

# Chapter 1

## Effects of Population Growth and Urbanization in the Pacific Islands

More than 35 percent of the people of the Pacific islands live and work in towns, and the rate of urban population growth throughout most of the region is high (figure 1). Overall, eight of the twenty-two Pacific countries are now predominantly urban; by 2020 more than half the population in a majority of these countries will live in towns.

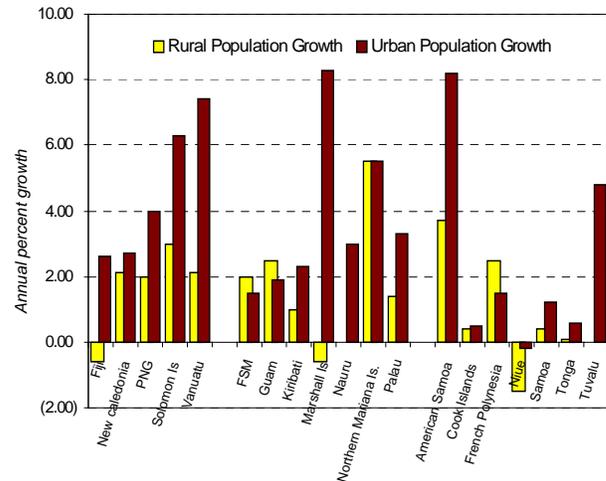
Urbanization has significantly improved the economic prospects and quality of life for a large and increasing proportion of the people of the Pacific. However, as this section shows, it has also caused many problems.

### A. Population Growth and Migration

Declines in fertility and population growth rates in the Pacific have lagged behind trends in other developing countries. In Pacific countries, most of which lack policy and public support for effective family planning and emigration outlets, rates of population growth remain among the highest in the world. The effect that high population growth rates have had in slowing economic growth appears to be not well understood by policymakers.

Throughout the Pacific, high population growth has led to migration from smaller outer islands to larger islands and from rural areas to towns, especially national capitals (box 1). Key drivers of these trends include push factors, such as declining agricultural commodity prices and livelihood opportunities and insufficient rural land to confer social standing, as well as pull factors, such as the prospect of cash employment, perhaps with the government, the availability of public services in town and the intrinsic excitement of urban areas

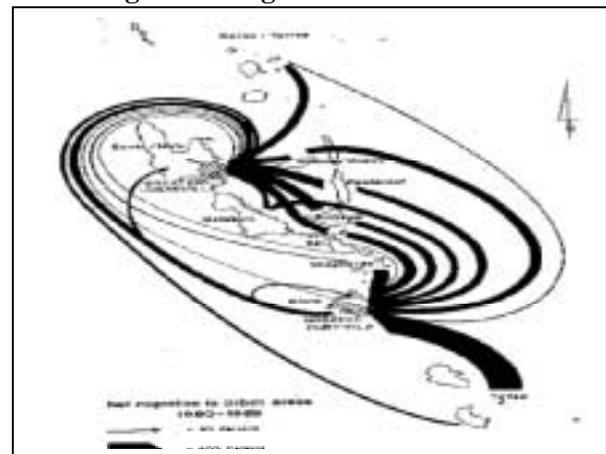
**Figure 1. Urban and Rural Population Growth**



Even in rural areas many people aspire to urban, non-manual labor employment. Strong kinship traditions have enabled rural migrants to fulfill these aspirations by moving to towns.

Plantation agriculture, which has weakened traditional leadership structures in rural areas, has also increased migration. In Port Vila, for example, migration has been greatest from smaller islands heavily involved in the plantation economy (Ivarature 2000).

**Figure 2. Migration in Vanuatu**



### **Box 1. Vanuatu**

Neither Port Vila nor Luganville, the second-largest city, had more than 2,000 people in 1955. However, Vanuatu's Constitution provides for free population movement throughout the country and the urban population grew at over 7 percent per year during the 1960s and early 1970s when legislation was enacted establishing Vanuatu as a tax haven. Port Vila became a boomtown and tourism took off. Urban growth slowed somewhat in the 1980s and again in the 1990s to 4.7% such that the total population classified as urban (in Port Vila and Luganville) now stands at about 41,500 - 21 percent of the total national population.

However, for Port Vila, this excludes a number of densely populated, informal settlements not classified as urban even though they are adjacent to the town boundary and fall within the direct area of influence of its economy. If these areas, which have grown more rapidly than the town proper are included, Greater Port Vila alone now has about 40,600 people compared to about 26,270 (also including "semi-urban" areas) in 1989 - a significantly higher growth rate of 5.9% during this period. Similarly, the population of Luganville also grew quickly to around 15,000 (if suburban areas are included) - about 5.0% annually since 1989. Thus, over 55,000 people - almost 30 percent of the total population - already live and seek their livelihood in or around the two major towns. Indeed, the economic influence of these urban areas may be substantially larger. Shefa Province where Port Vila is located and Sanma Province (including Luganville) now account for 48 percent of the total population.

Migration from smaller islands has been a key driver of this rapid urban growth, particularly from the Shepherds and Paama Islands as well as the Banks/Torres Islands that lack sufficient land to confer social standing and/or to provide a sustainable livelihood. It now appears that migration from them has generally become permanent. Migration from other areas, including Tanna, has traditionally been circular with seasonal employment on plantations, for example. However, there are indications from the 1999 census that migrants from these areas are returning to home villages less frequently and for shorter periods. Thus, migration from these areas is also becoming more permanent.

Not surprisingly, the high overall population growth in Vanuatu has resulted in a very youthful age structure with 44 percent under age 15, and 17 percent under age 5 in 1999. The youthful age structure is likely to be even more pronounced in the urban population, of which a high proportion were born in town and have virtually lost their links with home villages in outer islands.

Even with success in achieving more balanced regional economic growth, such as through the Regional Economic Development Initiative proposed by Taefa Province, population growth in the towns will continue. Greater Port Vila (including suburban areas) will grow to possibly 75,000 and Luganville to as many as 25,000 inhabitants within 10 years. At that time, fully 38% of the total national population could be living and seeking livelihood in or near Port Vila or Luganville. Even the population of the "core" urban areas of Port Vila and Luganville could double in 15 years to around 80,000.

Urban migration is not a new phenomenon in the Pacific: the most dramatic migration from outer islands to towns took place in the 1950s, 1960s, and 1970s. Today, migration is a less significant factor than natural population growth in many Pacific towns. However, the young age structure and high fertility rates of many Pacific towns virtually ensure that towns will continue to grow rapidly, even where urban conditions and the quality of life are deteriorating.

In Fiji—which has perhaps the most developed towns in the Pacific islands—almost 39 percent of the population lives and works in towns and two-thirds of the population lives within 8 kilometers of a town or service center (World Bank 1995). Most rural populations thus have

access to markets and services. Both the proportion and growth rate of the urban population are increasing. By 2006, the urban population is expected to grow to 400,000, two-thirds of which will be in the Greater Suva region. Within 20 years, Fiji is likely to be transformed from a predominantly rural to a predominantly urban society.

Outward emigration has been dramatic in the last decade in the Marshall Islands, where population growth exceeded the capacity of the natural resource base and has led to increasing unemployment in urban areas. Most emigrants are relatively young—economically active families seeking better employment and educational opportunities. Their vital

contribution to economic and social development at home may be lost.<sup>1</sup>

## **B. Benefits of Urbanization**

Urbanization in the Pacific has been an inevitable response to deteriorating, or at best stagnating, conditions in rural areas and outer islands, few if any of which can offer the employment opportunities provided by the urban economy. Most new jobs have been generated in towns, and the urban economy is the major contributor to economic diversification, competitiveness, and growth in the region. Urban centers' substantial contribution to GDP largely reflects the significantly higher productivity of urban private sector industry and services relative to rural activities. Without the growth of towns, economic performance in many Pacific countries would have been even more modest than it has been.

In the Solomon Islands, Fiji, and Vanuatu, the urban economy is estimated to have contributed at least 60 percent of GDP in recent years. For example, because of Honiara's preeminent position as the center of services, paid employment and industry, economic performance in the capital has a significant effect on national economic growth in the Solomon Islands. Currently, the capital accounts for more than 50 percent of formal employment and a significantly higher proportion of all wages paid. Honiara is both the gateway and an important destination for tourism to dive sites, which also makes a small contribution to the economy.

Urbanization has also facilitated social development in the region: provision of basic services, including health and education, to a widely dispersed population in remote islands would have been considerably more difficult and costly than to the populations concentrated in towns.

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<sup>1</sup> The effect of migration need not be negative. The growing Samoan diaspora in New Zealand, Australia, and the United States has not turned Samoa into a depressed backwater. Quite the reverse: Samoa has become more open to global trends while maintaining its unique cultural traditions.

In the transition from colonial government centers to modern towns, capitals in many Pacific countries have become diversified, playing an important role in many activities, including tourism. Indeed, the 500 tourist hotel beds in Port Vila represent most of Vanuatu's tourist accommodation. In Samoa most secondary and tertiary sector activities (including manufacturing, distribution, restaurants and hotels, and government services) are located in Apia, the center of the small tourist industry. These activities make a substantial contribution to foreign exchange earnings.

## **C. Issues Relating to the Growth of Towns**

Despite the many benefits of urbanization, many policymakers in the region continue to view towns with concern, if not alarm. They cite the profound effect on customary traditions and relationships as well as the difficulty of providing and maintaining public infrastructure and services, the proliferation of informal settlements, worsening environmental conditions, and increasing social problems associated with unemployment and underemployment.

Poverty in the Pacific is rarely as visible or as extreme as in some of the harshest parts of the world, though countries such as the Solomon Islands and Vanuatu rank on a par with Guinea, Burundi, Senegal and Bangladesh. Moreover, Pacific societies are not as egalitarian as sometimes portrayed and gaps in income, access to services, well being and opportunities are widening (World Bank 2000). Thus, a broader concept of poverty which emphasizes poverty of opportunity that reflects lack of education, health, lack of economic assets, social exclusion and political marginalization is a better description of poverty for many people in the Pacific. Poverty of opportunity is evident in many ways including rapid emigration from some countries, high but disguised unemployment, and emergence of a culture of youth crime and high youth suicide rates.

The UNDP 1997 Fiji Poverty Report found that poverty was an undercurrent in both of urban and rural areas and in all ethnic communities. One in four households cannot afford a basic standard of living and these households often include people who have little formal education or skills and have difficulty getting paid employment. The 1998 Samoa household income expenditure survey found that one in three households could not properly meet their basic needs. The 1996 survey of Tarawa found many aspects of poverty that are common in the Pacific. Many households live in badly overcrowded conditions with poor basic services, are increasingly dependent on cash incomes, most of which is spent on food, but include few adults with paid jobs.

Unemployment and social problems are increasing in many towns, environmental conditions and health are deteriorating, inequality in access to income is growing, and evidence of poverty, vulnerability, and hopelessness is increasingly visible among the underclass of landless urban poor (box 2). Crime in many towns is increasing and, in some countries, militant groups are finding ready recruits. Moreover, a number of Pacific societies continue to struggle with very high suicide rates, especially amongst young urban dwellers. Unless attention is paid, these emerging problems will grow, reducing the quality of life and placing key economic sectors, such as tourism, at risk.

### **Urban Unemployment**

Pacific island countries have not enjoyed the dramatic private sector-led economic growth of Pacific Rim countries. Indeed, economic indicators in many countries have been stagnant—or even negative—for some time. Fiji, Kiribati, the Solomon Islands, and Vanuatu all experienced negative per capita income growth in the 1980s and early 1990s, despite high levels of foreign resource inflows, including aid.

Formal sector job growth in the urban economy has fallen well short of the level needed to productively absorb the rapidly increasing population in towns—it accounts for only about

20 percent of the labor force in most Pacific countries. The growth of the economically active population has for some time exceeded the

#### **Box 2. Hopelessness among the Urban Underclass: "Killing Time" as a Way of Life in Port Vila, Vanuatu**

The results of a 1998 survey highlight the low expectations of young people living in the poor settlement of Blacksands, in Greater Port Vila, Vanuatu—attitudes that may be typical of poor young people throughout the city.

The settlement located on customary land, lacks water and sanitation services. Overcrowding is common, with small rented rooms often accommodating families of 5–11 people. The rent for a single room shared with one or more other families can amount to as much as 50 percent of family incomes, leaving insufficient to meet the costs of food, clothing, education and health care.

Perhaps the most striking result of the survey is the lack of aspirations expressed by young people. Many commented that political instability over the past few years had affected the economic performance of the country and their prospects of finding work and that the formal education system had failed to equip them for the job market. Their lack of links to their village communities and lack of understanding of traditional customs compound the disillusionment of many. Many were resigned to a future of mostly "killing time." As one young person said, "My future is my problem."

growth of those in formal wage employment—by a ratio of nearly 8:1 in the Solomon Islands and 6:1 in Fiji. Vanuatu's urban economy currently generates fewer than 500 new formal sector jobs for the 3,000 or so additional town dwellers each year (Ministry of Finance and Economic Management 1998/99).<sup>2</sup> Many towns in the Pacific are already experiencing rising levels of unemployment, particularly among urban youth—in excess of 10 percent in most countries and 20 percent in the Federated States of Micronesia and the Marshall Islands. In Samoa, unemployment amongst young people is reportedly three times higher than for older workers (the Government of Samoa 1996). In the Marshall Islands, young people are two to three times as likely to be unemployed as older

<sup>2</sup> This outcome is not unexpected. Estimates in the early 1990s indicated that between 1991 and 2011, the economically active populations were likely to increase 43 percent in Fiji, 95 percent in Vanuatu, and 102 percent in the Solomon Islands (Cole 1993).

persons, with unemployment for urban youth being as high 50 percent (UNDP and Marshall Islands government 1997). Many children, particularly those who drop out of school are employed in the informal sector that is also a main source of employment for women, who often lack the education skills to join the formal sector.

Prospects for private sector job growth in many Pacific countries has been hurt by the traditional dominance of the government in formal sector employment. Government spending has been the largest contributor to cash employment and GDP in many countries in the region. In Kiribati, for example, the government sector accounted for 67 percent of cash employment and 89 percent of GDP in 1995. Clearly, incomes in Kiribati have been influenced more by the level of public sector employment than by productivity and the workings of a competitive labor market, and they have reached levels that have inhibited any significant expansion of the employment base. Kiribati is not unique in this regard.

However, conventional economic and labor statistics in the Pacific mask the significant scale and critical importance of the informal sector as a source of livelihood, both in urban and rural areas. Households depend on multiple sources of income, including some cash employment on a regular or occasional basis, some subsistence production, some traditional exchange, and some small-scale trading or other business.

For example, in Vanuatu in 1989, 61 percent of the labor force was in the informal sector compared to 21 percent in the formal sector. Similarly in the Solomon Islands in 1986, 73 percent of the labor force was in the informal sector compared to 17 percent informal sector. Even in Fiji, 34 percent of the workforce was in informal employment compared to 20 percent in the formal sector in 1986 (Chung, *Sustaining Livelihoods, Promoting Informal Sector growth in Pacific Island Countries* (UNDP 1997).

Urban informal enterprise is diverse, largely home-based and mostly involves women, many of whom do not have the education or skills to join the formal sector and face job

discrimination because of their gender, as well as children who drop out of school. Surveys of stall holders in Fiji, Kiribati, Tonga, Solomon Islands and Vanuatu found that most informal businesses are also run by women, mostly aged over 30 (Ward and Arias 1993; Brown and Connell 1993; Fiji association of women graduates 1994; Ahlberg 1997). In the Solomon Islands, almost one half of all women in cash employment are self-employed and one-third of these self-employed women are the sole income earners in their households (Solomon Islands Ministry of Health and ILO 1991). This despite the fact that most have had very little formal education, almost one quarter could not write in any language and almost one-third could not do any calculations.

The manufacturing sector remains small throughout the Pacific and with civil service cutbacks featured in many reform agendas, formal wage employment will be substantially reduced. The time has thus come for policy-makers in Pacific countries, particularly those that have resisted urbanization, to put in place policy environments that will harness the employment-generating potential of the private sector, including the informal sector, which has absorbed much of the surplus rural labor in many other countries (including some in the Pacific Rim). In Fiji, vegetable gardens are increasingly providing cash income and livelihood and potential exists for higher value activities such as floriculture.

Recent experience in the trade that has grown in secondhand clothes in Tonga and Samoa indicates that the urban informal sector can be a dynamic source of new employment. This trade operates through the diaspora of family networks that span several countries, and has diversified and stimulated new business activity in a range of other goods.

Despite the problem of finding work in towns, however, even those with only a tenuous footing as urban residents are unlikely to return to rural life and almost certain unemployment. Town life will continue to be attractive as long as people have some chance of finding a job. With incomes of indigenous urban households

reportedly as much as 8.5 times those in the rural areas (UNICEF and Vanuatu Government 1991), the risk of even a prolonged period of unemployment is considered acceptable.

### **Social Problems**

The village community has traditionally been the coalescing social unit in Pacific countries, providing a social safety net, a forum for resolving family and kinship issues and sustaining social cohesion in towns as well just as in rural areas. Many migrant families continue to reinforce rural ties rather than establish new social ties in the wider urban community. Migrants from the same islands prefer to live and work together; the social and economic bonds they forge are the basis for much social support in towns. New migrants to the city are generally housed and fed by kinfolk, at least initially, reinforcing the dependency relationship of new migrants (Connell and Lea 1993).

Demands for higher standards of living in urban areas have made it difficult for traditional leadership structures to respond in ways perceived as adequate by town dwellers. A large and increasing proportion of the urban young have never visited their traditional village communities and do not have strong links with them. Thus traditional safety nets developed by Pacific island societies over hundreds of years are becoming increasingly strained as expectations are modified by development and many communities grapple with the transition from subsistence to cash-based livelihoods in growth-oriented economies. As a result, the number of people living below the poverty line in urban areas is increasing.<sup>3</sup> Where natural resources in towns are subjected to excessive exploitation and environmental pollution (as in South Tarawa), the level of subsistence livelihood is reduced, increasing dependency on the cash economy and affecting the nutrition, health, and quality of life of these communities.

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<sup>3</sup> A quarter of all households in Fiji was estimated to be below the poverty line in the mid-1990s, with a majority living in urban areas (Government of Fiji/UNDP 1996).

The proliferation of overcrowded squatter and informal settlements and increasing unemployment in many towns are resulting in a number of social problems, including poverty and the breakdown of the extended family, increased crime and vandalism. In Samoa, the number of reported crimes rose 23 percent between 1996 and 1998. Most of these are likely to have been committed by urban youth, who have difficulty finding jobs.

Social disruption caused by the division of families between urban and rural areas and the loss of traditional safety nets have also contributed to a rise in domestic violence, divorce, and single-parent households. Lack of security; inadequate provision of basic urban infrastructure, utilities, and social services as well as unemployment and underemployment have caused tensions among migrant groups, landowners, and urban authorities.

Studies in Vanuatu indicate that growing numbers of children born to unmarried parents are in danger of becoming landless (Ivarature 2000). Not surprisingly, the problem has fuelled calls by politicians for resettlement schemes, many of which are poorly conceived.

### **Health Problems**

The most prominent public health problems in Pacific countries, especially among the poor, remain those of (largely preventable) infectious diseases, in particular respiratory diseases related to overcrowding, and gastroenteric diseases related to water pollution, poor sanitation, and inappropriate health and hygiene practices. Poor-quality water and sanitation services continue to contribute to public health risks. Dengue fever and infant diarrhea are common throughout the region. Sewage contamination of coastal waters provided ideal conditions for the cholera outbreak in Tarawa in 1987 and more recently in Pohnpei. Higher sea temperature may increase the risks of cholera outbreaks [Taeuea et al, eds. 2000]. Ciguatera poisoning—the most frequently occurring human illness caused by ingestion of marine toxins, which affects as many as 50,000 people a year in tropical and subtropical countries—is

also prevalent in the Pacific and may become more prevalent as a result of global warming (Baden and others 1995).<sup>4</sup> Infant mortality rates remain high in many Pacific countries.

The deterioration of urban living environments is exacerbating health problems. Most low-income families have gravitated to squatter and informal settlements that proliferate in and around towns. The incidence of waterborne disease in these communities is high, especially among infants. However, these health risks also affect the wider urban population and can jeopardize key economic sectors, such as tourism.

At the same time, even the poorer countries in the region, such as Kiribati, are experiencing increasing incidences of so-called “lifestyle diseases” such as stroke, hypertension, heart disease, and the like, due to more sedentary lifestyles. Less nutritional diets of imported processed food are increasingly common, partly because opportunities for subsistence agriculture in urban areas have become more limited and partly because consumption patterns are changing. Few, if any, fresh vegetables or tropical fruits are grown in atoll countries because of the shallow depth and poor nutrient qualities of the soil. In the Marshall Islands, for example, the incidence of vitamin A deficiency among children is high (Department of Health, Marshall Islands 1999). Unfortunately, garden waste, which could be used as mulch to enrich poor soils is, instead, normally disposed at landfills.

### **Lack of Adequate Education**

Notwithstanding a policy orientation in many Pacific countries that seeks to minimize or even reverse urbanization, education systems are orienting young people to non-manual employment in towns, primarily in government. It has not equipped them with the technical and business skills demanded by the emerging urban

economy, however, and expatriate workers with these skills are imported at very substantially higher cost.

Many secondary school graduates are not prepared for further education. School administrators at the Marshall Islands Community College recently reported that almost 80 percent of students require remedial work in English and mathematics.

There is growing recognition in Pacific countries of the need for education strategies that maximize economic competitiveness and productivity. The Marshall Islands is now strongly promoting vocational training in secondary schools. Remodeling the education system to improve the links with the labor market is also a major objective of Vanuatu’s recently published Education Master Plan.

A number of Pacific countries are also starting to appreciate that their relatively high school attendance and literacy rates represent a competitive advantage. In addition, recent technological developments are transforming the economics of telecommunications and location. This gives them an opportunity to improve the profitability of key existing sectors, such as tourism, and attract new service exports in information industries. Many other small island countries have captured niche markets in these high value-added economic activities. However, worldwide experience indicates that being competitive in this area requires a favorable regulatory environment as well as a good level of education and reliable, competitively priced telecommunications. These prerequisites are not yet in place in many Pacific countries, which will, as a result, continue to miss these opportunities.

Improved access to information and knowledge have the potential for enhancing the value-added of traditional activities, such as agriculture, small-scale manufacturing, and tourism as well as public policy functions and services, such as environmental management, preventive health, and education. In the global economy, where markets are linked electronically, new employment opportunities are also emerging in

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<sup>4</sup> A study of eight Pacific Island countries found a positive correlation between the annual incidence of ciguatera poisoning and local warming of the sea surface warming during El Niño conditions (Hales and others 1999b).

service exports in activities such as data entry and e-commerce. Firms and residents in towns are likely to be most competitive in these information-based niche markets.

### **Pressure on Infrastructure and Services**

While economic prospects in urban areas remain significantly better than in rural areas, the productivity of the urban economy and quality of life in many Pacific towns is deteriorating, particularly for the poor, because of deficiencies in essential infrastructure, utility services, and housing. In many Pacific towns these services were established before independence, and increasing demand from the rapidly growing urban population has overwhelmed them.

Even in Fiji, where urban services are perhaps most developed, many new town dwellers have gravitated to squatter and informal settlements, especially in peri-urban areas. As a result, by the mid-1990s, about 40 percent of Fiji's urban population lacked adequate access to water, proper sanitation facilities, and waste collection services. In Honiara, Solomon Islands, coverage by the government water supply system was reported to be diminishing, as informal settlements expanded in peri-urban areas in the 1980s and 1990s (World Bank 1995).

The practice in many Pacific countries of delaying essential maintenance, in expectation of aid-funded capital replacement, threatens to reduce the effectiveness of existing infrastructure and undercut the justification for new investment. Lack of funding for equipment and even basic tools hampers repair and maintenance of the deteriorating sewerage system in South Tarawa (Jones 1995b). Even in Suva maintenance for water and sewerage systems was estimated to be about seven years behind schedule in the mid-1990s (World Bank 1995). In Honiara, breakdowns and back flowing of water mains remains common.

Inadequate maintenance results in more rapid deterioration of infrastructure and requires

rehabilitation or reconstruction sooner and at higher cost than would otherwise be required. However, donor financing primarily supports new investment, reinforcing the incentive to defer maintenance on an increasing stock of infrastructure assets. As a first-order priority, agencies should formulate sound asset management strategies and demonstrate reasonable performance in maintenance operations on existing assets as a basis for investment in new assets, most of which will be donor-financed.

However, examples of good practice in "asset management" are emerging. For example, in Tuvalu, government infrastructure and facilities are being inventoried and appropriate maintenance regimes established (with AusAID assistance). In Samoa, asset management in the roads sector is an integral part of institutional reform of Works Department operations and the recently introduced output budgetary management system.

### ***Water Supply***

The problems associated with delivering satisfactory water supply in Pacific island towns are primarily political and institutional rather than technical (box 3). They reflect inappropriate policies, undue government interference, and the lack of appropriate incentives for consumers to reduce demand to sustainable levels, all of which undermine the ability to operate and maintain water supply systems properly. Budgetary support for water and sanitation operations—a major contributor to government budgetary deficits in a number of Pacific countries—is unsustainable. Some countries have turned this around, but it remains a problem in many others. A key role for governments is to establish an appropriate policy framework and operating incentives oriented to improving customer service whilst minimizing costs.

The need to increase awareness of the importance of protecting freshwater resources cannot be overemphasized. Management of water sources is poor throughout the Pacific islands, even in atoll countries, where permeable ground conditions make freshwater lenses

particularly vulnerable to contamination from fertilizers, pesticides, and other pollutants. Traditional landowners are often unwilling to accept any restrictions on their use of land, regardless of the risk of pollution. Through broad-based consultations, mechanisms need to be found to reduce the pollution risk to these essential water sources.

### **Box 3. Government-Managed Water System Faces Problems in South Tarawa**

Water supply in South Tarawa highlights the difficulties faced by government-managed water systems throughout the Pacific. The Public Utilities Board (PUB), part of the Ministry of Works and Energy, is responsible for water supply, sewerage, and power supply. PUB has limited institutional capability, however, and the government is generally involved in key operational and management decisions. Connection fees and user charges have always been inadequate to cover even essential operational and maintenance costs, and PUB depends heavily on external support and a government operating subsidy. As a result, operations and maintenance in water supply and sewerage have been poor, with network losses reportedly about 50 percent (although PUB claims to have achieved some reduction recently).

As in many other Pacific atoll countries, supplies are limited to a few hours a day, and daily consumption from the piped system probably averages no more than 25 liters per person (assuming a 50 percent loss rate) –almost down to a “lifeline” level of supply. Unregulated use of private pumps and the habit of leaving taps permanently open exacerbates problems of low pressure, leakage, and infiltration in many systems. As a result, use of shallow wells in residential areas remains common, even though many are reported to contain high levels of fecal coliforms from septic tanks and pit toilets, leachate from solid waste, and organic and inorganic pollutants (Ministry of Health 1998).

Despite the poor quality of the water supply in many countries, most low-income families do not heed government warnings to boil water, partly because of the high fuel costs involved, putting themselves at risk of disease. Gastroenteritis, conjunctivitis, and infant diarrhea, which are attributed to drinking or washing with contaminated water, are among the most commonly reported communicable diseases requiring hospitalization. In some areas, fast growing timber is being planted in peri-urban or rural areas to supply a growing urban market for wood fuel as a more economical

alternative to kerosene. This initiative is also strengthening urban-rural economic links and livelihood.

Notwithstanding these problems and despite projections indicating continued growth in population and water demand, few public water enterprises have a strategic plan to guide water supply operations. Satisfactory water supply and environmental sanitation represent key elements in an effective preventive health care strategy and can have a positive effect on attempts to encourage investment and promote economic growth in the urban economy.

An appropriate improvement strategy for the water sector includes the following elements:

- Establishing an institutional vision and accountability, with meaningful participation by consumers, appropriate institutional incentives, and sound operating practices.
- Reducing distribution losses (to say 30 percent) as the most cost-effective way of increasing supply.
- Banning inappropriate land uses and economic activities to protect water catchment areas.
- Enforcing existing regulations requiring rainwater catchment on new buildings.
- Restoring water tariffs.
- Coordinating water and sanitation strategies.
- Introducing simple community management of local distribution networks, including collection of tariffs.

The high unit costs of small systems clearly suggests the need for renewed emphasis on cost recovery and improved operational efficiency in water and sewerage, especially in the context of wider public sector management reform. Where there is resistance to such reform, community-managed projects could be piloted. In all cases, improved operations and maintenance and customer orientation should be a prerequisite for new investment.

The strategy for improving both operating and financial performance should also focus on

improving the productivity of the cost base rather than only on increasing tariffs and on implementing an improved maintenance regime, which should also be audited.

**Figure 3. Rainwater Catchment in Low-income House in Majuro**



Examples of good practice, if not yet good value, are emerging in some small systems in the Pacific. These systems offer prospects of sustained improvements in water service to consumers, in part by creating appropriate incentives. Pricing can improve demand management by increasingly proactive consumers.

One example is the long-overdue increase in tariffs in Majuro. The change in pricing policies has encouraged more responsible water use by consumers. As a result of the new policy, use of rainwater catchments is becoming widespread (figure 3). Low-income families in particular now view catchments as the preferred water source—an appropriate response in an area with 300 days of rain a year. Less appropriate is the installation of desalination plants. While such facilities can reduce the impact of droughts, they are a much more expensive way of increasing supply than reducing existing network losses (A\$3.0 per cubic meter versus A\$1.44 per cubic meter from the existing lenses in Kiribati -

Taeuea et al, eds. 2000). The desalination plant recently installed in Tuvalu is also a substantially higher cost alternative to rainwater catchment, particularly where rainfall is reasonable.

Experience with corporatization of water utilities has been mixed in the Marshall Islands, Samoa, and Tonga. Institutional improvements alone are unlikely to be sufficient to improve water service. Rather, clear goals, policies, and actions need to be agreed on that serve the interests of the community at large. Effective oversight arrangements should be established with meaningful representation by consumers and other stakeholders, such as landowners. Even so, corporatization may be an appropriate first step to establishing the independence of operations required for consumer-oriented water service. At the same time, it is clear that private management in Port Vila is proving to be a practical way of improving water service operations in the kind of small town system that is typical in the Pacific (box 4).

*Sewerage and Sanitation.* Proper sanitation is essential for urban areas. There is a limit to the effectiveness of septic tanks in urban centers such as Honiara, Suva, and towns in atoll countries. However, other low-cost sanitation technologies, such as composting toilets, have proven successful in some countries including various parts of Kiribati.

Wastewater management in Port Vila is typical of many Pacific towns. It reveals the importance of taking an integrated and coordinated approach to planning for water supply and wastewater management, since improvements in water infrastructure without investments in wastewater management will invariably result in increases in public health risks (box 5).

A number of towns in atoll countries, where potable water supplies are extremely limited, have constructed sewerage systems using pumped seawater for toilet flushing. Seawater pumping costs are high, however, and few, if any, of these systems are adequately maintained or protect nearshore waters adequately from pollution.

#### **Box 4. Private Provision of Water Service in Port Vila, Vanuatu**

Port Vila privatized its water service in 1997 by concessioning the utility to UNELCO, the power utility. The lack of competition and transparency in concessioning the company to the private sector raised widespread concern. But UNELCO has already established a good record of operations and maintenance and significantly improved service coverage, quality, and reliability. Losses have been reduced since private sector management took over, and performance would have been even better but for the difficulty of obtaining essential easements on customary land to provide service to some informal peri-urban communities.

The availability of an uninterrupted supply of good-quality potable water provides Port Vila with a competitive advantage for attracting industrial and commercial investment. It is an essential prerequisite for sustained tourism growth. The lack of an appropriate regulatory environment, however, has led to high connection fees and tariffs that limit affordability for lower-income families. In addition, the problem of unequal access due to customary land ownership issues has not been addressed.

The challenge for Port Vila is thus to expand the present 60 percent coverage to include lower-income families in the large and rapidly growing informal and squatter settlements and to formulate a strategy (including appropriate pricing) to link sanitation and wastewater management to match growing levels of water consumption in order to minimize public health risks (which could also tarnish the country's image as a tourism destination). Political support will also be needed to prevent pollution from inappropriate land use in the water reserve area.

#### **Box 5. Sanitation in Port Vila**

The lack of properly designed facilities for treatment of wastewater is already causing environmental problems. Septic tanks are the most common means of wastewater disposal. Only the hospital and the three main hotels have small sewage treatment plants, through these are not all well maintained. Both the public and private sectors provide septic tank emptying service with disposal at the municipal landfill site. However, the emptying charge (equivalent to US\$110) discourages many households from using this facility.

A sewerage collection system has been proposed in the ADB-funded Sanitation Master Plan for at least the main urban areas of Port Vila together with primary and secondary treatment with final effluent disposal to land. If feasible, continued use of septic tanks with a small bore piped system for direct disposal to sea may be a more cost-effective alternative.

Pollution of groundwater in the dense, low-income informal settlements is also a growing problem and lack of appropriate sanitation or wastewater removal will continue to cause outbreaks of gastric illness, not only in the affected population but also in the wider community with whom they have working contact. Needless to say, this could adversely affect inward investment and economic development and jeopardize the key tourism sector.

The problem of poor sanitation in these areas is exacerbated by the absence of storm water drainage which causes wider dispersal of polluted wastes including to near shore waters. Extending water supply service to these rapidly growing areas without matching investments in appropriate sanitation, sewerage and drainage would likely worsen the incidence of gastro-enteric disease and risk rising levels of infant morbidity and mortality.

Many households continue to rely on more traditional ways to dispose of human waste (such as defecation in beach areas). In many cases, sea outfalls need to be extended beyond the reef to prevent continuing erosion.

#### ***Solid Waste Management***

The institutional framework for disposal of solid and industrial (including hazardous) waste in Pacific towns is outdated and ineffective. In most towns solid waste collection is a local

government responsibility and accounts for a significant proportion of local budgets. Without exception, these systems lack sufficient financial resources and technical expertise. As a result, even where the percentage of waste collected is high, the maintenance of equipment and facilities is poor and long-term sustainability is in doubt. Affordability and willingness to pay are questionable, particularly for low-income households, and cost recovery is low.

Even more serious problems relate to disposal. Municipal garbage dumps are usually located on or near coastal areas for land reclamation. They are inadequately sealed from flooding or seawater infiltration, creating a potent environmental hazard throughout their lifespan. Most agencies responsible for waste disposal are unclear as to the nature and quantities of the waste they handle.

Conditions are particularly difficult in atoll countries, where disposal sites are located along the foreshore, provide little containment of wastes, and are often poorly maintained (figure 4). Cover material is scarce, and during rough

**Figure 4. Disposal Site on Foreshore**



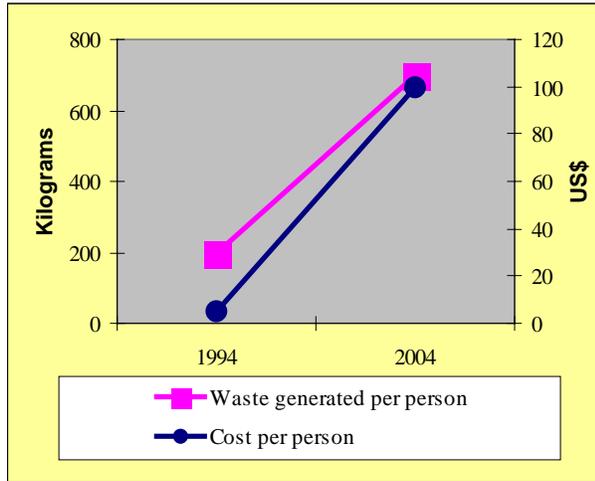
weather garbage is washed onto adjacent beaches, polluting the beaches and nearshore waters and creating a health hazard. Disposal of waste on private land on the foreshore to create additional usable land for the benefit of the owners, but without any environmental safeguards, is becoming become common. The difficulty of securing suitable sites, particularly on customary land, makes this one of the most intractable service delivery problems in the region. In Fiji the difficulty of finding a replacement for the dump site at Lami has been described as a “national dilemma”.

Some examples of good practice are occurring. Port Vila has recently developed a well-located and designed sanitary landfill with facilities to receive toxic waste and septic tank effluent. The coverage and reliability of the collection service are good. The municipality has also introduced innovative programs to involve unemployed youth in city cleanliness programs.

However, the municipality lacks the financial and technical resources to maintain and replace collection vehicles, equipment, and facilities, much less promote waste minimization and recycling or formulate and enforce policies relating to disposal of toxic wastes. Sustainability of the service is therefore uncertain, particularly since the municipality receives no government funding. In addition, there is a need to extend waste collection service into peri-urban areas, responsibility for which lies with the adjacent provincial government. That government has requested donor funding for its own collection equipment, even though it has no capability to operate such a service. More cost-effective approaches could involve contracting out solid waste service to the Port Vila municipality or establishing joint institutional arrangements to provide waste management service throughout Greater Port Vila.

With increasing incomes and changing consumption patterns, solid waste volumes will increase in many countries (figure 5). The waste stream will also include a greater proportion of non-biodegradable materials. Improvements in waste disposal alone will not suffice, particularly given the limited land area. Waste volumes will have to be reduced, through community awareness and education campaigns aimed at minimizing waste and increasing recycling—programs similar to those Fiji has adopted. These programs should be combined with other measures, such as a tax on imports that contain non-biodegradable packaging materials that the Environmental Protection Agency of the Marshall Islands has recommended. Based on experience in other countries, a 30 percent reduction in waste volumes should be achievable (World Bank 1995).

**Figure 5. Solid Waste Trends in the Pacific**



**Drainage**

Poor drainage disrupts economic activity; compounds the problems of poor housing, particularly for low-income families; and increases health risks throughout Pacific towns (figure 5). In many Pacific towns, flooding is frequent, severe, and costly. Planning schemes, where they exist at all, have traditionally paid little attention to known flood risks. Few effective flood prevention or amelioration strategies are in place. Accurate records and mapping of flood events are not maintained, and estimates of the economic damage attributable to flooding have rarely been made. Moreover, many urban areas are experiencing increased flood risks as the upper parts of river catchments are developed (resulting in increased run-off).

Other key issues include the lack of health awareness about stagnant water, which provides a breeding ground for disease vectors (causing malaria and dengue fever); poor maintenance of infrastructure; and weak and inappropriate land use and building control. New commercial construction in the Port Vila town center, for example, has blocked drainage outfalls, causing serious seasonal flooding. In Majuro, accessibility to residential areas remains difficult for long periods following frequent rains because of the lack of coordinated planning, management and maintenance between the Ministry of Regional Development and Public Works, which is responsible for drainage on

primary roads, and the Majuro local government, which is responsible for drainage on secondary roads.

**Power Supply and Telecommunications**

The growing interest in commercializing utility operations in Pacific countries is perhaps most evident in the power and telecommunications sectors. In those sectors, reliable and competitively priced power and

**Figure 6. Poor Drainage in Majuro**



telecommunications services are essential to attracting the investment necessary for growth in urban economic activity and employment, particularly in new higher value-added activities in information industries. The ability of the Marshall’s Energy Company to update its generating capacity and distribution networks in Majuro using commercial loans from the U.S. is testimony to its operational efficiency and financial management. Interestingly, unlike other public service agencies, the company has not experienced any problems obtaining easements from customary landowners. However, an effective regulatory environment needs to be created to ensure reasonable connection charges and tariffs for the power sector. UNELCO, in Port Vila has a special fund for extending electricity service to low-income communities.

## Housing

Housing development in many Pacific countries has been constrained by overly prescriptive planning and construction standards that fail to reflect consumer demand. As a result, private formal sector housing construction has generally been affordable only by higher-income families. The explosive population growth in many Pacific towns has far exceeded the willingness or ability of governments throughout the region to mobilize and service appropriate land to meet resulting housing needs (box 6).

### Box 6. Growing Urban Populations Put Stress on Housing throughout the Region

In **Honiara**, in the Solomon Islands, the number of residents in informal settlements grew 19 percent a year in the 1980s. By 1989 there were more than 30 such areas, accommodating 15 percent of Honiara's population. By the mid-1990s about 23 percent of the town's population lived in informal settlements, where health conditions were poor and sanitation and water supply inadequate (World Bank 1995). In **Betio**, the most crowded islet in South Tarawa, about 25 percent of the more than 9,500 residents on the 1.5 square kilometer island are squatters (Jones 1995).

In **Port Vila**, traditional landowners have been unable or unwilling to mobilize the resources required to subdivide and develop the land to meet growing housing demand generally, often preferring instead to enter into informal arrangements. In Port Vila, these informal arrangements have led to the emergence of a class of informal landlord able to exploit the lack of affordable shelter generally in urban areas and to an underclass of urban poor dependant on irregular, informal employment.

Even in **Fiji**, where formal shelter sector efforts have been perhaps the most extensive in the Pacific, housing problems have worsened. A 1996 UNDP-funded survey of all urban areas of Fiji found about 70,000 people living in various forms of urban squatter and informal housing (Walsh 1996). In and around Suva alone, there are 30–50 squatter areas, most on marginal lands (mangroves, flood-prone areas, unstable hillsides, stream banks, and areas adjacent to dumps or industrial plants).

Most government housing programs have been highly politicized. These projects have been designed to unnecessarily high planning standards and are largely unaffordable by the income groups for which they were intended without unsustainable subsidies. The Fiji Housing Authority found that some 70 percent of applicants were unable to afford repayments

for the purchase of its “low-cost” houses in the mid-1990s (box 7).

Rental housing, where available, has been insufficient to meet rapidly increasing demand from lower-income families. It is generally highly subsidized and poorly maintained.

### Box 7. The Impact of Housing Standards

Two recent donor-financed housing projects, one in Fiji and the other in Vanuatu, clearly demonstrate the impact of different housing standards.

In **Fiji**, initially, most plots developed by the Housing Authority (HA) were sold without houses. Many purchasers built their own houses in an incremental manner over several years while they lived on the plot (thereby also saving rental costs elsewhere), sometimes in a small shack at the back while the prime residence was being built in the front in pace with the available funds. The local government and HA tacitly tolerated such an approach which quickly filled all plots; by project completion most houses were already completed to a fairly good standard.

Later, when HA switched to pre-building houses, only the lowest cost terrace (attached) houses on small plots of about 100 square meters sold well, while many of the expensive, large 2 and 3 bedroom houses remained in inventory for years.

The demand for lower cost houses also led some local builders and lumber yards to offer very popular pre-fabricated house packages which were erected – by the suppliers or the owners themselves – on serviced plots at very competitive prices.

In **Vanuatu**, by contrast, the local government resisted the minimum 130 square meter plot sizes and prevented any type of incremental “starter home” construction of the type common in Fiji. They insisted on high-cost, fully completed houses that were not affordable to lower-income families. As a result, less than 20 percent of the 500 odd plots developed by the National Housing Corporation (NHC) during the project were occupied by project completion.

The housing needs of most urban migrants have traditionally been met by the extended family (resulting in increased dwelling occupancy and household size) and the kinship group (resulting in increased density as extensions are added to buildings). For example, households of 20 or more in Majuro and 40 or more in Ebeye are not uncommon. However, this system of informal welfare support throughout the Pacific is highly

dependent on increasingly scarce urban land for continuation of subsistence agriculture.

The situation of rural-urban migrants who do not have family or kinship relations in the urban area has been even more difficult. Moreover, town dwellers are finding themselves less able to support rural migrants, a large and growing proportion of whom are renting or illegally occupying land in slum areas at the edges of towns, where basic services and secure tenure are lacking.

Pressure on urban housing and the need for shelter is intense because of the large size of urban households, which are as large as or larger than rural households in most Pacific island countries. The greatest rural-urban differentials in average family size are in atoll countries, such as the Marshall Islands and Kiribati. In South Tarawa average family size is 7.7 people and rising. In contrast, the average family size in Kiribati is 5.9 people and falling (Connell and Lea 1998).

Pacific people can construct their own houses. What they need is serviced land and security of tenure. Studies in Fiji indicate that security of tenure is the most important priority in low-income communities (World Bank 1995). Without it residents generally cannot receive metered water from the Public Works Department, and they are understandably unwilling to invest to improve their homes or neighborhoods. Community participation is likely to be sporadic at best where secure tenure is lacking. Problems with land tenure add substantially to the cost of providing infrastructure to fragmented areas.

Housing is thus largely an issue of land supply. Housing market mechanisms are not functioning due primarily to the constraints to development of customary land and the absence of secure tenure, which in turn inhibits the development of housing finance mechanisms. As a result, the private housing sector plays a limited role, and the building industry is unable to play its usual role as a generator of economic growth and creator of employment opportunities.

