

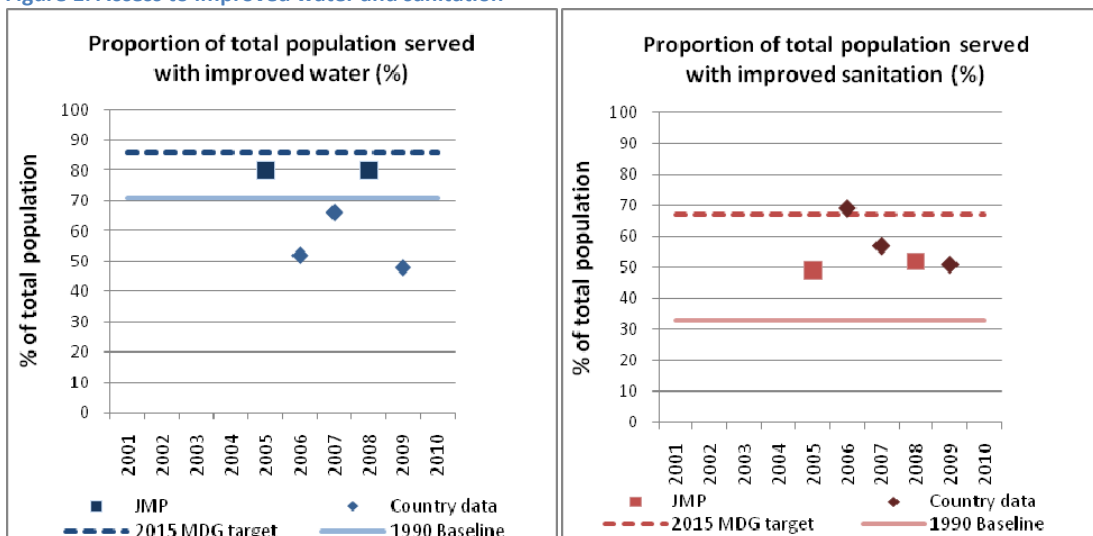
Headline issues

- Indonesia is a complex country that has under-invested in water, sanitation and hygiene, resulting in significant need across all WASH subsectors.
- Even more than a lack of financial capacity, transitioning to decentralisation and governance challenges at the local level have impeded investment in water services by cities and towns. Support for strengthening local government reform could yield significant improvements.
- More attention to rural sanitation is needed, as open defecation is a large scale issue in rural areas.
- Lack of arrangements for safe management and disposal of septic tank sludge is adding to significant pollution of drinking water resources, and is an area of critical need.
- Very large slum populations are particularly challenging to service due to space constraints and high risk of frequent flooding as well as institutional, social and economic factors.

Coverage and WASH related health statistics

Coverage data varies according to the source and definition, as shown in Figure 1. UNICEF/WHO Joint Monitoring Program (JMP) data for 2008 report access to improved water as 80% and improved sanitation as 52%.¹ Figures from various Government of Indonesia (GoI) sources are not consistent with JMP or with each other, citing access to improved water as 52%,² 66%³ and 48%⁴ for 2006, 2007 and 2009 respectively. For sanitation, national data from different sources indicates access rates for 2006, 2007 and 2009 of 69%,² 57%³ and 51%.⁴ There are also inconsistencies in reporting of the 1990 baseline and 2015 Millennium Development Goal (MDG) targets.² A 2007 MDG Report estimated the 1990 sanitation coverage level as 30% and claimed that Indonesia has already met its 2015 MDG sanitation target of 65%, while a more recent review from the National Development Planning Agency (BAPPENAS)⁵ puts the MDG sanitation target at 72.5%.⁴ JMP anticipates that Indonesia is 'on track' to meeting its MDG water target, but notes 'progress, but insufficient' for meeting the sanitation target.⁶

Figure 1: Access to improved water and sanitation



Source: WHO/UNICEF Joint Monitoring Program (JMP) (2010) data for 2008.¹ JMP figures have been used for the 1990 baseline and to calculate the 2015 Millennium Development Goal (MDG) targets. Country data for 2006 from the GoI and UNDP MDG report,² for 2007 from GoI 2008 Demographic and Health Survey³ and for 2009 from the National Development Planning Agency (BAPPENAS) 2010 MDG report.⁴

Gathering accurate information on urban and rural WASH for a country of 238 million people spread across hundreds of local administrative districts in around 6000 inhabited islands⁷ is difficult under the best of circumstances, so it is not unexpected that data from different sources, that possibly use different definitions and methods, should be inconsistent. A water supply and sanitation sector review funded by the ADB⁸ is expected to be commissioned shortly, which may provide more consistent information. Studies and reports reviewed in this desktop study were mostly focussed on specific geographical areas within Indonesia, however their findings are still relevant for the WASH sector more broadly. Note that acronyms for Indonesian Bahasa names are not spelt out when introduced.

Investment in urban infrastructure has been unable to keep up with demand for water services due to rapid urban population growth, resulting in the decline in the percentage of the population served with piped water in the last decade from 39% to 31%.⁹ Water utilities supply piped water to around 17% of the total population, although tariffs are too low to recover costs and poor maintenance of water infrastructure results in high leakage – as high as 50% for Jakarta while around 40% of the city's 9 million population is not supplied by the city's water utilities.¹⁰ Other sources of urban water supply are deep and shallow wells, water vendors and bottled water.^{11,12} Faecal and other bacterial contamination has been detected in over 80% of water sampled from shallow wells in Jakarta, where over half of household wells do not meet the universal water safety requirement of 10 metres separation from septic tanks or other sewage disposal sites,^{10,13} a situation possibly in common with other large cities in the country.

A recent study by the World Bank's Water & Sanitation Program (WSP) notes that sanitation has traditionally been a taboo topic in Indonesia, a private matter that householders take responsibility for without any expectations from government – a context that has resulted in historically low public interest in sanitation.¹⁴ It also reports that the situation has changed over the last 2-3 years in the case of urban sanitation, while the adoption of a broader interpretation of sanitation that includes management of solid waste and urban drainage allows the topic to bypass the taboos.¹⁴

Sanitation and sludge management in urban areas require critical attention, and in particular for slums which house a significant proportion of the population. Only 11 of over 50 cities in Indonesia have piped sewerage systems, serving fewer than 2% of the urban population that has access to sanitation.⁹ 65% of houses in urban areas use septic tanks, with over a million in Jakarta alone - while an estimated 24 million city dwellers in Indonesia do not have access to basic sanitation facilities.⁵ Most sludge from emptied septic tanks is dumped illegally, usually into waterways, due to inadequate treatment facilities or regulations for safe sludge management.⁹ Close to a quarter of the urban population live in slums – an estimated 28 million people in 2005¹⁵ typically occupying marginal lands.¹⁶ Providing sanitation for these populations is challenging not only because of physical characteristics such as flood-prone land and dense occupancy allowing little space for latrines with simple capture and treatment technologies, but also because of institutional, social and economic factors such as the illegal status of communities, communal priorities, and the inability to qualify for government subsidies.¹⁶ Greater assistance is needed to address this area of very high need.

For rural areas, a 2010 WSP report based on East Java¹⁷ found that most households (nearly 90%), including 85% of poorest households, had access to improved water, mainly from protected dug wells, tubewells and protected springs. However, nearly all households boil their water to make it safe for drinking.¹⁷ In contrast, only half of households had access to improved sanitation, and 60% shared latrines with other households. Open defecation is practiced by 40% of the rural population, and by over half of poor rural households.¹⁷

There is a high incidence of water-related diseases in Indonesia resulting from poor sanitation, including 300 cases of diarrhea per 1000 population, and 8 cases per 1000 of typhoid – the highest incidence in Asia.⁵ Last year Indonesia reported cases of polio and lost its status as a polio-free country, and now represents 20% of the total global cases of polio.¹⁸ Table 1 below shows other water related health indicators, including the staggering numbers of disability-affected life years and WASH related deaths.

Table 1: Summary health statistics

Infant mortality (deaths per 1000 births) ¹⁹	39
WASH-related DALYs (% of all DALYs) ²⁰	4%
Total WASH related DALYs (Years) ²⁰	2,320,762
Total WASH related deaths per year ²¹	57,596
WASH related proportion of deaths (%) ²¹	3%

Sources: World Bank and WHO as shown in endnotes

Finance trends

Data on the status of sector financing were not accessible within the constraints of this desktop study. The UN-Water Global Annual Assessment of Sanitation and Drinking-Water (GLAAS) report,²² which gathers broad information on the sector including quantitative information and perceptions of country financing of WASH, lists Indonesia as a participating country, however the information fields for Indonesia are blank for all but demographics and information obtained from donors.

It is likely that a comprehensive account of public sector financing of WASH is not readily available, given the complexity of the decentralised administrative arrangements (see below), though a number of WSP studies have sought to estimate spending. A 2006 WSP study of public financing for water and sanitation in Indonesia¹¹ estimated that annual public funding allocations were around \$US0.40 per person between 2003 and 2005, but did not estimate what was required to meet MDG targets. Another 2011 WSP study estimated the spending for sanitation averaged around \$US0.02 per person between 1970 and 2000.¹⁴ Still another 2008 WSP study on the economics of sanitation in Indonesia estimated in that investment in sanitation is around 0.5% of what is required to meet the MDG target.²³ What is clear is that investment in water and sanitation needs to increase significantly.

The GLAAS report notes the World Bank as the largest donor providing \$US72M in 2008, with contributions from major donors (who provided at least \$US1M) adding to \$US155M. While the ADB has a presence in Indonesia, it is not a major donor.

The Indonesian government has opened a new funding channel designated as *Hibah*, to provide grants to regional and local governments that have agreed to invest funds in the local water companies, for use in expanding services to poor households. The outputs-based grants are paid upon verification of properly functioning new water connections.²⁴ Water supply is expected to receive approximately US\$360M (IDR 3 trillion) of *hibah* from the national budget between 2010 and 2014. A sanitation *hibah* works on the same principles, giving local governments the incentive to invest in their PDAMs.

In addition, the government has established an Indonesian Infrastructure Financing Facility (IIFF) that will help catalyse long-term debt and other financing for infrastructure including water and sanitation infrastructure.

Sector governance

Responsibility for water and sanitation at the national level is shared by several government agencies, with the Ministries of Public Works and Health and the National Development Planning Agency (BAPPENAS) playing the largest roles.⁷ Rapid decentralisation that commenced in 2001 devolved responsibility and authority to local levels, and moved responsibility for provision of water and sanitation and other services to the district level of government, with provincial governments being given a coordination role.^{7,14} The logic of decentralisation is that locally elected governments with financial resources and independence to make decisions are best able to respond directly to local needs.²⁵ Lack of clarity over roles at different levels and some overlaps in mandate in the WASH sector has, however, led to a complicated state of inter-governmental relations without clear lines of responsibility, making sector coordination a significant challenge, and leaving the public with little direction about whom to approach with complaints or demands.^{14,11}

While the institutional reforms with decentralisation as a centrepiece have largely enabled Indonesia to transform into a relatively open, stable and democratic nation, good governance remains a serious gap.²⁶ An analytical study of investment in the water sector by the consultancy Castalia²⁵ found that poor governance at the local level was a greater factor leading to under-investment than the lack of financial capacity. Improving governance at the local level, including reducing corruption, patron-client relations, increasing accountability and strengthening community 'voice' can yield vastly improved outcomes to the sector^{26,25} and is an area donors could potentially support more strongly.

A recent WSP report identifies a complexity with decentralisation arising from the practice of re-districting that allows districts to be split into smaller administrative units.¹⁴ While this would enable access to more central funds and tax revenues and better services to be delivered, the report notes that the new local administrations are more likely to prioritise spending elsewhere, and furthermore, that the re-districting is likely to be motivated by local elites seeking to control resources.¹⁴ Political candidates rarely campaign on improving water and sanitation services.²⁵

Policies and most sector strategies are formulated at the national level, although translation to the local level remains a significant challenge.⁷ National action plans (NAPs) by the Ministry of Public Works include national targets for piped water coverage to reach 58% by 2015, with 69% in urban areas and 54% in rural areas.²⁵ The National Development Planning Agency (BAPPENAS), in cooperation with sectoral government technical agencies, are leading policy reforms for a coordinated, cooperative and integrated approach to water and sanitation planning.^{7,27} A series of national policies for water supply and environmental sanitation (WSES) have been developed, enabling options for community based management to be considered on equal footing with local government schemes.⁵ These policies have led to the development of several national community-based programs such as sanitation for poor densely populated urban and peri-urban areas (SANIMAS) and water supply and sanitation to rural and peri-urban communities (PAMSIMAS), in conjunction with the government's poverty reduction programs.^{7,9}

Subsector governance

Urban water

Various reforms are underway to improve governance in this subsector. Local government controlled water utilities (PDAMs) are responsible for water supply in urban areas. Around 394 PDAMs operate across the country, although in total they only supply around 24% of the population.²⁸

Most PDAMs have been established as companies owned by local governments which are expected to provide services without local government assistance.⁹ In reality most PDAMs are undercapitalised, do not raise sufficient revenues to recover costs and are not credit-worthy.^{9,25} Even as this leads to systemic underinvestment in water infrastructure by PDAMs, local governments often have surplus funds and significant borrowing capacity - 83% of the local governments in Castalia's study were found to have adequate funds to achieve the 69% urban piped water coverage target under the NAP.²⁵ The relationship between local governments and their PDAMs would need to change to engender greater trust, accountability and cooperation.

PDAMs generally place lower priority on maintaining or improving piped water services for existing customers than for creating new connections to additional customers.²⁵ While targets such as that of the Ministry of Public Works to achieve 8.5 million new service connections by 2013 and the MDGs can incentivise the task of providing safe water to more households, they can also have the unintended effect of weakening the incentive to maintain service quality over the longer term. And while programs such as Water Hibah go some way to ensuring that new connections are guaranteed to work for a set period,⁹ their delivery within time-bound projects that deliver measurable outputs (number of new connections) may not ensure long term maintenance of service quality. Other measures including stronger regulatory requirements on PDAMs to maintain service quality are needed.

Whilst Indonesia's water resources law paves the way for private sector participation in water supply, there are just four private water companies despite donor efforts to promote greater participation.⁷ This includes two 25-year concessionaires in Jakarta awarded in 1997 that have evoked considerable debate.¹²

Urban sanitation

Urban sanitation has suffered historical neglect through a lack of clear lines of responsibility and accountability, with responsibility at the national level responsibility being shared by at least five ministries¹⁴, and multiple agencies at the local government level – as many as sixteen in some cities.²⁹ Observers note a recent change in the approach to urban sanitation, partly catalyzed by the Netherlands-funded Indonesia Sanitation Sector Development Program (ISSDP) begun in 2006 to respond to the dysfunctional situation, and by a WSP study that showed the country losing billions of dollars (USD6.3 billion in 2006) in economic losses from lack of sanitation.^{14,29,23} This program creates an enabling environment at multiple levels, facilitating policy and strategy at the national level, and planning, capacity development and institutional arrangements at city and provincial levels, as well as advocacy at all levels.²⁹

A National Policy and Strategy for the Management of Wastewater Systems was issued in 2008, with a Sanitation Road Map for implementation over 2010-2014.⁹ This includes plans for 15 cities to each be able to provide 20% of their populations with piped sewerage.⁹ During this period, 330 cities and towns are also expected to prepare City Sanitation Strategies which were first tested in the first phase of the ISSDP.^{9,14} Concurrently, communal off-site sanitation systems are being planned for urban areas where there is community interest, through collaboration between different levels of government and NGOs under the SANIMAS program.⁵

Although the government aspires to increase off-site sanitation services widely for urban areas,⁵ the use of septic tanks will undoubtedly continue to play a key role in years to come. The lack of regulations for the management and maintenance of septic tank systems, beyond national standards for construction,⁵ is a very serious gap that needs to be addressed.

Rural water

Community based organisations (CBOs) operate and manage village water infrastructure constructed by government for tens of thousands of villages outside the reach of PDAMS.³⁰ A WSP paper³⁰ reports on a study of CBOs in East and West Java where CBOs are estimated to provide piped water to 3-5 times more households than the local PDAMs. The sense of local ownership had many CBOs performing well or even exceptionally well; two thirds of the CBOs in the study were raising revenues that exceeded their operating expenditure.

The success of the model is generating discussion about expanding and strengthening it, including addressing the factors that make the model 'fragile', including the absence of financing facility for CBOs, and their low capacity for commercial practices, annual planning and budgeting. WSP, in collaboration with the AusAID-funded Indonesia Infrastructure Initiative, are supporting the government to expand the CBO model for water service provision – in this “the second generation project” eligible CBOs will gain access to investment financing and enhanced skills as well as output-based rewards for performance.³⁰

Rural sanitation

While several government departments share institutional responsibility for water and sanitation at the national level, the Health Ministry plays a stronger role in rural sanitation, having developed a National Strategy for Community-Based Total Sanitation and behavioural change approaches to rural sanitation targeting open defecation.⁷ The recent government interest in sanitation appears, however, to be limited to urban and peri-urban sanitation. The literature is unclear about whether village level local governments (DESA)¹⁷ carry any responsibility for rural sanitation at the local level. The cultural norm for sanitation to be treated as a private matter may be inferred to mean that householders are left to fend for themselves, with NGO support. While half the population has no access to improved sanitation, the majority of those that do are likely to have septic tanks.¹⁷ Capacity building for management and regulation of onsite systems is an urgent need.⁵

The WSP's Global Scaling Up Rural Sanitation Project (SToPs), a large scale community-driven intervention, is expected to improve sanitation for millions of rural people.¹⁷

Health and hygiene

The Health Ministry is responsible for implementing hygiene promotion programs.⁷ Local governments however give a low priority to hygiene as evidenced by their minimal allocations in local budgets beyond funds for the maintenance of sanitation clinics.⁷ NGOs and religious leaders are active in changing hygiene behaviour in communities while UNICEF plays a strong role in hygiene education in schools.^{7,13}

Climate change and water resources

Water resources in Indonesia are predicted to be seriously affected by climate change.^{31, 32} Indonesian regions south of the equator are expected to see a shorter but more intense rainy season, and reduced rainfall in the dry season, increasing the risk of floods and droughts.³² Mean sea levels have been observed to have increased between 1–8 mm per year in different areas, increasing the risk of salt intrusion of coastal water resources.³¹ Climate-related hazards have increased over the past 5 decades, the most frequent being flooding, followed by landslides and water- or vector-borne diseases.³¹ Although the country is well endowed with water resources, there is considerable disparity in distribution across the country with relatively low total available renewable water per capita compared to other countries in the region, and

significant vulnerability to impacts of climate change (Table 2). Some regions, including Java, are already experiencing water deficits that will increase due to population growth and increased economic activity, and are highly vulnerable to water impacts from climate change.³²

Table 2: Summary status of water resources and vulnerability

Renewable water (ML/population) ³³	12
Overall Climate Vulnerability factor 2010 ³⁴ (on scale of <i>acute, severe, high, moderate, low</i>)	Moderate
Overall Climate Vulnerability Factor 2030 ³⁴ (on scale of <i>acute, severe, high, moderate low</i>)	High
Environmental Vulnerability Status ³⁵ (on scale of <i>Extremely vulnerable, Highly vulnerable, Vulnerable, At risk, Resilient</i>)	Highly vulnerable

Donor environment

There are many donors to the WASH sector, who have been an important influence.^{7,14} The GLAAS report²² notes that donors active in national coordination or harmonisation platforms are Netherlands, Sweden, UNICEF, USA. A sanitation donor coordination group is active and a similar coordination group for water may also be established.³⁶

In the urban subsector the Netherlands plays a significant role in urban sanitation, especially because of the ISSDP, with World Bank WSP support for implementation.^{14,22,29} USAID and the Japan Bank for International Cooperation (JBIC) also fund urban water and sanitation, along with World Bank and ADB.⁷

Rural water and sanitation are supported by the World Bank, the German aid agency GTZ, UNICEF, PLAN International, the Canadian International Development Agency (CIDA), CARE and AusAID,⁷ although there appears to be less support for rural sanitation than water. AusAID have also played a significant role partnering with the World Bank on the water and sanitation for low-income communities (WSLIC) project

On policy development AusAID contributed to Water Supply and Sanitation Policy Formulation and Action Planning Project (WASPOLA).⁷ AusAID also provides funds to UNICEF, to WSP (that has a significant role in the ISSDP), and to the government's Wate Hibah.

An independent evaluation of Australian aid conducted in 2009⁷ notes the existence of a very effective inter-ministerial National Water Supply and Environmental Sanitation Working Group (Pokja AMPL) coordinating between departments and with donors and other stakeholders.

Finally, many non-governmental organisations are active in the sector, including international organizations such as Plan International, CARE, Mercy Corps, BORDA, Project Concern, Oxfam and a range of local organizations including Mitra Samya, Dian Desa and Yayasan Emmanuel.³⁷

Sector monitoring

Regional Environmental Management Agencies monitor water quality of sources of drinking water, but too infrequently to be considered reliable.¹⁰ Monitoring of sector performance has been low – as evidenced by the inconsistencies in figures for access to improved water and sanitation noted earlier - and is an area that needs to be strengthened.⁷

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- ²⁰ Disability-adjusted life year (DALY) measures the years of life lost to premature mortality and the years lost to disability. Source: 2004 update of the Table 1 and Annex of the publication 'Safer water, better health', by Prüss-Ustün et al, WHO, Geneva, 2008. Available at http://www.who.int/quantifying_ehimpacts/publications/saferwater/en/index.html.
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- ³³ Renewable Freshwater Supply estimates (km³/yr) (2006) from Pacific Institute (www.worldwater.org), converted to ML per head of population using JMP population estimates. Data should be used with caution and treated as 'order of magnitude'. Freshwater estimates (2006 updates) were made at different periods from different sources. 2008 JMP population data used for consistency with other calculations.
- ³⁴ Source: Climate Vulnerability Monitor (2010) Accessed 1 July 2011. <http://daraint.org/climate-vulnerability-monitor/climate-vulnerability-monitor-2010>. Countries are classified according to: ACUTE+, ACUTE-, SEVERE+, SEVERE-, HIGH+, HIGH-, MODERATE, LOW. For information on included datasets and methodology for aggregation and categorising, see http://daraint.org/wp-content/uploads/2010/12/CVM_Methodology.pdf.
- ³⁵ Source: Environmental Vulnerability Index 2004 developed by SOPAC, UNEP and partners <http://www.vulnerabilityindex.net/>. Countries are classified according to: Extremely vulnerable, Highly vulnerable, Vulnerable, At risk, Resilient.
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