTASIAPACIFICEXT/PACIFICISLANDSEXTN/0,,contentMDK:21020027~pagePK:141137~piPK:141127~theSitePK:441883,00.html>

¹⁸ Kerr D (2008). Speech to Victoria University symposium on Pacific Island migration and labour mobility.
http://www.foreignminister.gov.au/parlsec/speeches/2008/080806_labour_mobility.html

¹⁹ O’Malley S & Stanley W (2008). Guest worker program may be expanded. SMH 18 August.
<http://news.smh.com.au/national/guest-worker-program-may-be-expanded-20080818-3x8f.html>

²⁰ Haywood-Jones J (2008). Labour mobility: An Australian seasonal work visa scheme for Pacific Islands labour. Lowy Institute.
<http://www.lowyinstitute.org/Publication.asp?pid=833>

²¹ Ibid

THE BRAIN DRAIN OF HEALTH WORKERS

A 2002 study²² showed that up to 15 percent of doctors and nurses in Pacific Island countries had migrated over the past years and there were indications that the trend was likely to continue for some time in the future. The situation was most serious for doctors and other skilled health workers such as dentists, pharmacists and radiographers, because of their small numbers to begin with, especially in the smaller countries.

A recent analysis showed that 652 Pacific-born doctors and 3,467 Pacific-Islands-born nurses and midwives were working in Australia and New Zealand in 2006²³. There are almost as many Fijian-born doctors working in Australia and New Zealand as there are doctors in Fiji (and some of these doctors in Fiji are themselves expatriates), and there are more nurses and midwives who were born in Samoa, Tonga, Fiji and Niue working in Australia and New Zealand than there are in the domestic workforce. Australia and New Zealand have not just been passive recipients of this migration of health workers but, along with other developed countries, have actively engaged in recruitment campaigns.

²² Meeting of Ministers of Health for the Pacific Island countries. 14-17 March 2005.
<http://www.wpro.who.int/NR/rdonlyres/2454FB0E-E019-4CF1-82ED-D2E6D67BDA1D/0/migration/health/personnel.pdf>

²³ Negin J (2008). Australia and New Zealand's contribution to Pacific Island health worker brain drain. *Aust NZ J Pub Health* 2008; 32(6):507-511.

ISSUES CONFRONTING THE PACIFIC ISLANDS

POVERTY

Until recently, poverty was not regarded as a significant problem in Pacific Island nations, many of which have high per capita incomes by developing country standards and relatively productive subsistence sectors. Such cases of need as did exist were thought to be taken care of by the redistributive mechanisms of kinship networks.

However, after two decades of generally poor economic performance, fairly rapid population growth and urban drift, rising expectations, and growing inequalities, poverty is a significant and growing problem in some countries. Traditional support mechanisms are under strain and, in some instances, are breaking down²⁴.

Poverty in the Pacific may not be as visible or as extreme as in some of the harshest parts of the world, but countries such as the Solomon Islands and Vanuatu rank on a par with Guinea, Burundi, Senegal and Bangladesh. Moreover, Pacific societies are not as egalitarian as sometimes portrayed and gaps in income, access to services, well being and opportunities are widening²⁵.

Thus, a broader concept of poverty which emphasizes poverty of opportunity and that reflects lack of education, health and economic assets, social exclusion, and political marginalization, is a better description of poverty for many people in Pacific Island countries.

Poverty of opportunity is evident in many ways, including rapid emigration from some countries, high but often hidden unemployment, and the emergence of a culture of youth crime and high youth suicide rates.

Many countries suffer from 'vulnerability poverty' – they are vulnerable to circumstances such as natural disasters, national and international economic downturns, fluctuations in remittances and tourism, civil conflict and changes in international aid distribution. This kind of vulnerability highlights how poverty is not an absolute state but one that is related to circumstances²⁶.

²⁴ Asian Development Bank (2000). Regional technical assistance for poverty assessment in Pacific developing member countries.
http://www.adb.org/Documents/TARs/REG/tar_reg3349801.pdf

²⁵ UN Economic and Social Commission for Asia and the Pacific (2004). Bulletin on Asia-Pacific Perspectives 2003/04 Chapter III.
http://www.unescap.org/pdd/publications/bulletin03-04/bulletin03-04_ch3.pdf

²⁶ Good L (2003). Poverty in the Pacific – an analysis. Pacific Issues Paper No 6. Directorate General for Development, European Commission April 2003.
http://www.ecsiep.org/documents/resource/06_poverty.pdf

URBANISATION

For the Pacific Island countries, high population growth has led to migration from smaller outer islands to larger islands and from rural areas to towns, especially capital cities. Key drivers of these trends include declining agricultural commodity prices and livelihood opportunities, insufficient rural land to confer social standing, the prospect of cash employment, the availability of public services such as health and education, and social expectations²⁷.

Primarily, urbanisation has been an inevitable response to stagnating or deteriorating employment conditions in rural areas and outer islands. Most new jobs have been generated in towns, and the urban economy is the major contributor to economic diversification and growth in the region. Urban centers make a substantial contribution to GDP that is considerably higher than that made by rural activities, and without the growth of towns, economic performance in many Pacific Island countries would have been even more modest than it has been²⁸.

While urbanisation has facilitated the provision of basic services, including health and education, to the population, it has generated a range of new problems including the difficulty and cost of providing and maintaining public infrastructure and services, the proliferation of informal settlements, worsening environmental conditions, and increasing social problems associated with unemployment and underemployment.

(See Appendix 5 for data highlighting the move away from subsistence agriculture in rural area to urbanization in the Pacific Islands.)

ECONOMIC GROWTH

The economic performance of the Pacific island countries has been mixed. Overall the region has performed poorly in terms of economic growth and, more importantly, has not achieved its growth potential²⁹. The Polynesian countries have generally performed

²⁷ Connell J (2003). Migration in Pacific Island countries and territories. Chapter 11 in Migration Patterns and Policies in the Asian and Pacific Region. UN Economic and Social Commission for Asia and the Pacific. Asian Population Series No 160.

<http://www.unescap.org/esid/psis/population/popseries/apss160/apss160chap2.pdf>

²⁸ World Bank. Effects of population growth and urbanization in the Pacific Islands.

<http://siteresources.worldbank.org/INTPACIFICISLANDS/Resources/Chapter+1.pdf>

²⁹ McKenzie et al (2006). Economic impact of natural disasters on development in the Pacific. AusAID Report.

http://www.ausaid.gov.au/research/pubout.cfm?ID=9988_7222_3332_5331_7333&FromSection=Publications&Type=All

better than Melanesia or Micronesia in terms of per capita GDP growth³⁰.

Economic growth in the Pacific is highly volatile, reflecting a range of factors such as narrow economic bases, dependence on a few commodity exports (agricultural, forestry, fishing and minerals) which are sold into often volatile international markets in which the Pacific Island countries are price-takers, and the impact of natural disasters.

The current global financial crisis is expected to adversely impact international exports and revenue and further slow economic growth. In March 2009, Australian Prime Minister, Kevin Rudd, and his New Zealand counterpart, John Key, announced a joint study on the implications of the global economic downturn on the Pacific Islands³¹.

GOVERNANCE AND POLITICAL STABILITY

The quality of governance is a key to economic growth in Pacific Island countries³². The functioning and quality of the institutions of government is essential for countries to fully integrate into the global economy. However some of the Pacific Islands nations are in the midst of considerable political instability that has them verging on being failed nation states.

The Australian Government Overseas Aid Program (AusAID) states that “*A legacy of inappropriate colonial structures and issues with affordability of government have impeded internal political integration and nation building in many Pacific countries*”³³ and finds that “*reform strategies have to give much more attention to governance than they have to date if they are to be successful in establishing an environment that is conducive to economic growth*”³⁴.

WATER SUPPLIES

The water supplies of many Pacific Islands are vulnerable to natural variability in precipitation patterns. There have been times when drinking water supplies have run out

³⁰ Stewart R (2008). An economic survey of developing countries in the Pacific region. Department of Treasury paper.
http://www.treasury.gov.au/documents/1190/PDF/08_pacific.pdf

³¹ <http://www.radioaustralia.net.au/pacbeat/stories/200903/s2505319.htm>

³² UN Economic and Social Commission for Asia and the Pacific (2004). Bulletin on Asia-Pacific Perspectives 2003/04 Chapter III.
http://www.unescap.org/pdd/publications/bulletin03-04/bulletin03-04_ch3.pdf

³³ <http://www.ausaid.gov.au/country/southpacific.cfm>

³⁴ AusAID (2006). The Pacific 2020 – Challenges and opportunities for growth.
http://www.ausaid.gov.au/hottopics/topic.cfm?ID=4696_2977_1016_710_2650

on some islands³⁵, and on many small islands, local or imported bottled water is an alternative for drinking water, although it costs more than water supplied by local water authorities³⁶. It is ironic that a popular and expensive brand of bottled water in Australia is from Fiji, where up to one-third of the population does not have access to safe, clean drinking water.

The problems associated with delivering satisfactory water supply in Pacific Island towns are primarily political and institutional rather than technical. They reflect inappropriate policies, undue government interference, and the lack of appropriate incentives for consumers to reduce demand to sustainable levels, all of which undermine the ability to operate and maintain water supply systems properly³⁷.

Budgetary support for water and sanitation operations - a major contributor to government budgetary deficits in a number of Pacific countries - is unsustainable³⁸. Some countries have turned this around, but it remains a problem in many others. A key role for governments is to establish an appropriate policy framework and operating incentives oriented to improving customer service while minimising costs.

There is a need to increase awareness of the importance of protecting freshwater resources. Management of water sources is poor throughout the Pacific islands, even in atoll countries, where permeable ground conditions make freshwater lenses particularly vulnerable to contamination from fertilizers, pesticides, and other pollutants.

NUTRITION

With increasing population growth and a decline in subsistence farming, the demand for food in the Pacific Islands is increasingly being met by imports³⁹. Imported staples such as rice and wheat flour are replacing locally grown carbohydrates, along with the growing prevalence of poor quality protein such as mutton flaps, turkey tails and Spam.

These changes in diet are contributing to the substantial levels of obesity and overweight, and the cardiovascular diseases and diabetes which follow. Deteriorating terms of trade,

³⁵ <http://www.news.com.au/heraldsun/story/0,21985,21421014-5005961,00.html>

³⁶ http://waterwiki.net/index.php/Pacific_Islands

³⁷ World Bank. Effects of population growth and urbanization in the Pacific Islands. <http://siteresources.worldbank.org/INTPACIFICISLANDS/Resources/Chapter+1.pdf>

³⁸ Ibid

³⁹ World Health Organization Regional Office for the Western Pacific (2002). Report FAO/SPC/WHO Pacific Islands food safety and quality consultation. <http://www.wpro.who.int/NR/rdonlyres/96183A39-F575-4D05-A426-412F7FDADE8C/0/Reportfoodsafetyconsultation.pdf>

rising external debts and inflation plague the capacity of Pacific Islanders to adequately meet their nutritional requirements from imported food alone⁴⁰.

HEALTH

Perhaps the most significant challenge facing health services is the rising prevalence of chronic non-communicable diseases, including cardiovascular diseases, diabetes and cancer, which have become the leading causes of death in most Pacific Island countries⁴¹. At the same time there are limited funds available to support the delivery of public health and health care services and the training and ongoing professional development of the health workforce.

The deterioration of urban living environments is exacerbating health problems⁴². Most low-income families have gravitated to squatter and informal settlements that proliferate in and around towns. The incidence of waterborne disease in these communities is high, especially among infants.

A recent report from the US Department of the Interior's Inspector General described health care in the US-affiliated Pacific islands as on the verge of a 'breakdown'⁴³. It concluded that health care professionals across the US-affiliated islands were facing severe shortages of basic equipment, supplies, medical and support staff and were struggling to do their jobs.

More detailed information is provided in the section on health (page 19).

CLIMATE CHANGE

The small islands of the Pacific are extremely vulnerable to the projected effects of climate change. Geographical isolation, diverse and fragile environments, limited resources, and rapid population growth mean that the Pacific Island countries are battling to address loss of biodiversity, threats to freshwater resources, degradation of coastal

⁴⁰ UN Food and Agriculture Organisation (2008). Climate change and food security in Pacific Island countries.

<http://www.fao.org/docrep/011/i0530e/i0530e00.HTM>

⁴¹ Secretariat of the Pacific Community (2008). Tackling non-communicable diseases – the Pacific Framework for NCD prevention and control.

http://www.spc.int/php/index.php?option=com_content&task=view&id=50&Itemid=57

⁴² World Bank. Effects of population growth and urbanization in the Pacific Islands.

<http://siteresources.worldbank.org/INTPACIFICISLANDS/Resources/Chapter+1.pdf>

⁴³ Insular area health care: At the crossroads of a total breakdown. US Department of the Interior, Office of the Inspector General. September 2008.

<http://www.doioig.gov/upload/2008-G-0040.pdf>

environments, and land and sea pollution⁴⁴. These countries have always been vulnerable to damaging natural disasters, and the impact of these is likely to increase as a consequence of climate change.

Climate change could affect Pacific Island countries in a range of ways, depending on their specific geography and location⁴⁵. Flooding and coastal erosion will worsen with higher sea levels. Salt water wash-over during storms will contaminate soil and the fresh water lenses on which inhabitants depend for obtaining water and growing food.

To the extent that climate change will affect ocean nutrient supply and coral bleaching, this will affect the spawning cycles of reef fishes⁴⁶. Given that coastal fisheries provide a significant source of food and economic security, and coral reefs help to attract tourists, climate change poses a serious threat to the livelihood of Pacific Island people.

Climate change is projected to exacerbate health problems, placing additional stress on the already over-extended health systems of most small islands.

One of the major challenges in the Pacific Islands region is developing and implementing appropriate, affordable, and cost-effective adaptation measures to these problems with limited resources.

More detailed information is provided in the sections on environmental issues (page 24) and global warming (page 29).

⁴⁴ World Bank (2006). Not if but when – Adapting to natural hazards in the Pacific Islands region. Policy Note.

<http://web.worldbank.org/WBSITE/EXTERNAL/COUNTRIES/EASTASIAPACIFICEXT/PACIFICISLANDSEXTN/0,,contentMDK:20803029~pagePK:141137~piPK:141127~theSitePK:441883,00.html>

⁴⁵ Ministerial Conference on Environment and Development in Asia and the Pacific 2000.

<http://www.unescap.org/mced2000/pacific/background/climate.htm>

⁴⁶ US National Oceanic and Atmospheric Administration.

<http://coastalmanagement.noaa.gov/climate.html>

HEALTH

MAJOR HEALTH PROBLEMS

Communicable diseases

The most prominent public health problems in Pacific Island countries remain those of infectious diseases, in particular respiratory diseases related to overcrowding, and gastroenteric diseases related to water pollution, poor sanitation, and inappropriate health and hygiene practices⁴⁷. Gastroenteritis, conjunctivitis, and infant diarrhea are among the most commonly reported communicable diseases requiring hospitalization. Dengue fever is common throughout the region.

Despite the poor quality of the water supply in many countries, many low-income families do not heed government warnings to boil water, partly because of the high fuel costs involved, putting themselves at risk of disease. Sewage contamination of coastal waters provided ideal conditions for the cholera outbreaks such as those seen Tarawa in 1987 and Pohnpei in 2000⁴⁸.

There is concern about the emergence of HIV/AIDS in Pacific Island countries. The Pacific Islands AIDS Foundation estimates that there are 74, 000 people were living with HIV/AIDS in the Pacific Island countries and territories⁴⁹. However in 2007 there were only 15,363 confirmed cases, with nearly all of these in Papua New Guinea, which accounted for 14,276 cases.

There are around 1600 new cases of tuberculosis in the region each year⁵⁰ and Marshall Islands, Tuvalu, Kiribati, PNG and Solomon Islands have a high prevalence of this disease, which is increasingly multidrug resistant. There was a 33 percent rise in all types of TB between 2000 and 2005. The largest percentage increases in annual rates were observed in Federated States of Micronesia, Kiribati and Solomon Islands. Women made up almost half of all infectious TB cases reported between 2000 and 2005; 30 percent of them were in the 15–24 age group⁵¹.

⁴⁷ Gani A (2009). Some aspects of communicable and non-communicable diseases in Pacific Island countries. *Soc Indic Res* 2009; 91:171-187.

<http://www.springerlink.com/content/7038827165163627/fulltext.pdf>

⁴⁸ Falkland T (2002). From vision to action: towards sustainable water management in the Pacific. Theme 1: Overview report Water resources management. Pacific Regional Consultation on Water in Small Island Communities, July 2002.

http://wasser-wissen.de/uebersichten/ww_international/pdf/sopac1.pdf

⁴⁹ Pacific Islands AIDS Foundation

http://www.pacificaids.org/index.php?option=com_content&task=view&id=77&Itemid=111

⁵⁰ World Health Organization Regional Office for the Western Pacific (2009)

<http://www.wpro.who.int/sites/stb/meetings/Joint+Pacific+TB+Meeting.htm>

⁵¹ Secretariat of the Pacific Community (2006)

http://www.spc.int/AC/PublicHealth/art_3rd_TB.htm

Malaria is endemic in Papua New Guinea, the Solomon Islands, and Vanuatu but it is not found in Polynesia or Micronesia due to the absence of the vector mosquito⁵².

Lifestyle diseases

Even the poorer countries in the Pacific region are experiencing increasing incidences of so-called 'lifestyle diseases' such as stroke, hypertension, heart disease, and type 2 diabetes due to more sedentary lifestyles and less nutritional diets of imported processed food⁵³.

In terms of non-communicable diseases, cardiovascular disease is the leading cause of mortality in several countries, with Nauru recording highest incidence followed by Tuvalu, Marshall Islands and Fiji⁵⁴. The incidence and mortality from cardiovascular disease has the real potential to constrain health care services in a number of Pacific Island countries.

Type 2 diabetes, a preventable disease, is increasingly prevalent⁵⁵. In American Samoa, Tokelau and the Marshall Islands, more than 40 percent of adults aged 25 to 64 years old have diabetes. At least 30 million adults in Pacific Island countries have type 2 diabetes, with half of these people undiagnosed. Unless action is taken, the number of diabetes cases is expected to double by 2025⁵⁶.

The cause of many of these health problems is overweight and obesity. Recent surveys found that the prevalence of overweight and obesity among adults aged 25 to 64 years is as high as 93.5 percent in Tokelau and American Samoa; 93.3 percent in Nauru; 88.5 percent in Cook Islands; 85.1 percent in Samoa; 80.1 percent in Marshall Islands; and 62.8 percent in Fiji⁵⁷. In the Cook Islands, Micronesia, Nauru, Niue, Palau, Samoa and

⁵² World Health Organization Regional office for the Western Pacific.
http://www.wpro.who.int/health_topics/malaria/

⁵³ Gani A (2009). Some aspects of communicable and non-communicable diseases in Pacific Island countries. Soc Indic Res 2009; 91:171-187.
<http://www.springerlink.com/content/7038827165163627/fulltext.pdf>

⁵⁴ Ibid

⁵⁵ Colagiuri S et al (2008) The Epidemiology of diabetes in Pacific Island populations. In Ekoe J-M et al The epidemiology of diabetes mellitus. Online
<http://www3.interscience.wiley.com/cgi-bin/summary/121402923/SUMMARY?CRETRY=1&SRETRY=0>

⁵⁶ World Health Organization Regional Office for the Western Pacific (2000).
http://www.wpro.who.int/media_centre/press_releases/pr_20000604.htm

⁵⁷
http://www.islandsbusiness.com/islands_business/index_dynamic/containerNameToReplace=MiddleMiddle/focusModuleID=17904/overrideSkinName=issueArticle-full.tpl

Tonga more than 60 percent of population is obese. Only Papua New Guinea has a low level of obesity (less than 5 percent of the population)⁵⁸.

Despite investment in the development of national nutrition action plans and interventions to promote healthy eating and physical activity, nutrition and obesity and the health consequences that follow appear to show little improvement. A major contributory factor here has been that most health expenditure on non-communicable diseases is for tertiary care, with very little funding available for prevention⁵⁹. Most of the funding for prevention activities comes from external aid sources⁶⁰.

A 2005 paper⁶¹ argues that although lifestyle behaviours might be the immediate cause of dietary imbalances, greater attention should focus on omnipresent influences of globalisation as a critical element in the increasingly poor nutrition in Pacific Island countries. These include trade and tariff agreements that place pressures on food security and foster increased dependence on imported food of poor nutritional quality.

HEALTH CARE EXPENDITURE

The Pacific Island countries spend around 13 percent of their total government expenditure on health, compared to 9 percent for the Caribbean⁶². Pacific islands have some of the highest expenditures on health for developing countries; Kiribati, the Marshall Islands, Niue and Tuvalu spend more than 10 percent of their GDP on health. In the Pacific sub-region, health expenditure as a percentage of total government spending increased considerably between 2000 and 2004. Nauru recorded the largest increase in the value of this indicator⁶³.

⁵⁸ Gani A (2009). Some aspects of communicable and non-communicable diseases in Pacific Island countries. *Soc Indic Res* 2009; 91:171-187.
<http://www.springerlink.com/content/7038827165163627/fulltext.pdf>

⁵⁹ Meeting of Ministers of Health for the Pacific Island countries (2007). Prevention and control of non-communicable diseases.
<http://www.wpro.who.int/NR/rdonlyres/08DD967F-C8B4-41CC-BC64-0C3153573C7C/0/NCD.pdf>

⁶⁰ Ibid

⁶¹ Hughes RG & Lawrence M (2005). Globalisation, food and health in Pacific Island countries, *Asia Pacific Journal of Clinical Nutrition*. 2005; 14(4): 298-305.

⁶² Prasad N (2008). Growth and social development in Pacific Island countries.
<http://www.emeraldinsight.com/Insight/ViewContentServlet;jsessionid=75868FC838FAAA72AF4AC5362E28F76B?contentType=Article&Filename=Published/EmeraldFullTextArticle/Articles/0060351204.html>

⁶³ UN Economic and Social Commission for Asia and the Pacific (2007). Statistical yearbook for Asia and the Pacific 2007. <http://www.unescap.org/stat/data/syb2007/9-Financial-human-resources-health-syb2007.asp>

Private (out-of-pocket) spending as a share of total expenditure on health is below 30 percent, the 38 percent in Fiji being the only exception. This compares favourably with that in Australia (33 percent) and countries such as India and Pakistan (over 80 percent)⁶⁴.

A recent paper has looked at health care financing and health outcomes in Pacific Island countries⁶⁵ and found strong evidence that per capita health expenditure matters for health outcomes. The author argues for a strong focus on primary care services to insure improved immunisation coverage and lower infant mortality rates.

HEALTH WORKFORCE

In most Pacific Island countries the number of physicians per 1000 population is very low and comparable to countries such as Myanmar, Nepal and Cambodia⁶⁶.

A threshold of 2.5 health workers (including doctors, nurses and midwives) per 1000 people has been recommended by the Joint Learning Initiative on Human Resources for Health⁶⁷ in order to achieve a package of essential health interventions and the health-related Millennium Development Goals.

The lesser-resourced Pacific Islands are at a disadvantage in competing with wealthier countries in terms of training, recruiting and retaining the skilled health workforces they need.

Major challenges include: shortage of staff and uneven distribution of the health workforce due to geographical factors, the aging of the health workforce, gender issues which affect workforce participation, insufficient production of health workers, which is also related to insufficient investment in training institutions, loss of staff due to dissatisfaction with working conditions and environment, and inappropriate recognition and remuneration for health workers⁶⁸.

⁶⁴ Ibid

⁶⁵ Gani A (2009). Health care financing and health outcomes in Pacific Island countries. *Health Policy and Planning* 2009; 29:72-81.
<http://heapol.oxfordjournals.org/cgi/reprint/24/1/72>

⁶⁶ UN Economic and Social Commission for Asia and the Pacific (2007). *Statistical yearbook for Asia and the Pacific 2007*.
<http://www.unescap.org/stat/data/syb2007/9-Financial-human-resources-health-syb2007.asp>

⁶⁷ The Rockefeller Foundation (2003). *Human resources for health and development: A joint learning initiative*.
<http://www.rockfound.org/library/03hrh.pdf>

⁶⁸
http://www.islandsbusiness.com/islands_business/index_dynamic/containerNameToReplace=MiddleMiddle/focusModuleID=17904/overrideSkinName=issueArticle-full.tpl

The World Health Organization has adopted a Regional Strategy on Human Resources for Health 2006-2015⁶⁹ to guide collaborative efforts in the Pacific Island countries that will improve capacity, ensure that health workforces are responsive to population health needs, enhance health system performance and quality, and improve health outcomes.

⁶⁹ World Health Organization Regional Office for the Western Pacific (2007). Regional strategy on human resources for health 2006-2015.
http://www.wpro.who.int/publications/PUB_978+92+9061+2445.htm

ENVIRONMENTAL ISSUES

The Pacific Island countries comprise a land area of only 55,959 square kilometres, and Papua New Guinea accounts for 83 percent of this land area. However all countries claim huge marine zones. These countries control Exclusive Economic Zones (EEZ) reaching 200 nautical miles from their coasts⁷⁰. This represents a significant portion of the offshore fisheries and sea bed mineral wealth of the ocean hemisphere.

Agriculture and fishing are far more dominant features of most Pacific Island economies than they are in larger, more developed economies.

AGRICULTURE

In some Pacific Island countries, such as Fiji, Solomon Islands, Samoa, Papua New Guinea, Tonga and Vanuatu, land is fertile and suitable for growing a variety of tropical fruits, vegetables, and root crops. But the atoll economies are increasingly constrained by the shortage of useable land. The average land size for farming is around one hectare per household⁷¹. Land development for commercial agriculture is limited in most of these islands due to issues surrounding communal ownership of land.

However some of the larger islands are engaged in commercial crop and livestock production, and this has often been at the expense of local food production⁷². The consequence has been that prices of locally produced crops (for example: yams, taro, sweet potatoes) are higher compared to imported goods such as rice and flour. Many urban populations in the Pacific are now very dependent on imported foreign food (most of it of poor nutritional value)⁷³.

Agricultural production is heavily dependent on the seasonal rainfall and very subject to the impacts of cyclones, climate extremes and altered precipitation patterns. Increasing

⁷⁰ World Bank. The ocean to Pacific Island people.

<http://siteresources.worldbank.org/INTPACIFICISLANDS/Resources/3-chapter+1.pdf>

⁷¹ Ng E (2008). Pacific Islands could benefit from cooperative approach to farming. World Bank blog.

<http://eapblog.worldbank.org/content/pacific-islands-could-benefit-from-cooperative-approach-to-farming>

⁷² UN Food and Agriculture Organisation (2008). Climate change and food security in Pacific Island countries.

<http://www.fao.org/docrep/011/i0530e/i0530e00.HTM>

⁷³ World Health Organization Regional Office for the Western Pacific (2002). Report FAO/SPC/WHO Pacific Islands food safety and quality consultation.

<http://www.wpro.who.int/NR/rdonlyres/96183A39-F575-4D05-A426-412F7FDADE8C/0/Reportfoodsafetyconsultation.pdf>

coastal inundation, salinisation and erosion as a consequence of rising sea levels and human activities contaminate and reduce the size of productive agricultural land⁷⁴.

In Papua New Guinea there is a new threat to food security with the use of arable land for growing green oil and biofuel. Ironically this is driven by the Clean Development Mechanism, which was established under the Kyoto Protocol to enable developing countries to market carbon credits accrued from sustainable development projects to developed countries falling short of their Kyoto targets⁷⁵.

FORESTRY

Traditionally the forests on Pacific Islands have served as sources for food, income, medicine, fuel and building materials. Increasing population and the impacts of human activity such as logging and forest clearance threaten wild harvest, curtail income and destroy traditional medicine⁷⁶.

The Secretariat of the Pacific Community has described the policy analysis and formulation capabilities of Pacific Island countries' national forestry agencies as weak and needing to be strengthened⁷⁷.

MARITIME RESOURCES

The Pacific Island countries that are considered the most 'terrestrially challenged' - the Cook Islands, the Federated States of Micronesia, French Polynesia, Kiribati, the Marianas Islands, the Marshall Islands, Nauru, Niue, Tokelau, Tuvalu, - have no great hope of further developing commercial agriculture as a major source of foreign exchange, and in many cases, cannot rely on agriculture to fulfill even local protein needs⁷⁸. For these small islands, marine resource usage (subsistence fishing, commercial fishing, tourist viewing, and mineral extraction) has set many of the limits to human population

⁷⁴ UN Food and Agriculture Organisation (2008). Climate change and food security in Pacific Island countries.

<http://www.fao.org/docrep/011/i0530e/i0530e00.HTM>

⁷⁵ Ibid

⁷⁶ Ibid

⁷⁷

http://www.islandsbusiness.com/news/index_dynamic/containerNameToReplace=MiddleMiddle/focusModuleID=130/focusContentID=10816/tableName=mediaRelease/overrideSkinName=newsArticle-full.tpl

⁷⁸ Adams T et al (1999). Ocean Resources. In Rapaport M. The Pacific Islands: Environment and society. Chapter 30.

http://books.google.com.au/books?id=dOiRhGqnbocC&pg=PA366&source=gbs_toc_r&cad=0_0

interaction and expansion, and will continue to define the shape of their economies and societies in years to come.

Although the sea plays a less crucial role in the lives of the inhabitants of the larger islands, particularly in Melanesia where the availability of land is less of a constraint, most of the population of most of the larger islands is still spread along the coast, and very much influenced by the sea.

Pacific Islanders rank amongst the highest marine food consumers in the world, and the region as a whole has a greater per-capita fishery product consumption than other regions, except perhaps the traditional Inuit regions of the far north, and some of the Indian Ocean islands⁷⁹. However there have been few comprehensive studies done on seafood consumption in the Pacific Islands.

It is a characteristic of Pacific Island subsistence lifestyles that almost every member of the community taking part in fishing. Fisheries, especially tuna, are an important resource in several countries, but fish processing is limited as it is too capital intensive and only a small fraction of total domestic fishery production enters the commercial sector.

Pacific Island countries have been receiving enormous income from fishing licenses sold to distant fishing nations such as Japan, the US, China and Korea . However this industry is now imposing a strain on Pacific Island marine resources and without better fishing management, their resources will soon be depleted⁸⁰.

CORAL REEFS

Many Pacific Islands are surrounded by barrier reefs, almost all have fringing reefs, and some countries consist entirely of reefs in the form of atolls. The Pacific Ocean is home to over 75 percent of the world's reefs now under threat. From 1968 to 2004, approximately 600 square miles of coral reef have disappeared each year. Since 1995 the rate of disappearance has doubled⁸¹.

Coral reefs support approximately 25 percent of all marine life, including over 4,000 species of fish, providing valuable spawning, nursery, refuge and feeding areas for large varieties of organisms. Coral reefs also play vital roles as natural breakwaters,

⁷⁹ UN Food and Agriculture Organisation (2008). Climate change and food security in Pacific Island countries.

<http://www.fao.org/docrep/011/i0530e/i0530e00.HTM>

⁸⁰ UN Economic and Social Commission for Asia and the Pacific. The Pacific tuna fishery. Virtual conference.

http://www.unescap.org/drpad/vc/conference/bg_pi_17_ptf.htm

⁸¹ Secretariat of the Pacific Regional Environment Programme. Media release 23 March 2009

http://www.sprep.org/article/news_detail.asp?id=616

minimising wave impacts during storms and cyclones⁸². This massive living matrix of coral reefs locks up a lot of the biomass that is present in Pacific Island near-shore waters.

BIODIVERSITY

The isolation of the small islands of the Pacific has fostered the evolution of myriad unique species of plants and animals. These flora and fauna are often adapted to specialised micro-habitats. As such they are especially vulnerable to extinction from habitat destruction, competition from introduced organisms, chemical and pesticide contamination, and unsustainable harvesting⁸³.

The loss of terrestrial biodiversity is particularly high in the Polynesian and Micronesian islands. Melanesian islands have the greatest reserve of unaltered terrestrial biodiversity in the sub-region. However throughout the region, commercial logging, rising populations and the advent of modern agricultural practices has meant that the habitats for many plants and animals are being destroyed in favour of cash cropping, construction or other activities.

Marine biodiversity is threatened near urban areas by pollution, dredging and filling of coastal habitats, by over-fishing and by destructive fishing techniques such as dynamite, use of poisons to collect fish, and excessive use of gill nets.

POLLUTION

Pacific Island countries, like the rest of the world, face serious problems with disposal of waste products⁸⁴. Increased urbanisation and growing populations have accelerated problems with the collection and disposal of both solid and liquid wastes. Every year the importation of packaged consumer goods, cars and machinery adds to the growing amount of non-biodegradable waste. Dumping of solid wastes is a common problem that both harms the aesthetic tourism value of the islands and creates breeding sites for disease-bearing mosquitoes⁸⁵.

⁸² Ibid

⁸³ Biodiversity issues in the Pacific Islands. Ministerial Conference on Environment and Development in Asia and the Pacific 2000.
<http://www.unescap.org/mced2000/pacific/background/biodiv.htm>

⁸⁴ Secretariat of the Pacific Regional Environment Programme.
<http://www.sprep.org/topic/pollution.htm>

⁸⁵ Review of the State of the Environment of the Pacific Islands. Ministerial Conference on Environment and Development in Asia and the Pacific 2000.
<http://www.unescap.org/MCED2000/pacific/SoE-pacific.htm>

Pollution from industrial waste and sewage and disposal of toxic chemicals are significant contributors to marine pollution and coastal degradation. Synthetic chemicals, many of them toxic, can be difficult to recycle and expensive to destroy. Most wastes, hazardous or not, are therefore dumped together at the nearest available plot of land. In Fiji, Tonga, and Vanuatu, for example, such unregulated disposal of wastes threaten the ecological integrity of mangrove forests and adjacent marine areas⁸⁶.

Hazardous chemicals and nutrient pollution find their way into the marine environment via effluents, dumps, storm runoff, sewage, and wind-blown dust. These jeopardise inshore estuarine and marine environments and are especially damaging to coastal marine nursery areas like wetlands, mangrove forests, sea grass beds, and coral reefs.

The most serious environmental issues of the Pacific Ocean in the coastal and marine management categories are:

- (i) in coastal areas: degradation due to erosion; the depletion, destruction and pollution of mangrove forests, sea grasses, and coral reefs; loss of coastal food species.
- (ii) depletion of stocks of slow-growing deep water coastal and bottom dwelling fish.
- (iii) maintaining offshore fishery resources, including tuna and other pelagic fish species; the prevention of destructive long drift net fishing; the commercial by-catch of sea birds and marine mammals; and whaling.
- (iv) sea-surface conditions, including red (toxic) phytoplankton blooms; oil pollution; and floating and suspended solid wastes.
- (v) global warming, causing sea level rise; increased storm activity; climate change; and die-backs of shallow water and coastal marine life⁸⁷.

⁸⁶ Ibid

⁸⁷ Ibid

GLOBAL WARMING

The Fourth Assessment Report of the Intergovernmental Panel on Climate Change (IPCC) Working group II ⁸⁸ highlighted that small islands, and particularly those of the Pacific, are particularly vulnerable to climate change.

The report found that:

- Rising sea-levels are expected to exacerbate inundation, storm surge, erosion and other coastal hazards, thus threatening vital infrastructure, settlements and facilities that support the livelihood of island communities. On many Pacific Islands more than 50 percent of the population lives within 1.5 km of the shore and international airports, roads and capital cities are sited along the coast.
- Under most climate change scenarios, water resources, especially those on small islands, are likely to be seriously compromised.
- Climate change is likely to heavily impact coral reefs, fisheries and other marine-based resources.
- Sea-level rise, inundation, seawater intrusion into freshwater reservoirs, soil salinisation, and decline in water supply are very likely to adversely impact coastal agriculture.
- Sea-level rise and increased sea water temperature leading to accelerated beach erosion, and degradation and bleaching of coral reefs will have an adverse effect on tourism and consequently the contribution of tourism to the GDP.
- There is growing concern that global climate change is likely to adversely impact human health.

The islands of the South Pacific are already experiencing these effects of climate change⁸⁹.

The 2007 IPCC report says that by 2050, climate change is expected to reduce water resources in many small islands to the point where they become insufficient to meet demand during low rainfall periods. Sea level rise is expected to exacerbate inundation, storm surge, erosion and other coastal hazards, threatening vital infrastructure, settlements and facilities that support the livelihood of island communities. Deterioration in coastal conditions, through erosion of beaches and coral bleaching, is expected to

⁸⁸ Mimura et al (2007). Small islands. Climate Change 2007: Impacts, Adaptation and Vulnerability. Contribution of Working Group II to the Fourth Assessment Report of the Intergovernmental Panel on Climate Change.

<http://www.ipcc.ch/pdf/assessment-report/ar4/wg2/ar4-wg2-chapter16.pdf>

⁸⁹ Intergovernmental Panel on Climate Change (2007). Climate Change 2007: Synthesis Report. Contribution of Working Groups I, II and III to the Fourth Assessment Report of the Intergovernmental Panel on Climate.

<http://www.ipcc.ch/ipccreports/ar4-syr.htm>

affect local resources. With higher temperatures, increased invasion by non-native species is expected to occur.

The Pacific Island countries are among the most vulnerable in the world to natural disasters. In the 1990s, reported natural disasters cost the Pacific Islands region US\$2.8 billion⁹⁰. Global warming is predicted to increase the number and intensity of these disasters such as cyclones and high tides. The impact will be felt in sectors such as food security, human health, insurance, and tourism.

CLIMATE CHANGE

Temperatures have been increasing by as much as 0.1°C per decade in the Pacific Island region⁹¹. For example, in New Caledonia and the Cook Islands, temperatures have risen 0.6-0.7°C since 1920. The projected increase in surface air temperature for the 2050s for the Pacific Ocean is 2.0°C⁹².

Recent trends suggest that surface temperatures in the tropical Pacific are more likely to resemble the warmer El Niño phase of the El Niño / Southern Oscillation cycle. Since the 1970, each El Niño event has resulted in water shortages and drought in Papua New Guinea, Marshall Islands, Federated States of Micronesia, American Samoa, Samoa, Tonga, Kiribati and Fiji. More frequent El Niño events have also brought an increased risk of tropical cyclones, particularly for Tuvalu, Samoa, Tonga, Cook Islands and French Polynesia⁹³. There are indications that the intensity of these events may increase⁹⁴.

⁹⁰ The World Bank (2006). Not if, but when: Adapting to natural hazards in the Pacific Islands region. <http://web.worldbank.org/WBSITE/EXTERNAL/COUNTRIES/EASTASIAPACIFICEXT/PACIFICISLANDSEXTN/0,,contentMDK:20803029~pagePK:141137~piPK:141127~theSitePK:441883,00.html>

⁹¹ Nurse LA et al (2001). Small island states. In: Climate Change 2001. Impacts, adaption and vulnerability. Contribution of Working Group II to the Third Assessment Report of the Intergovernmental Panel on Climate Change. <http://www.ipcc.ch/ipccreports/tar/wg2/pdf/wg2TARchap17.pdf>

⁹² Ibid

⁹³ Ministerial Conference on Environment and Development in Asia and the Pacific 2000. <http://www.unescap.org/mced2000/pacific/background/climate.htm>

⁹⁴ Ebi et al (2006). Climate variability and change and their potential health effects in small island states: Information for adaption planning in the health sector. In: Environmental Health Perspectives 114(12): 2006. <http://www.ehponline.org/members/2006/8429/8429.html>

RISING SEA LEVELS

Globally, average sea levels rose between 0.1 and 0.2 metres during the 20th century⁹⁵. There are projections that global warming will cause a rise in sea levels, but this is an area of some contention. However the Pacific Islands are seeing increased coastal erosion, more saline soils, and shifting fishing grounds, consistent with rising sea levels⁹⁶.

Those Pacific Islands with native mangroves have experienced an average rise in relative sea level of 2.0 mm per year over the past few decades. Mangrove loss will decrease coastal water quality, reduce biodiversity, eliminate fish and crustacean nursery habitat, adversely affect adjacent coastal habitats, and eliminate a major resource for human communities that traditionally rely on mangroves for numerous products and services⁹⁷. Mangrove destruction can also release large quantities of stored carbon with the potential to exacerbate global warming trends⁹⁸.

LIKELY HEALTH IMPACTS

Many Pacific Island countries currently suffer high burdens from climate-sensitive health outcomes, including morbidity and mortality from extreme weather events and from vector, food and water borne diseases, and it is expected that these burdens will increase as a consequence of climate change. The true burden of the impacts of extreme weather and climate events are complex and far-reaching and not easily measured⁹⁹.

⁹⁵ Ibid

⁹⁶ Nurse LA et al (2001). Small island states. In: Climate Change 2001. Impacts, adaption and vulnerability. Contribution of Working Group II to the Third Assessment Report of the Intergovernmental Panel on Climate Change.
<http://www.ipcc.ch/ipccreports/tar/wg2/pdf/wg2TARchap17.pdf>

⁹⁷ Ewel KC et al (1998). Different kinds of mangrove forests provide different goods and service. Global Ecology and Biogeography Letters 1998; 7:83-94.
<http://www.jstor.org/stable/2997700>

⁹⁸ Gilman, E et al (2006). Pacific Island mangroves in a changing climate and rising sea. UNEP Regional Seas Reports and Studies No. 179. United Nations Environment Programme, Regional Seas Programme.
<http://www.unep.org/PDF/mangrove-report.pdf>

⁹⁹ Ebi et al (2006). Climate variability and change and their potential health effects in small island states: Information for adaption planning in the health sector. In: Environmental Health Perspectives 114(12): 2006.
<http://www.ehponline.org/members/2006/8429/8429.html>

The distribution and abundance of many disease vectors may be affected by changes in ambient temperature, precipitation, vegetation and water availability. The rates of diseases such as malaria and dengue fever are increasing¹⁰⁰.

Samoa, Tonga, New Caledonia, Kiribati, New Caledonia and Palau are currently struggling with an endemic of dengue, with more than 2,000 cases so far recorded in 2008. Modeling has shown that dengue fever could increase by 20 to 30 percent in Fiji due to climate¹⁰¹. An outbreak of dengue fever in Fiji that coincided with the 1997-98 El Niño saw 24,000 people affected in a population of 856,000, with 13 deaths. The cost was estimated at US\$3-6 million¹⁰².

Other increased health threats as a consequence of higher temperatures include cholera outbreaks and ciguatera poisoning. Some modeling shows that a rise in temperatures is expected to increase the incidence of ciguatera poisoning from 35.70 per thousand people in 1990 to about 160.430 per thousand by 2050¹⁰³.

¹⁰⁰ World Health Organization Regional Office for the Western Pacific (2008). The work of WHO in the Western Pacific region 2007-08.

http://www.wpro.who.int/countries/2006/cam/health_situation.htm

¹⁰¹ Potter S (2008). The Sting of Climate Change. Lowy Institute for International Policy.

<http://www.lowyinstitute.org/Publication.asp?pid=926>

¹⁰² Ibid

¹⁰³ World Bank (2000). Cities, sea and storms: Managing change in Pacific Island economies. Volume IV Adapting to climate change.

<http://siteresources.worldbank.org/INTPACIFICISLANDS/Resources/4-VolumeIV+Full.pdf>

FOREIGN AID AND DONATIONS

The Pacific Islands are the most heavily aid-assisted part of the world on a per capita basis¹⁰⁴. Most Pacific Island countries have benefited from aid flows and remittances, enabling them to run big current account deficits, maintain substantial bureaucracies and undertake relatively large public sector investment programs of a kind that could not otherwise be financed. (See Appendix 4 for available information about aid per capita in Pacific Island countries.)

This substantial dependence on foreign aid raising a number of contentious issues:

- Fluctuations in aid flows can impact on economic growth¹⁰⁵.
- Aid does not necessarily go where it is most needed. For example, while the average per capita aid in Oceania in 2003 was US\$216, in Papua New Guinea, the most populous nation among the Pacific Islands, it was only US\$40¹⁰⁶.
- The World Bank has claimed that the tendency of donors to pay for reconstruction after a natural disaster has created a 'perverse incentive' which encourages Pacific Island countries to simply wait for the disaster to hit and then rebuild¹⁰⁷.
- Much of the aid for health is directed at infectious diseases such as HIV/AIDS, TB and malaria¹⁰⁸ with relatively small amounts available for the prevention of non-communicable, 'lifestyle' diseases¹⁰⁹.

Some have argued that this aid has failed the Pacific and that its withdrawal would be the needed catalyst for change¹¹⁰, although on the face of it, this policy recommendation seems both inappropriate and heartless. However given it appears that aid has a positive impact only in those developing countries with good fiscal, monetary and trade

¹⁰⁴ Stewart R. (2008) An economic survey of developing countries in the Pacific region. Australian Treasury. http://www.treasury.gov.au/documents/1190/PDF/08_pacific.pdf

¹⁰⁵ Ibid

¹⁰⁶ Ibid

¹⁰⁷ World Bank Not if but when: adapting to natural hazards in the Pacific Islands region. Policy Note. <http://web.worldbank.org/WBSITE/EXTERNAL/COUNTRIES/EASTASIAPACIFICEXT/PACIFICISLANDSEXTN/0..contentMDK:20803029~pagePK:141137~piPK:141127~theSitePK:441883,00.html>

¹⁰⁸ For example, in 2003 the Global Fund to Fight AIDS, TB and Malaria contributed \$14 million for a 5-year project involving 11 Pacific Island countries. http://www.islandsbusiness.com/islands_business/index_dynamic/containerNameToReplace=MiddleMiddle/focusModuleID=5000/overrideSkinName=issueArticle-full.tpl

¹⁰⁹ R. Colagiuri. Personal communication.

¹¹⁰ Hughes H. (2003) Aid has failed the Pacific Issues Analysis No 33 Centre for Independent Studies, 2003. http://www.cis.org.au/issue_analysis/IA33/ia33.pdf

policies¹¹¹, a more realistic option might be for donors and recipients to agree in the principle of mutual obligation and the need to focus on capacity building.

There has been a consistently substantial and growing volume of remittances especially in the Polynesian states, and these make up a significant part of national income in excess of the value of exports and aid. Remittances have been particularly important in the most remote islands where development needs are less well met¹¹². However various studies suggest that while remittances are positive and satisfying for households, they are insufficient in and of themselves to influence national development goals¹¹³.

AUSTRALIAN AID TO PACIFIC ISLAND NATIONS

Since 1970, aid from Australia to Pacific Island countries has amounted to over US\$50 billion¹¹⁴. In 2008-09 Australia's development assistance to the Pacific is just under AU\$1 billion¹¹⁵.

A 2005 report¹¹⁶ prepared for a White Paper on Australia's aid program found that substantial aid flows have mitigated the impact of weak economic growth, but that they have done so at a cost. The paper recommends that, as the most important donor to the region, Australia must ensure that programs are more structures and targeted, with a much tighter focus on performance management. More research is needed, because too little is known about what changes must be made and how to make them, along with better, independent statistics on development outcomes. Finally, more effort is needed on donor coordination, both through strengthening domestic aid coordination capacities and through high-level relationships with new and traditional donors in the area.

The 2007 annual report from AusAID Office of Development Effectiveness found that it hard to report on the effectiveness of Australia's aid as performance assessment systems

¹¹¹ Burnside C & Dollar D. (2000) Aid, policies and growth. The American Economic Review. Vol 90 No 4. September 2000.

¹¹² Asian Development Bank (2005). Remittances in the Pacific: An overview. http://www.apgml.org/frameworks/docs/8/ADB_remittances-pacific_Mar2005.pdf

¹¹³ Ibid

¹¹⁴ UN Economic and Social Commission for Asia and the Pacific (2004). Bulletin on Asia-Pacific Perspectives 2003/04 Chapter III. http://www.unescap.org/pdd/publications/bulletin03-04/bulletin03-04_ch3.pdf

¹¹⁵ http://www.ausaid.gov.au/media/release.cfm?BC=Media&ID=5748_7603_7093_1168_6081
The breakdown of this budget is given at <http://www.fiji.embassy.gov.au/suva/mrelease052.html>

¹¹⁶ Duncan R & Gilling J. (2005) Pacific Island countries: Analytical report for the White Paper on Australia's aid program. http://www.ausaid.gov.au/publications/pdf/pacific_report.pdf

are still being developed¹¹⁷.

US AID TO PACIFIC ISLAND NATIONS

It is difficult to assess the exact amounts of aid from the US to the Pacific Island nations and territories. Most US assistance to the region is not developmental aid but economic grants provided to the Freely Associated States (see Appendix 1) under the Compacts of Free Association.

In a 2007 statement delivered to the US House of Representatives Committee on Foreign Affairs, the Principal Deputy Assistant Secretary for East Asian and Pacific Affairs stated that in Fiscal Year 2006, the East Asia and Pacific bureau received an estimated US\$519 million and in Fiscal Year 2007 an estimated US\$531.1 million for programs in the region. The Fiscal Year 2008 Congressional Budget Justification request was for US\$522.4 million (including \$18 million for the Tuna Treaty)¹¹⁸. Some of this funding was for US commitments to territories and countries outside of those in the Pacific Community.

The Fiscal Year 2009 budget prepared by the Department of Interior Office of Insular Affairs requests funding of US\$401.6 million¹¹⁹. Most of this is for American territories in the Pacific and for payments to the Federated States of Micronesia under the Compact of Free Association (US \$208.7 million), but this does also include funding for the American Virgin Islands.

These figures do not include funding from the Department of Health and Human Services¹²⁰, the US Agency for International Development, and a raft of other government agencies.

A 2007 report from the Congressional Research Service estimates that the total value of US foreign aid and compact grants to the Pacific Islands in Fiscal Year 2006 was

¹¹⁷ AusAID Office of Development Effectiveness (2008). Annual review of development effectiveness 2007.

http://www.ode.usaid.gov/au/publications/pdf/arde_report-2007.pdf

¹¹⁸ Davies G (2007). Testimony to Subcommittee on Asia, the Pacific and the Global Environment, Committee on Foreign Affairs, US House of Representatives.

<http://merln.ndu.edu/archivepdf/EAP/State/92540.pdf>

¹¹⁹ Pula N (2008). Testimony to Subcommittee on Insular Affairs, Committee on Natural Resources, US House of Representatives.

<http://www.interior.gov/oia/press/2008/02282008a.html>

¹²⁰ See for example, Stinson N (2004) Testimony to Subcommittee on Human Rights and Wellness, Committee on Government Reform, US House of Representatives.

<http://www.hhs.gov/asl/testify/t040225a.html>

US\$163.38 million, of which US\$153.70 million went to the Marshall Islands, Micronesia and Palau under the compacts and only US\$9.68 million was for aid¹²¹.

OTHER DONOR SOURCES

Aside from Australia and the US, New Zealand, Japan, China and the European Community are also major donors to Pacific Island countries.

Contributions are also received from a large number of government and non-government organizations, some of which are listed at Appendix 2. A further list of non-government organizations which have a presence in Pacific Island countries is available on the website of the Pacific Islands Association of Non-Governmental Organisations¹²².

COORDINATION EFFORTS

Recently efforts have been made to coordinate donor assistance to Pacific Island countries as part of the Pacific Strategy. The Asian Development Bank, the World Bank, AusAID and the New Zealand Agency for International Development have taken part in donor coordination forums that begun to pursue harmonization, alignments and policy issues¹²³.

The Pacific Islands Association of Non-Governmental Organisations (PIANGO) is a regional network of non-governmental organizations based in 21 Pacific Island countries and territories that was established in 1991 to assist collaborative aid efforts¹²⁴.

¹²¹ Congressional Research Service (2007). The Southwest Pacific: US interests and China's growing influence. CRS Report for Congress.
<http://www.fas.org/sgp/crs/row/RL34086.pdf>

¹²² <http://www.piango.org/members.html>

¹²³ Asian Development Bank (2008). Working in fragile environments. A midterm review of the Pacific Strategy (2005-2009).
<http://www.adb.org/Documents/CPSs/PAC/2008/CPS-PAC-2008.pdf>

¹²⁴ <http://www.piango.org/about-piango.html>

BUILDING A BETTER FUTURE

In 2005 the Pacific Island Forum agreed on a Pacific Plan¹²⁵ based on the four pillars of economic growth, sustainable development, good governance and security. This Plan is seen as a 'living document' that forms the basis for regional cooperation and integration efforts. Six-monthly reports are made against this plan.

In fact there is a plethora of plans for the Pacific Island nations, to the extent that efforts to implement all of these risk confusion, duplication and poorly directed spending¹²⁶.

MILLENNIUM DEVELOPMENT GOALS

The Millennium Development Goals (MDGs) launched by the United Nations in 2000, provide an internationally agreed formulation on which to measure progress in the Pacific Island countries towards eliminating poverty, hunger and disease, improving survival prospects for mothers and infants, better education of children, equal opportunities for women, and a healthier environment¹²⁷.

The Secretariat of the Pacific Community has taken a lead role in coordinating efforts to address the MDGs, and progress reports are available on their website¹²⁸. A number of other organisations also report regularly on this progress¹²⁹.

Most Pacific Island countries can claim progress in meeting some of the MDGs, however, none is on course to achieve them all by 2015¹³⁰. Making faster progress on the MDGs in this region will require a concerted and well-coordinated global response.

¹²⁵ Secretariat, Pacific Island Forum (2005) The Pacific Plan for strengthening regional cooperation and integration. (revised 2007)

<http://www.forumsec.org.fj/pages.cfm/about-us/the-pacific-plan/>

¹²⁶ A Google search using the 'strategies pacific island countries' brings up 334,000 items.

¹²⁷ United Nations End Poverty 2015.

<http://www.un.org/millenniumgoals/>

¹²⁸ <http://www.spc.int/mdgs/>

¹²⁹ See for example <http://www.un-ngls.org/orf/MDG/countryregionalaction.htm>

¹³⁰ ESCAP/ADB/UNDP (2007). The Millennium Development Goals: progress in Asia and the Pacific 2007.

<http://www.unescap.org/stat/mdg/index.asp>

APPENDIX 1: THE GEOGRAPHY AND DEMOGRAPHICS OF THE PACIFIC ISLANDS NATIONS

The states that comprise the Pacific island countries and territories are traditionally aggregated into three major groups, Polynesia, Micronesia and Melanesia, which reflect the geography, culture and ethnic backgrounds of the indigenous inhabitants of the islands.

The larger islands of Melanesia and Polynesia are referred to as continental islands, as distinguished from the much smaller islands of Micronesia and Polynesia. The islands can be further divided into two main groups which include the low islands and the high islands. The low islands consist mainly of coral reefs and atolls scattered through the Pacific. Most of these rise little more than one metre above sea level, including islands in the Gilbert, Marshall, Phoenix, Tuamotu and Tuvalu groups as well as other single islands. The high islands consist mostly of hills, rugged mountains and some active volcanoes, where earthquakes and other tectonic activity are frequent and often severe. They include New Britain, New Caledonia, Papua New Guinea, New Zealand, Fiji, Hawaii, the Marianas, Samoa, the Solomon Islands and Vanuatu.

MELANESIA

The Melanesian islands are located in the south-western part of the Pacific basin, generally north and north-east of Australia. They include Papua New Guinea, the Solomon Islands, Vanuatu and New Caledonia. Fiji is also generally considered to be part of the Melanesian island group despite its Polynesian cultural background. Melanesia is dominated by relatively large, high islands, containing more than 98 percent of the total land area of all Pacific islands and about 82 percent of all Pacific island population.

MICRONESIA

Micronesia consists of 2,500 islands scattered over 7,700,000 square kilometres of ocean, located north of the Melanesian islands and north of the Equator. The region mostly includes low-lying coral islands such as Guam, the Caroline Islands, the Mariana Islands, the Marshall Islands, Kiribati (previously known as the Gilbert Islands) and Nauru. These encompass only about 0.3 percent of the total land area of the Pacific islands and only about 5 percent of the Pacific island population. They are largely unsettled but some are densely crowded. The island occupants are physically and culturally diverse, with nine regional languages containing a variety of dialects

POLYNESIA

Polynesia is the largest area in the South Pacific, stretching across 8,000 kilometres from Midway Island and Hawaii in the north to New Zealand in the south and Easter Island in the east. It contains more than a dozen of the central and south-eastern Pacific's main

island groups. Polynesia consists of only 1 percent of the total Pacific land area, but has more than 13 percent of the total population with the exception of Hawaii. Polynesians share a largely homogenous culture with similar languages and dialects throughout the included countries, Tonga, Western Samoa, American Samoa, French Polynesia, and the Cook Islands as well as smaller, less populous island groups, Wallis and Futuna, Tuvalu, Niue, Tokelau, Easter Island and Pitcairn Islands.

APPENDIX 2: PACIFIC ISLAND REGIONAL ORGANISATIONS

SUB-REGIONAL ORGANISATIONS

The Pacific Island governments have formed a network of sub-regional organisations to pool resources for development. There are eight of these organisations:

- The Pacific Island Forum (PIF)¹³¹, previously the South Pacific Forum, which comprises the heads of the 16 independent island nations of the Pacific.
- The Secretariat of the Pacific Community (SPC)¹³² which provides technical support, education and training to the 22 member countries and territories and conducts applied research in a variety of areas relating to land, maritime and social resources.
- The Forum Fisheries Agency (FFA)¹³³ which advises on sustainable development and management of fisheries, including monitoring and surveillance of foreign fishing activities.
- The South Pacific Regional Environmental Program (SPREP)¹³⁴, which has a membership of 26 Pacific Island states and territories and nearby countries, is responsible for technical issues, coordination and capacity building on environmental matters. SPREP also serves as the secretariat for the Convention for the Protection of the Natural Resources and Environment of the South Pacific Region and related protocols 1986 and the Convention on Conservation of Nature in the South Pacific 1986.
- The South Pacific Applied Geoscience Commission (SOPAC)¹³⁵ which assists members in the assessment, exploration and development of mineral and other marine non-living resources and provides baseline data for this work.
- The South Pacific Tourism Organisation (SPTO)¹³⁶ which assists with the sustainable promotion of regional tourism and collects tourism statistics.
- The Pacific Island Development Program (PIDP)¹³⁷ which is based at the East West Center in Hawaii assists with development-related activities and the interface with private industry. The PIDP operates the Pacific Islands Business Network for the US-Pacific Islands National Joint Commercial Commission.

¹³¹ <http://www.forumsec.org.fj/>

¹³² http://www.spc.int/corp/index.php?option=com_frontpage&Itemid=1

¹³³ <http://www.ffa.int/>

¹³⁴ <http://www.sprep.org/>

¹³⁵ <http://www.sopac.org/tiki-index.php>

¹³⁶ <http://www.spto.org/>

¹³⁷ <http://www.eastwestcenter.org/pacific-islands-development-program/>

- The University of the South Pacific (USP)¹³⁸ which has 12 member nations and provides tertiary education and conducts scholarly and applied research. It has branch campuses in most of its member countries.

These are coordinated by the South Pacific Organisations Co-ordinating Committee (SPOCC) which is made up of the heads of the sub-regional organisations.

THE PACIFIC COMMUNITY

The twenty-two Pacific Island nations and territories which are members of the Pacific Community are:

American Samoa
 Cook Islands
 Federated States of Micronesia (FSM)
 Fiji Islands
 French Polynesia
 Guam
 Kiribati
 Marshall Islands
 Nauru
 New Caledonia
 Niue
 Northern Mariana Islands (CNMI)
 Palau
 Papua New Guinea (PNG)
 Pitcairn Islands
 Samoa
 Solomon Islands
 Tokelau
 Tonga
 Tuvalu
 Vanuatu
 Wallis and Futuna.

(Note that this list does not include Timor L'Este which is also located in this geographic region. Timor L'Este is sometimes represented as an observer at some regional forums.)

The 26 members of the Pacific Community include the above island countries and territories, plus the four remaining founding countries:

Australia
 France
 New Zealand
 United States of America.

¹³⁸ <http://www.usp.ac.fj/>

The United Kingdom withdrew at the beginning of 1996 from Secretariat of the Pacific Community (at the time the South Pacific Commission), rejoined in 1998, and withdrew again in January 2005.

INTER-GOVERNMENTAL AND INTERNATIONAL NON-GOVERNMENT ORGANISATIONS IN THE PACIFIC

Inter-Governmental and international Non-Government Organisations with established offices in the Pacific include:

- The Asian Development Bank (ADB)¹³⁹, which was founded to promote social and economic progress in Asia and the Pacific. ADB has 14 Pacific developing member countries and assistance is guided by the ADB Pacific Strategy 2005-2009, which promotes access of the poor to cash income opportunities and improved social services.
- The United Nations Economic and Social Commission for Asia and the Pacific – Pacific Operations Centre (ESCAP/POC)¹⁴⁰ provides policy and technical advisory services to ESCAP member and associate member states in areas such as economics, finance, social development and infrastructure planning.
- The United Nations Food and Agriculture Organisation (FAO)¹⁴¹
 - the Sub-Regional Office for the Pacific Islands (SAPA) has a mandate to address regional efforts towards food security. FAO also provides technical assistance to the Pacific Islands' fisheries.
 - the South Pacific Aquaculture Development Project (SPADP) is a five-year project to provide technical assistance and support for aquaculture development.
- The United National Development Programme (UNDP)¹⁴² has a number of offices and activities
 - the Sub-Regional Resource Facility (SURF) works to: identify innovations, best practices and build professional networks; assist in the dissemination of knowledge through IT; and provide assistance in problem solving, evaluation and design.
 - the Integrated Community Approach for Resource and Environment Programme (ICARE) works with communities to reduce the pressure on

¹³⁹ <http://www.adb.org/Pacific/default.asp>

¹⁴⁰ <http://www.unescap.org>

¹⁴¹ <http://www.faopacific.ws/>

¹⁴² <http://www.undp.org/asia/>

coastal environments through ecologically sound, alternative livelihood options.

- The United Nations Fund for Population Activities (UNFPA)¹⁴³ has a Country Support Team for the South Pacific to provide technical support services, training programs and promote a more holistic approach to population programs.
- The <http://www.unfpa.org/public/> (UNESCO)¹⁴⁴ promotes international exchange of intellectual knowledge. Its projects in the Pacific include Education for Sustainable Village Living, Values for Sustainable Village Living, and a hydrological program. UNESCO also operates:
 - the Intergovernmental Oceanographic Commission;
 - the World Heritage Convention;
 - the Man and the Biosphere Programme; and
 - the World Solar Programme.
- START-Oceania¹⁴⁵ has projects in mangrove management, urbanization, the impact of climate variations on sugar production in Fiji, changes in atmospheric composition and coastal zone management.
- The Asia-Pacific Network for Global Change Research (APN)¹⁴⁶ is an intergovernmental network which promotes and supports research activities on global changes in climate, ocean and terrestrial systems and strengthens links between the science community and policy makers.
- Greenpeace Pacific has a regional campaign centre in Fiji and professional staff working on projects in several countries. It also undertakes marine projects around sustainable fishing in the Pacific^{147 148}.
- The Nature Conservancy¹⁴⁹ has offices on Palau, Federated States of Micronesia, Solomon Islands and Papua New Guinea.

¹⁴³ <http://www.unfpa.org/public/>

¹⁴⁴ http://portal.unesco.org/geography/en/ev.php-URL_ID=2315&URL_DO=DO_TOPIC&URL_SECTION=201.html

¹⁴⁵ <http://www.usp.ac.fj/index.php?id=886>

¹⁴⁶ <http://www.apn.gr.jp>

¹⁴⁷ <http://www.greenpeace.org/international/news/pacific-saves-tuna210508>

¹⁴⁸ <http://www.greenpeace.org/international/footer/search?q=Pacific+>

¹⁴⁹ <http://www.nature.org/wherewework/asiapacific/features/art21486.html>

- World Wide Fund for Nature (WWF)¹⁵⁰ has offices in Fiji, the Cook Islands, Solomon Islands and Papua New Guinea.

This listing does not purport to be inclusive of all the regional and international organisations which have operations in Pacific Island countries.

¹⁵⁰ <http://www.wwfpacific.org.fj/>

APPENDIX 3: GEOGRAPHY AND DEMOGRAPHY DATA

Country	Government Status	Capital	Population	Land mass (sq km)	Number of islands/atolls	Other information
American Samoa	Unincorporated territory of the US	Pago Pago	65,628 (2009 est)	200	7	50,000 American Samoans live in Hawaii or on the US mainland.
Commonwealth of Northern Marianas Islands (CNMI)	Commonwealth in political union with the US	Saipan	88,662 (2009 est)	470	15 (only 3 have significant population)	Pacific Islanders make up only 36% of the population.
Cook Islands	Independent	Rarotonga	20,200 (2007)	240	15	Strong links to NZ where more than 30,000 Cook Islanders live.
Federated States of Micronesia	Compact of free association with US	Palikir	108,000 (2007)	700	607	Guaranteed US aid funds through to 2023.
Fiji	Independent	Suva	834,000 (2007)	18,000	332 (approx 110 inhabited)	Democratic institutions currently crippled.
French Polynesia	French territory	Papeete	287,032 (2009 est)	4,167	118	Site of French nuclear testing.
Guam	US territory	Hagatna	178,430 (2009 est)	540	1	Important US military base.
Kiribati	Independent	Tarawa	95,500 (2007)	800	33	Aid accounts for 25% of GDP.

Country	Government Status	Capital	Population	Land mass (sq km)	Number of islands/atolls	Other information
Marshall Islands	Independent; compact of free association with US	Majuro	52,300 (2007)	180	34	Compensation claims continue for US nuclear testing between 1947 and 1962.
Nauru	Independent	Yauren	8,8000 (2007)	21	1	Economy based on phosphate, now depleted.
New Caledonia	French territory	Noumea	227,436 (2009 est)	18,500	6	Referenda in 2013-18 to decide independence from France.
Niue	Independent, in free association with NZ	Alofi	1,144 (2008)	259	1	Population has fallen substantially due to emigration.
Palau	Independent; compact of free association with US	Melekeok	20,200 (2007)	458	11	Major reliance on US aid.
Papua New Guinea	Independent	Port Moresby	6,300,000 (2007)	453,000	151	Has 80% of region's population.
Pitcairn Islands	UK territory	Adamstown	48 (2009 est)	47	4 (only 1 inhabited)	Outmigration, primarily to NZ has reduced the population from a peak of 233 in 1937.
Samoa	Independent	Apia	219,918 (2009 est)	2,850	2	Tourism accounts for 25% of GDP.
Solomon Islands	Independent	Honiara	510,000 (2007)	27,549	138	Rich in undeveloped mineral resources.

Country	Government Status	Capital	Population	Land mass (sq km)	Number of islands/atolls	Other information
Tokelau	New Zealand territory	-	1,416 (2009 est)	12	3	Heavy reliance on aid from NZ.
Tonga	Monarchy within British Commonwealth	Nuku'alofa	101,400 (2007)	718	171 (48 inhabited)	Only remaining monarchy in the Pacific.
Tuvalu	Independent	Funafuti	9,810 (2007)	26	9	Sold domain name tv for US\$50 m in 2000.
Vanuatu	Independent	Port Vila	229,400 (2009 est)	12,200	80 (65 inhabited)	British-French condominium until independence in 1980
Wallis and Futuna	French Territory	Mata-Uta	15,300 (2007)	274	3	Major problems with deforestation and erosion.
Timor L'Este	Independent	Dili	1,048,000 (2007)	14,874	1	Economic infrastructure being rebuilt after period of civil unrest.

APPENDIX 4:

ECONOMIC DATA

Country	Annual population growth (%) 2001	Urban population (%) 2001	Total labour force	GDP per capita (US\$)	Aid per capita (US\$) 2004
American Samoa	2.9	53	12,902 (2004)	\$8,000 (2007)	-
Commonwealth of Northern Marianas Islands (CNMI)	5.5	53	42,753 (2000)	\$12,638 (2005)	-
Cook Islands	-0.5	60	5,900 (2007)	\$9,100 (2005)	-
Federated States of Micronesia	1.9	29	29,175 (2000)	\$2,200 (2008)	-
Fiji	1.1	50	219,314 (1996)	\$3,700 (2005)	\$71.80
French Polynesia	1.6	53	70,000 (1996)	\$18,000 (2005)	\$2,301.55
Guam	1.9	40	54,980 (2002)	\$15,000 (2005)	-
Kiribati	2.5	40	36,970 (2005)	\$3,700 (2008)	\$185.70
Marshall Islands	2.0	72	10,141 (2007)	\$2,500 (2008)	\$834.56
Nauru	1.8	100	-	\$5,000 (2005)	-
New Caledonia	2.0	78	79,400 (1996)	\$15,000 (2003)	\$2,279.17
Niue	-3.1	33	-	\$5,800 (2003)	-

Country	Annual population growth (%) 2001	Urban population (%) 2001	Total labour force	GDP per capita (US\$)	Aid per capita (US\$) 2004
Palau	2.2	73	9,777 (2007)	\$8,100 (2008)	\$977.50
Papua New Guinea	2.3	18	2,344,734 (2000)	\$2,300 (2008)	\$45.90
Pitcairn	-	-	15 (2004)	-	-
Samoa	0.3	22	50,325 (2001)	\$5,000 (2008)	\$170.90
Solomon Islands	3.4	20	26,000 (2007)	\$1,900 (2008)	\$259.90
Tokelau	-	-	-	\$1,000 (1993)	-
Tonga	0.6	39	30,700 (2007)	\$4,400 (2008)	\$188.30
Tuvalu	0.9	53	3,237 (2002)	\$1,600 (2002)	-
Vanuatu	2.6	20	75,110 (1999)	\$4,700 (2008)	\$177.30
Wallis and Futuna	-	-	-	\$3,800 (2004)	-
Timor L'Este	3.1	-	-	\$2,400 (2008)	\$165.40

APPENDIX 5: AGRICULTURE AND ELECTRICITY PRODUCTION

These data are provided as proxies for changing dependence on agriculture and increasing urbanization.

Pacific Island nation/territory	Agriculture production index 1999-2001=100			Electricity production million kilowatt hours		
	1990	2007	<i>change</i>	1990	2007	<i>change</i>
American Samoa	103.6	95.4 (2003)	-8%	-	-	-
Commonwealth of Northern Marianas Islands (CNMI)	-	-	-	-	-	-
Cook Islands	112.1	51.2 (2005)	-54%	13	33	+154%
Federated States of Micronesia	100.1 (1995)	100.1 (2005)	0	0.1	0.07	-30%
Fiji	109.5	97.5 (2006)	-11%	447	810	+81%
French Polynesia	115.9	111.7 (2004)	-4%	-	-	-
Guam	75.6	107.0 (2004)	+41%	-	-	-
Kiribati	67.4	111.5 (2006)	+65%	8	21	+162%
Marshall Islands	173.2	92.8 (2005)	-46%	0.04	0.08	+100%
Nauru	96.0	96.9	+1%	29	32 (2004)	+10%
New Caledonia	80.6	103.0 (2004)	+28%	-	-	-
Niue	77.9	40.0 (2003)	-49%	-	-	-
Palau	NA	-	-	203 (1992)	171 (2004)	-16%
Papua New Guinea	77.7	108.2 (2005)	+39%	1,790	1,399 (2004)	-22%

Pacific Island nation/territory	Agriculture production index 1999-2001=100			Electricity production million kilowatt hours		
	1990	2007	<i>change</i>	1990	2007	<i>change</i>
Pitcairn Island	-	-	-	-	-	-
Samoa	98.4	108.1 (2006)	+10%	50	113 (2006)	+126%
Solomon Islands	77.5	115.6 (2006)	+49%	30	75	+150%
Tokelau	-	-	-	-	-	-
Tonga	98.6	102.3 (2005)	+4%	24	46	+92%
Tuvalu	73.7	111.1 (2005)	+51%	0.001	0.004 (2005)	+300%
Vanuatu	112.6	108.8 (2006)	-3%	26	49	+88%
Wallis and Futuna	-	-	-	-	-	-
Timor L'este	86.0	113.3 (2005)	+32%	-	-	-

APPENDIX 6: THE WORK OF THE MENZIES CENTRE FOR HEALTH POLICY IN THE PACIFIC ISLANDS

Professor Stephen Leeder, Director of the Menzies centre for Health Policy

In 2003-04, Professor Leeder worked at Columbia University, New York, in the Earth Institute and Mailman School of Public Health, developing a substantial report, based on research data and scientific interpretation, of the economic consequences of cardiovascular disease (CVD) in developing economies. The report, *A Race against Time: the challenge of cardiovascular disease in developing economies*¹⁵¹, concentrated upon the macroeconomic consequences of CVD, and especially on the fact that one-third of CVD deaths in many developing countries were occurring among people of working age.

The report emphasized the need for a clear understanding of the size of the problem of CVD in developing nations and ways of taking action, by mobilizing business, non-government organizations and other components of civil society, to create preventive environments (better food, better urban design, primary care, tobacco control) that would reduce the toll of CVD. This work has received international recognition.

With research funding from the Initiative for Cardiovascular Health Research in the Developing Countries, Professor Leeder has continued to work on the economic consequences of cardiovascular disease and the translation of these economic insights into effective preventive and control strategies through the recruitment of industry, labour and treasury and finance ministers from developing countries.

The Diabetes Unit, led by Associate Professor Ruth Colagiuri.

The Diabetes Unit works extensively on international health, predominantly in health policy and health service/system enhancement in developing countries. The work aims to strengthen local capacity and create true partnerships while respecting the culture, social structures and values of the communities and countries it works alongside.

The Diabetes Unit leads the Oxford Health Alliance Asia-Pacific Centre, building and maintaining a network of activity with people committed to the improvement of the health environment and organisations whose business influences health.

¹⁵¹ <http://www.ahpi.health.usyd.edu.au/pdfs/colloquia2004/leederracepaper.pdf>

Associate Professor Colagiuri leads the Health Theme of the University of Sydney's Institute for Sustainable Solutions (USISS)¹⁵².

Current projects include:

1. Building Capacity – Reducing Diabetes Complications: A Pacific Islands model

The Diabetes Unit is working with the Ministry of Health in Vanuatu and Nauru to design, implement and report on a locally relevant and sustainable model to increase the capacity of these Pacific Island countries to manage, monitor and improve diabetes care and reduce eye, kidney and foot complications resulting from diabetes. While this is primarily a clinically oriented project, it has a broader focus on the organisation and systems underpinning clinical care – workforce, clinical governance, information systems, and the cost of care.

A local stakeholder forum of leaders from government, non-government and business organisations was held in Vanuatu (June 2007) and Nauru (March 2008). These forums led to the development of a diabetes 'best practice' model closely approximating internationally recognised standards of diabetes care and feasible within local resource constraints in each country. The models concentrated on developing and aligning the workforce and health services, information, funding and policy with the needs of people with diabetes.

Collaborators:

Vanuatu Ministry of Health
Nauru Ministry of Health
International Centre for Eye Education-UNSW
Australian and New Zealand Society of Nephrologists

Funding source

World Diabetes Foundation

Reports

Building Better Diabetes Care in Nauru – Report on the National Stakeholder Forum¹⁵³
Building Better Diabetes Care in Vanuatu – Report on the National Stakeholder Forum¹⁵⁴

¹⁵² Colagiuri R & Slade R (2008). Sustainability: What's health got to do with it? Radius, University of Sydney. December 2008.
<http://www.ahpi.health.usyd.edu.au/diabetes/RadiusArticleDec2008.pdf>

¹⁵³ <http://www.ahpi.health.usyd.edu.au/diabetes/NauruStakeholderForumReport.pdf>

¹⁵⁴ <http://www.ahpi.health.usyd.edu.au/diabetes/VanuatuStakeholderForumReport.pdf>

2. IDF Task Force on National Diabetes Policy and Action

As part of the implementation of the UN Resolution, the International Diabetes Federation (IDF) has established a *Task Force on National Diabetes Policy and Action* to promote and support the implementation of national diabetes programs (NDPs) and strategies globally. The Task Force is made up of representatives of the seven IDF Regions:

- Associate Professor Ruth Colagiuri (Chair) - Western Pacific Region
- Professor Juan Jose Gagliardino - South American and American Region
- Mr Lex Herrebrugh - European Region
- Dr Abdullah Ben Nakhi - Middle East and North Africa Region
- Professor Ambady Ramachandran - South East Asian Region
- Dr Kaushik Ramaiya - African Region
- Professor Gayle E Reiber - North American Region
- Dr Gojka Roglic – WHO Geneva

Workshop Program

Workshops will be conducted in 2009 in each of the seven IDF Regions of the world to provide mentoring, technical support, advice and raise government awareness of NDPs. The generic workshop program will be available shortly and workshops are planned for Africa, the Western Pacific Region and North America in the first half of 2009.

National Diabetes Programs Toolbox

In support of this program, The Diabetes Unit is developing a handbook of resource material for developing and implementing NDPs including measuring the problem (disease prevalence, morbidity and cost), intervening to mitigate the problem and evaluating the impact of the interventions

National Diabetes Programs Survey

In order to assess the status of existing NDPs, a global survey of all member associations of the IDF was undertaken in late 2008. The results of this survey have established a baseline profile of NDPs globally and provide important insights into the current status of NDPs in each member country to underpin the NDP workshop program. This is critical in defining need-based strategies and prioritising actions.

3. The OxHA Asia-Pacific Centre

The role of the OxHA Asia-Pacific Centre is to work closely with the global body to replicate OxHA strategy in the Asia-Pacific region by engaging with governments, academic institutions, public health practitioners, lawyers, corporations, health and related NGOs, activists, urban designers, architects and planners and the food industry to raise awareness and encourage action to facilitate the health of people and the planet.

The remit of the OxHA Asia-Pacific Centre includes:

- Building and maintaining the OxHA Asia-Pacific Network
- Implementing the Sydney Resolution
- Co-hosting the OxHA 2008 Sydney Summit

- Leading the Law + Health Workstream
- Engaging with industry
- Co-hosting seminars
- Making submissions on topical issues
- Developing thought provoking publications¹⁵⁵.

Joel Negin, Research Fellow

Joel Negin is Lecturer in International Public Health at the School of Public Health and a Research Fellow at the Menzies Centre for Health Policy. Joel also maintains an ongoing appointment at the Center for Global Health and Economic Development at the Earth Institute at Columbia University where he worked before moving to Sydney.

Joel is currently conducting an AusAID-funded study on health policy development in the Pacific region. While most of health policy focuses on what health policy reforms countries should introduce, there has been little analysis of how countries carry out reforms, how policy is developed and implemented, and who is involved in these processes. This study will provide a framework to understand health policy development in the region. It looks at case studies of local, regional and international policy-making experiences with a view to elucidating challenges in the policy cycle and areas where Pacific evidence-based policy-making capacity should be strengthened.

Anne Marie Thow, PhD student

Anne Marie's PhD thesis is on the impact of trade and fiscal policy on population nutrition in the Pacific Islands, and their future policy implications. Her main interest is in the relationship and interaction between economic policy and public health nutrition.

She is looking historically at the relationship between trade and fiscal policy and population nutrition in the Pacific, and conducting policy analyses of fatty meat bans and soft drink taxes in Pacific Island countries.

¹⁵⁵ <http://www.ahpi.health.usyd.edu.au/diabetes/asiapacific.php>