

## **SECTOR ASSESSMENT (SUMMARY): WATER SUPPLY AND OTHER URBAN INFRASTRUCTURE AND SERVICES**

### **Sector Road Map**

#### **1. Sector Performance, Problems, and Opportunities**

1. Papua New Guinea (PNG) is unlikely to realize the Millennium Development Goal (MDG) target of 70% access to improved water supply and sanitation coverage by 2015. It is also not on track to meet its own targets of 70% access by 2030 and 100% access by 2050, as outlined in the Development Strategic Plan (DSP), 2010-2030 and PNG Vision 2050. In 2011, national access to improved drinking water sources stood at 40% of the total population—a slight improvement from 35% in 2000 and 33% in 1990.<sup>1</sup> Access to sanitation facilities, however, had deteriorated. It remained at 19% in 2011 and 2000, plunging from 20% in 1990. These statistics considerably lag behind the developing country average of 87% access to improved water supply and 57% access to sanitation services. The PNG population of 7.4 million people accounts for two-thirds of the entire Pacific region, and is expected to double by 2030. Hence, substantial development of the sector is imperative for the country to meet its development targets.

2. In urban areas, relatively high access to improved water sources and sanitation services is masked by the sheer size of informal settlements. They are typically peri-urban, and are located within or on the edge of urban settlements. As of 2011, 89% of the urban population had access to improved water supply; of these, 55% received piped water on premises. Access to sanitation services was available to 57% of the urban population. However, these figures exclude informal settlements which are large yet have limited access to urban services. The reason is that the service providers have an unclear mandate to deliver services for informal communities. As a result, the statistics tend to overestimate actual sector development in urban areas. In Port Moresby, anecdotal evidence indicates that informal settlements constitute approximately half of the 650,000 population. An increase in informal settlements has fuelled rapid urban population growth in Port Moresby and other major district capitals such as Lae, Arawa/Kieta, Mount Hagen, Madang, and Wewak.

3. Progress on improved water sources and sanitation services is much slower in rural areas, where 87% of the population resides. In 2011, 33% of the rural population had access to improved water sources. Of these, only 3% had access to piped water while 30% obtained treated and reticulated water from surface and groundwater sources. Access to sanitation services was 13%, unchanged from the 2000 and 1990 levels. In rural areas, open defecation is ubiquitous. Pit latrines and septic tanks are poorly constructed over water bodies which are used as drinking water sources, and are a source of contamination.

4. Limited access to improved water supply and sanitation services undermines public health and is a main contributing factor to infant mortality. In 2009, the infant mortality rate was 69 deaths per 1,000 births. Although it had declined from 90 deaths in 1990, the improvement does not meet the MDG target. Waterborne disease, particularly diarrhea, typhoid, and cholera, accounted for 13% of deaths and 14% of malnutrition in 2009, and stunting was attributed to the

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<sup>1</sup> World Health Organization. 2013. *Progress on Sanitation and Drinking-Water: 2013 Update*. New York.

lack of safe water, basic sanitation, and hygiene practices.<sup>2</sup> Poor public health brings about low labor productivity, forgone employment opportunity, and added health-related expenses among households. These negative development outcomes essentially have an effect on poverty and, ultimately, impose constraints on sustainable development.

5. The key bottleneck is that the Government of PNG traditionally gives a low priority to water and sanitation. Based on the Medium-Term Development Plan (MTDP), 2005–2010, water supply and sanitation infrastructure was regarded as a means of disease prevention and, hence, was not included under the financing mechanism for Priority 1: Infrastructure Rehabilitation and Maintenance.<sup>3</sup> The new MTDP, 2011–2015 sets out targets for improved water supply and sanitation coverage and includes investment requirements of \$118 million for 2011–2015.<sup>4</sup> However, the funding allocation is far below the estimated \$294 million investments needed to meet the MDG targets for water and sanitation by 2015.<sup>5</sup> The funding shortfall, together with limited government commitment and capacity, may hamper implementation of service deliverables as outlined in the MTDP, 2011–2015.

6. Little government attention to water and sanitation also entails the lack of effective organizational frameworks and coordination. In urban areas, two state-owned enterprises (SOEs), Eda Ranu and Water PNG, provide reasonable piped water and sewerage services. Eda Ranu serves in Port Moresby, while Water PNG is responsible for service provision in other district towns on a commercial basis. However, both SOEs have no policy-making influence and limited policy coordination with other involved agencies as well as customers. Their business-oriented operations also mean that informal settlements and communities in noncommercial areas have no access to their services.

7. In rural areas, Water PNG's responsibilities pertain only to promotion of water supply and sanitation on a self-help basis, but progress is limited and patchy. The National Health Plan, 2011–2020 designates, but does not mandate, the Department of Health as the agency responsible for planning and coordinating safe community water supplies and waste disposal systems.<sup>6</sup> Nevertheless, the department has no financial resources for implementation. From 2006 onwards the PNG–European Union Rural Water Supply and Sanitation Program has been the only substantial rural water supply and sanitation activity. It has financed water system construction and provided hygiene education and community development training.

8. The most recent Asian Development Bank (ADB) assistance, the Provincial Towns Water Supply and Sanitation Project (completed in 2008) was rated *partly successful* in improving PNG's urban water supply and sanitation.<sup>7</sup> It aimed to increase coverage of water supply and sanitation in capital towns in six provinces and improve the delivery of water supply and sanitation services by building capacity in Water PNG. However, the project only completed water supply schemes in Wabag and sewerage schemes in Madang. In Alotau and Mount Hagen,

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<sup>2</sup> Institute for Sustainable Futures, University of Technology Sydney. 2011. Papua New Guinea Water, Sanitation and Hygiene Sector Brief, prepared for the Australian Agency for International Development by the Institute for Sustainable Futures, University of Technology Sydney. Sydney.

<sup>3</sup> Government of PNG. 2004. *Medium-Term Development Plan, 2005–2010*. Port Moresby.

<sup>4</sup> Government of PNG. 2010. *Medium-Term Development Plan, 2011–2015*. Port Moresby.

<sup>5</sup> Hutton, G. and J. Bartram. 2008. Global costs of attaining the Millennium Development Goal (Target 10) for water supply and sanitation. *Bulletin of the World Health Organization*. 86:13–9.

<sup>6</sup> Government of PNG. 2010. *National Health Plan 2011–2020 Volume 1: Policies and Strategies*. Port Moresby.

<sup>7</sup> ADB. 2010. *Completion Report: Provincial Towns Water Supply and Sanitation Project in Papua New Guinea*. Manila.

the two other towns where sewerage schemes were planned, the project was obstructed by land availability issues. The capacity building component did not proceed as planned.

## 2. Government's Sector Strategy

9. With World Bank Water and Sanitation Program support, the government has prepared the PNG National Water, Sanitation and Hygiene (WASH) Policy, which is expected to be ratified by the National Economic Committee in early 2015. The draft PNG WASH Policy recognizes the need for substantially improved access to water and sanitation services and hygiene behaviors, particularly among currently underserved rural and peri-urban settlement areas.<sup>8</sup> It is widely perceived as ambitious and aspirational. It encompasses the existing targets in the PNG Vision 2050, DSP 2010-2030, and the corporate plans of SOEs, among others, and clearly defines the sector targets to be achieved by 2030.

10. The draft WASH Policy has the following targets: (i) 70% of the rural population, 95% of the urban population, and 100% of educational institutions and medical centers have access to a safe, convenient, and sustainable water supply; (ii) 70% of the rural population, 85% of the urban population, and 100% of educational institutions and medical centers have access to safe, convenient, and sustainable sanitation facilities; (iii) 100% of educational institutions and medical centers have hand-washing facilities with running water and soap; and (iv) 100% of households have access to an improved water supply and total sanitation.

11. The government's key strategy is to improve sector coordination and leadership by establishing the National Water, Sanitation and Hygiene Authority (NWSHA), to be headquartered in Port Moresby and with offices in provinces and districts. The board of the NWSA will comprise representatives from the public and private sectors as well as civil society, and will supersede the existing National WASH Coordinating Committee. The NWSHA is mandated to undertake water supply and sanitation service delivery at the national, urban, and rural levels and work together with existing sector institutions and organizations.

12. The government recognizes the need for private sector participation. The private sector helps deliver water supply and sanitation services to communities through improved program implementation and the strengthening of supply chains for improved sanitation marketing and the sustainable provision of essential services. Public-private partnerships (PPPs) will also be considered for private sector engagement. Possible PPP models include the build-own-operate and build-operate-transfer schemes, as well as concessions, leases, and management contracts for system operations. Currently, the government is piloting a build-operate-transfer partnership for upgrading water supply and sanitation in Port Moresby.

13. Limited financial resources will impede successful implementation of the government's sector strategies. The estimates suggest that to achieve the 2030 targets, an annual capital expenditure investment of \$100 million is required for water supply (\$30 million) and sanitation infrastructure (\$70 million).<sup>9</sup> An additional \$20 million also needs to be set aside annually for operations and maintenance (O&M) expenditure (\$5 million for water supply and \$15 million for sanitation services). However, to date, the government's investment in this sector is, at best, modest. Existing funding from the development budget does not effect any real progress. In

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<sup>8</sup> Government of PNG. 2014. *PNG National Water, Sanitation, and Hygiene (WASH) Policy, 2014–2030*. Port Moresby.

<sup>9</sup> Water and Sanitation Program. 2012. *Water Supply and Sanitation in Papua New Guinea: Turning Finance into Services for 2015 and Beyond*. Washington, DC.

urban areas, nonrevenue water is high (50%) because of illegal connections and low tariff collections, leading to inadequate revenues to support O&M. No budget is allocated to the Department of Health for rural sector development. Therefore, the challenge is to garner sufficient finances for undertaking sector development.

14. The government's human resources available for the sector are limited in terms of both quantity and quality. Common implementation guidelines are absent, resulting in unsystematic approaches to implementation. The lack of coordinated actions across related agencies, such as capacity building, training, and WASH promotion activities, confine the extent of knowledge sharing and skill transfers. Although the PNG WASH Policy does not provide the estimates of staffing required to meet the 2030 targets, it is estimated that an additional 7,600 technical personnel across all disciplines need to be recruited, on top of the existing 1,100 staff, to meet the MDG targets by 2015.<sup>10</sup>

### **3. ADB Sector Experience and Assistance Program**

15. Since 1976, ADB has provided four project loans amounting to \$45.6 million, in addition to six technical assistance (TA) projects amounting to nearly \$2.7 million, to develop water supply and sanitation services. This assistance focused on urban water supply projects in Port Moresby and some district towns. Currently, the only active development partners in the sector are the Japan International Cooperation Agency and the EU along with a number of nongovernment organizations (NGOs) including World vision, Oxfam, WaterAid, Save the Children, Live and Learn Environmental Education, and ChildFund. These NGOs are active in a number of small-scale, primary-service initiatives and commonly work with local communities.

16. The experience from ADB's past undertakings underlines the limited institutional and human resource capacity of the executing agencies, and that the government as a key obstacle to successful project implementation. The lessons for effective project implementation include that (i) due diligence should be exercised in terms of not only technical factors but also institutional, social, financial, and even political factors; (ii) projects should be designed realistically and take into account the inherent problems and issues specific to the country, sector, and areas where they will be implemented; (iii) due prudence should be exercised in expecting institutions to perform beyond what they have been proved capable of; and (iv) when O&M is required, the project should be accompanied by a stable cost-recovery mechanism to ensure sustainability.

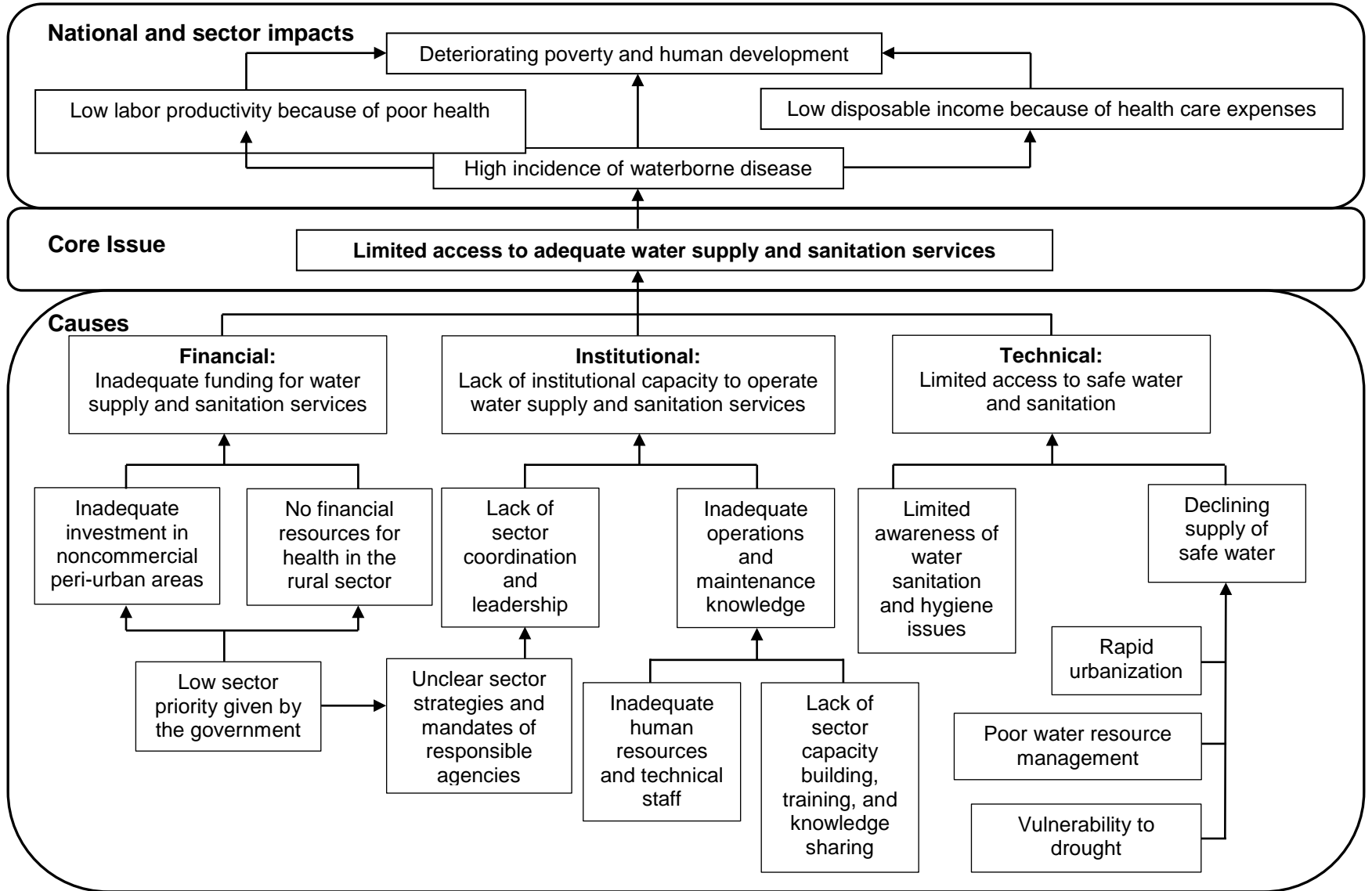
17. ADB support will continue to improve the delivery of water supply and sanitation services in urban areas, particularly in peri-urban areas and informal settlements, and to support PPPs. The assistance will focus on (i) providing technically, financially, and environmentally sustainable services; (ii) achieving cost-recovery for urban water supply; (iii) emphasizing women's involvement in addressing gender issues; and (iv) building community awareness and maintenance capability for sustainable water supply and sanitation services.

18. Sector investment undertaken by ADB will prioritize gender mainstreaming by adopting gender-responsive designs for water supply and sanitation facilities, such as separate facilities for women and men, and design features that ensure the security and safety of women and girls. The inclusion of technical specialists with gender expertise and a strong understanding of local community practices will be included throughout the project cycle.

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<sup>10</sup> International Water Association. 2013. *Meeting the Water and Sanitation Targets: A Study of the Human Resource Requirements in Papua New Guinea*. London.

**Problem Tree for Water Supply and Other Municipal Infrastructure and Services**



Source: Asian Development Bank.

### Sector Results Framework (Water Supply and Other Municipal Infrastructure and Services, 2016–2020)

Country Sector Outcomes		Country Sector Outputs		ADB Sector Operations	
Outcomes with ADB Contribution	Indicators with Targets and Baselines	Outputs with ADB Contribution	Indicators with Incremental Targets	Planned and Ongoing ADB Interventions	Main Outputs Expected from ADB Interventions
More people enjoy improved water supply and sanitation services	<p>Urban population access to improved drinking water supply increases to 95% by 2030 (2013 baseline: 89%)</p> <p>Rural population access to improved drinking water supply increases to 70% by 2030 (2013 baseline: 33%)</p> <p>Urban population access to improved sanitation services increases to 85% by 2030 (2013 baseline: 57%)</p> <p>Rural population access to improved sanitation services increases to 70% by 2030 (2013 baseline: 13%)</p> <p>The incidence of annual WASH-related deaths decreases to less than 60 per 100,000 persons by 2020 (2013 baseline: 108 per 100,000 persons)</p>	Water supply and sanitation systems expanded, improved, and well managed	<p>Additional 200 km of water supply pipes installed or upgraded by 2020 (2014 baseline: 0)</p> <p>Additional 60,000 m<sup>3</sup>/d of wastewater treatment capacity added or improved by 2020 (2014 baseline: 0)</p> <p>By 2020, the “Healthy Islands” approach, the national hygiene and sanitation methodology, reaches more than 25% of the population, primarily through awareness programs with women’s groups and school children (2014 baseline: 5% of population)</p>	<p><b>Planned key activity areas</b> Urban Water Supply and sanitation infrastructure (88% of funds)</p> <p>Water, Sanitation, and Hygiene (WASH) services policies and reforms (12% of funds)</p> <p><b>Pipeline projects with estimated amounts</b> District Towns Water and Sanitation Project (\$30.8 million)</p> <p>Technical assistance to support institutional development and implementation of PNG’s WASH Policy (\$700,000)</p> <p><b>Ongoing projects with approved amounts</b> Nil</p>	<p><b>Planned key activity areas</b> About 200 km of water supply pipes installed or upgraded</p> <p>About 60,000 m<sup>3</sup>/d of wastewater treatment capacity added or improved</p> <p><b>Pipeline projects</b> About 50 km of water supply pipes installed or upgraded</p> <p>About 15,000 m<sup>3</sup>/d of wastewater treatment capacity added or improved</p> <p><b>Ongoing projects</b> Nil</p>

ADB = Asian Development Bank, km = kilometers, m<sup>3</sup>/d = cubic meters per day, WASH = Water, sanitation and hygiene.

Source: Asian Development Bank.