

Sanitation, hygiene and drinking-water in the Pacific island countries

Converting commitment into action



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Abbreviations

ADB	Asian Development Bank
DALYs	Disability Adjusted Life Years
IPCC	Intergovernmental Panel on Climate Change
IWRM	Integrated Water Resources Management
IYS	International Year of Sanitation 2008
JMP	WHO and UNICEF Joint Monitoring Programme for Water Supply and Sanitation
MDG	Millennium Development Goal
NGOs	Non-Governmental Organizations
RAP	Pacific Regional Action Plan on Sustainable Water Management
SOPAC	Pacific Islands Applied Geoscience Commission
UNEP	United Nations Environment Programme
UNICEF	United Nations Children's Fund
WHO	World Health Organization
WHO/WPRO	WHO Western Pacific Regional Office
WMO	World Meteorological Organisation

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The Western Pacific Regional Office of the World Health Organization and the Pacific Islands Applied Geoscience Commission (SOPAC) would like to thank the authors of this document for their dedication and commitment in providing this crucial analysis of the current status of sanitation and drinking-water in the Pacific island countries. This document, prepared by Jose Hueb, received extensive inputs and additional text prepared by Steven Iddings and Marc Overmars. Terrence Thompson, Environmental Health Regional Adviser for the Western Pacific Regional Office of the World Health Organization, coordinated this activity, which involved the participation of experts and staff of several offices of both organizations. Special mention should be made of Colin Mathers, Rosebelle Azcuna and Therese Maria Reginaldo for their assistance with

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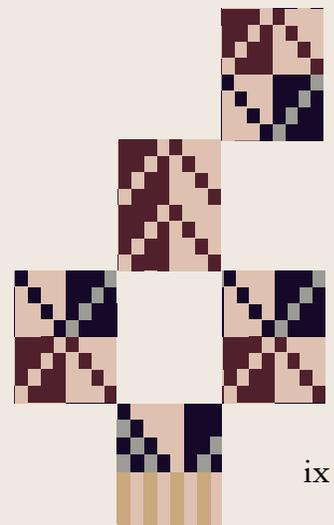
Foreword

The authors of this report should be commended for providing valuable insights into sanitation and drinking-water statistics in Pacific island countries. The information held within this report is timely, given the United Nations declaration that 2008 be the International Year of Sanitation and the real and very urgent need to guide further action to progress and reach the Millennium Development Goals of cutting the proportion of people without access to basic sanitation in half, by the year 2015.

Recent WHO and UNICEF statistics reveal that only half of the total population of the Pacific island countries are served with any form of improved drinking-water or sanitation. In Pacific island countries there are 6.7 million cases of acute diarrhoea every year. Of these cases 2800 result in death, and most of these are among children less than five years of age.

In 2006 Pacific leaders agreed that the water, sanitation and hygiene challenges facing the region should be critical priorities of the Pacific Plan and addressed through implementation of the Pacific Regional Action Plan on Sustainable Water Management. In December 2007, Pacific leaders attending the Asia Pacific Water Summit in Japan reiterated their commitment to the provision of adequate sanitation and safe drinking-water for their people.

Regional leaders have also called for increased regional cooperation to share knowledge and build capacity in order to address challenges common to many island nations. While it should be acknowledged that progress is being made, substantially more effort is urgently needed if the Pacific island countries are to achieve the Millennium Development Goals for sanitation and drinking-water.





Understanding the Pacific islands

Overall sanitation and drinking-water status

According to country coverage statistics provided by WHO, UNICEF (2008) the numbers of people in the Pacific island countries¹ served with some form of improved sanitation rose from 2.9 million in 1990 to 4.0 million in 2006. Despite this impressive achievement, the proportion of people served in 2006 was still barely 48% of the overall population.

The status of drinking-water is not much different, with the current proportion of people served with any type of improved drinking-water reaching 46%, leaving alone the fact that only 13% of the overall population has access to drinking-water piped to the household through a piped distribution system.

These statistics, associated with a less than optimum management of water resources may aggravate the gloomy perspectives brought about by climate change, which appears to be exacerbated in the Pacific islands. Drinking-water and sanitation relies on water governance and water resources management and this is closely linked with climate change in the Pacific islands.

¹ The Pacific island countries addressed in this report include 14 independent and self-governing countries in the Pacific Region. They are: Cook Islands, Federated States of Micronesia, Fiji, Kiribati, Nauru, Niue, Palau, Papua New Guinea, Republic of Marshall Islands, Samoa, Solomon Islands, Tonga, Tuvalu and Vanuatu.

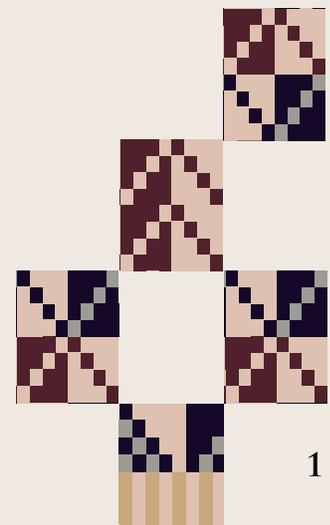
The subsequent sections of this chapter display some critical human and health indicators suggesting a disadvantaged portrait of the Pacific islands in terms of health and development, as compared to the developed countries of this region and the World average.

The good news is that major efforts and relevant initiatives are under way in the Region that might reverse drastically this situation, as will be viewed in the subsequent sections of this document.

The term “Pacific island countries” or simply “Pacific islands” in this document, unless otherwise stated, refers to the Pacific Small Island Developing States (SIDS) listed in the footnote of this page.

Global analysis infers that access to basic sanitation, safe drinking-water supply and good hygiene behaviours has the potential to prevent at least 9.1% of the disease burden (in disability-adjusted life years or DALYs – a weighted measure of deaths and disability), or 6.3% of all deaths in the world’s developing regions. Children suffer a disproportionate share of this burden, as the fraction of total deaths, or DALYs, attributable to unsafe drinking-water, inadequate sanitation or insufficient hygiene is more than 20% in children up to 14 years of age (Prüss-Üstün A et al., 2008).

Due to differences in definitions of access and population estimates used by countries and the WHO



and UNICEF Joint Monitoring Programme for Water Supply and Sanitation (JMP) respectively, the sanitation and drinking-water coverage estimates presented here may differ from those used nationally.

Characterizing the Pacific island countries

The total population of the Pacific island countries in 2006 was about 8.4 million people, most of them living in rural areas (81%), speaking approximately 1000 different languages (Figure 1). These countries are spread across 180 million square kilometres of ocean, which represent about 36% of the world surface.

Pacific island countries are no different to any other in that the lack of access to basic sanitation

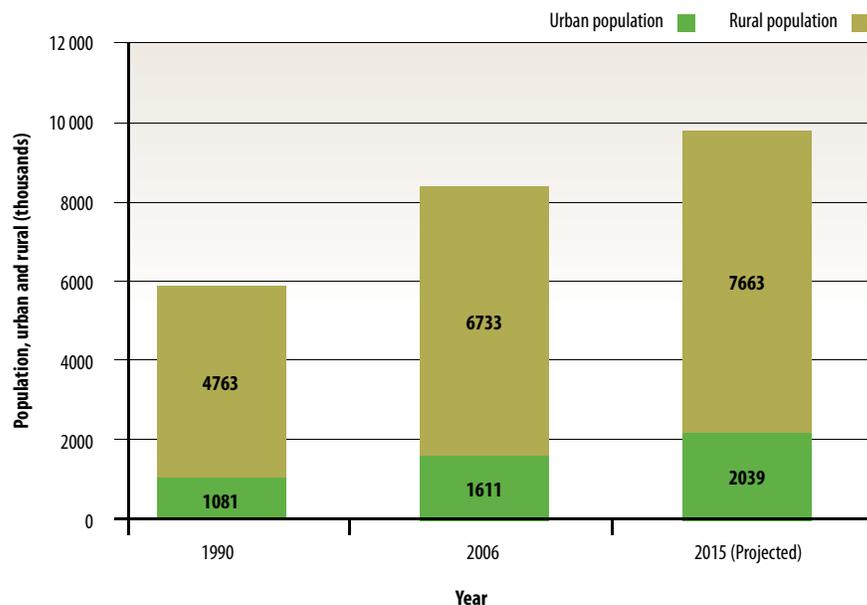
is still a major problem, there are serious challenges to be tackled with regard to drinking-water, especially drinking-water quality, and that preserving fresh water and adapting to climate change are essential to human existence and to sustainable development. However, the ability of the island countries to effectively manage the sanitation and water sector is constrained by their unique characteristics of small size, fragility, natural vulnerability, and limited human and financial resources (SOPAC, 2006).

Although the under-five mortality rate has decreased nearly 22% from 1990 to 2006 in the Pacific island countries, it is still considerably higher than the world average. If global statistics can be used as a reference for the Pacific island countries, the total number of deaths in this region attributable to unsafe water, inadequate sanitation and insufficient hygiene is more than 20%



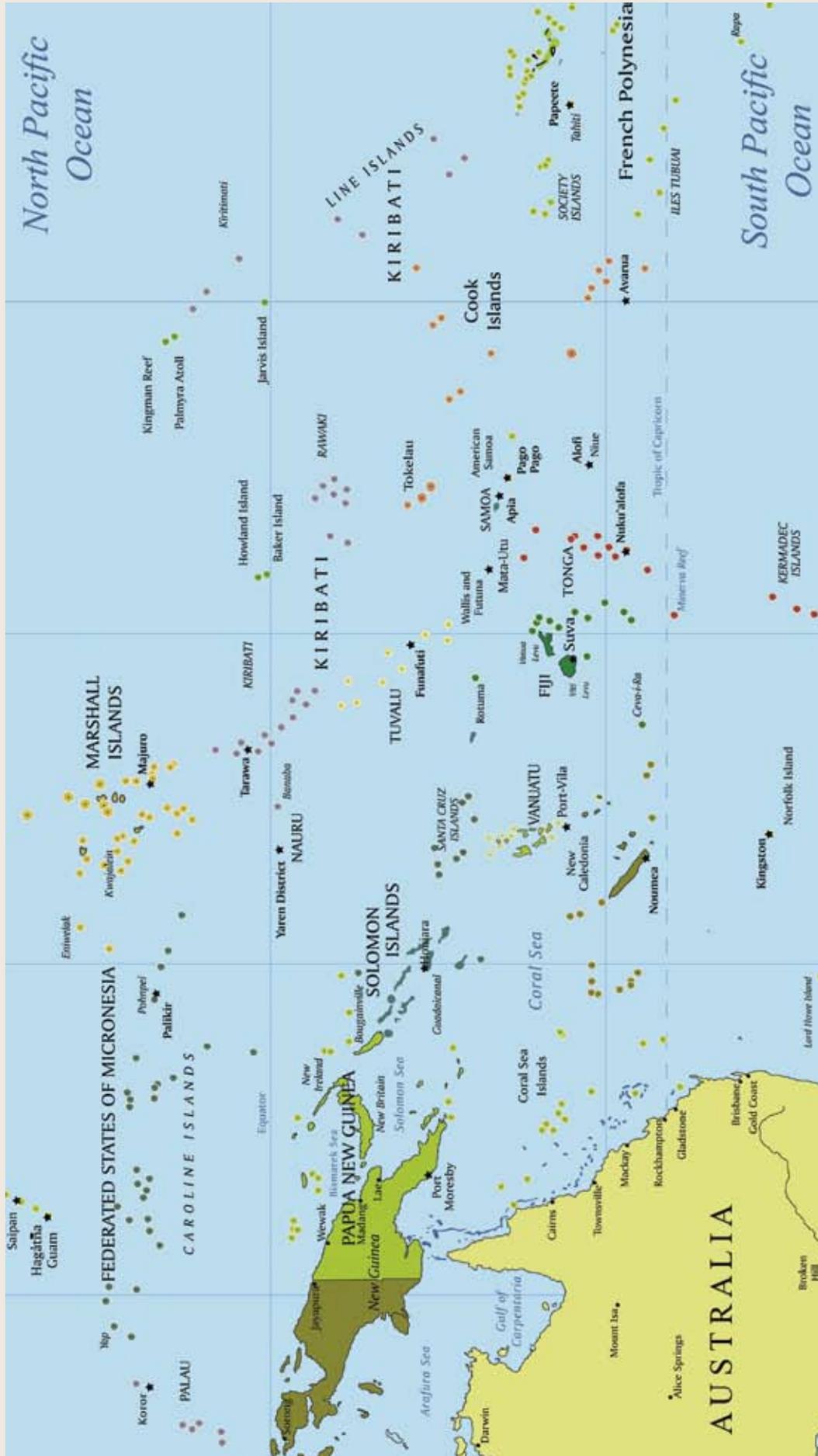
If the current trend is confirmed, the year 2015 will see the urban population of the Pacific island countries nearly doubling that of 1990. The rural population will increase by 61% during the same period of time.

FIGURE 1 Urban and rural population of the Pacific island countries, 1990, 2006, and 2015 (projected)



Source: country population from United Nations Population Division (2007)

MAP 1 Pacific island countries

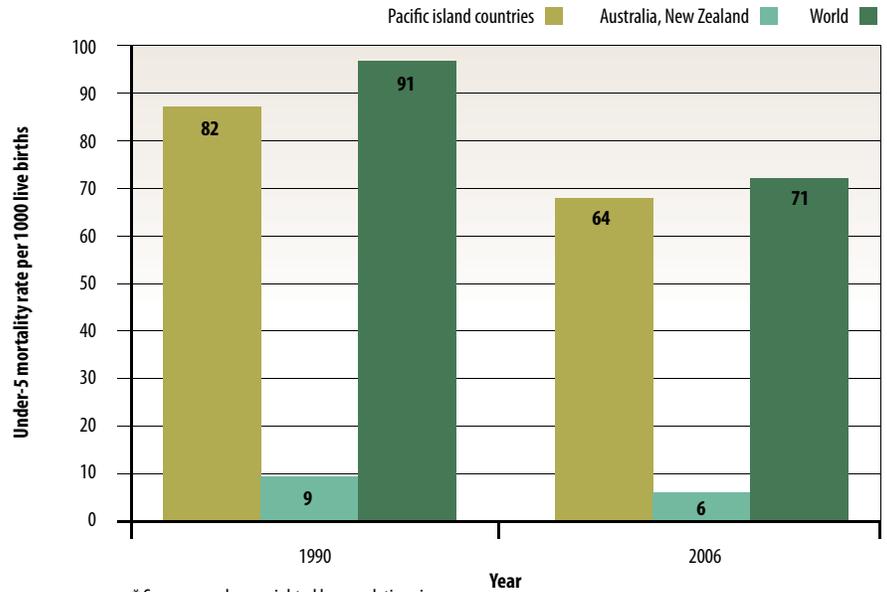


Source: SOPAC



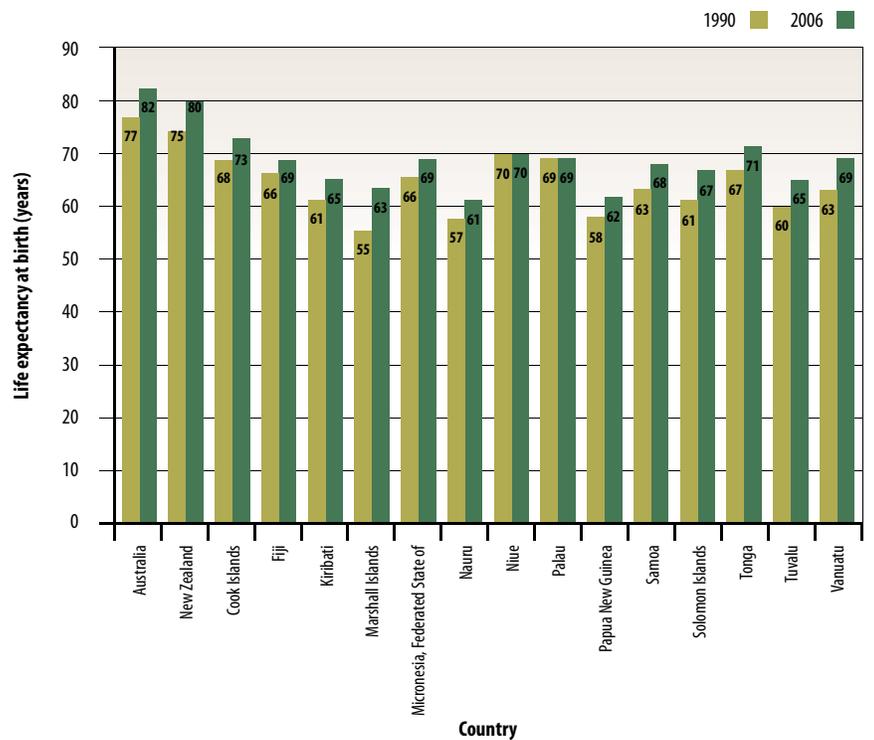
Although progress has been made in the Pacific island countries in reducing under-five mortality over the last 16 years, it is currently over ten times that of developed countries such as Australia and New Zealand.

FIGURE 2 Under-five mortality rate per 1000 live births in the Pacific island countries, Australia and New Zealand, and the world, 1990 and 2006*



People in the less-developed countries of the Pacific islands live over 20 years less than those in developed countries.

FIGURE 3 Life expectancy at birth in the Pacific island countries and the developed Australia and New Zealand, 2002



of all deaths in children up to 14 years of age (Prüss-Üstün A et al., 2008), and this number should be even higher for children under 5 years of age.

Life expectancy is an important indicator of human development and is closely related to the status of access to basic sanitation and safe drinking-water, as demonstrated in numerous research projects worldwide. Although some progress has been made from 1990 to 2006 in the Pacific island countries in increasing life expectancy, it remains considerably lower than that of developed countries (Figure 3). The influence of sanitation, drinking-water and hygiene on life expectancy is more prominent in the most vulnerable age groups: children under five years old and people over 60 years of age (WHO, UNICEF, 2005). Improved sanitation services, better hygiene behaviour and access to safe drinking-water, especially by mothers, are crucial in cutting child mortality and extending the life of the elderly.

Why this report?

There are crucial initiatives promoting and supporting the development of water and wastewater in the Pacific islands. On the other hand, global water and sanitation assessments have so far failed to address the status and trends of the Pacific island countries. Thus, the WHO Western Pacific Regional Office and SOPAC decided to prepare this report, which aims at presenting the status of sanitation and drinking-water in the Pacific islands as a contribution to policy- and decision-making towards enhanced sustainable access to these crucial services. It is important to highlight that this issue is increasingly gaining visibility in the region, which is confirmed by the overwhelming attendance of Pacific island leaders at the First Asia Pacific Water Summit, held from 3 to 4 December 2007 in Japan. Six out of the nine attending leaders were from the Pacific.

The Pacific Plan

The Pacific Plan is a planning process aimed at the full realization of the Heads of States' Vision for the Pacific region. It is intended to strengthen cooperation and integration between the countries of the region and identify the areas where countries will gain the most from sharing resources of governance and aligning policies.

The Pacific Plan is intended to deliver real benefits to the people of the Pacific by proposing concrete plans for the following key development issues: economic growth; sustainable development; good governance; and security.

Fresh water management, basic sanitation and safe drinking-water impact upon all the issues identified in the Pacific Plan, from fisheries to disaster-risk management.

The Pacific Plan was endorsed by leaders at the Pacific Islands Forum meeting in October 2005. In addition, the leaders agreed in 2006, that water, sanitation and hygiene challenges facing the region be directly addressed under the Pacific Plan through the Pacific Regional Action Plan on Sustainable Water Management (RAP).

The Pacific Islands Forum was founded in August 1971 and comprises 16 independent and self-governing States in the Pacific. They are: Australia, Cook Islands, Federated States of Micronesia, Fiji, Kiribati, Marshall Islands, Nauru, New Zealand, Niue, Palau, Papua New Guinea, Samoa, Solomon Islands, Tonga, Tuvalu and Vanuatu. Forum leaders meet annually to develop collective responses to regional issues.

Source: Pacific Islands Forum Secretariat (2008)



BOX 1

The WHO and UNICEF Joint Monitoring Programme for Water Supply and Sanitation (JMP)

The statistics used to set the baseline and to monitor progress on access to improved sanitation and improved drinking-water towards the MDG respective target are produced by the JMP. This is the official mechanism adopted by the United Nations Secretary General and the entire United Nations System to report on progress in the provision of improved sanitation and drinking-water services to the world population.

The JMP's coverage statistics are based on household surveys including: USAID-supported Demographic and Health Surveys (DHS); UNICEF-supported Multiple Indicator Cluster Surveys (MICS); national census reports; WHO-supported World Health Surveys; and other reliable national surveys that allow data to be compared. Prior to the adoption of household surveys in 2000 as the basis for coverage reporting, coverage data were provided by the water utilities and ministries in charge of drinking-water and sanitation services. At that time, definitions of "safe water" and "basic sanitation" differed widely from region to region and country to country. Commonly, too, coverage was counted according to the numbers of built facilities, regardless of the fact that many of those might no longer be in working condition or might not be in use.

From 2000, coverage assessments conducted by the JMP, using population-based data gathered through household surveys and national censuses, give a much clearer comparison between countries, as they record the percentage of people using well defined improved facilities, as determined by face-to-face interviews.

The JMP's website (www.wssinfo.org) has an updated database of coverage statistics for most countries. The data are periodically analysed and presented in a global report.

Source: WHO, UNICEF (2005)

This report by no means is intended to replace major studies of the water sector in this region or to be a substitute to existing national assessments or national official statistics on sanitation and drinking-water. It brings about a snapshot of the overall sanitation and drinking-water performance in the Pacific islands using the JMP methodology (Box 1), without the claim of addressing exhaustively the causes of current or past performance. It is felt that other documents already address this issue and that future in-depth national sector assessments should

be undertaken to fill out any existing gaps.

The drinking-water and sanitation coverage statistics presented in this document are provided by the latest country statistics published by the WHO and UNICEF Joint Monitoring Programme for Water Supply and Sanitation (WHO, UNICEF, 2008). They might differ from the official statistics of the Pacific island countries due to different criteria in defining access to drinking-water or sanitation or different methodologies in estimating coverage.





The status of sanitation coverage in the Pacific island countries

What does sanitation mean in this report?

According to the UN Millennium Project Task Force on Water and Sanitation (2005), basic sanitation is the lowest-cost option for securing sustainable access to safe, hygienic, and convenient facilities and services for excreta and sillage disposal that provide privacy and dignity while ensuring a clean and healthful living environment both at home and in the neighbourhood of users.

Monitoring access to basic sanitation according to this definition is currently not possible provided the limited level of information available at country level or internationally. The WHO and UNICEF Joint Monitoring Programme for Water Supply and Sanitation works with the concept of access to “improved” sanitation facilities and uses this indicator as a proxy to measure progress towards the achievement of the MDG sanitation and drinking-water targets throughout the world. Improved and unimproved technologies as defined by the JMP are provided in Table 1 (WHO, UNICEF, 2006).

The JMP considers that different households sharing access to the same sanitation facility might not encourage use as this practice does not provide privacy, and cleanliness might be unattainable (WHO, UNICEF, 2004). Thus, those having access to shared facilities are not counted as having access to improved facilities even if the



TABLE 1 Improved and unimproved sanitation types of facilities

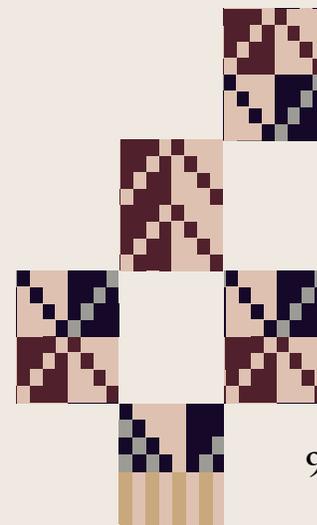
Improved sanitation facilities*	Unimproved sanitation facilities
Flush or pour-flush to: <ul style="list-style-type: none"> • piped sewer system • septic tank • pit latrine Ventilated improved pit latrine (VIP) Pit latrine with slab Composting toilet	Flush or pour-flush to elsewhere** Pit latrine without slab or open pit Bucket latrine Hanging toilet or hanging latrine No facilities or bush or field (open defecation)

* Only facilities which are not shared or public are considered improved.

** Excreta are flushed to the street, yard or plot, open sewer, a ditch and a drainage way.

latter falls in the category of improved as defined by the above table.

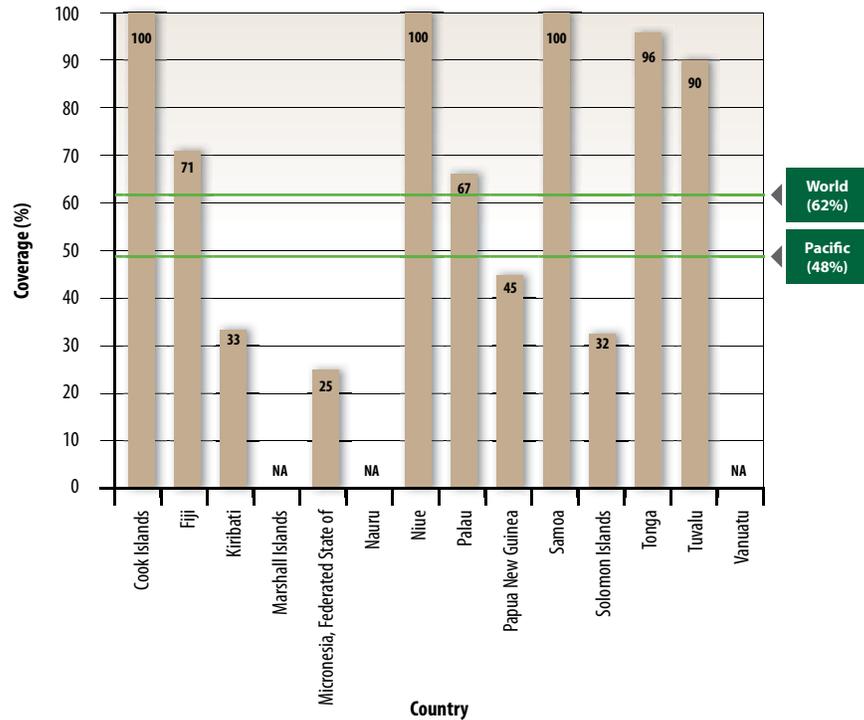
The JMP calculates coverage estimates based on the outputs of household surveys as opposed to reported data. In the Pacific island countries, very few countries practice household surveys providing statistics on access to drinking-water and basic sanitation that are compatible with the JMP methodology. Thus, national and regional analysis in this report might be severely affected by lack of information that, otherwise, would make it possible to establish a more reliable coverage trend over time.





Nearly 40% of the Pacific island countries have coverage with improved sanitation below 50%.

FIGURE 4 Coverage with improved sanitation by Pacific island country, 2006



Source: primary country coverage data from WHO, UNICEF (2008)

What is the sanitation coverage in the Pacific island countries?

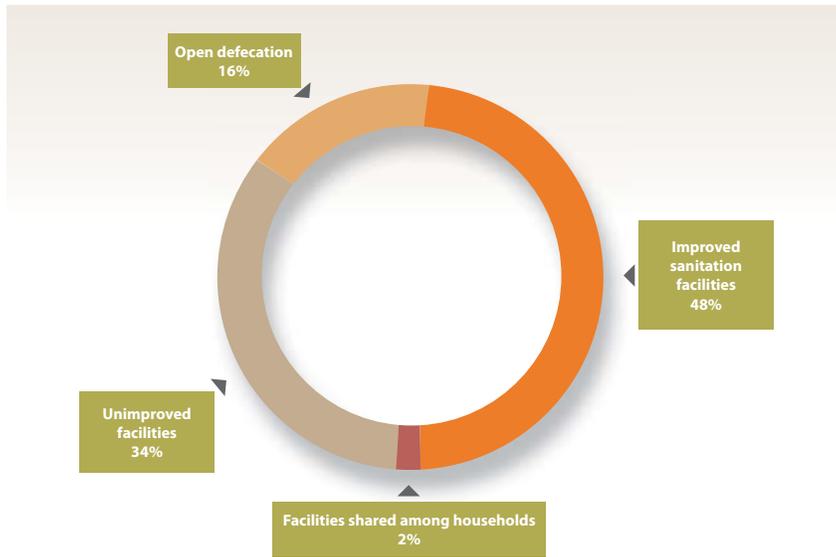
The sanitation coverage in the Pacific island countries (48%) in 2006 was far below the world average of 62% (Figure 4). There is a huge disparity in access to improved sanitation services among the Pacific island countries. While less than a half of the population of countries such as Kiribati, Federated States of Micronesia, Papua New Guinea and Solomon Islands have access to improved sanitation, Cook Islands, Niue and Samoa have achieved full coverage.

It is important to highlight that there is an overall perception among key stakeholders in the region that the sanitation coverage statistics provided by the JMP, especially those for high-coverage Pacific countries, seem exceedingly optimistic. For the future, the JMP would be expected to refine its coverage statistics for the region by promoting the inclusion of questions and response categories on sanitation and drinking-water in national sample surveys or census conducted in the Pacific island countries.



Open defecation is still a widespread practice in the Pacific Islands: over 16% of the entire population defecates in the open.

FIGURE 5 Proportion of people using different types of sanitation practices in the Pacific islands, 2006



Source: primary country coverage data from WHO, UNICEF (2008)

In 2006, over a half of the Pacific Islands population did not have access to any type of improved sanitation facility.

Figure 5 indicates the status of the Pacific island countries concerning types of sanitation practices. There is evidence that the proportion of people with access to flushing toilets connected to sewerage systems with adequate sewage treatment and sound disposal might be used by just a fraction of the Pacific islands population.



What is the sanitation trend in the Pacific island countries?

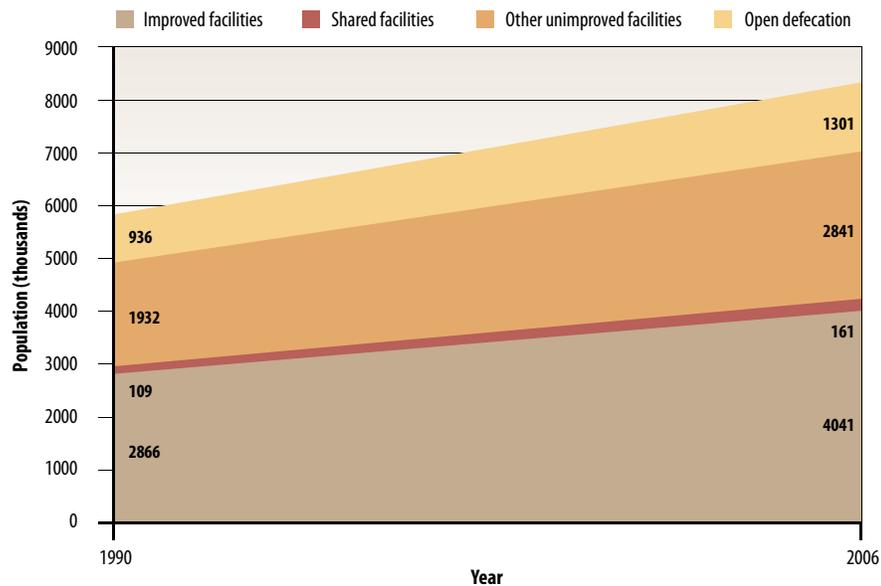
Considerable progress has been made from 1990 to 2006 in expanding access to improved sanitation in the Pacific island countries: the population

with access increased from 2.9 million to 4.0 million, a 41% increase (Figure 6). However the huge population growth over the same period of time (see Figure 1) overshadowed such a major achievement. The numbers of unserved increased over 30%, from almost 3 million in 1990 to 4.3 million in 2006.



Despite a huge effort to increase the numbers of people served with sanitation services from 1990 to 2006 (about 1.2 million people gained access), the numbers of unserved increased about 45% during the same period of time.

FIGURE 6 Trends in service levels for sanitation in the Pacific island countries



BOX 2

The Sanitation Park Project

The Sanitation Park Project was developed to help demonstrate different effective onsite sanitation technologies, such as a water seal latrine, a septic tank with its soakage trench, a ventilated improved latrine and a composting toilet. The Park was designed to support communities in Fiji and the Pacific region to recognize and solve their sanitation problems by examining and selecting the sanitation system that would be the most appropriate to their condition. Not only does it host a range of low-cost alternatives for sanitation but it also provides information on initial costs, construction techniques and long-term operation and maintenance costs.

More interestingly, the Park was built at the Tamavua Campus of the Fiji School of Medicine. This suggests an eloquent message to health professionals and from health professionals about the importance of good sanitation in preventing sanitation-related diseases. Regional students from the Fiji School of Medicine are able to take the information on available technologies back to their countries and create further awareness in Pacific islands communities.

The implementation of the Park Project was led by the Fiji Ministry of Health (MoH), Fiji School of Medicine (FSMed), World Health Organization, and the Pacific Islands Applied Geoscience Commission (SOPAC). It was funded by WHO and the New Zealand Agency for International Development (NZ Aid).

Source: Bower, R, Crennan, L, Navatoga, A. (2005)



The status of drinking-water coverage in the Pacific island countries

What is the meaning of safe drinking-water?

The United Nations Millennium Project Task Force on Water and Sanitation (Lenton R, Wright A, Lewis K, 2005) defines safe drinking-water as water that is safe to drink and available in sufficient quantities for hygienic purposes. The concept of safety as defined by WHO (2006) is based on the principle that a lifetime of consumption will not represent any significant risk to health, including different sensitivities that may occur between life stages. Howard & Bartram (2004) indicate that in order to assure a basic use of drinking-water (a minimum of 20 litres per capita per day for direct ingestion, hand-washing and cooking) the water should be obtained from a source not farther than 100 – 1000 metres or 5 to 30 minutes total collection time. Ensuring sufficient quantities of safe drinking-water also for bathing and laundry would require a minimum of 50 litres per capita per day.

National statistics on access to safe drinking-water according to the above definitions are not normally available. This is due to the fact that comprehensive household surveys (health, demography, etc), which are the basis for the coverage statistics provided by the WHO and UNICEF Joint Monitoring Programme for Water Supply and Sanitation (JMP), cannot handle this type of concern. As for sanitation, the JMP works with the concept of access to “improved”



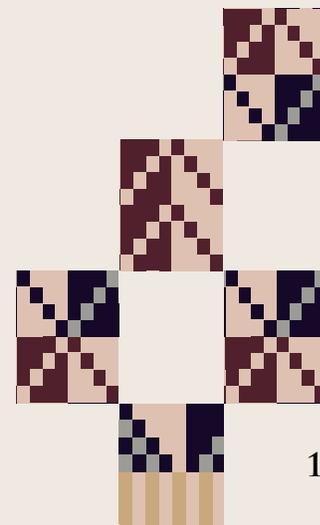
TABLE 2 Improved and unimproved types of drinking-water facilities

Improved drinking-water sources	Unimproved drinking-water sources
Piped water into dwelling, plot or yard	Unprotected dug well
Public tap/standpipe	Unprotected spring
Tubewell/borehole	Cart with small tank/drum
Protected dug well	Bottled water*
Protected spring	Tanker truck
Rainwater collection	Surface water (river, dam, lake, pond, stream, canal, irrigation channels)

* Bottled water is considered improved only when the household has also access to an improved source of water for cooking and personal hygiene.

drinking-water sources and use this as a proxy to measure progress towards the achievement of the MDG drinking-water targets globally.

Improved and unimproved technologies as defined by the JMP are provided in Table 2 (WHO, UNICEF, 2006).





What is the status of access to improved drinking-water in the Pacific island countries?

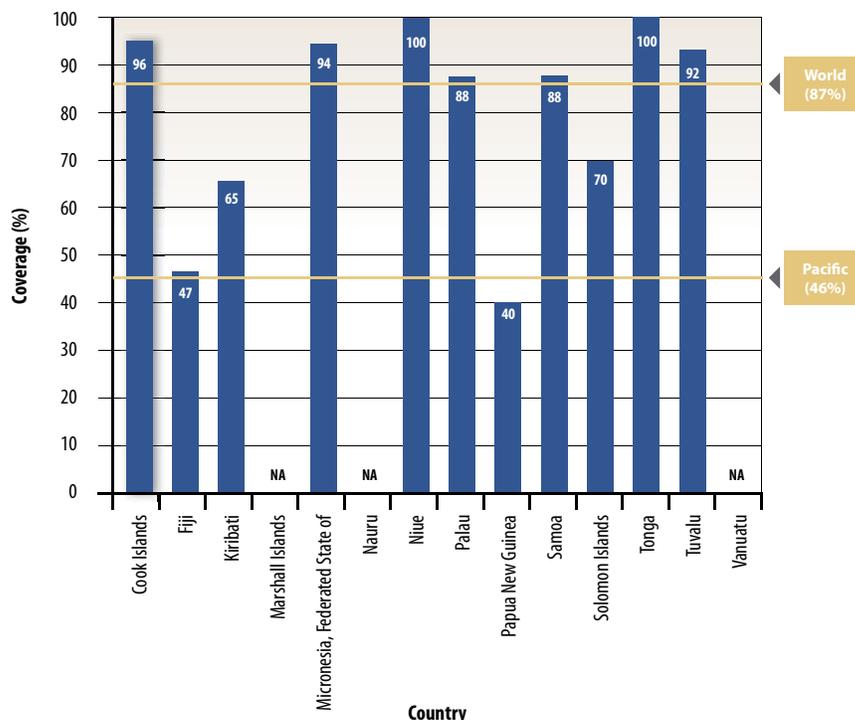
In 2006, only 46% of the population in the Pacific Islands had access to improved drinking-water sources (Figure 7). This represents almost a half of the 2006 coverage attributed to the world population by the JMP. Although less populated countries present high coverage, the low coverage of Papua New Guinea, which alone represents three quarters of the region's population, steers the average coverage to levels comparable to those of least-developed regions.

Although three in five countries of the Pacific island countries present coverage beyond 80%, it is important to highlight the fact that only 13% of the population count on drinking-water piped to internal household systems or household yards (Figure 8). The absence of piped water to the household hampers the ability of the users to utilize drinking-water in sufficient quantities as to meet the basic demand not only for drinking, cooking and hand washing, but also for bathing and laundry. In addition, piped drinking-water to the household is likely to be of better quality than that from point source systems, as there is the possibility of carrying out effective centralized treatment by the service provider including drinking-water quality control. Piped water to the household will also avoid the problem of recontamination of water carried manually from point sources to the household.



Over 60% of the countries in the Pacific region have coverage with improved drinking-water sources higher than 80%, but the region's coverage average represents almost a half of the world coverage.

FIGURE 7 Coverage with improved drinking-water sources by Pacific island country, 2006



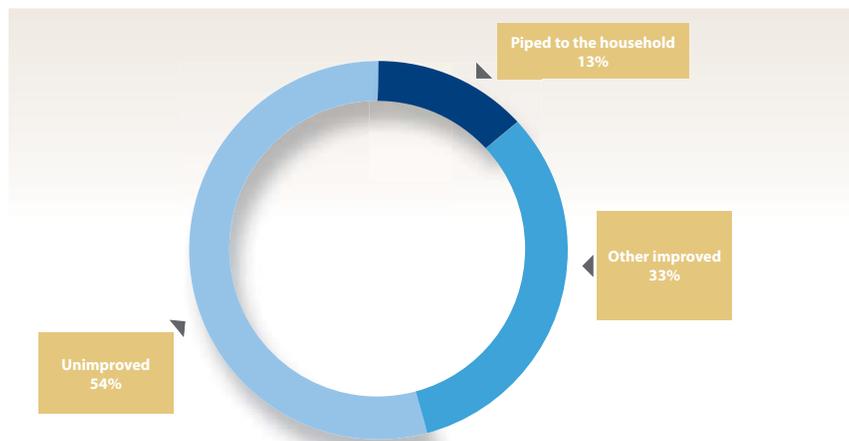
Source: country coverage data from WHO, UNICEF (2008)

Progress in providing access to improved drinking-water sources to the inhabitants of the Pacific island countries over the last 16 years (Figure 9) is modest as compared with the huge population growth experienced over the same period of time (see Figure 1). About 4.5 million people remained unserved in 2006,

an astounding 54% of the whole population. The numbers of unserved have grown by over 45% over the same period, which means that people are increasingly relying on unprotected wells, rivers, etc., to satisfy their basic needs of drinking-water for domestic use.

For every eight people in the Pacific island countries, only one had access to piped water into their dwelling, plot or yard in 2006 and only 46% had access to any type of improved drinking-water facility.

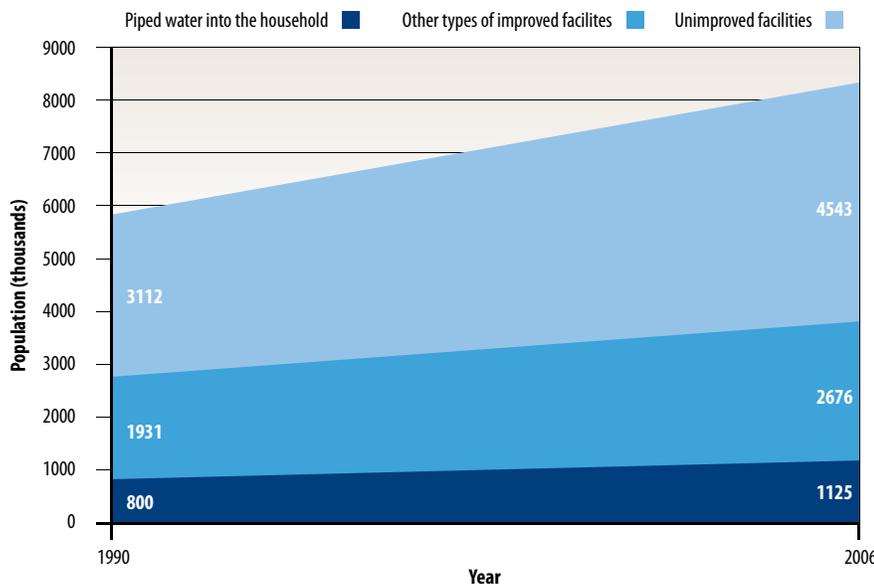
FIGURE 8 Proportion of people using different types of drinking-water sources in the Pacific island countries, 2006



Source: primary coverage data from WHO, UNICEF (2008)

The progression of infrastructure for provision of centralized drinking-water systems piped to households has practically stagnated in the Pacific island countries: only 300 000 gained access to this type of service from 1990 to 2006 against an increase in population of 2.5 million people during the same period of time.

FIGURE 9 Trends in service levels for drinking-water in the Pacific island countries



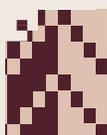
Source: primary country coverage data from WHO, UNICEF (2008)

Disparity in access to drinking-water and sanitation services

Examining the Pacific island countries as a whole, it is unmistakable that there is a huge disparity in sanitation and drinking-water coverage for urban and rural areas (Figure 10).

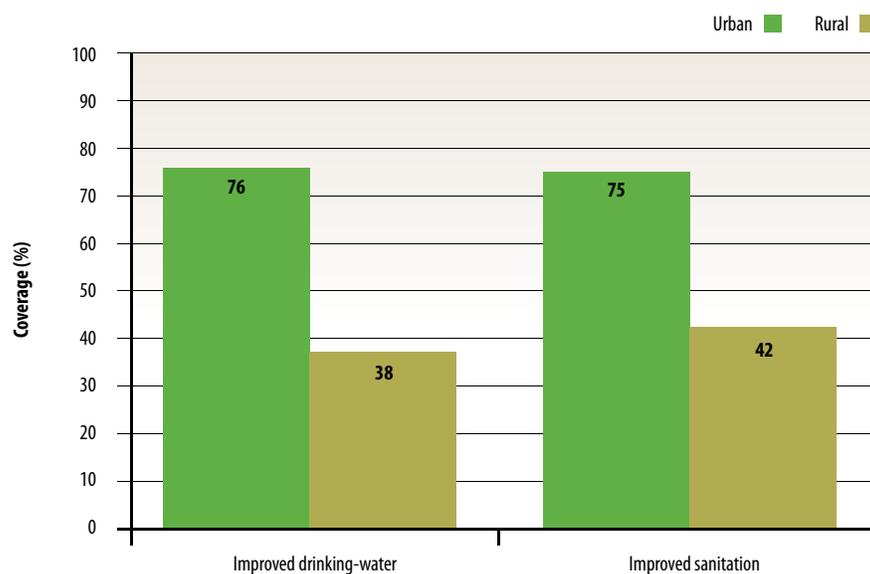
A closer look at the status of sanitation coverage of the Pacific island countries indicates that the rural coverage with improved sanitation is only 56% of the urban coverage (Figure 11).

The disparity in drinking-water coverage for urban and rural areas in the Pacific Islands is similar to that of sanitation (Figure 12). Three particular countries present higher disparity: Kiribati, Papua New Guinea and Solomon Islands.



Drinking-water and sanitation coverage in rural areas of the Pacific island countries hardly reach a half of the urban coverage.

FIGURE 10 Urban and rural disparities in sanitation and drinking-water in the Pacific island countries

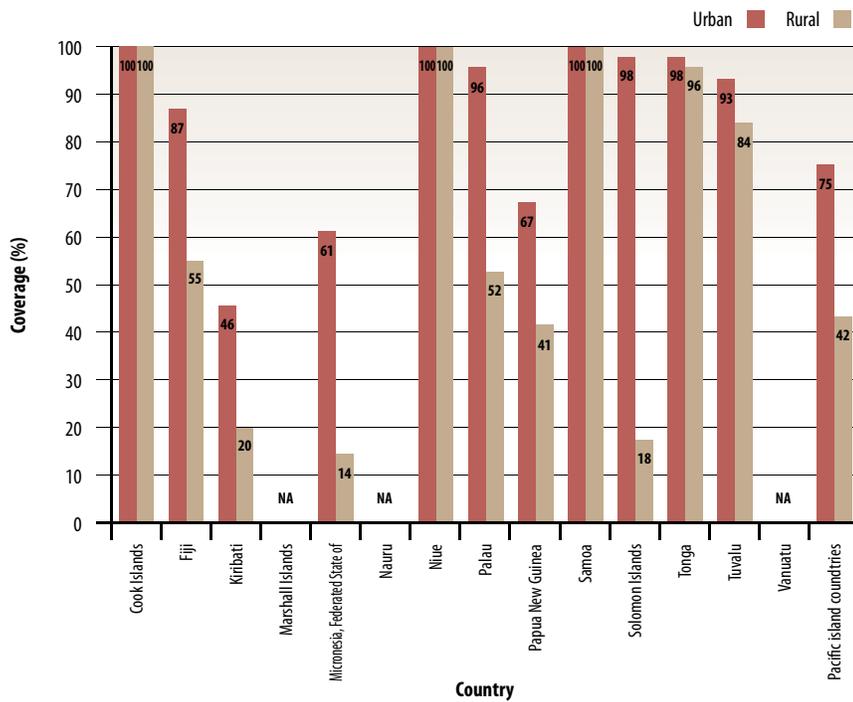


Source: primary country coverage data from WHO, UNICEF (2008)



Four out of the 11 Pacific island countries for which information is available have rural sanitation coverage less than 60% of the respective urban coverage.

FIGURE 11 Urban and rural disparities in sanitation by country and total for Pacific island countries

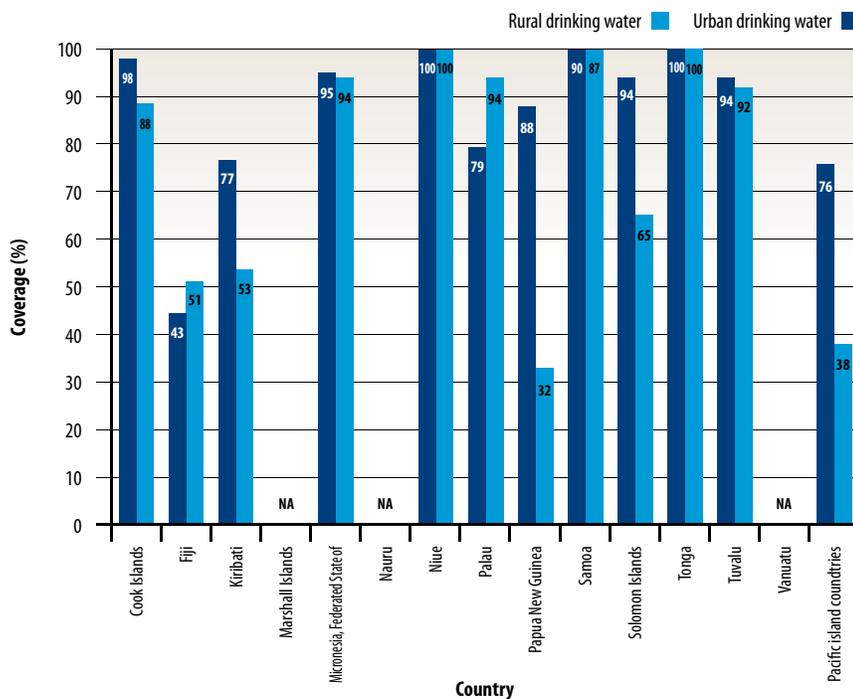


Source: primary country coverage data from WHO, UNICEF (2008)



Nearly 70% of the Pacific island countries present drinking-water coverage in both urban and rural areas above 80%. However, the most populated countries (Fiji, Kiribati and Papua New Guinea) have coverage rates and urban/rural disparities similar to those of the world's least developed countries.

FIGURE 12 Urban and rural disparities in drinking-water by country and total for Pacific island countries



Source: primary country coverage from WHO, UNICEF (2008)



MDG sanitation and drinking-water targets: are the targets achievable for the Pacific island countries?

Achieving the sanitation target will require a great effort!

In 2006, 4.3 million people in the Pacific island countries did not have access to any type of improved sanitation. Of these, 3.9 million lived in rural areas. Not much progress has been made over the period of time 1990 – 2006: the numbers of unserved people increased from 3.0 million in 1990 to 4.3 million in 2006, an inconceivable 43% increase.

If this trend continues to 2015, the Pacific island countries will miss the MDG sanitation target by 2.6 million people. Even if the target is achieved, the numbers of unserved will amount to 2.5 million people (Figures 13 and 14).

Since 1990, the average number of people gaining access to improved sanitation has been about 74 000 a year. In order to achieve the target in 2015 there is a need to increase this number to 354 000 a year from 2006 to 2015.



Achieving the sanitation target in 2015 in the Pacific island countries will require an annual level of effort nearly five times higher over 2006 – 2015 than that over 1990 – 2006.

FIGURE 13 Projection of change in numbers of people served with improved sanitation from 2006 to 2015 and MDG target in the Pacific island countries

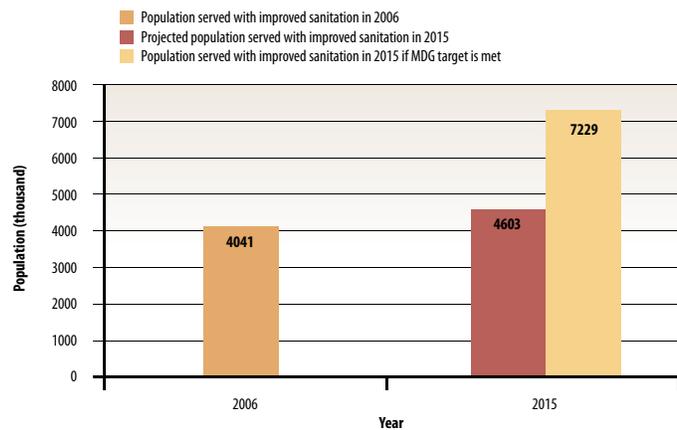
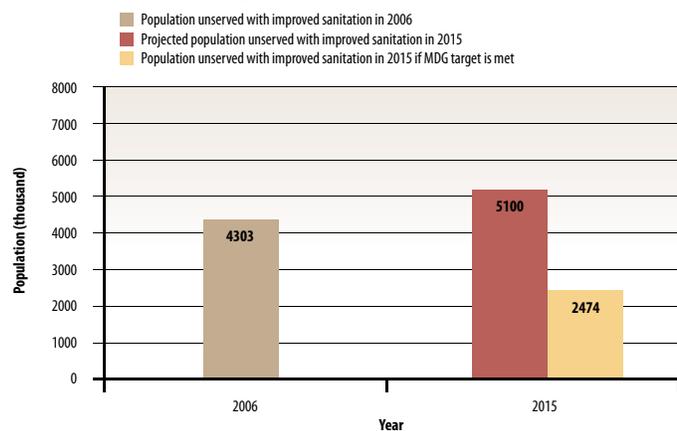


FIGURE 14 Projection of change in numbers of people unserved with improved sanitation from 2006 to 2015 and MDG target in the Pacific island countries



Source: primary country coverage data from WHO, UNICEF (2008)

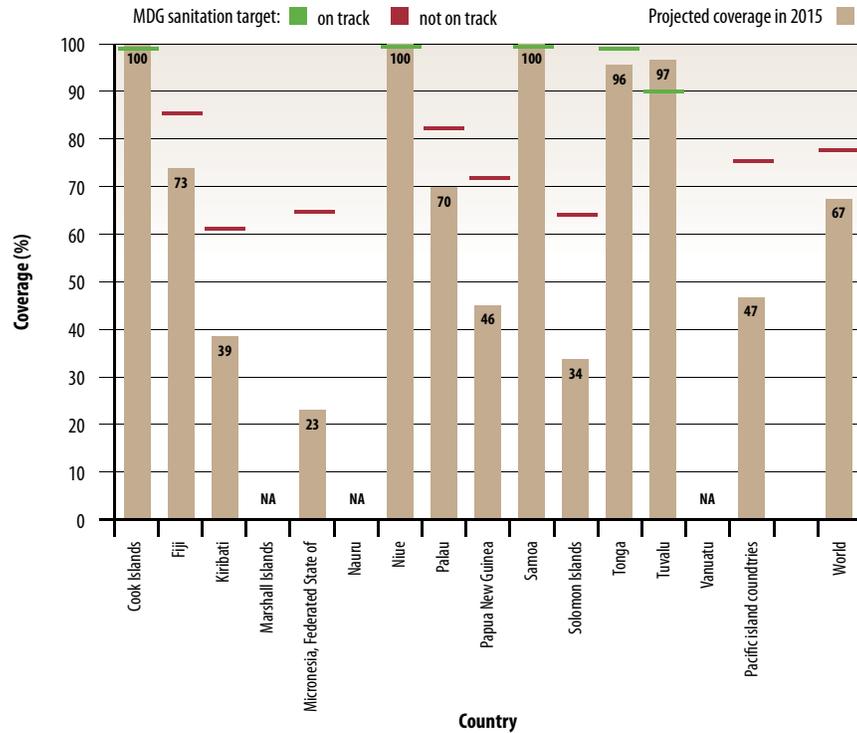
MDG sanitation and drinking-water targets: are the targets achievable for the Pacific island countries?





Similar to the world situation, the Pacific island countries as a whole are not on track to achieve the MDG sanitation target in 2015.

FIGURE 15 Projected proportion of people using improved sanitation in 2015 and respective MDG sanitation target by Pacific island country



Source: primary country coverage data from WHO, UNICEF (2008)

Five countries are on track to achieve the MDG sanitation target (Cook Islands, Niue, Samoa, Tonga and Tuvalu) (Figure 15). These statistics should be viewed however with caution as there is little information for the Pacific island countries about the quality of these services. The region is also exceedingly poor in terms of survey data, which might threaten considerably the solidity of the coverage analysis conducted at country and regional levels. The other countries for which data is available are not on track.

It is important to emphasize that achieving the target does not mean necessarily an optimum level of services to all those having access to improved facilities. It is likely that even if the targets are achieved, there will remain great challenges to harmonize people's needs with environmental and health

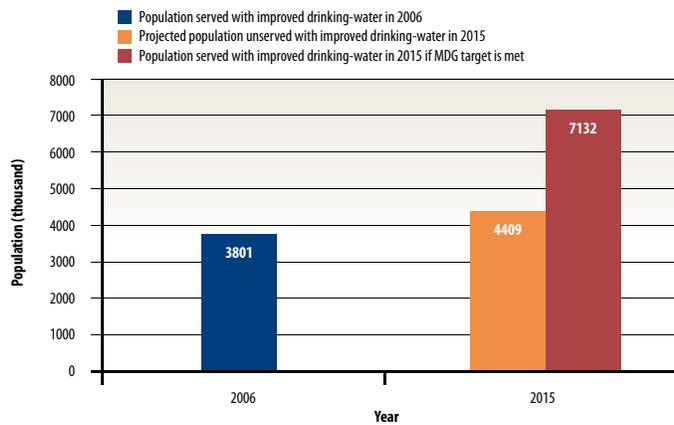
requirements. The Pacific islands have normally a fragile ecosystem requiring careful consideration in selecting and maintaining sanitation technologies. Some of the "improved" sanitation technologies may be hazardous to both existing sources of drinking-water and the ecosystems surrounding the Pacific islands. Sewage systems being discharged untreated into the sea may inflict a serious impact on the marine environment and may affect the food chain through fish and shellfish. Septic tanks with soakpits and latrines below the water table may contaminate scarce groundwater sources. There is a need to conduct surveys in the Pacific islands that take these factors into account for an effective determination of different levels of services and their relationship with health and the environment.

Drinking-water does not appear to be in a better shape!

The average number of people gaining access to improved drinking-water from 1990 to 2006 was about 67 000 a year. Achieving the MDG drinking-water target in 2015 will require an increase to almost 370 000 a year from 2006 to 2015 (Figures 16 and 17).

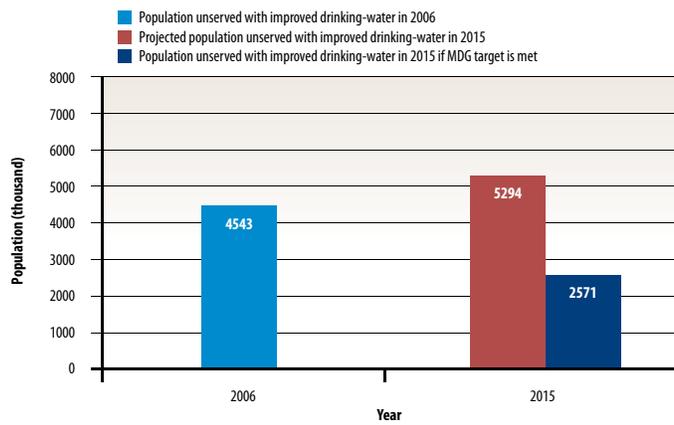
Achieving the MDG drinking-water target in 2015 in the Pacific island countries will require an annual level of effort nearly 5.5 times higher over 2006 – 2015 than that over 1990 – 2015.

FIGURE 16 Projection of change in numbers of people served with improved drinking-water sources from 2006 to 2015 and MDG target in the Pacific island countries



If the current trend is confirmed, the projected numbers of unserved in 2015 will be almost the double of the unserved if the MDG drinking-water target is achieved.

FIGURE 17 Projection of change in numbers of people unserved with improved drinking-water from 2006 to 2015 and MDG target in the Pacific island countries



Source: primary country coverage data from WHO, UNICEF (2008)

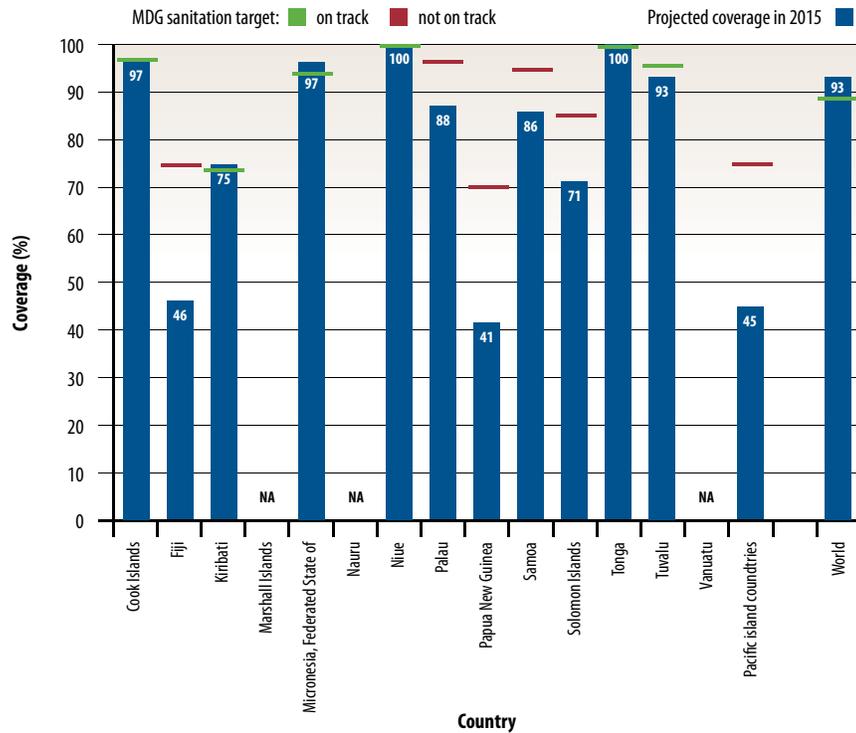


MDG sanitation and drinking-water targets: are the targets achievable for the Pacific island countries?



The Pacific island countries as a whole are not on track to achieve the MDG drinking water target in 2015 as opposed to the world, which is on track.

FIGURE 18 Projected proportion of people using improved drinking-water sources in 2015 and respective MDG drinking-water target by Pacific island country



Source: primary country coverage data from WHO, UNICEF (2008)



Based on the JMP statistics, six countries are on track to achieve the MDG drinking-water target (Figure 18). The countries not on track to achieving the target are: Fiji, Palau, Papua New Guinea, Samoa and Solomon Islands.



Linking the MDG goals and targets to sanitation and drinking-water in the Pacific Islands

The Millennium Development Goals and targets are part of the Millennium Declaration which was agreed by 189 countries in September 2000. A resolution adopted by the United Nations General Assembly in 2005

complemented these targets. Goal 7, Target 7C aims to “Halve, by 2015, the proportion of people without sustainable access to safe drinking-water and basic sanitation”. As demonstrated in earlier sections of this document, neither the sanitation target for the Pacific island countries nor the drinking-water target will be achieved if the past trends are confirmed towards 2015.

The implication of such an insufficient progress extrapolates the water and sanitation sector as the overall MDGs are influenced by the sanitation and drinking-water targets as demonstrated in Table 3.

TABLE 3 Influence of basic sanitation and drinking-water in achieving the Millennium Development Goals

MDG Goals	Influence in achieving the goals
Goal 1: Eradicate extreme poverty and hunger	Basic sanitation and safe drinking-water prevent illnesses which otherwise would affect the productivity of the household members. Such illnesses, especially helminths, take away calories from their hosts and make the poor less able to absorb nutrients in food. Adequate sanitation and good drinking-water prevent water-related illnesses. Such illnesses generate high health and economic costs which affect the capacity of the community to combat poverty and hunger. Ecosystems degradation due to inadequate sanitation hampers local-level development, which affects especially the poor. This is particularly crucial for the Pacific island countries where the ecosystems are fragile and highly susceptible of being harmed by inadequate excreta disposal management.
Goal 2: Achieve universal primary education	Having separate sanitation facilities for girls and boys in school increases girls' attendance. This is not the reality of many primary and secondary schools in the Pacific island countries and is a major area of concern which is directly related to the achievement of the targets associated with this goal.
Goal 3: Promote gender equality and empower women	Sanitation facilities closer to home put women and girls at less risk of attack while searching for privacy. Similarly, drinking-water is normally fetched by women and children, which places an enormous burden on their quality of life and perspectives of personal development.
Goal 4: Reduce child mortality	Basic sanitation and safe drinking-water reduce considerably infant and child morbidity and mortality.
Goal 5: Improve maternal health	Basic sanitation, safe drinking-water and good hygiene behaviours are needed in health care establishments to prevent contamination following delivery.
Goal 6: Combat HIV/AIDS, malaria and other diseases	Basic sanitation and safe drinking-water help prevent diseases, including diarrhoeal diseases, trachoma and helminths. This is of fundamental importance, considering people already debilitated by long-lasting illnesses such as HIV/AIDS.
Goal 7: Ensure environmental sustainability	Adequate treatment and disposal of wastewater contributes to better ecosystem conservation and less pressure on scarce freshwater resources, which is of special relevance to coral islands and fragile ecosystems of the Pacific islands. Adequate excreta management and wastewater disposal prevents contamination of groundwater and helps minimize the cost of water treatment.
Goal 8: Develop a global partnership for development	Development agendas and partnerships should recognize the fundamental role that basic sanitation and safe drinking-water play in economic and social development.

Source: adapted from WHO/UNICEF (2004b)



BOX 3

The messages from UN-Water *

UN-Water is strongly committed to advancing the sanitation agenda on a worldwide basis. The proactive messages below are in agreement with the needs and potentials of the Pacific island countries. They are:

Sanitation is vital for health

Lack of toilets and the safe confinement of excreta away from hands, feet, drinking water and eating utensils, and lack of hygiene, especially failure to wash hands after defecation, lead to the transmission of diarrhoeal disease. Provision of sanitation is important for the prevention of illness of all kinds, and saves the huge costs of medical treatment.

Sanitation contributes to social development

Where sanitation facilities and hygienic behaviour are present, rates of illness drop, malnutrition in children is reduced, more children, especially girls, attend school and learn better, and women's safety and dignity are improved.

Sanitation is a good economic investment

Improved sanitation has positive economic benefits. Livelihoods and employment opportunities are enhanced, and the costs to the community and to the nation of illness and lost productivity are reduced.

Sanitation helps the environment

Improved disposal of human waste promotes environmental cleanliness and protects streams, rivers, lakes and underground aquifers from pollution. Safely composted, excreta can be used as fertilizer.

Sanitation is achievable

Tried and tested appropriate technologies, programme models and people-centred approaches can be rolled out where there is the will to do so. The cost of meeting the MDG sanitation target is affordable.

* UN-Water is a mechanism of the United Nations to support states in their water-related efforts to reach the Millennium Development Goals. It was officially endorsed in 2003 for the follow-up process of the 2002 World Summit on Sustainable Development.

Source: UN Water (2008a)



Sanitation and drinking-water have a striking effect on health!

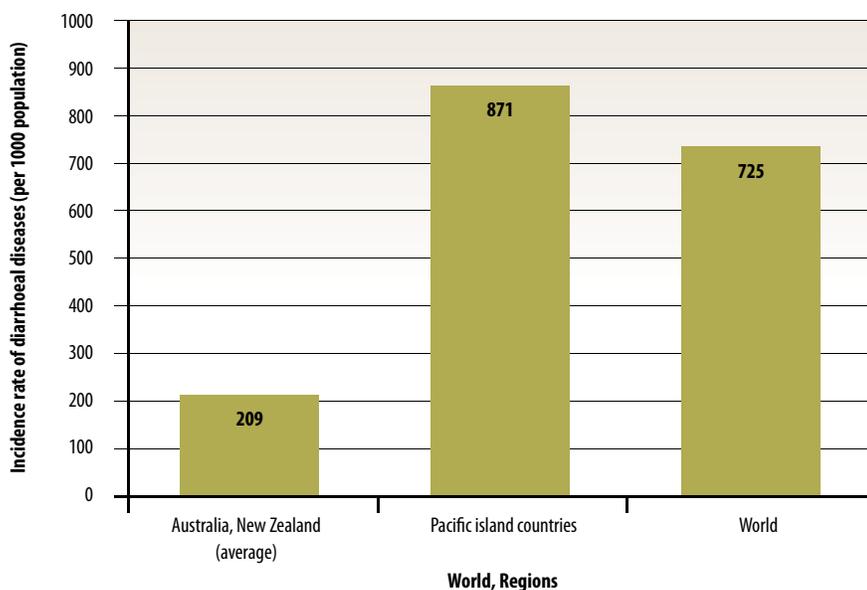
Eighty-eight per cent of cases of diarrhoeal diseases worldwide are attributable to inadequate sanitation, unsafe water and poor hygiene. This results in 1.5 million deaths a year worldwide, most of them children less than five years old (Prüss-Üstün A et al., 2008). In the Pacific island

countries, the year 2002 saw the incidence of 871 cases of acute diarrhoea per thousand people (Figure 19), causing the death of 2800 people. More severe forms of diarrhoeal diseases include cholera, typhoid and dysentery.



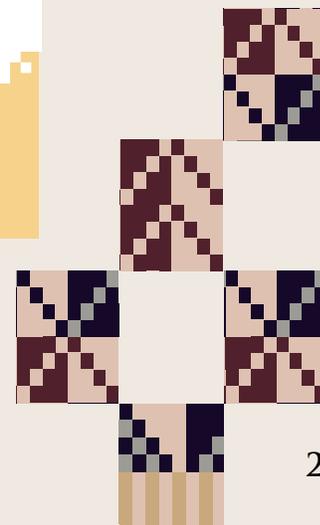
The Pacific island countries present an incidence rate of diarrhoeal diseases 20% greater than the world average and over four times higher than developed countries such as Australia and New Zealand.

FIGURE 19 Incidence rate of diarrhoeal diseases per 1000 population in the developed Pacific countries, the developing Pacific island countries, and World, 2002



Source: based on statistics from WHO (2008)

The number of deaths due to diarrhoeal diseases in the Pacific island countries in 2002, most of them children under five, is equivalent to the crash and death of the passengers of nine Boeing 747 jets a year.



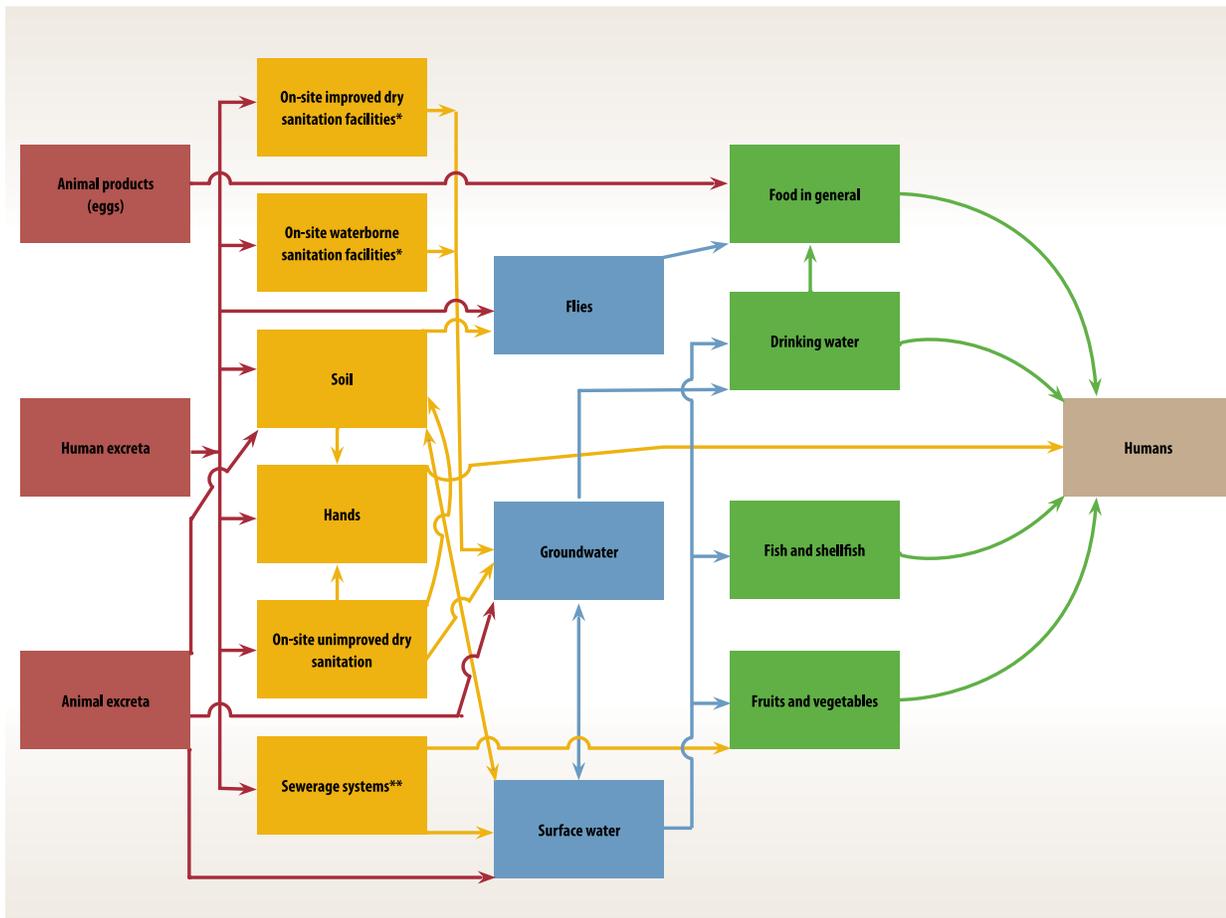
Acute diarrhoea as well as other waterborne or waterwashed diseases are normally caused by pathogens in human and animal excreta, as well as contaminated animal products. The transmission of these pathogens to humans occurs through “waves” of contamination following myriad pathways. The unavailability of adequate sanitation and safe drinking-water services plays a crucial role in the different transmission chains (Figure 20).

Even “improved” sanitation types of technologies can contribute to the contamination route. Thus, defining the most adequate type of sanitation facility requires a careful analysis on a case by case basis to ensure that health issues are given due consideration. Certain types of improved technologies can be sound under a standpoint of health and environment in some circumstances but can be a health and environmental hazard in others.

The most direct route of contamination of humans with pathogens from human excreta is through hands (lack of basic sanitation facilities, poor hygiene behaviours and lack of safe drinking water).

FIGURE 20 Pathways of human contamination from human and animal excreta, and animal products

■ Origin of contamination
 ■ First wave of contamination
 ■ Second wave of contamination
 ■ Third wave of contamination



*Without due consideration to protection of groundwater sources

**Without adequate wastewater treatment and disposal

Source: adapted from Prüss-Ustün A et al. (2008)

The statistics suggest that the incidence rates of diarrhoeal diseases in the different countries of the Pacific island countries do not present a huge disparity between themselves, but are generally much greater than that of developed countries in the same region (Figure 21).

As a typical value, about 10% of all deaths of children less than five years old in the Pacific island countries are attributable to diarrhoeal diseases (Figure 22). About 90% of such diseases are attributable to lack of sanitation, drinking-water and hygiene. However, despite the exceedingly high mortality figures due to lack of basic sanitation, safe drinking-water and hygiene, the evidence suggests that these statistics might be underestimating the real dimension of the problem. There is an indirect influence of these risk factors on most of the other causes of death (Prüss-Üstün A et al., 2008) and this is not shown in the official statistics.



The incidence rates of diarrhoeal diseases in the Pacific island countries are approximately 4 to 5 times that of developed countries such as Australia and New Zealand

FIGURE 21 Incidence rate of diarrhoeal diseases per 1000 population in the Pacific island countries and the developed Australia and New Zealand, 2002

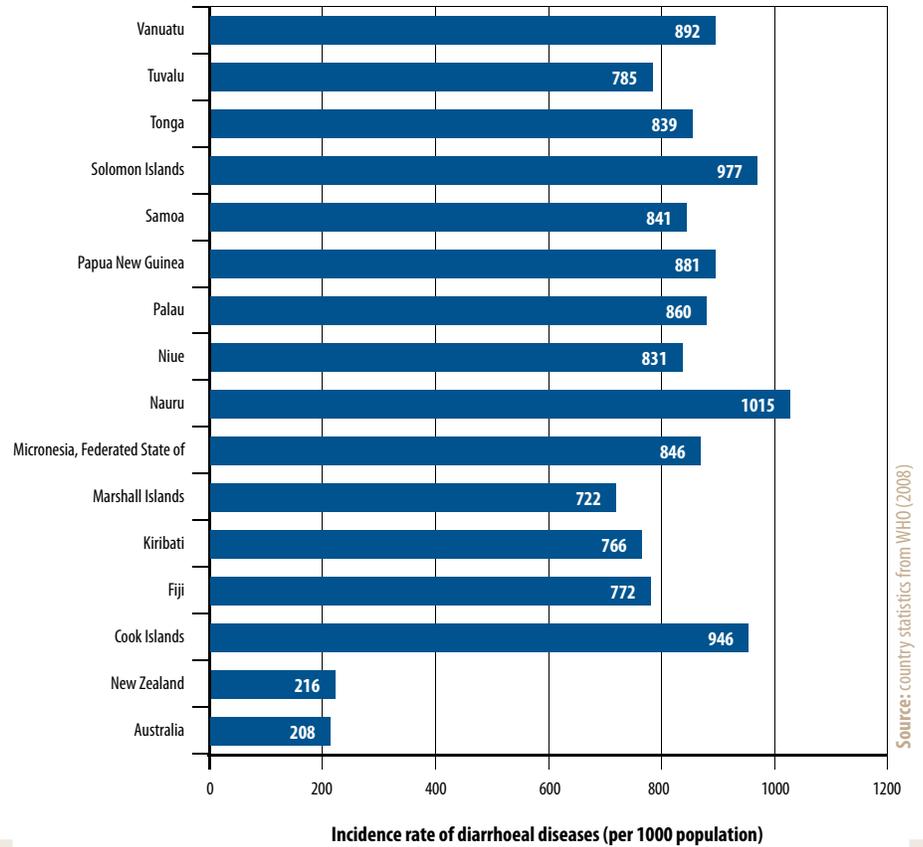
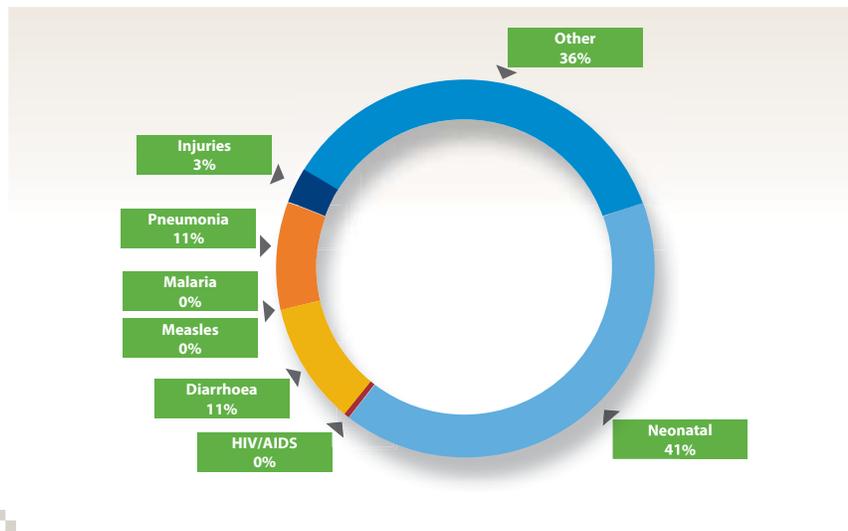


FIGURE 22 Distribution of mortality due to different causes among children less than five years old in a typical country of the Pacific (Fiji)



Sanitation and drinking-water have a striking effect on health!



Climate change:
how serious is it
for the Pacific island
countries?

The facts

Over the last 100 years, human activities related to the burning of fossil fuels, deforestation and agriculture caused a 35% increase in the carbon dioxide (CO₂) levels in the atmosphere, producing increased trapping of heat and warming of the earth's atmosphere. The Fourth Assessment Report (AR-4) of the Intergovernmental Panel on Climate Change (IPCC) states that most of the observed increase in the globally-averaged temperatures since the mid-20th century was very likely due to the increase in anthropogenic greenhouse gas (GHG) concentrations. Eleven of the last 12 years (1995-2006) rank among the 12 warmest years in terms

of global surface temperature. The IPCC also reports that the global average sea-level rose at an average rate of 1.8 mm per year from 1961 to 2003. The total rise in the sea level during the 20th century was estimated to be 0.17 m. The average increase of surface temperature projected for the end of the 21st century (2090–2099) varies from 1.1 – 6.4 degrees centigrade. The global mean sea level is projected to rise by 30 to 60 centimetres by the year 2100, mainly due to thermal expansion of the ocean (WMO, UNEP, 2007). Some estimates are even more unfavourable, indicating a sea-level rise up to 88 centimetres in the Pacific island countries by 2100 (Bates, B. et al., 2008)

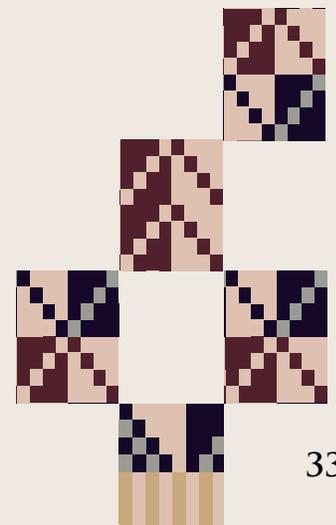
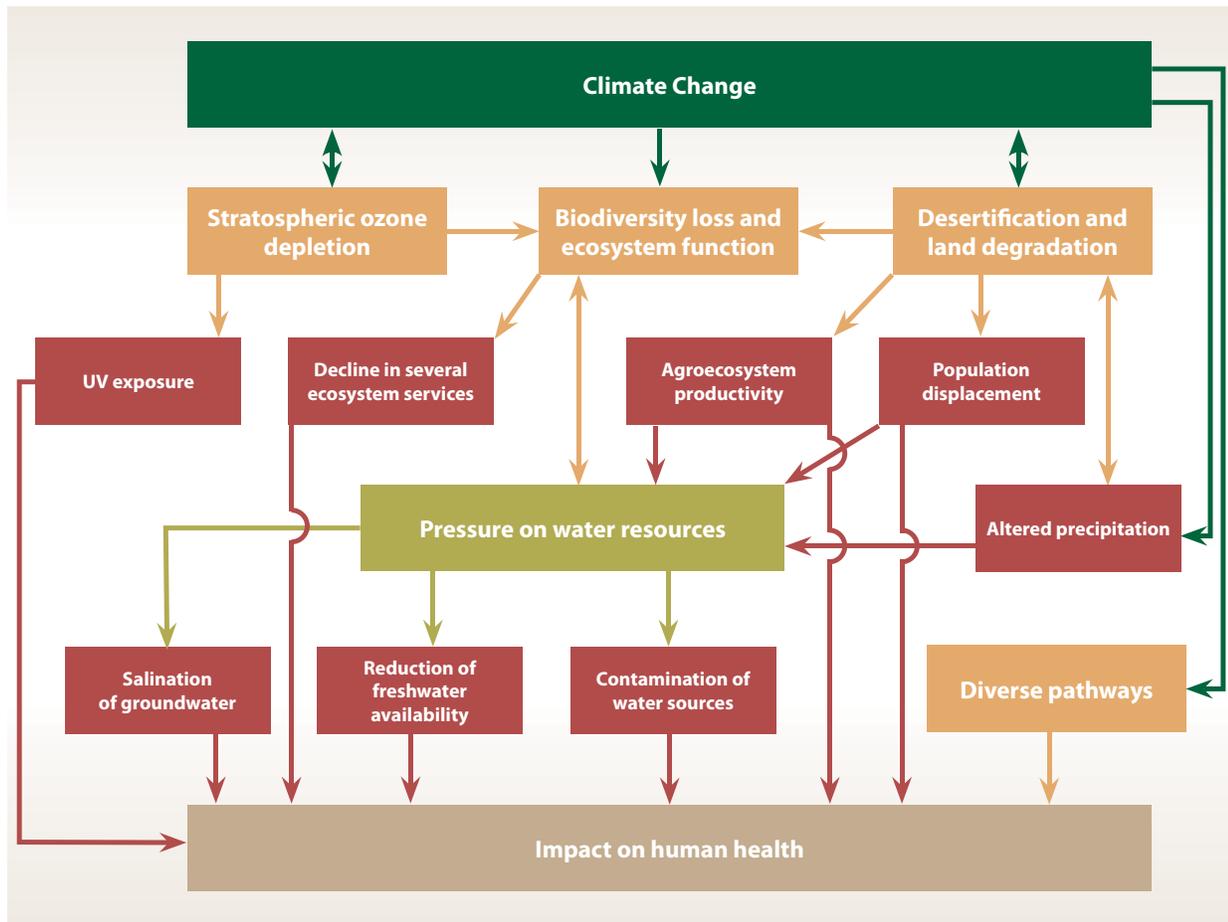


FIGURE 23 Climate change and health interlinkages



Climate change: how serious is it for the Pacific island countries?

Climate variability and change cause death and disease through natural disasters, such as variable rainfall, cyclones, accelerating storm water runoff, floods, droughts, and heat waves, which bring about a reduction in the availability of fresh water and a gradual decrease in water quality. This is exacerbated in the Pacific island countries due to the fragility and vulnerability of the water lenses in the countries' islands. Common vectorborne diseases, such as malaria and dengue and other major killers, such as malnutrition and diarrhoea are also likely to become even more serious if the climate change trends are confirmed over the forthcoming decades.

Climate change causes environmental hazards to human health through different pathways, including stratospheric ozone depletion, loss of biodiversity and desertification. Such hazards have a great impact on fragile ecosystems such as those frequently occurring in the Pacific islands posing a serious threat to scarce water resources (Figure 23).

What to do?

The Pacific island countries have little influence, if any, in contributing directly to global warming and thus in reducing its causes. But the Pacific leaders can voice their concerns through different communication mechanisms, especially with regard to endangered scarce water resources and as those being mostly affected by this global crisis in relative terms. Climate change can be devastating in Pacific islands due to rising sea levels, increase and intensification of natural disasters and the economic and health consequences they cause.

The mitigation of greenhouse gases provides a mechanism for slowing, and perhaps eventually halting, the build up of greenhouse gases in the atmosphere. A slowing of the warming rate could yield important benefits in the form of reduced impacts to human health and other systems; however, the inertia in the climate system means that there will be a significant temporal lag between emission reduction and slowing in the rate of warming (WHO, WMO, UNEP, 2003).

Adaptation is another important response option and is directly under reach by the Pacific island countries. Actions with this regard should enhance the resilience of vulnerable systems, thereby reducing potential damages from climate change and climate variability. Important measures should include the protection of fresh water resources, design of new water and sanitation systems and the protection of existing ones taking into account the expected consequences of climate change. Drinking-water safety planning and water quality monitoring are essential for climate adaptation.

The Pacific Dialogue on Water and Climate, held in preparation of the 3rd World Water Forum, called for a change in the paradigm for dealing

with island vulnerability, from disaster response to disaster risk reduction and disaster management. This session emphasized the need for incorporation of risk reduction and coping with adaptation strategies into Integrated Water Resources Management and Water Safety planning frameworks, which are both being introduced in the Pacific island countries. The required adaptation and coping strategies have been articulated under a specific theme in the Pacific Regional Action Plan on Sustainable Water Management (Pacific RAP) (ADB and SOPAC, 2002).

A policy brief by the Global Water Partnership (GWP) on climate change adaptation considers that the best approach to manage the impact of climate change on water is that guided by the philosophy and methodology of Integrated Water Resources Management (GWP, 2005). Furthermore the GWP recognizes that in addressing water shortages, as much attention should be given to managing demand as to increasing supply, by introducing more efficient technologies as well as promoting a culture of water conservation. The Pacific RAP provides the holistic framework for an integrated approach that encompasses both coping with climate variability (flood and drought forecasting and management) as well as adaptation measures for future climate change (planning).



Integrated water resources management (IWRM)

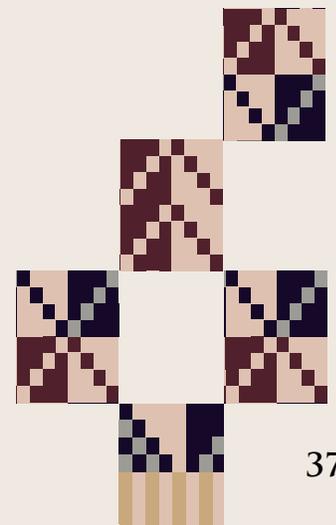


Protecting water resources in Pacific islands requires that the activities to improve access to safe drinking-water and basic sanitation are sustainable and protect the diverse and fragile nature of the islands and their ecosystems. The best approaches to provide sanitation and drinking-water services in each Pacific island need to be based on thorough studies that take into account the following major aspects: demand and use of water over time; source availability; competing demands; environmental and health impacts; population growth; financial and human resources; and, institutional capacity.

Most Pacific islands have serious limitations regarding the availability and management of sustainable freshwater. Groundwater and rainwater represent the only feasible sources of water for both domestic

and agricultural uses in several islands. The increased rate of groundwater abstraction needed to meet rapid population growth can jeopardize the sustainable recharge rate of groundwater in face of an ever increasing demand. In addition, inadequate excreta disposal practices, industrial waste and the use of fertilizers and pesticides have contributed extensively to the contamination of groundwater, surface water and coastal receiving water vital for food production.

Integrated Water Resources Management (IWRM) is a planning and management approach that is fundamental to the future sustainable management of water resources for the Pacific islands. It is an instrumental management approach to tackle existing difficulties and





constraints in a cross-sectoral and effective manner to meet the growing water needs of the Pacific islands. It aims at ensuring the management of both water and land resources through intersectoral collaboration between the different government bodies, multilateral and bilateral agencies, NGOs, private sector and the civil society.

IWRM is a challenge, but in the Pacific island countries it needs to be a fundamental management approach to sustaining their fragile water resources, upon which all life depends.

BOX 4

Development of a sustainable water supply and waste treatment system for a coastal Fijian village

This three-year collaborative project supported by New Zealand's International Aid and Development Agency (NZaid) is devoted to working with coastal Fijian villagers at Votua on the Coral Coast of Viti Levu to develop sustainable water supply and waste treatment solutions to protect public health and reduce contaminant loadings to coastal waters. Deteriorating water quality along the Coral Coast is causing a range of environmental, health, and economic problems. Expansion of tourist facilities, along with associated immigration and rapid population growth in Fijian villages (2.7% per year), is causing increased faecal contamination of coastal waters with great health risks for both the local community and tourists. Elevated nitrogen concentrations in coastal waters and over-fishing have increased proliferation of Sargassum macroalgae in the lagoons and fringing reefs, threatening the sustainability of the reef. The livelihoods of the communities living along the coast and the sustainability of the local tourist industry are at stake.

The project addresses the water supply, sanitation, human health, hygiene, and environmental protection needs in coastal village of about 350 people using a participatory approach. Water quality has been monitored to identify contaminant sources and assess health and environmental risks. A new water supply and reticulation system has been successfully implemented in the village in association with an AusAid-funded climate change adaptation programme. Water meters (household and toilet cistern) have been used to monitor water usage as well as blackwater and greywater generated in the village. New greywater treatment and disposal systems have been implemented in the village using coconut husks as a pre-filter vermiculture system. Blackwater from the village are being treated in septic tanks linked to a constructed wetland treatment system. The two stage vertical then horizontal-flow treatment wetland is currently being built in the valley behind the village where there is available land, and low permeability clay soils to seal the base of the wetland. Reuse of treated wastewaters for ornamental flower and fish production is also being implemented as part of the project. Composting toilets are proposed for some of the outlying houses, and improved piggery location, production facilities and waste management practices have been promoted around the village. Health and hygiene issues in the village have been evaluated through household and school visits, women's evening meetings, local clinic and health nurse records, and household diaries.

The project involves three New Zealand agencies, NIWA (National Institute of Water and Atmospheric Research), ESR (Environmental Science and Research), and Christchurch consultancy ecoEng Ltd working in close collaboration with the Institute of Applied Sciences at the University of the South Pacific. It is funded via the Ministry of Research Science and Technology through the NZAid Overseas Development Assistance Contestable Fund.

Source: Tanner, C et al. (2008)

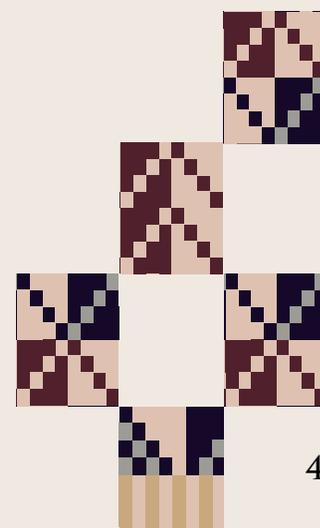


Looking at the past
and aiming at the future
in sanitation and water
development

What happened in the Pacific island countries that prevented advancing the sanitation and water agenda?

Different forums identified the main constraints that historically hampered water development in the Pacific islands. Such constraints address mainly the broad aspects of water resources management. The text here is an adaptation of the summary of constraints presented by SOPAC at the 3rd World Water Forum in Kyoto 2003 (ADB and SOPAC, 2002) expanded to address also specifically sanitation and drinking-water issues:

- ❖ Small island countries have uniquely fragile and scarce water resources due to small size, lack of natural water storage and vulnerability to natural and anthropogenic hazards. Such resources are severely harmed by inadequate sanitation systems and uncontrolled water use.
- ❖ Sanitation and drinking-water service providers face challenging constraints to sustaining drinking-water and sanitation services provision due to lack of both human and financial resources. This restricts the availability of experienced staff, sufficient investment and effectiveness of cost-recovery.
- ❖ Sanitation and drinking-water services governance is highly complex due to interwoven social, cultural and legal governance structures and the specific socio-political and cultural structures relating to traditional community, tribal and inter-island practices, rights and interests.
- ❖ Although major efforts have been made to generate strategic instruments for the development of water resources management in the Pacific Islands, there is a lack of specific strategic planning to advance the sanitation and drinking-water development process, orienting it to the achievement of the MDG sanitation and drinking-water target.



Major sector initiatives addressing the Pacific islands sanitation and water issues

The past few years have seen an unprecedented period of discussion and high-level strategic commitment aiming at the advancement of the water agenda in the Pacific island

countries. Such commitments were normally structured under a broad perspective of water resources management as a holistic approach to establish sound and sustainable approaches aimed at preserving the scarce water resources available in Pacific Islands and thus protect public health. Boxes 5 to 8 in this report summarize the main strategic instruments and agreements reached over the past few years.

An example of such high-level commitments was provided by the

BOX 5

The Pacific Regional Action Plan

The Pacific Regional Action Plan on Sustainable Water Management (Pacific RAP) was officially endorsed by 18 countries, 16 at Heads of State level at a high-level regional consultation in Fiji, August 2002 (ADB, SOPAC, 2002). The Pacific RAP provides a coordinated and agreed approach to water resources management and has significantly driven water up the national and regional agenda. Although it does not deal specifically with sanitation or drinking-water, it places sanitation as part of a broad strategy of integrated water resources management, which is crucial to the preservation of fragile ecosystems and scarce water resources, common to most Pacific islands.

The Pacific Regional Action Plan consists of six thematic categories as follows:

- Theme 1 – Water Resources Management:** water resources assessment and monitoring; rural water supply and sanitation; IWRM and catchment management.
- Theme 2 – Island Vulnerability:** disaster preparedness; dialogue on water and climate.
- Theme 3 – Awareness:** advocacy; political will; community participation; environmental understanding; gender.
- Theme 4 – Technology:** appropriate technologies; demand management and conservation; human resources.
- Theme 5 – Institutional Arrangements:** institutional strengthening; policy, planning; legislation.
- Theme 6 – Financing:** costs and tariffs; alternative models; role of donor organizations and financing institutes.

Each theme is addressed by key policy statements and respective actions, including the definition of roles and responsibilities accordingly. Since its development, this coordinated approach has already proved successful in implementing projects or providing technical assistance to Pacific island countries. Many of the partnership activities have also resulted in increased donor collaboration and harmonization on in-country action plans and strategies.

Source: SOPAC (2004)

Asia Pacific Water Summit, held from 3 to 4 December 2007 in Beppu City, Japan. The Pacific leaders attending the Summit reiterated their commitment to effective sanitation and safe drinking-water (Box 8). The Policy Brief, prepared by the Asia Pacific Water Forum Secretariat and adopted at the Summit, gives special recognition to the isolated nature of small island developing states (SIDS) and calls for increased regional cooperation to share knowledge and build capacity in order to address

challenges common to many island nations.

For the near future, taking into account the world commitments with regard to the International Year of Sanitation (2008) and the great needs in terms of sanitation and drinking-water development in this region, there will be also a need to develop specific strategic instruments to advance the sanitation and drinking-water agenda in the Pacific island countries.

BOX 6

The Pacific Wastewater Policy and Pacific Framework for Action

A Regional Wastewater Management Meeting was held from 10 to 15 October 2001 in Majuro, Marshall Islands, sponsored by the governments of Belgium, New Zealand and Taiwan, China. The meeting was attended by representatives of 15 Pacific island countries and area (American Samoa, Cook Islands, Federated States of Micronesia, Fiji, Kiribati, Marshall Islands, New Zealand, Niue, Papua New Guinea, Palau, Samoa, Solomon Islands, Tonga, Tuvalu and Vanuatu) and various external support agencies to complete the Pacific Wastewater Policy Statement and the Pacific Wastewater Framework for Action.

The Vision statement associated with these initiatives is to “Protect the health of the people and safeguard the fragile islands environment through improved, effective and efficient management of wastewater.”

The guiding principles which compose this Framework for Action are the following:

1. National wastewater management policies and regulations will be appropriate and acceptable to the people and cultures of the Pacific Islands.
2. Appropriate national institutions, infrastructure and information will support sustainable wastewater management.
3. Better access to funding will improve service delivery, and develop the private sector.
4. Community participation in wastewater management and sanitation will ensure equitable benefit with recognition of socio-cultural sensitivities.
5. Viable and sustainable levels of skilled and knowledgeable people within the wastewater sector and communities will improve wastewater management.

Such principles are substantiated by 26 policies covering a broad range of issues, including sanitation. The Pacific Wastewater Framework for Action converts such policies into a structured set of 36 crucial actions linked to the above principles and policies.

Source: SOPAC et al (2001)

The Pacific Framework for Action on Drinking Water Quality and Health

The Pacific Framework for Action on Drinking Water Quality and Health has been endorsed by the Ministers of Health for the Pacific island countries through the Samoa Commitment (March 2005) and they have recommended this framework for implementation. The recommendations and actions envisaged in this strategic instrument are structured under the six themes of the Regional Action Plan (RAP) for Sustainable Water Management (Box 5). The recommendations are:

1. Protection of water sources such as springs, rivers, groundwater and rainwater catchments from contamination and overuse must be a priority to ensure quality and quantity.
2. Technical support should be provided to develop national drinking-water quality standards that are dynamic and implemented in stages as necessary.
3. The use of Water Safety Plans should be encouraged in the region, and countries should be supported with manuals, guidelines and training on the use and implementation of this tool.
4. Effort should be expanded at regional and national level to assess risks posed by toxic chemicals and pathogens in drinking-water.
5. Human resources should be developed for drinking-water safety, including drinking-water quality monitoring, data management and information systems.
6. Research should be promoted and supported, and the scientific knowledge base should be strengthened to support the development of effective, efficient, and equitable policies and plans related to drinking-water quality and health.
7. Emergency preparedness plans should adequately address drinking-water quality issues, and water safety plans should address risks posed by potential emergencies.
8. The fragile environments of very small islands and their role in managing source water quality and quantity should be respected and protected.
9. Human resources should be developed to strengthen countries' capacities for raising community awareness related to water quality and health risks, source water protection, household-level water treatment and safe storage.
10. Community awareness and community-based action programmes on safe water supply and sanitation should be developed and expanded in rural and remote areas and in urban areas alike (e.g. Healthy Islands Programme, etc.).
11. Community-based water quality testing and source-protection programmes should be supported in rural and remote areas as well as in urban areas.
12. Government awareness should be raised and political commitment should be strengthened to support actions for safe water supply and sanitation.
13. Technical assistance and training should be provided for strengthening drinking-water quality management (including monitoring, operation, calibration and maintenance of any related equipment).
14. Adequate equipment for drinking-water quality management (particularly field test kits for remote areas, hardware/software for data management) should be provided.
15. Research should be supported to develop appropriate field-test kits for use in remote and rural areas.
16. Adequate equipment for water and wastewater treatment should be provided.
17. Rainwater harvesting programmes should be supported by improving water quality through approaches such as "first-flush" devices and community-based water quality testing.
18. National and regional partnerships should be built to develop standards and guidelines and legislation in order to ensure provision of safe drinking-water, and to establish national water quality committees that could oversee development of water safety plans.
19. Communication and information exchange between agencies involved with water quality data collection should be strengthened. This should include exchange and joint analysis of drinking-water quality data and disease surveillance data between water supply agencies and health authorities.
20. Governments should, as a priority, develop and implement appropriate financial mechanisms to support sustained supplies of safe drinking-water and sanitation services to both rural and urban communities to fulfil the MDG target on water and sanitation.
21. External agencies should be encouraged to support specific activities in the region where governments are unable to sustain provision of safe drinking-water and sanitation services.

Nearly one hundred actions addressing the above recommendations were formulated as part of this framework.

Source: WHO/WPRO (2005)



What comes next?

At the same time that the sanitation and drinking-water agenda is comprised in existing comprehensive water resources management initiatives, there is a lack of strategic instruments to address specifically basic sanitation, safe drinking-water and hygiene needs in the Pacific island countries. The Pacific Regional Action Plan (Box 5) is currently the overarching strategic framework, which is viewed as a coordinating instrument, grouping other major initiatives into a coherent framework for integrated water resources management in the region. Current active initiatives include the Pacific Wastewater Policy Framework and Pacific Framework for Action (Box 6) and the Pacific Framework for Action on Drinking Water Quality and Health (Box 7). Although such instruments address major water and wastewater issues, they are not intended to address specifically approaches and technologies dealing with affordable and appropriate excreta management options which might be the only feasible alternative to make it possible the achievement of the MDG sanitation target in this Region.

Drinking-water is also a major issue in the Pacific island countries as this is one of the few regions in the world where the MDG drinking-water target will not be achieved, if the trend of the past years continues up to 2015.

Although this document is not intended to be prescriptive with regard to specific measures to address the huge sanitation and drinking-water challenges in the Pacific island countries, the following can be viewed broadly as a recommended way forward:

1. Make use of the Asia Pacific Water Summits, of which the first one organized by the Asia Pacific Water Forum was held in Beppu in 2007 (Box 7), with the second one planned for Singapore in 2010. These high-level discussion platforms are crucial occasions to mobilize political support for strategic actions required to achieve the MDG sanitation and drinking-water target in the Pacific island countries, under the framework of the Pacific Plan.



2. Implement a sound sanitation and drinking-water monitoring and evaluation system for the Pacific island countries, capable of collecting, analyzing and disseminating population-based information on access to sanitation and drinking-water in close collaboration and consultation with the WHO and UNICEF Joint Monitoring Programme for Water Supply and Sanitation (JMP). Such a system should provide recurrent information on the following: access to sanitation and drinking-water services; drinking-water quality; hygiene behaviours; water-related diseases.
3. Revise the existing strategic instruments addressing the expansion and improvement of access to sanitation and drinking-water services in the Pacific island countries, taking into perspective the Pacific Regional Action Plan, and make the required adjustments conducive to the attainment of the sanitation and drinking-water MDG target.
4. Promote and support the inclusion of national drinking-water safety plans into the national development planning process for the Pacific island countries as a crucial measure to improve drinking-water quality generated by the existing and future islands water supply systems.
5. Promote the establishment of national sanitation, hygiene and drinking-water assessments under the framework of the Pacific Regional Action Plan (Pacific RAP) taking into account the need to conduct such assessments within the perspective of sustainable integrated water resources management. Such assessments should provide valuable insights into the current national planning processes throughout the Pacific islands.

Box 1 Message from Beppu

BOX 8

Message from Beppu

The Pacific leaders attending the First Asia-Pacific Water Summit organized from 3 to 4 December 2007 in Beppu City, Japan reiterated their commitment to effective sanitation and safe drinking water. Ten heads of state, 31 ministers, and representatives from 36 countries committed to the following:

We, the leaders of the Asia-Pacific, coming from all sectors of our societies and countries, meeting at the historic inaugural Asia Pacific Water Summit, in the beautiful city of Beppu, in the hospitable Oita Prefecture of Japan, do hereby agree to:

- Recognise the people's right to safe drinking water and basic sanitation as a basic human right and a fundamental aspect of human security;
- Reduce by half the number of people who do not have access to safe drinking water by 2015 and aim to reduce that number to zero by 2025;
- Reduce by half the number of people who do not have access to basic sanitation in our region by 2015 and aim to reduce that number to zero by 2025, through the adoption of new and innovative sanitation systems that are not as water reliant as current methods;
- Accord the highest priority to water and sanitation in our economic and development plans and agendas and to increase substantially our allocation of resources to the water and sanitation sectors;
- Improve governance, efficiency, transparency and equity in all aspects related to the management of water, particularly as it impacts on poor communities. We recognise that while women are particularly vulnerable, they are also resilient and entrepreneurial, hence, should be empowered in all water-related activities;
- Take urgent and effective action to prevent and reduce the risks of flood, drought and other water-related disasters and to bring timely relief and assistance to their victims;
- Support the region's vulnerable small island states in their efforts to protect lives and livelihoods from the impacts of climate change;
- Exhort the Bali Conference to take into account the relationship between water and climate change, such as the melting of snowcaps and glaciers in the Himalayas and rising sea levels, which are already having an impact on some countries in the region;
- Establish concrete goals for the 2008 Toyako G8 Summit to:
 - commit to support the developing countries to achieve their MDG targets on water and sanitation; and
 - take immediate action to support adaptation to climate change by developing countries;
- Empower a high-level coordinating mechanism in our cabinets and where possible, appoint a minister in charge of water to ensure that all issues related to water and sanitation would be dealt with in a holistic manner;
- Respect and strengthen the region's rich history of water-centered community development, including the rehabilitation of urban waterways and protecting the environmental integrity of rural watersheds;
- Work together with other like-minded institutions, entities and individuals in order to achieve our collective vision of water security in the Asia Pacific region.

We will support the Policy Brief as prepared by the Asia Pacific Water Forum family.

We encourage all governments to make all efforts to implement its recommendations.

We have the will and courage to realise our vision.

Source: APWF (2007)



What can WHO do to strengthen the sanitation and drinking-water agenda in the Pacific Islands?

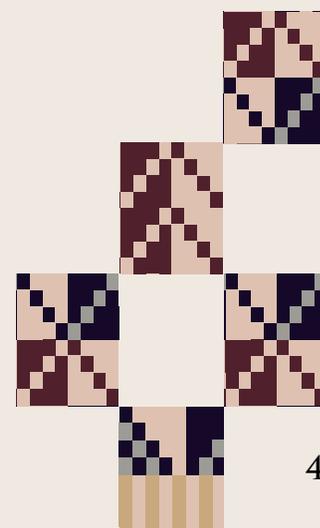
TABLE 4 The work of the WHO Western Pacific Regional Office in sanitation, drinking-water and hygiene

Area	Description
Promotion of and advocacy for access to water supply and sanitation services	The main focus is to highlight the basic right of all citizens to health protection through access to safe water supply, basic sanitation, and good hygiene behaviours. WPRO has been a major partner of relevant multilateral and bilateral agencies in organizing crucial high-level events and facilitated major international commitments with this regard (e.g. East Asia Ministerial Conference on Sanitation and Hygiene (EASAN), Ministerial Conference on Health and Environment, etc).
Drinking-water quality	Drinking-water quality standards: support to countries in training and preparation of their own drinking-water quality standards in light of the WHO Guidelines for Drinking-Water Quality. Water Safety Plans (WSPs): support to countries in training and preparation/implementation of WSPs. Household Water Treatment and Safe Storage (HWTS): promotion, training and support to formulation and implementation of HWTS plans at country level.
Sector information	National sector assessments: support countries in establishing national sector assessment processes and preparing national sector assessment reports; National sector monitoring: support to the implementation of national information systems aimed at collecting, analysing and disseminating drinking-water and sanitation coverage data according to the JMP methodology.
Health care waste	The WHO Western Pacific Regional Office provides guidance and support to countries in sound management of health care waste, including alternatives to incineration. Although this is crucial to all countries, it is even more crucial to Pacific islands, where aquifers are highly susceptible to contamination by chemicals or micro-organisms from inadequate management of hazardous waste.
Water supply and sanitation in emergencies and disasters	The work of the WHO Western Pacific Regional Office in this area is focused mainly on preparedness and prevention, support to drinking-water quality improvement in emergency areas and technical advice during and after emergencies.
Normative aspects and training	The WHO Western Pacific Regional Office prepares norms and guidelines and adapts global documents according to the especial needs of the WPR's countries. Training in the different areas are also organized and imparted by the Western Pacific Regional Office based on expressed needs of Member States.

The basic aim in the Pacific Islands of the WHO Western Pacific Regional Office is to pursue efforts to improve and protect health through promotion and support to provision of sustainable access to safe drinking-water supply, basic sanitation services and sound hygiene behaviours to the poor and unserved, according to the international commitments for the attainment of the Millennium Development Goals, the Decade for

Action – Water for Life, and in line with the efforts of the International Year of Sanitation.

In coordination with WHO Headquarters and in collaboration with key partners, the WHO Western Pacific Regional Office provides support to the advancement of action on the different aspects of sanitation, drinking-water and health as indicated in Table 4.





SOPAC work and priorities in the Pacific

The Pacific Islands Applied Geoscience Commission (SOPAC) is an intergovernmental, regional organisation with 21 member countries, including 15 Pacific island countries and territories: Cook Islands, Federated States of Micronesia, Fiji, Guam, Kiribati, Nauru, Niue, Palau, Papua New Guinea, the Marshall Islands, Samoa, Solomon Islands, Tonga, Tuvalu and Vanuatu, including Australia and New Zealand, as well as four associate members: American Samoa, French Polynesia, New Caledonia and Tokelau. SOPAC's work is carried out through its Secretariat, based in Suva, Fiji.

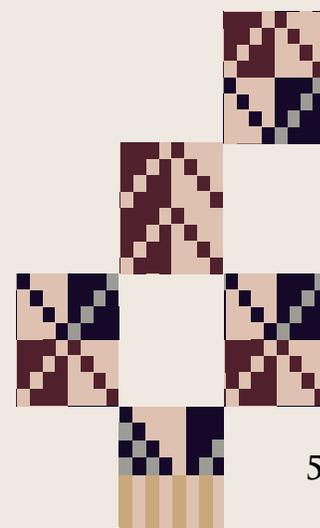
SOPAC provides applied scientific and technical support, guidance and advice to member countries in three technical programme areas: Community Lifelines, Ocean and Islands, and Community Risk. The water sector under the SOPAC's Community Lifelines Programme (CLP) has a structure consisting of Resources Management, Asset Management and Governance. For the water sector, these translate into water resources management (CLP1), which includes rainwater, surface water and groundwater resources assessment, development, management and protection, with a particular emphasis on water resources management in climatic extremes. This component includes climate adaptation with regard to water resources issues.

Main programme results are the Pacific Hydrological Cycle Observing System (HYCOS), the Pacific Island Climate Update (ICU) and the Pacific

Water and Climate Resource Centre. The focus is on capacity building and wise practice promotion.

Sanitation and drinking-water services are addressed by the Asset Management component (CLP2) and include drinking-water supply and wastewater disposal asset management. Regional programmes have been established on drinking-water quality monitoring (WQM), drinking-water safety planning (WSP), water demand management (WDM), rainwater harvesting (RWH) and, in general, the sustainability of water and wastewater technologies for both urban and rural systems.

The Governance component (CLP3) pulls together a number of different areas which together attribute to better institutional arrangements in the water sector. These include national level policies, plans and strategies; institutional instruments such as legislation and institutional strengthening; multi-stakeholder national water partnerships; IWRM and catchment level management; community level water governance; awareness raising and education initiatives; and advocacy for community participation and gender. The Governance component also includes regional and global high-level advocacy and awareness with SOPAC playing a coordinating role as facilitators of the Pacific Partnership Initiative on Sustainable Water Management which involves national stakeholders and external support agencies in the region.



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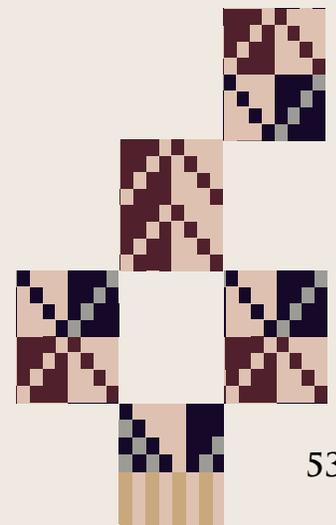
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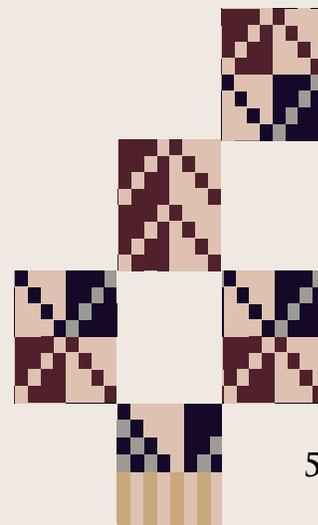
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Annexes

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Annex 2 Drinking-water coverage in the Pacific island countries, 1990 and 2006.....	57



Annexes

ANNEX 1 Sanitation coverage in the Pacific island countries, 1990 and 2006

Pacific island countries	Year	Population (thousands)			Sanitation coverage (%)														
		Total	Urban	Rural	Total					Urban					Rural				
					Total improved	Total unimproved	Unimproved			Total improved	Total unimproved	Unimproved			Total improved	Unimproved			
							Shared	Other unimproved	Open defecation			Shared	Other unimproved	Open defecation		Total unimproved	Shared	Other unimproved	Open defecation
Australia	1990	16873	14410	2463	100	0	0	0	0	100	0	0	0	0	100	0	0	0	0
	2006	20530	18146	2384	100	0	0	0	0	100	0	0	0	0	100	0	0	0	0
New Zealand	1990	3411	2890	521											88	12			
	2006	4140	3573	567															
Cook Islands	1990	18	10	7.5	96	4				100	0	0	0	0	91	9			
	2006	14	10	3.5	100	0	0	0	0	100	0	0	0	0	100	0	0	0	0
Fiji	1990	724	301	423	68	32				87	13				55	45			
	2006	833	428	405	71	29				87	13				55	45			
Kiribati	1990	72	25	47	22	78	4	17	57	26	74	7	26	41	20	80	2	13	65
	2006	94	48	46	33	67	8	12	47	46	54	13	0	41	20	80	2	25	53
Marshall Islands	1990	47	31	17	75	25				88	12				51	49			
	2006	58	39	19															
Micronesia, Federated States of	1990	96	25	71	29	71				54	46				20	80			
	2006	111	25	86	25	75				61	39				14	86			
Nauru	1990	9.2	9.2	0															
	2006	10	10	0															
Niue	1990	2.3	0.7	1.6	100	0	0	0	0	100	0	0	0	0	100	0	0	0	0
	2006	1.6	0.6	1.0	100	0	0	0	0	100	0	0	0	0	100	0	0	0	0
Palau	1990	15	4.7	10	61	39				76	24				54	46			
	2006	20	6.9	13	67	33				96	4				52	48			
Papua New Guinea	1990	4131	543	3588	44	56	2	36	18	67	33	10	19	4	41	59	1	38	20
	2006	6202	835	5367	45	55	2	36	18	67	33	10	19	4	41	59	1	38	20
Samoa	1990	161	34	127	98	2				100	0	0	0	0	98	2			
	2006	185	42	143	100	0	0	0	0	100	0	0	0	0	100	0	0	0	0
Solomon Islands	1990	314	43	271	29	71				98	2				18	82			
	2006	484	83	401	32	68				98	2				18	82			
Tonga	1990	95	22	73	96	4				98	2				96	4			
	2006	100	24	76	96	4				98	2				96	4			
Tuvalu	1990	9.5	3.9	5.6	77	23				83	17				74	26			
	2006	10.5	6.1	4.4	90	10				93	7				84	16			
Vanuatu	1990	149	28	121															
	2006	221	53	168															
Total*	1990	5843	1081	4762	49	51	2	33	16	76	24	6	13	5	43	57	1	38	18
	2006	8344	1611	6733	48	52	2	34	16	75	25	6	15	4	42	58	1	39	18

*The statistics for Australia and New Zealand were excluded from totals

ANNEX 2 Drinking-water coverage in the Pacific island countries, 1990 and 2006

Pacific island countries	Year	Population (thousands)			Drinking-water coverage								
		Total	Urban	Rural	Total			Urban			Rural		
					Total improved (%)	Total unimproved (%)	Household connection (%)	Total improved (%)	Total unimproved (%)	Household connection (%)	Total improved (%)	Total unimproved (%)	Household connection (%)
Australia	1990	16873	14410	2463	100	0		100	0		100	0	
	2006	20530	18146	2384	100	0		100	0		100	0	
New Zealand	1990	3411	2890	521	97	3		100	0	100	82	18	
	2006	4140	3573	567				100	0	100			
Cook Islands	1990	18	10	7.5	96	4		99	1		87	13	
	2006	14	10	3.5	96	4		98	2		88	12	
Fiji	1990	724	301	423	48	52	17	43	57	32	51	49	7
	2006	833	428	405	47	53	20	43	57	32	51	49	7
Kiribati	1990	72	25	47	48	52	24	76	24	46	33	67	13
	2006	94	48	46	65	35	36	77	23	49	53	47	22
Marshall Islands	1990	47	31	17	96	4		95	5		97	3	
	2006	58	39	19							96	4	
Micronesia, Federated States of	1990	96	25	71	88	12		93	7		86	14	
	2006	111	25	86	95	5		95	5		94	6	
Nauru	1990	9.2	9.2	0									
	2006	10	10	0									
Niue	1990	2.3	0.7	1.6	100	0		100	0	100	100	0	
	2006	1.6	0.6	1.0	100	0		100	0	100	100	0	
Palau	1990	15	4.7	10	88	12		73	27		98	2	
	2006	20	6.9	13	88	12		79	21		94	6	
Papua New Guinea	1990	4131	543	3588	39	61	11	88	12	61	32	68	4
	2006	6202	835	5367	40	60	12	88	12	61	32	68	4
Samoa	1990	161	34	127	91	9		99	1		89	11	
	2006	185	42	143	88	12		90	10		87	13	
Solomon Islands	1990	314	43	271	69	31	11	94	6	76	65	35	1
	2006	484	83	401	70	30	14	94	6	76	65	35	1
Tonga	1990	95	22	73	100	0		100	0		100	0	
	2006	100	24	76	100	0		100	0		100	0	
Tuvalu	1990	9.5	3.9	5.6	91	9		92	8		89	11	
	2006	10.5	6.1	4.4	92	8		94	6		92	8	
Vanuatu	1990	149	28	121	60	40	38	93	7	80	53	47	28
	2006	221	53	168									
Total*	1990	5843	1081	4762	47	53	14	76	24	53	40	60	5
	2006	8344	1611	6733	46	54	13	76	24	53	39	61	4

*The statistics for Australia and New Zealand were excluded from totals

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