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Turning Finance into Services for the Future

A Regional Synthesis of the Service Delivery Assessments for Water Supply and Sanitation in East Asia and the Pacific

wsp
water and sanitation program

WORLD BANK GROUP

This regional synthesis report is the product of extensive collaboration and information sharing among multiple government agencies, development partners, Non-Governmental Organizations and other stakeholders in seven countries in East Asia and the Pacific where Service Delivery Assessments (SDA) for Water Supply and Sanitation were conducted, namely: Cambodia, Indonesia, Lao PDR, Papua New Guinea, the Philippines, Timor-Leste, and Vietnam. The Task Team Leader for the Service Delivery Assessment in East Asia and the Pacific is Susanna Smets. The following World Bank staff and consultants have provided valuable contributions to this regional synthesis report for East Asia and the Pacific: Martin Albrecht, Isabel Blackett, Jeremy Colin, Penelope Dutton, Guy Hutton, U-Primo Rodriguez, and Almud Weitz. This report has been peer reviewed by World Bank staff Ousmane Dione, Sudipto Sarkar, and by Chander Badloe, UNICEF. Final acknowledgments go to country teams, who conducted and prepared the individual country reports forming the basis for this synthesis.

The SDA was carried out under the guidance of the World Bank's Water and Sanitation Program and local partners. This regional work, implemented through a country-led process, draws on the experience of water and sanitation SDAs conducted in more than 40 countries in Africa, Latin America, and South Asia.

An SDA analysis has three main components: a review of past water and sanitation access, a costing model to assess the adequacy of future investments, and a scorecard that allows diagnosis of bottlenecks along the service delivery pathways. SDA's contribution is to answer not only whether past trends and future finance are sufficient to meet sector targets for infrastructure and hardware but also what specific issues need to be addressed to ensure that finance is effectively turned into accelerated and sustainable water supply and sanitation service delivery.

The Water and Sanitation Program is a multi-donor partnership, part of the World Bank Group's Water Global Practice, supporting poor people in obtaining affordable, safe, and sustainable access to water and sanitation services. WSP's donors include Australia, Austria, Denmark, Finland, France, the Bill & Melinda Gates Foundation, Luxembourg, Netherlands, Norway, Sweden, Switzerland, United Kingdom, United States, and the World Bank.

WSP reports are published to communicate the results of WSP's work to the development community. Some sources cited may be informal documents that are not readily available.

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Summary and Key Messages

- Service Delivery Assessments were carried out successfully in seven countries in East Asia and Pacific as a country-owned process led by key government agencies, and facilitated by WSP with valuable contributions of other development partners.
- The Service Delivery Assessment takes a snapshot of sector reform progress and follows a subsectoral approach including i) a review of past water and sanitation access trends, ii) a costing model to assess the adequacy of anticipated future investments, and iii) a scorecard that allows diagnosis of bottlenecks along the service delivery pathways. Based on this diagnostic priority actions are agreed for future sector development.
- The positive aspects of the SDA-process are that it i) facilitates a comprehensive and broad sector discussion, ii) allows for tailoring to country context, ii) maximizes impact when linked to ongoing country reform and/or planning process, and iv) supports regional and global monitoring of sector progress, financing gaps and outcomes.
- The SDA process also poses challenges such as i) inherent tension between regional and country approach, ii) requirements to adapt it to very decentralized countries or subsectors, iii) complexity for adoption by government and reliance on external facilitation, and iv) the need to further in-depth analysis including dynamic financial modeling
- In addition to country and subsector specific priority actions, the regional SDA distilled seven common priorities for sector development, providing opportunities for future cross-learning, namely:
  - Improving routine sector monitoring and better tracking of financial flows
  - Increasing effectiveness of public spending by leveraging private finance
  - Focusing on sustainability through regulation, professionalization, and institutional incentives
  - Despite an urbanizing context, addressing the existing sector investment bias for urban areas by scaling-up approaches for rural service delivery
  - Enhancing diagnostics and program targeting to achieve pro-poor outcomes
  - Developing long-term investment plans and sector development and financing frameworks
  - Establishing and funding systematic human resources development programs
- Considering other global and regional diagnostic tools and monitoring initiatives, a comprehensive review of Service Delivery Assessments in East Asia Pacific, Latin America and Caribbean, Africa and South Asia is recommended to look for ways to rationalize and streamline efforts
- While support of development partners for sector diagnostics is critical, increased and sustained attention needs to be given to the development of robust, country-owned and locally embedded monitoring systems

1. Introduction

From 2012 to 2014 Water and Sanitation Service Delivery Assessments (SDA) have been carried out in seven selected countries in East Asia and the Pacific region under the guidance of the World Bank's Water and Sanitation Program and with valuable contributions of other development partners, such as UNICEF, WaterAid and ADB. Countries where Service Delivery Assessments were carried out are Cambodia, Indonesia, Lao PDR, Papua New Guinea, the Philippines, Timor-Leste, and Vietnam, while in Myanmar, a broad joint sector assessment took place by World Bank, UNICEF, ADB and JICA.[1] Service delivery Assessments were implemented as a country-owned process led by key government agencies, and drew on the experience and methodology of similar assessments conducted in more than 40 countries (and states) in Africa, Latin America and South Asia.[2] The Service Delivery Assessment follows a subsectoral approach, including four subsectors: rural and urban water supply, as well as rural and urban sanitation. It has three main components: a review of past water and sanitation access trends, a costing model to assess the adequacy of anticipated future investments, and a scorecard that allows diagnosis of bottlenecks along the service delivery pathways. SDA's contribution is not only to assess whether access trends and available funding are sufficient to meet sector targets, but also to identify specific issues that should be addressed to ensure that finance is effectively turned into sustainable services. Bottlenecks can occur throughout the service delivery pathway—all the institutions, processes, and actors that translate sector funding into sustainable services. Individual country reports, underpinning this regional brief, provide full details on the results of the assessments and a set of priority actions going forward. Country reports can be downloaded from www.wsp.org.

[1] Although a similar Service Delivery Assessment was originally planned to take place in Myanmar, for various reasons a broad joint-sector assessment by World Bank, UNICEF, ADB and JICA was conducted in 2013-2014, which did not follow the SDA methodology. Key messages from this review have been included in the concluding section of this regional brief for completeness.

[2] In Africa the initiative started under the Country Status Overview (CSO), and two rounds were conducted in 2006 and 2011. In Latin America, the process has been conducted in 2013-2014 under the MAPAS initiative (Monitoring of Country Progress in Water Supply and Sanitation), and in South Asia under the same heading Service Delivery Assessment

2. Problem Statement

Box 1. General background on East Asia and the Pacific region

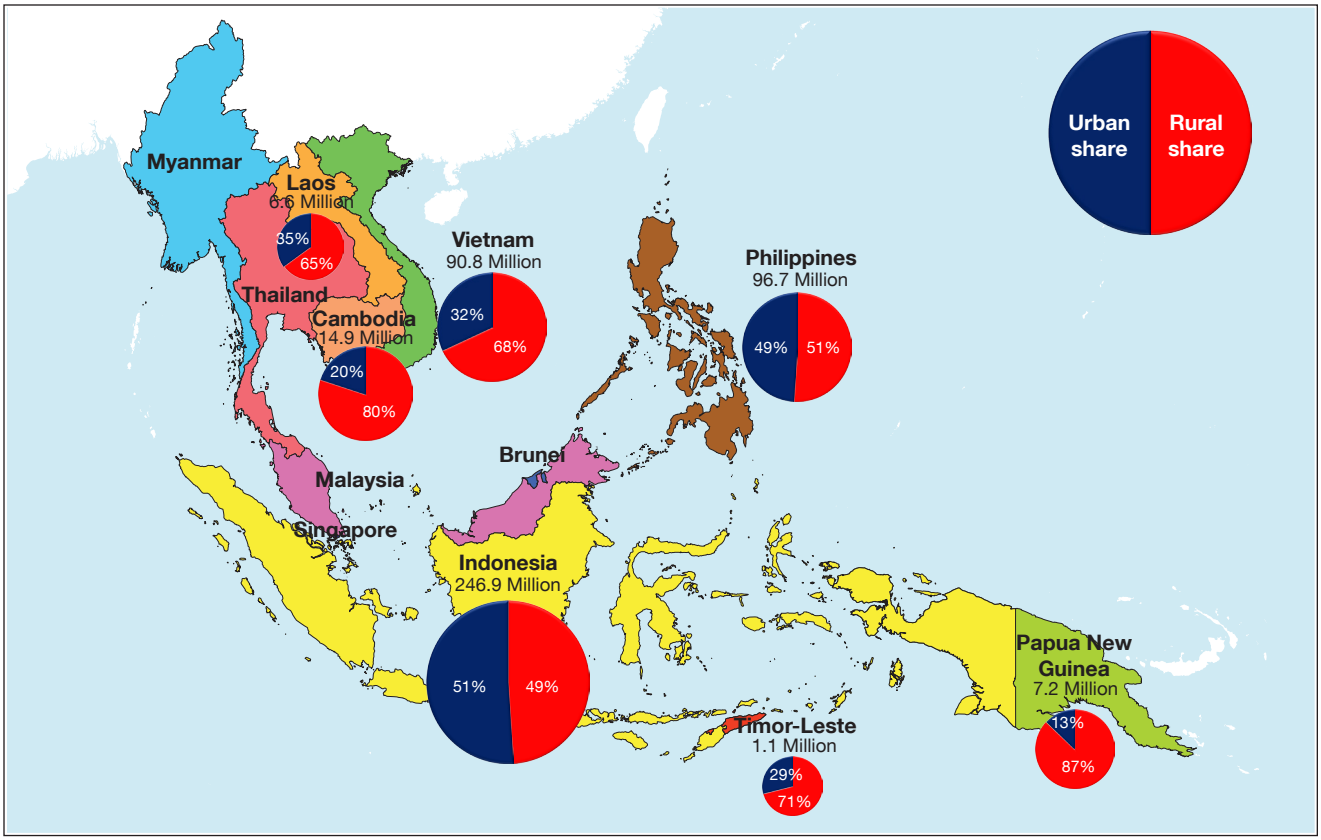
East Asia and the Pacific is a dynamic and diverse region with countries ranging from China, the world's second largest economy, to the Pacific Island countries, some of the world's smallest and most remote. In 2013, the region remained the world's growth engine, accounting for over 40% of the increase in global output. The proportion of people living in poverty in the region has steadily declined over the past 25 years. However, nearly 140 million (7%) of the region's 2 billion people still live on less than US$1.25 a day and another 300 million (15%) live on incomes between US$1.25 and US$2.00 a day. More than 70% of the world's natural disasters occur in this region, making it the most disaster-stricken region in the world. The region faces huge infrastructure needs and rapid urbanization. As many as 130 million people have no access to power, 180 million lack access to water supply and over 600 million lack access to adequate sanitation. Rapid migration to cities is putting pressure on service delivery and leading to large urban slums, pollution, and environmental degradation. Managing the effects of climate change and disaster risk, rapid urbanization, improving governance and institutions, and encouraging private sector-led growth to create jobs are critical to reduce poverty and build shared prosperity. Countries also need to prepare for volatility and shocks, by expanding safety nets to protect the poor and vulnerable. http://www.worldbank.org/en/region/eap/overview -updated Oct 2014.

While the total population in East Asia and the Pacific region amounts to over 2 billion, the selected seven countries where Service Delivery Assessments were conducted account together for around 465 million, with Indonesia being the most populous with almost 247 million and Timor-Leste the smallest country with just over 1 million people. Figure 2.1 illustrates the rural and urban population of the selected countries where SDA assessments were carried out.[3]

For these seven countries the total number of people that lack access to water supply is around 59 million (13%) and 167 million people lack access to improved sanitation (36%). Given the challenges in water and sanitation service delivery in these countries, SDA has been used as a tool to help governments better understand what underpins progress in water supply and sanitation and what can be done to accelerate progress and unblock bottlenecks. The diagnostics are used to inform where investments are most needed, what priority actions and reforms are necessary to address specific challenges in each country, and where development partners can best provide assistance. At the regional level, the SDA contributes to understanding where different countries stand in terms of their funding and service delivery pathways. These findings can help frame the national, regional and international policy dialogue, especially in view of the UN General Assembly's Post 2015 Sustainable Development Agenda. This document aims to provide a regional synthesis of the key findings of the individual country assessments, as well as to capture regional lessons from the methodology and process, and offers recommendations on how countries could best continue to monitor their progress.

[3] Further specific country context information can be found in the individual country reports downloadable at www.wsp.org

Figure 2.1 Rural and urban populations for selected countries where Service Delivery Assessments have been carried out



Source: population data from JMP (2014).

3. Methodology

Process

The SDA analysis relies on an intensive, facilitated consultation process, with government ownership and self-assessment at its core. In different countries, different agencies took responsibility for leading the process: in some cases national planning agencies or ministries as in Indonesia and the Philippines, but in most countries, due to the fragmented nature of the sector, two (or more) line ministries were leading the diagnostics. The process entailed extensive data gathering and a series of facilitated workshops, involving a range of government departments, agencies and utilities/service providers, representatives from ministries of planning and finance, as well as key development partners and NGOs. As much as possible, existing sector platforms, donor fora and/ or technical working groups have been used to engage stakeholders, share interim findings and disseminate final results.

Costing and Financial Gap Assessment

The SDA has taken a country-led approach and thus recognizes both access data from the Joint Monitoring Program (JMP) and country-reported monitoring data, when available. The costing assessment has focused on estimating the annual hardware investment required for the development of new and replacement of existing services to reach a country's official medium to long term national water and sanitation targets, or—in absence of official figures—informal targets as agreed by SDA stakeholders. Key inputs for the cost estimates are (i) baseline and target year access rates,[4] (ii) population projections, (iii) unit costs of different facilities, (iv) technology mix at the baseline and target years, and (v) expected household contributions for different technologies. Annex 1 provides a detailed description of the methodology for the costing and financial gap assessment. For Indonesia, the Philippines, and Vietnam, other exercises were carried out in the past and/or ongoing to estimate (sub) sector investment requirements. Due to differences in the methodology, assumptions and targets used, they understandably yielded different results and are well documented in the individual country reports.[5] All information and data used in the analysis was collected from documents from government agencies, development partners, NGOs, and other organizations. In the absence of documents, expert judgment and consultation was used.

To estimate financing gaps, required hardware investments were then compared with average annual anticipated hardware investments, based on available data from governments and development partner budgets over a three year period (period of 2012-2014 or in some countries

[4] Baseline and target years vary country per country.

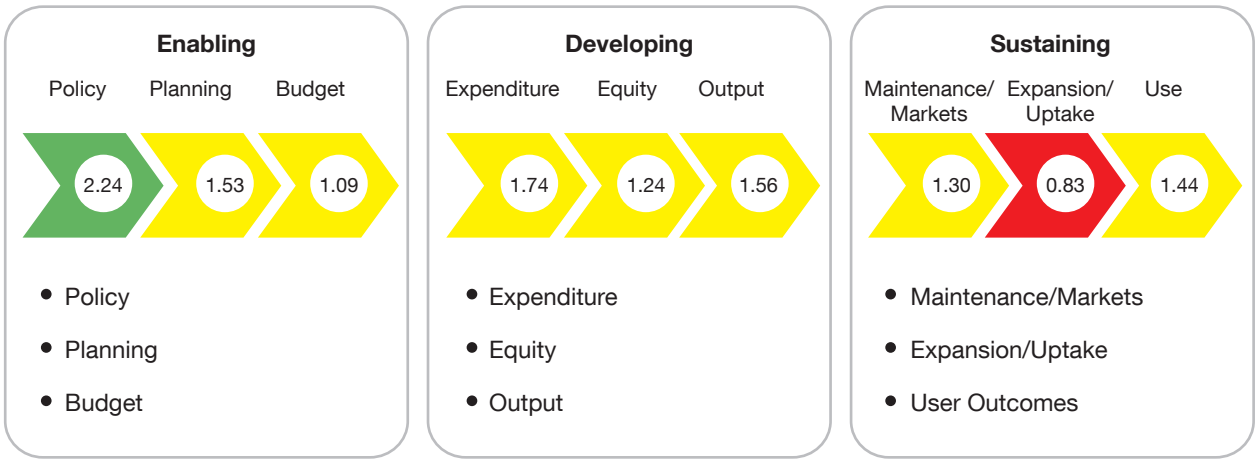
[5] In the Philippines, de Vera et al. (2013) estimated the investment requirements for water supply and sanitation. Results differ as the aforementioned study (a) excluded replacement costs and the costs of level 1 (point-source) water facilities, (b) focused only on off-site treatment for sanitation, and (c) had lower target coverage rates compared to the SDA costing. For Indonesia, the WIRA study team (2012) and USDP (2012) provided alternative estimates for water supply and sanitation, respectively. Differences for WIRA (2012) are due to the target year (2014) and lower access rate. Also, investment requirements excluded replacement costs. Investment requirements for sanitation for the SDA and USDP (2012) are accidentally quite close, although differences in the level of access targets existed and replacement costs were excluded included in USDP (2012). Hydrocoseil and PMconsult (2011) provide alterative estimates of investment requirements for urban sanitation for Vietnam. Its required investments are lower than the SDA analysis due to the exclusion of replacement costs.

2013-2015). Additionally, annually required operational and maintenance expenditures have been estimated with the SDA costing model.[6]

Scorecard of the Service Delivery Pathway

The scorecard looks at nine building blocks of the service delivery pathway, which correspond to specific functions classified in three categories: three functions that refer to enabling conditions for putting services in place (policy development, planning new undertakings, budgeting), three functions that relate to developing the services (expenditure of funds, equity in use of funds, service output), and three functions that relate to sustaining these services (facility maintenance/uptake, expansion of infrastructure/markets, use of the service). Each building block is assessed against three or four specific indicators which are scored from 0 to 3 and then aggregated to provide a score for that building block between 0 and 3. The scorecard uses a simple traffic light color code to indicate building blocks that are largely in place, acting as a driver for service delivery (score >2, green); building blocks that are a drag-on service delivery and that require attention (score 1-2, yellow); and building blocks that are inadequate, constituting a barrier to service delivery and a priority for reform (score <1, red). The scorecard indicators for East Asia and the Pacific have been modified to a certain extent from version used in Africa and Latin America to best reflect the regional context (Figure 3.1).[7]

Figure 3.1 Scorecard of the Service Delivery Pathway

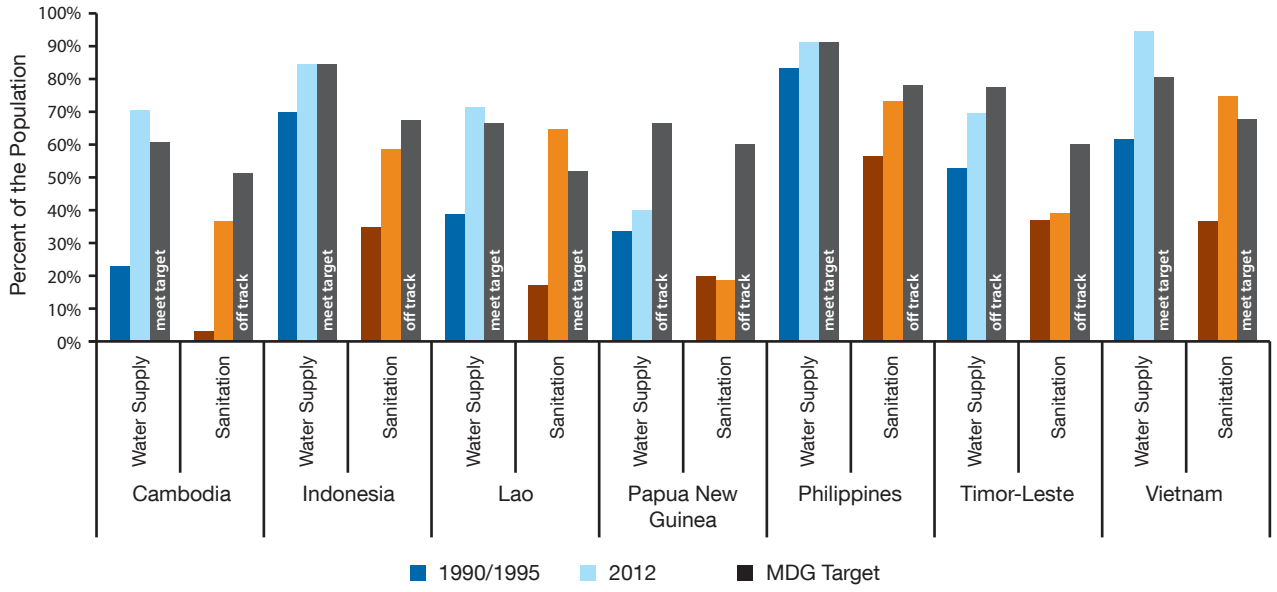


[6] The estimation of annual O&M expenditures with the SDA costing model is based on an assumption of a fixed percentage of capital investments. The required O&M amounts are simply to illustrate that these are additional costs to be born through user fees, direct household expenses and/or subsidy transfers. This note does not include a detailed discussion on O&M costs; country reports include this information.

[7] The East Asia and Pacific scorecard no longer makes reference to MDGs, but to national targets. Other modifications as compared to the African scorecard are related to higher levels of services and a less donor-driven focus in the formulation (e.g. no explicit mention to Poverty Reduction Strategy Papers, reference to higher levels of water supply services, and sanitation services that go beyond on-site).

4. Key Findings – Access Trends and Targets

Figure 4.1 Progress towards MDGs on access to improved water supply and sanitation



Sources: JMP (2014)
Notes: (a) Initial estimates for Lao PDR and Timor-Leste are for 1995 while the rest of the initial estimates are for 1990. (b) Estimates in the figure differ from those presented in the SDA country reports, which mostly used data JMP 2013 Update for year 2011. Papua New Guinea country report used JMP 2012 data for the year 2010, which are much higher than 2013 updated values, which have been revised downwards.

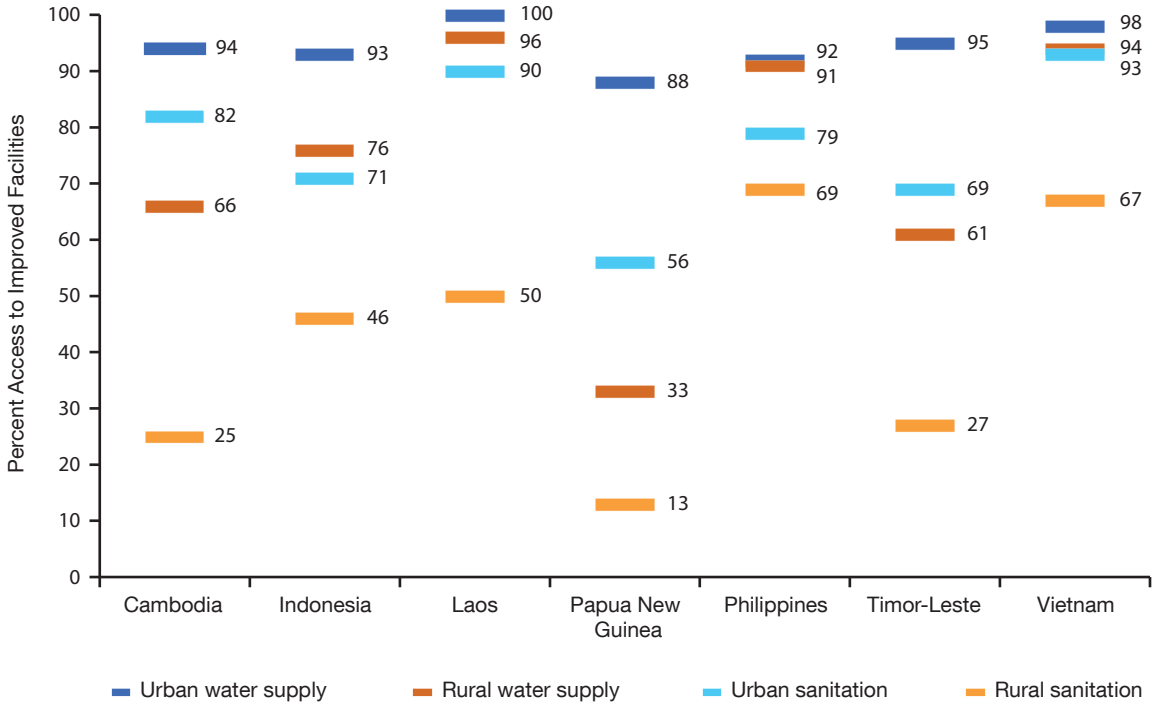
Progress Towards the MDGs

Significant progress has been made among the seven countries in increasing access to improved water supply. JMP estimates indicate that **as of 2012, five countries have already met the Millennium Development Goals (MDG) targets for water supply** (Figure 4.1).

If current trends continue, Timor-Leste will also meet its water supply MDG target on or before 2015, leaving only Papua New Guinea as one of three countries globally to miss its target. By contrast, access to improved sanitation facilities is substantially lower than **access to improved water supply for all seven countries.** In Cambodia for example, in 2012 nearly twice the population had access

to improved water supply (71%) as those with access to improved sanitation (37%). Moreover, **the increase in access rates for improved sanitation has been sluggish and four countries are unlikely to meet their MDG goals** (Cambodia, Indonesia, Papua New Guinea, Timor-Leste). The Philippines is on track, and Lao PDR and Vietnam have already met their sanitation goals.[8] Solely on the basis of JMP estimates, Vietnam has made the most significant progress among the seven countries and surpassed countries like the Philippines and Indonesia in the past two decades. Papua New Guinea is lagging far behind its neighbours in the region. Its coverage rates for 2012 were comparable to the 1990 coverage rates of most of the countries in the current analysis. For all countries, these national trends hide large disparities in access between rural and urban areas, as depicted in Figure 4.2.

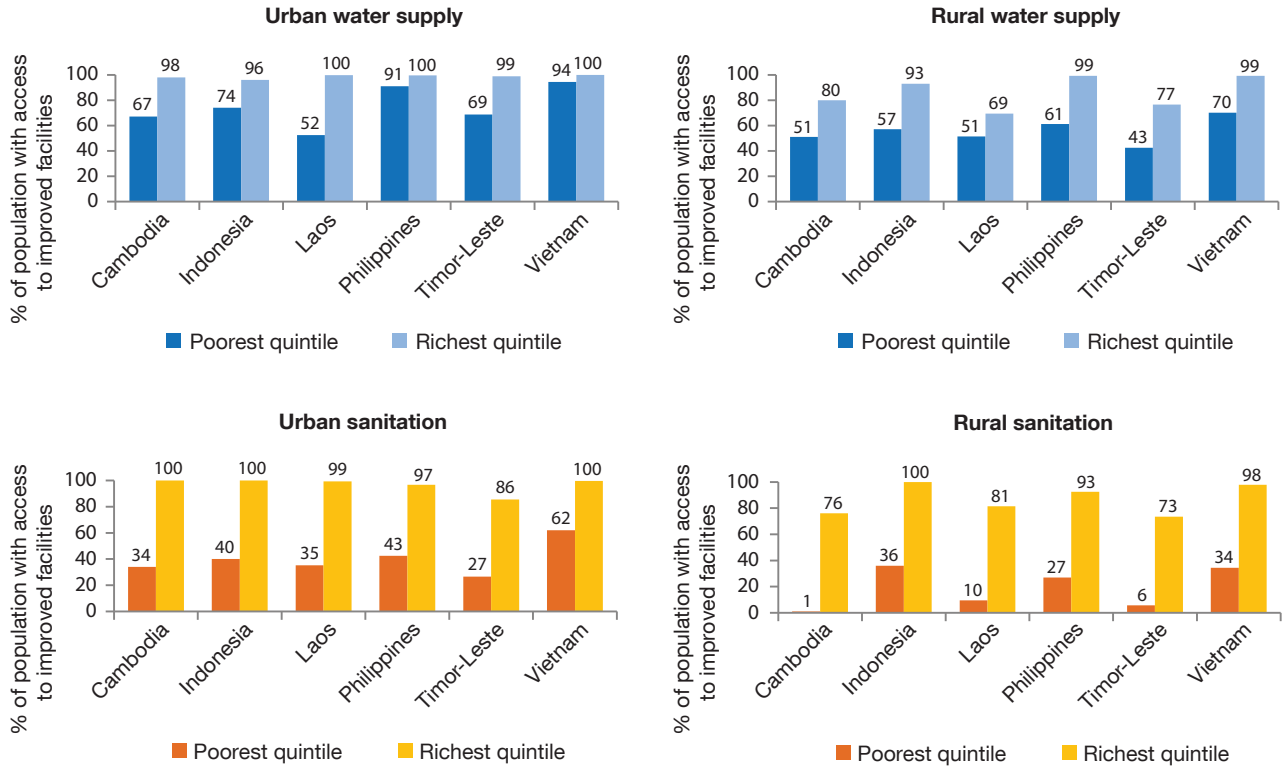
Figure 4.2 Disparities in access between urban and rural for improved water supply and sanitation



Source: Source: JMP (2014)

[8] It should be noted that Indonesia has seen a recent acceleration in sanitation access over the last years, and if this accelerated trend continues it might still be able to meet its MDG goals by 2015.

Figure 4.3 Inequalities in access among wealth quintiles for each subsector.



Source: Demographic Health Surveys and Multiple Cluster Indicator Surveys for selected countries and years.
Note: Cambodia DHS (2010); Indonesia (DHS, 2012); Laos (MICS, 2006), Philippines (DHS, 2008); Timor-Leste (DHS, 2009); Vietnam (MICS, 2010).

Beneath the urban-rural disparities there are inequalities between the different wealth quintiles for each of the subsectors as illustrated in Figure 4.3. This figure shows that inequalities are largest within the rural subsectors, especially rural sanitation. However, considering higher level of services such as piped water supply within the yard, inequalities between poorer and richer segments are much more pronounced as when reported for "improved access".[9] In-depth water and sanitation poverty analysis was beyond the scope of this Service Delivery Assessment, however it will be taken forward to better understand the inequalities in quality and level of services used by rural and urban populations.

National Target Setting and the Post-2015 Agenda

Due to differences in definitions and sources of reporting systems, **access rates reported by JMP and by government agencies are different for most countries.** In the Philippines national sanitation progress data includes shared facilities as improved sanitation. As of now, this category is not yet included as improved by the JMP, although definitions are currently under review as part of the post-MDG discussion. Lao government data are slightly over-reporting access for water supply as compared with JMP, but use JMP data to report on sanitation. Indonesia is reporting lower access rates for water supply and to a lesser

[9] Individual country reports have in certain cases used more up to date analysis for specific subsectors using different datasets (e.g. Cambodia Socio-Economic Survey for 2011 and Lao Social and Indicator Survey for 2011) using income quintile analysis. However, in order to compare similar quintile analysis, the tabulated data provided by JMP based on wealth quintiles has been used in this regional comparison. No data was available for Papua New Guinea.

extent for sanitation than the JMP, using more stringent criteria. Similar difference can be found for the Government of Vietnam, where "hygienic" sanitation access is quoted to be lower than JMP improved sanitation in rural areas. Government access data for Vietnam were most difficult to obtain due to inconsistent definitions. For urban sanitation, Vietnam has shifted away from reporting on-site improved access, and focuses its targets and reporting on access to wastewater collection and treatment facilities. The SDA process has reported both JMP and government figures and for the financial assessment used baseline data reflecting government reported figures.

All country governments have formally adopted targets more ambitious than the MDGs in 2015, at least for some subsectors. These include universal access goals in some cases: Timor-Leste has set universal access goals for 2030, Indonesia for 2025 as per its long term development plan, and Philippines by 2025 for water supply and 2028 for sanitation. Cambodia has done so for the rural water and sanitation sector only - by 2025 - with the urban sector awaiting adoption of more modest interim targets by 2018 in the upcoming National Strategic Development Plan. Lao PDR adopted universal access for the water sector by 2020, but lacks formally adopted targets for sanitation beyond 2015. Vietnam is awaiting formal endorsement of the Rural Water Supply and Sanitation Strategy for 2020, with more modest targets for rural water supply (75%) and rural sanitation (85%). Due to high levels of access, urban targets in Vietnam no longer refer to access to an improved water source but include differentiated targets for piped water services for specific urban zones. For urban sanitation, improved access is no longer used, and targets refer to wastewater collection and treatment. Papua New Guinea has realistically adopted the same targets as the MDGs, however with a time horizon of 2030. **With the exception of Papua New Guinea, all countries have disaggregated targets for urban and rural areas.**

For the purpose of the financial gap assessment, formally adopted government targets were used. In some countries however, the absence or inconsistencies of formally adopted targets and/or the desire to employ more relevant targets and timelines to the current country debate, motivated the use of unofficial targets agreed by stakeholders. Timor-Leste preferred to use unofficial interim targets for 2020 to inform medium term planning as well. In Indonesia, the government has set the universal access target by 2019, using the SDA analysis as part of the formulation of the medium-term development plan. Figure 4.4 below illustrates the targets that have been used in the SDA process for the purpose of costing.

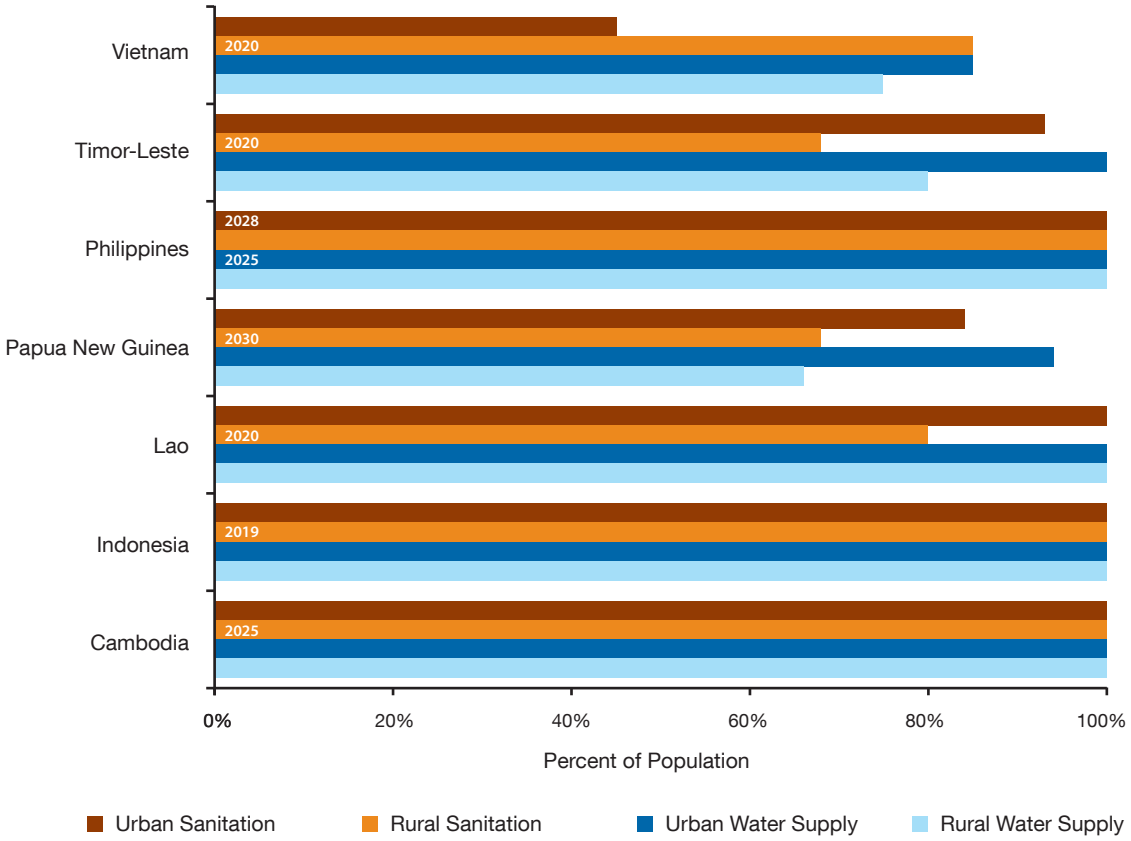
Globally, efforts are currently underway towards defining new targets post 2015, with the latest update from the Technical Working Group on Post 2015 Sustainable Development Goals recommending the following targets by 2030 for water sanitation and hygiene (WSSCC, 2014):

i. to eliminate open defecation
ii. to achieve universal access to basic drinking water, sanitation and hygiene for households, schools and health facilities
iii. to halve the proportion of the population without access at home to safely managed drinking water and sanitation services; and
iv. to progressively eliminate inequalities in access.

Some countries have already incorporated selected dimensions of the potential post-2015 targets, such as universal access targets for Indonesia, Timor-Leste, Philippines and Cambodia (for rural only). Philippines and Timor-Leste also have targets for eliminating open defecation prior to reaching universal access to improved sanitation, by 2022 and 2017, respectively, and Indonesia is considering universal access and elimination of open defecation by 2019. Safely managed services (under proposed target iii) refers to **higher levels of services**

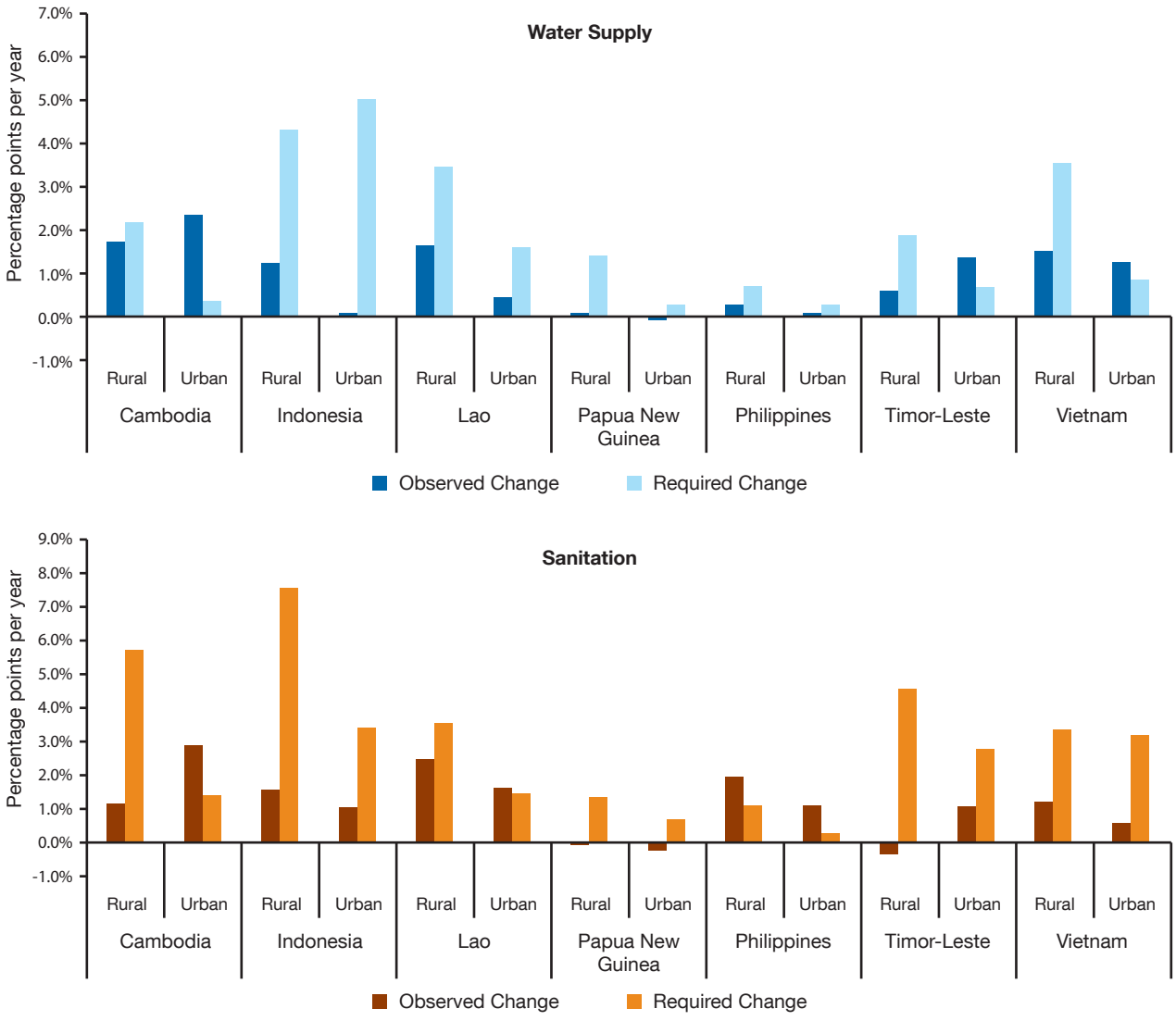
that include amongst other dimensions of safe excreta management for sanitation and ensuring water access within the plot of reliable quantity and quality. Vietnam, Lao PDR and Timor-Leste clearly specify **targets for piped water supply in urban areas only.** For sanitation, Indonesia, Philippines and Vietnam have adopted targets **for wastewater collection and treatment,** but not targets are provided for fecal sludge management, although sanitation policies in Indonesia and Philippines are explicitly addressing this issue. The proposed definitions for the global post-2015 targets encompass a much wider interpretation for safe excreta management than merely wastewater collection and treatment, including fecal sludge management and safe storage and pit content handling. Disaggregation of rural and urban targets by six out of the seven countries and quintile analysis of regular survey data will allow countries to monitor progress on eliminating inequality.

Figure 4.4 Targets used in SDA costing exercise



Note: Vietnam urban sanitation target refers to wastewater collection and treatment, not on-site access.

Figure 4.5 Required change to meet the targets, versus observed change, percentage points per year



Source: Author's computations

Note: For Vietnam Government estimates using government definitions were used to calculate required change. Since no government estimates are available for the initial year 1990, JMP piped water supply access has been used for the initial year 1990. This might have resulted in an overestimation of the observed change over the period 1990-2011. For rural sanitation, JMP improved data were used for the initial year and due to the stricter definition by the government for hygienic toilets, the observed change might have been overestimated. For urban sanitation, the observed and required changes refer to wastewater collection and treatment as per the target, an initial value of 0% has been used for 1990.

Required Acceleration in Access to Reach Targets

In order to have a sense of the scale of the challenge and acceleration required to reach the targets stated in Figure 4.4, a comparison is made between the required annual changes in access rates and the annual changes observed in the last decades,[10] as depicted in Figure 4.5. In most countries, required changes exceed observed changes by far. It is only in the cases of urban water supply in Cambodia, Timor-Leste and Vietnam, and urban sanitation in Cambodia and Lao PDR, and sanitation in the Philippines where historic trends seem to support targets used in the SDA. On the basis of past experience, this suggests that **the targets adopted by the countries are very ambitious, especially since those without access are the poorest and most disadvantaged communities, and reaching them will require a different level of effort.**

Simply comparing past trends to targets is obviously not enough to make a statement on the realism for achieving the target. This analysis is sensitive to the time periods selected for the comparison. For example, observed changes for Indonesia were based changes in access for 1990-2010, with 2010-2019, while recent access trends in the last 2-3 years reported by government for rural water supply suggest an acceleration of progress and attainment of universal access for rural water supply could be within reach. In addition to examining past trends, an evaluation of countries policies, programs and planned actions and available funding sources available was undertaken, which will discussed in Chapter 5 and 6.

[10] Required rates of change are based on country targets and time horizons, as well as country baseline years, which were mostly 2010/2011, although for some countries earlier years were used based on available data. Observed changes were typically calculated over the period 1990 to baseline year, although some countries used 1995 as initial years.

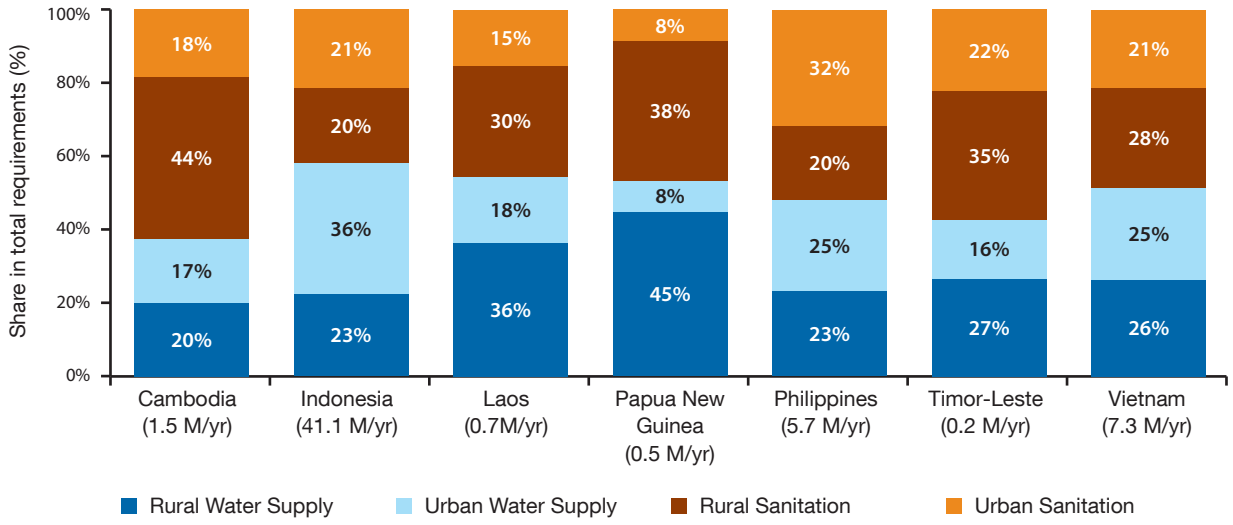
5. Key Findings – Financial Assessment

Total Investment Requirements per Subsector to Reach Targets

Estimates of the capital investment requirements are needed to meet the targets, representing hardware costs for constructing new facilities and replacing existing facilities. However, "software" costs are equally important, especially in rural subsectors, although not accounted for in the costing model.

Investment requirements are disaggregated by the expected source of finance: assumed households contributions and public funds, which include domestic funds and external donor funds.[11] These are then compared to anticipated investments in order to identify subsectoral spending gaps or surpluses. An important driver for investments is the number of people that will require access annually to meet all subsectoral targets, as illustrated in Figure 5.1.

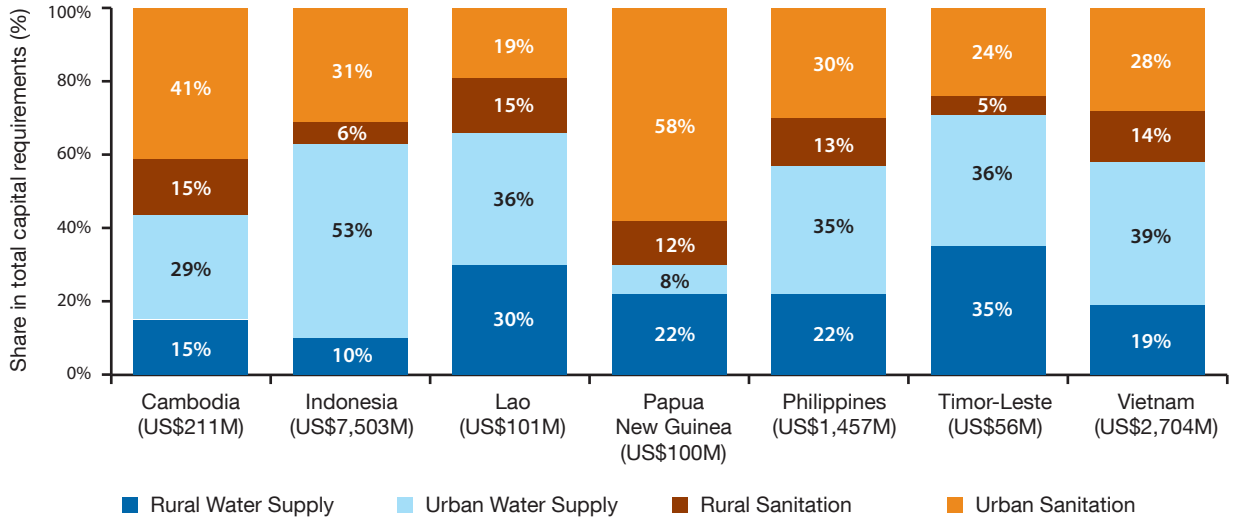
Figure 5.1 Population requiring access to reach targets and its distribution across subsectors



Note: In bracket: total number of people requiring access (millions of persons)

[11] For Philippines investments by private concessionaires are also included under public funds.

Figure 5.2 Total investment required to reach targets and its distribution across subsectors



Note: In bracket, total required expenditures per year in million US$

Indonesia leads the ranks with 41 million people per year, followed by Vietnam with 7.3 million people per year and the Philippines with 5.7 million people per year. Population size and ambitious universal access targets by 2019 explain the high numbers for Indonesia, while the Philippines has adopted longer time horizons, and Vietnam has not yet adopted universal access targets. Rural sanitation has the highest share of people requiring access in Cambodia, Timor-Leste and Vietnam and second highest share in Lao PDR and Papua New Guinea. Rural water supply has the highest share of people requiring access for Lao PDR and Papua New Guinea, and ranks second in Cambodia, Indonesia, Timor-Leste and Vietnam. **Given the rural-urban inequalities in access, the rural subsectors together have the highest share of people requiring access in all countries, except for more urbanized Indonesia and the Philippines.** Driven by the size of Indonesia, and the fact that on-site access for sanitation is fairly high across the region, **urban water supply is the subsector with most number of people requiring access across the total of seven countries.**

As illustrated in Figure 5.2 total investment requirements range from US$100 million per year in Papua New Guinea to US$7.5 billion per year in Indonesia. In Indonesia, Lao PDR, the Philippines, Timor-Leste and Vietnam, the largest share of investment requirement was found for urban water supply. **Financial requirements for urban subsectors represent the highest share in all seven countries. The urban shares in terms of investment requirements are disproportionally higher than the urban shares in terms of population requiring access.** This "skewed" investment requirement is driven largely by much higher per capita costs for urban facilities especially if a country has set high targets for urban wastewater collection and treatment. **The opposite effect can be found for rural sanitation: higher rural shares of people requiring access, but disproportionally lower rural shares in terms of investment requirements.**

Subsector Assessments of the Financing Gap for Investment Expenditure

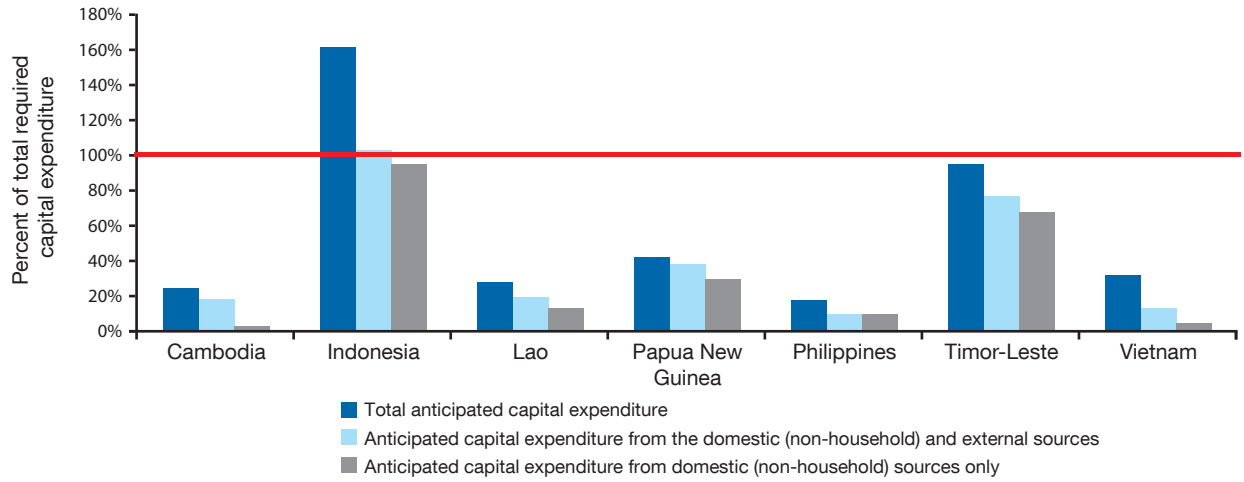
The analysis in this section uses two ratios to understand the anticipated financing gap/surplus for investment expenditures, with ratios below 100% indicating a deficit, using 2012-2014 average annual expenditures. The first ratio of total anticipated capital investment over total capital investment requirements reflects a financing deficit (or surplus) in a subsector in order to reach the targets.[12] Anticipated investments include both anticipated public investment and assumed household contributions. The latter has a large element of uncertainty and depends on the affordability constraints of households and the effectiveness of government to elicit household self-investment[13] through social mobilization and behavior change. The second ratio of public investments over total investment requirement illustrates the extent to which this financing gap/surplus will increase if household contributions do not full materialize.[14]

A third ratio shows domestic anticipated investment over total investment requirement, illustrating to what extent a subsector is relying on external donor funding (or to what extent a subsector is funded through a country's own domestic budget). Figure 5.3, 5.4, 5.5 and 5.6 below illustrate these ratios for the four different subsectors to allow cross-country and cross-subsector comparisons.

Rural Water Supply Financing Assessment

For the **rural water supply subsector**, Indonesia shows a fully funded subsector[15] when assumed household contributions are included, and the subsector would remain well funded even without the assumed household contributions. **High domestic funding sources illustrate a strong commitment to the subsector in Indonesia.** Indonesia's commitment to provide low-cost piped water services to rural communities is backed up with government funding, and is reflected in accelerated progress over the last years.

Figure 5.3 Financial gap assessment and anticipated sources of funding for rural water supply



[12] It should be noted that in some countries the level of anticipated expenditure was difficult to calculate due to the lack of consolidated reporting. For example sub-national spending by provinces and individual utilities surpluses in Vietnam could not be captured. Informed estimates were used in Indonesia to estimate local government spending. In the rural subsector a lot of funding is off-budget (through iNGOs) and often was incomplete as well.

[13] Typically, household expenditures are expected for on-site facilities (both urban and rural), but also reflect self-investment of households in point-water sources (self-supply), as well as contributions to community-based schemes. In the urban water and wastewater sector, household contribution often refer to connection costs/in-house adjustments that households are expected to make in order to receive the service.

[14] Or, in case of a surplus, to what extent the surplus will decrease and become a deficit if households do not invest

[15] Although some countries, like Indonesia, show a ratio of above 100% indicating a financing surplus (including household contributions), this actually means that annual funding levels (now based on annual average from 2012-2014) will at some point in time go down once universal access targets are almost reached.

Timor-Leste shows a similar picture with a fairly well-funded rural water supply subsector, with high domestic allocations and low reliance on externally financed capital investments. However, **rural water supply in five other countries is significantly underfunded** (financing gap > 50%). Philippines, Vietnam and Cambodia are expecting fairly high contributions of households towards rural water supply investments, especially for future piped water supply services.

Vietnam and Cambodia show a high reliance on external funding sources for rural water supply. While Cambodia might continue to receive assistance from development partners, in Vietnam, such assistance is expected to decrease, and hence the Government of Vietnam would have to step in with domestic investment in the subsector to prevent deepening of the financing gap.

Urban Water Supply Financing Assessment

Urban water supply shows a better overall funding picture, as **three out of seven countries seem to have a well-funded urban water supply subsector: Papua New Guinea, Philippines and Timor-Leste.** However, country reports have shown that the majority of urban investments are concentrated in the capital city and thus considerable deficits are still expected in secondary towns and urban centres. **Lao PDR and Cambodia are reasonably funded,** showing high use of external donor funding, similar to Vietnam and Papua New Guinea. **Indonesia and Vietnam show severe funding constraints,** although it should be noted that sub-national government and utility funding for this subsector has been hard to estimate and in the case of Vietnam could not be included due to data limitations. Also, **Indonesia and Vietnam have set the most ambitious targets for household-level piped water supply in urban areas:** 90% of urban population by 2019 for Indonesia, and 85% of urban population by 2020 for Vietnam, respectively.

Across most countries, **assumed household contributions to urban water supply investments are fairly low**, which illustrates a public funding bias towards urban communities, as rural communities are consistently expected to contribute a higher share to investments.

Figure 5.4 Financial gap assessment and anticipated sources of funding for urban water supply

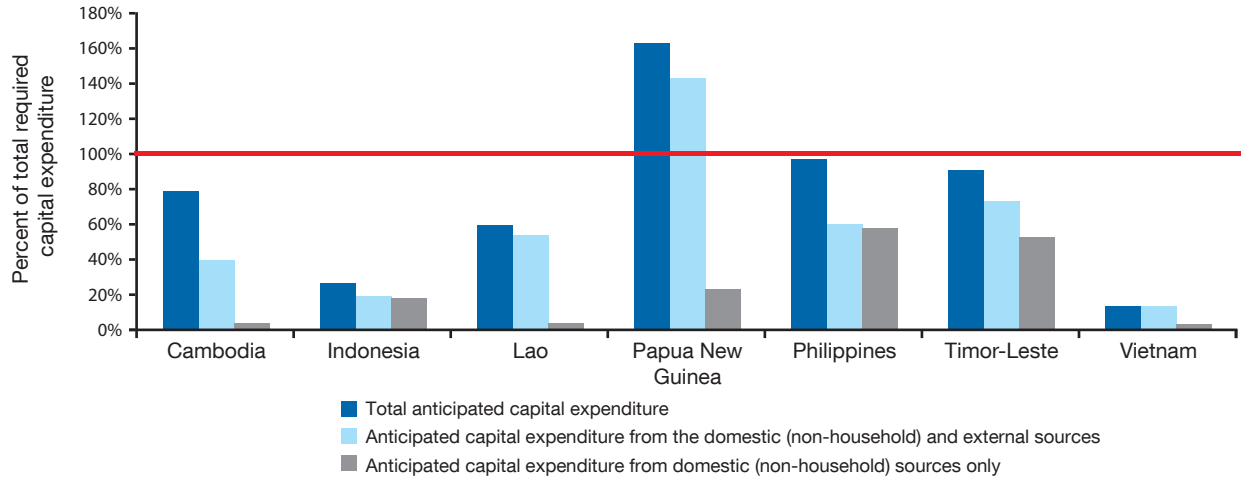
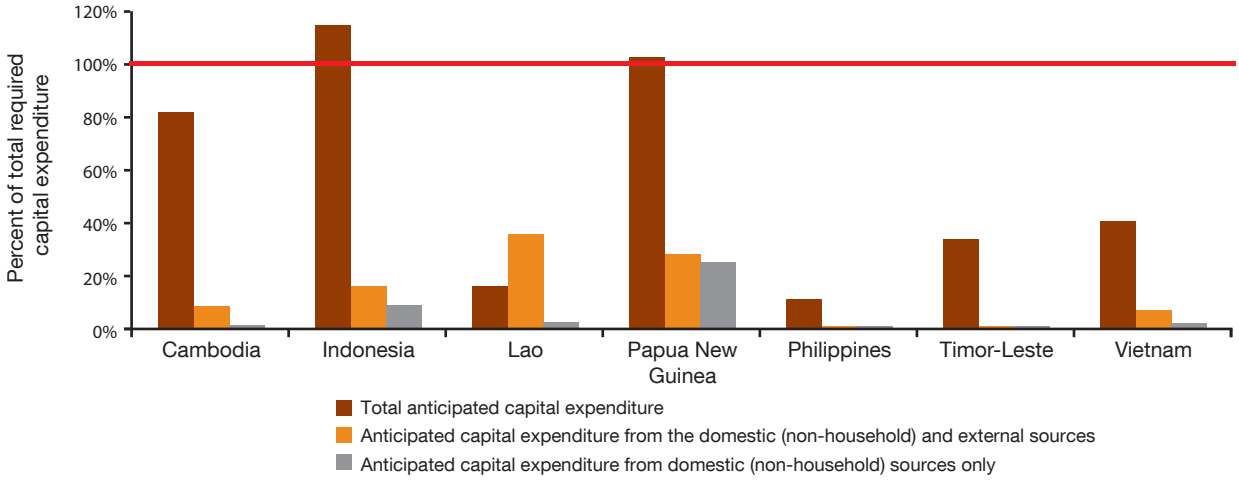


Figure 5.5 Financial gap assessment and anticipated sources of funding for rural sanitation



Rural Sanitation Financing Assessment

At a first glance the rural sanitation sector might seem fairly well funded for Indonesia, Papua New Guinea, and fairly well funded for Vietnam. However, when looking into more detail, the situation might be worse than depicted, as **assumed household contributions are expected to be very high across all the seven countries, reflecting the expectation that this subsector is largely going to achieve the expected progress through household self-investment.** However, all countries, perhaps with the exception of Indonesia, consistently **face severe budget constraints to fund operational and human resources for so-called "software" interventions,** needed to effectively leverage and elicit household self-investment (e.g. such as for social mobilization, behavior change and facilitating private sector engagement). These **software budget constraints are likely resulting in an actual investment funding gap for rural sanitation across all countries.** Figure 5.5 also shows that **anticipated domestic resources for rural sanitation subsidies/incentives are negligible,** except for Papua New Guinea. Most **countries seem to rely heavily on external development partner and NGO contributions.**

In summary, for most countries, the high reliance on development partner funding coupled with low domestic investments in rural sanitation for incentives/subsidies and/or software poses real risks to the achievement of ambitiously set targets. **Rural communities are consistently expected to invest in their own facilities, often in absence of public funding for promotion, behavior change, market facilitation and incentives.**

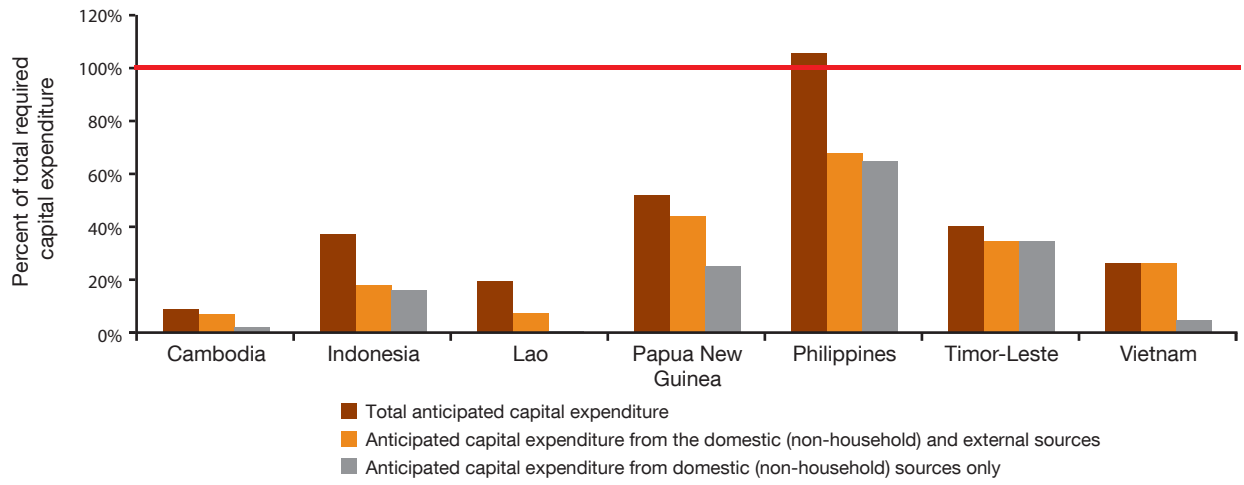
In the light of existing and for most countries growing inequalities, the chronic underfunding of rural sanitation would need to be reversed if post-2015 targets are to be pursued.

Urban Sanitation Financing Assessment

The financial assessment for urban sanitation across seven countries poses some challenges in terms of comparison, as **future targets are vastly different among countries.** In the costing model, countries such as Vietnam, Papua New Guinea and Cambodia have adopted high targets for urban households to be served through piped sewer networks with centralized collection and treatment facilities. Other

countries such as Indonesia, Lao PDR, Philippines and Timor-Leste expect more modest advances in wastewater technology to take place over time, assuming a gradual improvement and self-investment in on-site facilities, as well as investments in decentralized treatment and septage management. Across all countries, the **overall funding situation for urban sanitation is largely inadequate, and also shows high reliance on household investments, reflecting the replacement and improvement cost for on-site facilities and assumed contributions to connect to sewer systems.** Unless government puts in place an effective system of regulations, incentives and communications, such household investment may not materialize, resulting in severe investment gaps across all countries. **Indonesia and Papua New Guinea are currently allocating substantial domestic resources to urban sanitation,** while in **Cambodia and Vietnam reliance on external funding for this subsector** is high. In Philippines, Timor-Leste and Lao PDR, neither domestic funding nor development partner funding has been substantially allocated, although preparatory activities are underway to improve the situation.

Figure 5.6 Financial gap assessment and anticipated sources of funding for urban sanitation

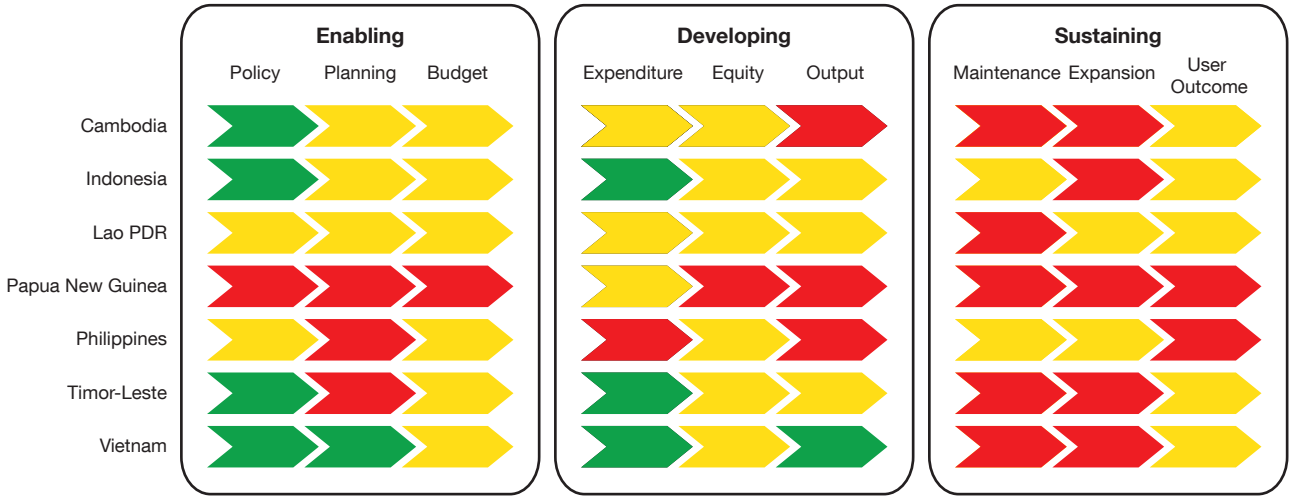


6. Key Findings – Bottlenecks in Service Delivery and Priority Actions

Figures 6.1 to 6.4 illustrate the scorecard along the service delivery pathway for each of the four subsectors in the seven countries under this regional assessment. A discussion on each of the subsectors is provided below, including what actions countries have prioritized to address bottlenecks. While looking across subsectors and across countries a number of observations can be made.

Urban water supply has the best-developed service delivery pathway in the region, while urban sanitation has the worst when services beyond on-site access are considered. With a backdrop of poor financing and low access, the **rural sanitation sector faces profound bottlenecks in service delivery, signalling a need to deepen the reform efforts already underway and dedicate resources to address collective behavior change to reduce open defecation.** While **Indonesia, Vietnam, and Timor-Leste** compare fairly well across all four subsectors, no country consistently outperforms all others in the region for every subsector. The **Philippines, Lao PDR and Cambodia perform quite well for urban water supply,** but show severe bottlenecks across the other subsectors. In contrast, **Papua New Guinea is consistently underperforming in each subsector,** due largely to the overall neglect of water and sanitation in the country's development strategy. This heterogeneous picture confirms the need to review in-depth subsectoral performance as is done in the paragraphs below.

Figure 6.1 Rural water supply scorecard across seven countries in East Asia and Pacific



Rural Water Supply: Bottlenecks and Priorities

With the exception of Papua New Guinea, most countries in the region have at least some of the **enabling environment building blocks in place, such as rural water supply targets in national plans, a rural water supply policy and lead institutional roles assigned.** However, except for Vietnam with its National Target Program for Rural Water Supply and Sanitation, **planning processes remain constrained by lack of coordination and joint review** of rural water supply progress, guided by mid-term investment plans. Areas of common strength across countries are the effective utilization of domestic and external budgets, as well as **having identifiable budget spending on rural water supply, although the level of funding is mostly inadequate.** In particular, every **country performs well for external budget utilization,** presumably due to strict donor financing rules and reporting. Common bottlenecks include the **lack of equity analysis** (who benefits and who is missing out from rural water supply investments). This translates into **inequitable outcomes** under the sustaining pillar (especially for piped water supply services), with Papua New Guinea and Philippines even showing stagnation in overall access. The key issue for all countries is to tackle **issues of sustainability and expansion of service provision.** Few countries have developed operations and maintenance policies or know the detailed costs. Well-resourced support arrangements have yet to be established for technical, financial and managerial support to rural water schemes in the region. A further bottleneck across countries is the lack of professionalized rural scheme management and the inability to expand services due to difficulties for operators to obtain finance for this expansion.

Every country had as a **key priority to improve the sustainability and functionality of rural water supply schemes.** Papua New Guinea intends to start off with an analysis of the extent of the functionality problem. Timor-Leste, Indonesia and Cambodia all prioritized the clarification of the roles and responsibilities for rural scheme O&M, especially between central and local government and communities themselves. Testing and **establishing effective management models for rural water supply that involve the private sector** were priorities for Vietnam, Timor-Leste, Lao PDR, and the Philippines, including ways to better monitor scheme performance. In most countries, improving technical support systems to communities or small-scale private providers and professionalizing management through performance contracts were seen as important ways to improve rural water supply sustainability. Developing such support systems at subnational levels of government was considered an effective model, with due attention to **capacity development, access-to-finance services, and better management of the supply chain for spare parts.** Several countries prioritized improved regulation and monitoring systems to **ensure water quality** of rural schemes (Vietnam, Timor-Leste, Cambodia).

Urban Water Supply: Bottlenecks and Priorities

Across the region, Lao PDR has provided the most positive self-assessment on urban water supply, with many of the building blocks in place for an effective service delivery pathway. Provided that sufficient funding will be available, it is expected that positive service delivery outcomes will be realized in Vietnam, Timor-Leste, and the Philippines, as has been the case over the past decades. **Lao PDR, Vietnam, Indonesia and Timor-Leste all have subsector targets, policies** and well defined and operationalized institutional roles. These countries also have relatively high levels of budget utilization for the subsector, as well as domestic allocations (except for Lao PDR, however, Lao PDR is successfully attracting external funding). Although Cambodia has made good progress in the past, its scorecard reflects the challenges faced in expanding reforms successfully beyond the capital city, and the

financing needed to expand urban services. Apart from finance, other bottlenecks for urban water supply are the **lack of coordinated and longer-term investment planning and the absence of annual reviews** of the subsector. Although some countries have conducted assessments of human resources needed in the subsector, this has not yet translated into developing **comprehensive capacity development** programs to ensure that sufficient people are in place with the right skills. Under the developing pillar, the scorecard shows that monitoring of outputs/ utility performance and water quality remains a challenge in the **absence of fully capacitated regulators. Sustainability and expansion of services remain a key bottleneck,** with various institutional, technical and political barriers preventing **full cost recovery** tariffs and the full realization of the **potential to attract private finance.**

Common priority actions to improve service delivery in urban water supply include **improving the regulatory and investment environment for utilities** and the effectiveness of service provision. Several countries propose to gradually increase operational and financial autonomy of utilities, allowing tariffs to rise to cover operations and maintenance, discrete management of human resources, and professionalization e.g. through public-private partnerships. Philippines, Indonesia, Lao PDR, and Vietnam prioritize access to finance for state-owned enterprises and/or utilities through a variety of financial products and mechanisms, including access to commercial loans, concessional finance, and/or targeted government transfer for less commercially viable areas. Timor-Leste, Cambodia, and Vietnam realize the need to do more to **separate regulatory functions from service delivery** functions and Indonesia and Philippines prioritize **further regulatory reform.** Improving **long-term investment planning by developing coordinated multi-stakeholder five year plans** for the subsector was highlighted across the region. Timor-Leste also specifically prioritized integrated planning with other urban services and infrastructure.

Figure 6.2 Urban water supply scorecard across seven countries in East Asia and Pacific

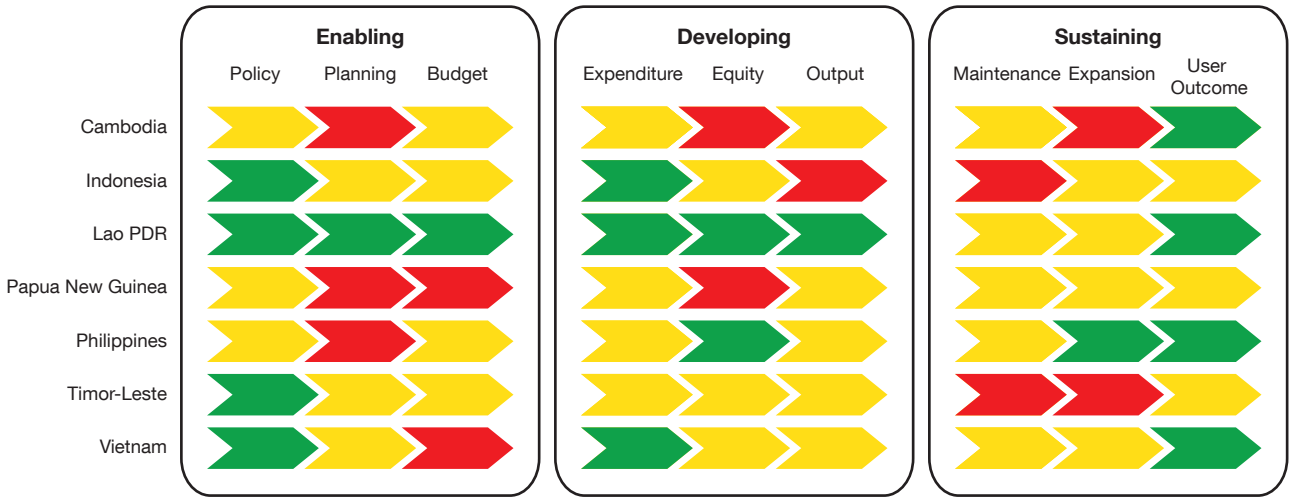
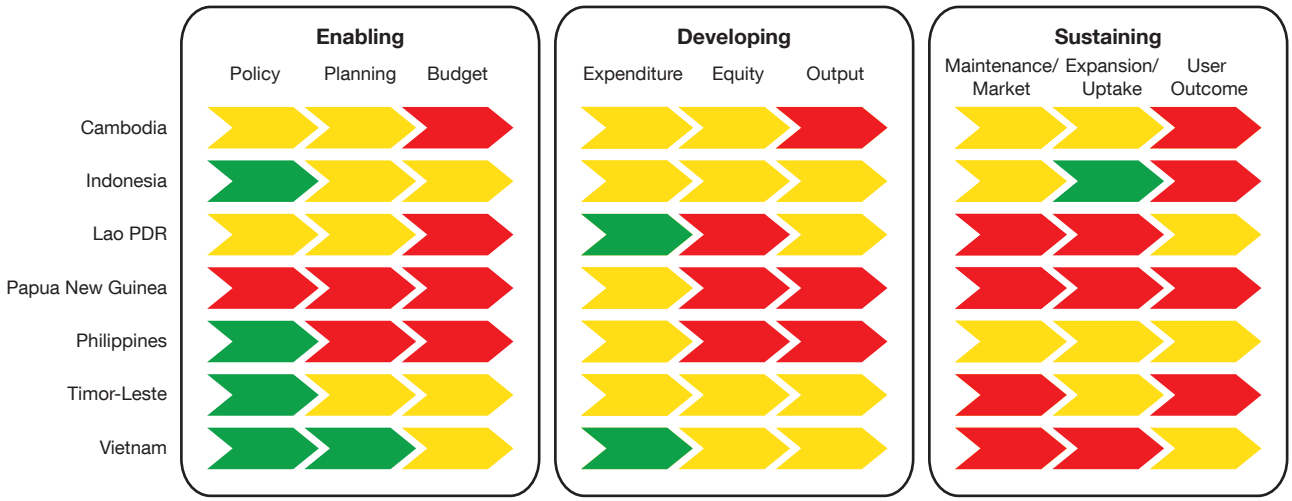


Figure 6.3 Rural sanitation scorecard across seven countries in East Asia and Pacific



Rural Sanitation: Bottlenecks and Priorities

Vietnam, Timor-Leste and Indonesia perform better than other countries in rural sanitation and hygiene promotion due to their **long-term, focused efforts in the subsector.** These countries all have **policies, plans, targets, monitoring and budget processes in place.** They score well for **social mobilization** and the use of behavior change programs to promote household sanitation. In contrast, Papua New Guinea is only recently beginning to acknowledge and address its rural sanitation challenge. **Cambodia** has a government-adopted national strategy to improve rural water supply, sanitation and hygiene. However, government is yet to **issue implementation and finance guidelines with better articulation of the role of local government,** leaving outcomes driven by development partners and NGOs. Similarly, **Lao PDR and Philippines** have started to put in place elements of national rural sanitation policy and programming. However, poor scores under the developing and sustaining pillars reflect the **inadequacies in human resources, implementation guidance, systematic use of behavior change methods, facilitation of private sector actors and a national monitoring system.** Another critical bottleneck across the region is **insufficient finance for rural sanitation, especially to fund software activities.** Despite some progress, **outcomes continue to score poorly with five out seven countries having rural access to improved sanitation below 50%.** Equity is another drag on the service delivery pathway, with **little programming actions across the countries to analyze and proactively address inequalities.**

All seven countries have similar priorities for rural sanitation and hygiene with the only difference being the maturity of existing sanitation and hygiene promotion programs. Developing a coordinated national sanitation and hygiene promotion program was a priority for Lao PDR, Cambodia, Philippines, and Papua New Guinea, while scaling up and accelerating existing programs was a priority for Vietnam, Indonesia, and

Timor-Leste. Every country prioritized increased spending on software, including increasing and improving human resource capacity. Capacity development was felt needed along the entire spectrum: a) front line workers to ensure effective community facilitation skills of health workers and sanitation promoters, b) local government staff to plan, implement and monitor programs, and c) national level entities to effectively manage, technically support and monitor sanitation and hygiene programs. Five countries gave importance to targeting the poor for sanitation, with concrete actions articulated such as through increasing private sector involvement for low-cost toilets (Vietnam), targeting subsidies to vulnerable households (Timor-Leste) and using poverty alleviation programs and/or conditional cash transfer programs to better reach the poor (Philippines).

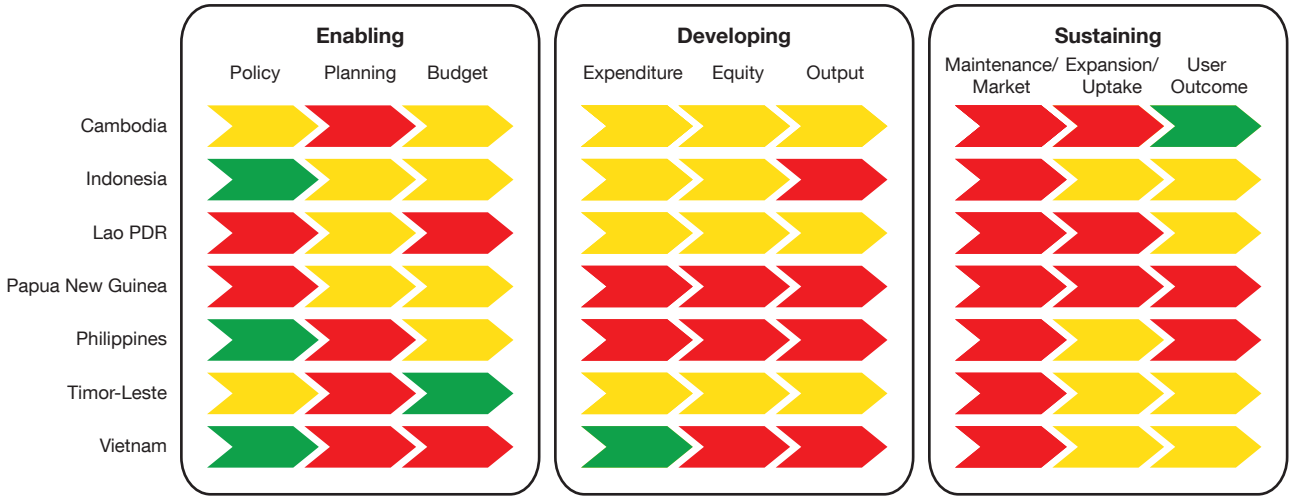
Urban Sanitation: Bottlenecks and Priorities

Positive aspects of the region's urban sanitation service delivery pathway include the presence of policies and/or targets in most countries. Also, there are generally high levels of access to improved on-site sanitation, with only Papua New Guinea and Timor-Leste having improved access below 75%. There are **serious bottlenecks in developing and sustaining urban sanitation services** that include safe collection, treatment and disposal of fecal waste. While there is widespread use of improved on-site facilities, **fecal sludge or wastewater management is generally poor** with not a single country collecting and treating a significant proportion of the sludge produced. Generally, less than 10% of wastewater produced is treated, illustrating that urban sanitation remains a nascent subsector and has not kept up with urban development in the region. Investment budgets for urban sanitation as well as operational costs are insufficient and in several countries difficult to aggregate due to the decentralized nature. Few countries **know the extent of waste treatment operation and maintenance costs and/or recover these costs from users.** There is little monitoring of access to and quality of services. Most countries have **wastewater discharge standards,** however, **enforcement is weak** and no sanctions are applied for breaching regulations. With the exception of a few pioneering cities, **plans to expand fecal waste management services throughout urban areas are not well developed.** The private sector is not incentivized to participate in expanding fecal waste management services, nor are households encouraged to regularly empty their facilities or connect to sewer systems. All countries report serious **capacity constraints for city-wide sanitation planning and implementation.**

All seven countries **prioritized improved fecal sludge management through better septage collection, transport, treatment, disposal, and monitoring.** For Indonesia and Vietnam, this priority included the development of partnerships and an **increased role of the private sector.** Several countries prioritized the importance of **awareness raising for urban sanitation services,** both at the municipal and national political level, as well as at household level, combined with improved regulations, incentives and enforcement. The emphasis on fecal sludge management indicates that most countries think that on-site sanitation will continue to be the dominant technology in the foreseeable future. **Increased investments in networked sewerage and treatment—both centralized and decentralized—are also prioritized in Vietnam, Philippines,** and for large and dense urban areas in **Lao PDR and Cambodia,** recognizing the **importance of low-cost technology.** Papua New Guinea stakeholders recommended to look beyond currently developed high cost sewerage systems for its capital city. Another shared priority across countries was the need to develop an **integrated urban sanitation strategy,** city-wide sanitation planning, accompanied by a long-term **national investment plan and financing framework.** To deliver on

the ambitious urban sanitation agenda, **human resource capacity development was a high priority** in six countries including general capacity to plan and implement urban sanitation projects, as well as improved technical capacity in wastewater treatment. **Clearly defining roles and responsibilities for urban sanitation** was a priority for Vietnam, Timor-Leste, Lao PDR, Indonesia, and Philippines. This included separating the roles of service provider and regulator, **considering a combined water and wastewater utility model,** and clarifying institutional roles at local level by better articulating responsibilities between service providers and households.

Figure 6.4 Urban sanitation scorecard across seven countries in East Asia and Pacific



7. Recommendations and Lessons

Overall Sector Wide Recommendations

Taking a helicopter view across all subsectors and all countries, the following recommendations transpired throughout the regional service delivery assessments for water supply and sanitation:

- **increasing support for overall sector monitoring** through harmonized definitions and standards across fragmented mandates of various agencies involved (even within one subsector)
- **continuing improvements in the measurement and tracking of financial flows** to the various subsectors, especially in case of decentralized mandates, to unearth inefficiencies and improve effectiveness of public spending (e.g. through more in-depth sector focussed public expenditure reviews)
- **leveraging of private sector financing is needed** through developing capacities, transparency and regulatory framework for public private partnerships
- **increasing private household contributions through adequate allocation of human and financial resources** to elicit such investments through behavior change communications, complementary regulation and appropriate incentives
- **addressing the existing investment bias towards urban areas** (especially water supply) to ensure that rural populations will receive a larger share of public resources available
- **focusing on poor-inclusive service delivery** and addressing inequalities through better analysis and targeting of subsidies/incentives to poor communities and households
- **using a long-term sector investment and development framework** to foster sector-wide approaches and review mechanism led by government to accelerate support in achievement of future post 2015 goals and targets
- **establishing systematic human resources capacity development programs** to improve local capacities for sustainable service delivery

Table 7.1 summarizes some key-priority actions for the subsectors that were relevant across a sub-set of countries. Individual country reports are providing an in-depth description of reform context, institutional framework, challenges faced and priority actions recommended, and hence are not elaborated in this brief. In Myanmar the sector assessment did not follow the Service Delivery Assessment scorecard and hence has not been included in the regional comparison of the findings. Box 7.1 provides a summary of some of the highlights of the assessment, with full becoming details in the Myanmar Water Sector review report (under publication), including a detailed analysis at the level of the subsector, as well as specifically issues related to disaster risk reduction and WASH in schools.

Table 7.1 Summary of priority across countries for different subsector to address bottlenecks

Rural Water Supply
• putting in place sector-wide approaches for rural water supply, including joint planning and better monitoring systems • addressing sustainability especially through technical and management support systems for community-managed schemes • testing alternative professional management models and scaling-up these models leveraging capabilities of private sector • leveraging private finance in piped water schemes through access-to-finance support services, targeted subsidies and concessional credit • improving application and enforcement of water quality guidelines and stimulating household water treatment for point-of-use safety
Urban Water Supply
• development of medium and long-term strategic investment plans and financing framework • capacitating independent regulators to ensure water quality and service standards are met and tariffs are regularly reviewed • empowering autonomous utilities to charge full-cost recovery tariffs, while improving operational efficiencies (such as NRW programs) • facilitating public-private partnerships and addressing barriers for accessing commercial finance through a range if instruments (credit enhancements, targeted subsidies, investment climate)
Rural Sanitation and Hygiene
• better articulate the roles of local government in delivering rural sanitations services • increase financial and especially human resources for sanitation services, especially for last mile delivery at local level and software • adopt and resource program methodologies that focus on collective behavior change to stop open defecation • build capacity of front-line works for promotion, and for local governments for planning, implementation and monitoring • facilitate and encourage the role of local private sector actors in rural sanitations service delivery • develop and scale-up monitoring systems that measures outcomes and can be used for rewards and incentives • strengthen equity focus through other poverty reduction initiatives and/or targeted partial subsidies
Urban Sanitation and Hygiene
• beyond on-site sanitation, the sector remains in nascent shape and needs increasing investments in collection, transport, treatment and safe disposal of fecal waste • addressing institutional fragmentation through better articulating roles of various agencies and service providers (such as combined utility approach) • developing urban sanitation strategies, master plans and financing framework (low recovery of costs through user fees) • improving capacities for city-wide sanitation planning, with solutions beyond wastewater treatment • strengthening equity in outcomes and proposed investments

Box 7.1 Key highlights Myanmar water, sanitation and hygiene sector assessment (2014)

GENERAL FINDINGS/BOTTLENECKS

- **Sector lacks a comprehensive sector strategy, policies and targets.** Without these, it is difficult to commit to investments, conduct sound planning and advocate for more involvement of stakeholders.
- **Weak sector leadership and coordination.** No lead agency for the WASH sector exists, no coordination mechanism, no sector monitoring or regular reviews. Development in subsectors largely depends on the leadership strength of the government department responsible for that particular subsector.
- **Lack of information and data.** Data collection and monitoring needs to be improved as well as appropriate criteria for classifying existing WASH facilities.
- **Insufficient investments.** This is directly linked to missing targets and lack of sound planning.
- **Lack of best practices for planning,** service delivery and maintenance. While a certain level of capacity is present in the government, what is missing is often knowledge of latest standards for technology or best practices of how to plan for, deliver and maintain services and infrastructure.

OPPORTUNITIES TO BUILD ON

- **Limitations** present in the sector are well understood and government committed to improve the current status quo. Continuity of the WASH Task Force is an example of that commitment.
- **Decentralization** opens up a whole range of opportunities for local service delivery and a lot can be learned from countries in the region that have undergone a similar process in the past (e.g. Indonesia, Philippines).
- **Basic level of human resources capacity** provides the opportunity for fairly rapid scale up of new initiatives and is a critical asset for roll out of new strategies.

Lessons from the Process of Service Delivery Assessments in East Asia and the Pacific

The implementation of the Service Delivery Assessments in East Asia and the Pacific has resulted in the following lessons which are based on feedback collected from participants as well as facilitators of the in-country and regional processes:

- In Latin America and Africa Service Delivery Assessments were regionally hosted through the African Minister's Council on Water (AMCOW) and the Central American Regional Forum for Water Supply and Sanitation (FOCARD-APS). In **East Asia and the Pacific engagement has been at country-level due to absence of a strong regional platform for water and sanitation.** Potentially, a future regional platform in East Asia and the Pacific, linked to the Sanitation and Water for All initiative, could provide **regional momentum to bring identified priority actions to the attention of high-level decision makers,** including senior officials within Ministries of Finance.

- Service Delivery Assessments are not conducted in isolation of other assessments and/or global or country monitoring exercises. **The global landscape of monitoring and diagnostic instruments shows that rationalization of the use of such tools deserves further attention. Complementary use, rather than duplication of assessment processes** should be the aim, to avoid assessment fatigue and duplication of efforts. A recently established working group under the Sanitation and Water for All initiative is looking into this matter.

- In particular it is important to **ensure complementarity between the Service Delivery Assessments and the WASH Bottleneck Assessment Tool** (WASH-BAT) used by UNICEF. The WASH-BAT tool, like the SDA, aims to identify bottlenecks in service delivery, however, the unit of analysis more sophisticated, allowing a focus at different levels, such as national, local government, service provider or even local community. It also includes an estimated costing and prioritization of measures identified to address the bottlenecks. In countries where the SDA has been conducted, use of the WASH-BAT has merit for detailed analysis of a specific subsector at sub-national or service provider level. This is already planned for rural sanitation in selected provinces of Vietnam.

- Using a regional assessment framework, the SDA provides a good helicopter view of the water and sanitation sector development at country level, allowing for regional comparison. On the downside, the SDA does not always **adequately capture the variety of contexts within a country and might not provide the depth of analysis wanted by subsectoral stakeholders.**[16] Having said this, Indonesia has piloted the use of the scorecard as a framework for sector dialogue at provincial level.

- The strength of the SDA is its participatory nature providing a platform for dialogue and consensus building on critical aspects that need to be resolved in the sector. The **relevance of the SDA is optimized if the process and platforms that are used during the SDA support ongoing strategic reform and planning processes in a country,** as was the case in Indonesia,

[16] Although this argument is most relevant to large countries, it also applies to smaller countries. For example Cambodia, where urban water supply services in the capital are excellent, but where reforms have failed to reach other cities.

Philippines and Cambodia. Moreover, the SDA can help to **increase national attention on the sector,** as demonstrated in Papua New Guinea and in Lao PDR (see Box 7.2).

- The SDA process was implemented as a participatory evidence-based self-assessment, supported by facilitation, data collection and analysis. In East Asia and the Pacific, a region with many languages, the diagnostic scorecard tool and financial costing model **were found be quite complex and it might be challenging for governments to incorporate them as routine instruments into ongoing monitoring processes** without external facilitation. Demand for further, continued use of the tools is therefore doubtful. Development partner assistance efforts might be better directed to improving **country-owned routine monitoring systems,** while providing on-demand assistance for more sophisticated diagnostics. Having said this, the use of SDA tools at sub-national level, translated, tailored and adopted to sub-national country context is worth exploring for larger middle income countries, such as Indonesia.

Due to its recent completion, it is still early days to assess the full use of the SDA findings in country. However, Box 7.2 illustrates a few cases how the Service Delivery Assessments have so far contributed to the development of the sector.

Box 7.2 Cases illustrating the use SDA process in East Asia and Pacific

PAPUA NEW GUINEA
In 2012/13, the SDA analysis was conducted as a participatory self-assessment and shed light on the neglected status of the water and sanitation sector in the country. The scorecard assessment showed the lack of policy, strategies, and unclear institutional roles, which were recognized as areas for priority action by government. This has subsequently led to the formulation of a national WASH policy in 2013/2014, which is now awaiting endorsement from government. Development partners, notably the European Union, are committed to an increased engagement in support of the new policy.

INDONESIA
In 2013/2014 the SDA process was conducted and directly inserted as part the development of the next five year mid-term development plan (2015-2019). The SDA analysis, and especially the costing tool, has helped the Government of Indonesia in the process of setting universal access targets at the end of the next five year planning period.

LAOS
In Laos, the SDA process has helped to articulate the bottlenecks in service delivery and has provided the evidence base for recently pledged commitments during the April 2014 Sanitation and Water for All High Level Meeting. The Government of Laos has agreed to introduce a separate budget line for water and sanitation subsectors, as well as to formulate a national WASH policy which will form the basis for national rural water and sanitation program

Annexes

Annex 1
Methodology, Input Data and Output of SDA Costing Analysis

This annex describes the SDA costing tool. Specifically, key inputs and outputs, and their relationships are discussed. This annex also presents the values used in the financial analyses for Cambodia, Indonesia, Laos, Papua New Guinea, Philippines, Timor-Leste and Vietnam.

Conceptual model of the SDA costing tool

The SDA costing tool is a MS Excel file that can calculate, among other others, investment requirements and gaps for rural water supply, urban water supply, rural sanitation and hygiene and urban sanitation and hygiene of a specific country or region.

It requires data on population, access to improved facilities, and information on different sanitation and water supply technologies. Information for these variables need to be collected for base (start of the analysis) and target years, and for each of the four sectors mentioned above. This data is used to estimate annual investment requirements and maintenance and operating expenditures from the base year to the target year.

Actual and projected capital expenditures in the water supply and sanitation sector by government, donors and, where available, other organizations in the years immediately preceding and after the base year are also collected. Complemented by assumptions regarding the potential share of household contributions to investments, this information is used to generate estimates of potential investments for the sector. The projected investments are then compared with investment requirements in order to get a sense of whether funding in the sector is sufficient to meet targets.

Table A1 provides a detailed list of the input data for the costing tool. Table A2 lists a few intermediate variables that assist in explaining the links between the outputs of the model and the input data.

Table A3 lists the key variables generated by the costing tool. It also shows how these variables are related to the inputs and intermediate variables presented in Tables A1 and A2, respectively. For example, it shows that total capital expenditures ($CAPEXT_{ri}$) are the sum of new capital expenditures ($CAPEXN_{ri}$) and replacement capital expenditures ($CAPEXR_{ri}$). It is also equal to the sum of the capital expenditures from the public ($CAPEXP_{ri}$) and household ($CAPEXH_{ri}$) sectors. The components of capital expenditures are in turn calculated using the inputs and intermediate variables. For example, $CAPEXN_{ri}$ is likely to be higher if the cost of the different technologies (c_{rij}) and the increase in the population that will be covered by these technologies (gp_{ri}) is larger.

Table A1 Input data for the costing tool

Variable	Unit	Symbol
Base year: by region (r)[a] and sector (i)[b]	Calender year	yb_{ri}
Target year: by region (r) and sector (i)	Calender year	yt_{ri}
Population in the base year: by region (r)	Number of persons	pb_{r}
Population in the base year: by region (r)	Number of persons	pt_{r}
Proportion of the population with access to improved facilities in the base year (current access rate): by region (r) and sector (i)	Proportion	sb_{ri}
Proportion of the population with access to improved facilities by the target year (target access rate): by region (r) and sector (i)	Proportion	st_{ri}
Proportion of the population with access to specific technologies in the base year: by technology (j)[c], sector (i) and region (r) *NB. as population with access to improved facilities*	Proportion	qb_{rij}
Proportion of the population with access to specific technologies in the target year: by technology (j), sector (i) and region (r) *NB. as population with access to improved facilities*	Proportion	qt_{rij}
Cost per capita of technologies: by technology (j), region (r) and sector (i)	US$/person	c_{rij}
Lifespan of technologies: by technology (j), region (r) and sector (i)	Years	n_{rij}
Expected proportion of investments contributed by households: by technology (j), region (r) and sector (i)	Proportion	h_{rij}
Actual and projected investments by government agencies: by region (r) and sector (i)	US$	g_{ri}
Actual and projected investments by donors and other development partners: by region (r), sector (i), and domestic institution/ project (d)	US$	$capand_{rid}$
Actual and projected investments by other institutions (excluding households): by region (r), sector (i), and external institution/ project (e)	US$	$capane_{rie}$
Capital expenditures required to meet targets: Others	US$	$capexo_{ri}$

Notes:
[a] Regions (r) = {rural, urban}
[b] Sectors (i) = {water supply, sanitation and hygiene}
[c] Technologies(j) vary by region and sector. For example, technologies in rural water supply may include piped water supply and different types of wells.

Table A2 Selected intermediate data

Variable	Symbol	Formula
Number of years between the target year and the base year	gy_{ri}	$gy_{ri} = yt_{ri} - yb_{ri}$
Population with access to technology j in the base year	ab_{rij}	$ab_{rij} = qb_{rij} * sb_{ri} * pb_{r}$
Population with access to technology j in the base year	at_{rij}	$at_{rij} = qt_{rij} * st_{ri} * p_{tr}$
Increase in the population with access to technology j between the base and target year	atb_{rij}	If $at_{rij} > ab_{rij}$, then $atb_{rij} = at_{rij} - ab_{rij}$. Otherwise, $atb_{rij} = 0$.
Replacement value of base year capital stock: by region, sector and technology	rv_{rij}	$rv_{rij} = pb_{r} * sb_{ri} * qb_{rij} * c_{rij}$

[a] See Table A1 for the description of the symbols in this column

Table A3 Outputs of the costing tool

Variable (units in parenthesis)	Symbol	Relationship to input or intermediate data	
		Positive [a]	Negative [b]
Population requiring access to improved facilities: by region and sector (number of persons)	PRA_{ri}	atb_{rij}	gy_{ri}
New capital expenditures required to meet targets: by region and sector (US$)	CAPEXNri	c_{rij}, atb_{rij}	gy_{ri}
Replacement capital expenditures required to meet targets: by region and sector (US$)	$CAPEXR_{ri}$	rv_{rij}, c_{rij}, atb_{rij}	gy_{ri}, n_{rij}
Required capital expenditures: Households (US$)	$CAPEXH_{ri}$	h_{rij}, rv_{rij}, c_{rij}, atb_{rij}	gy_{ri}, n_{rij}
Required capital expenditures to meet targets: Total (US$) – $CAPEXT_{ri} = CAPEXN_{ri} + CAPEXR_{ri} + capexo_{ri}$	$CAPEXT_{ri}$	$CAPEXN_{ri}$, $CAPEXR_{ri}$, $capexo_{ri}$	
Required capital expenditures: Public[c] (US$) – Calculated as a residual – $CAPEXP_{ri} = CAPEXT_{ri} - CAPEXH_{ri}$	$CAPEXP_{ri}$	$CAPEXT_{ri}$	$CAPEXH_{ri}$
Anticipated capital expenditures: Total (US$) – $CAPANT_{ri} = CAPANP_{ri} + CAPANH_{ri}$	$CAPANT_{ri}$	$CAPANP_{ri}$, $CAPANH_{ri}$	
Anticipated capital expenditures: Public (US$) – $CAPANP_{ri} = CAPAND_{ri} + CAPANE_{ri}$	$CAPANP_{ri}$	$CAPAND_{ri}$, $CAPANE_{ri}$	
Anticipated capital expenditures: Domestic (US$)	$CAPAND_{ri}$	$capand_{rid}$	
Anticipated capital expenditures: External (US$)	$CAPANE_{ri}$	$capane_{rie}$	
Anticipated capital expenditures: Households (US$)	$CAPANH_{ri}$	$CAPEXH_{ri}$, ($CAPANP_{ri}$/ CAPEXHri)[c]	
Financing (US$) – $CAPANT_{ri} - CAPEXT_{ri}$	n/a	$CAPANT_{ri}$	$CAPEXT_{ri}$

[a] Variables in this column are positively related to the output variable. In other words, a higher value of the input leads to a higher value of the output.

[b] Variables in this column are negatively related to the output variable. In other words, a higher value of the input leads to a lower value of the output.

[c] In the costing tool, "public" refers to all sectors except households.

[d] (CAPANPri/CAPEXHri) is used to make CAPANHri smaller than CAPEXHri if there is "under-investment" in the public sector.

Annex 2
SDA Costing Tool Input Data

Tables B1 to B4 show the input data used for each sector and country.

Table B1 Input data for rural water supply

Item	Cambodia	Indonesia	Laos	Papua New Guinea	Philippines	Timor-Leste	Vietnam
Year for analysis							
Base year	2012	2011	2011	2010	2008	2011	2011
Target year	2025	2019	2020	2030	2025	2020	2020
(regional) population (million persons)							
Base year	11.3	116.5	4.6	6.0	46.5	0.8	60.9
Target year	11.4	112.4	5.1	9.1	57.0	1.0	53.1
Access to improved facilities (% of regional population)							
Base year	66%	58%	63%	33%	86%	60%	94%
Target year	100%	100%	100%	66%	100%	80%	75%
Distribution of facilities at the base year (% of population)							
Piped to dwelling/premises	5%	5%	8%	3%	23%	16%	3%
Public tap	0%	3%	19%	10%	8%	24%	0%
Tubewell/Borehole	48%	15%	19%	0%	32%	3%	14%
Protected dug well/spring	13%	29%	18%	13%	22%	16%	13%
Rainwater collection	0%	5%	0%	7%	1%	1%	6%
Unimproved	34%	42%	37%	67%	14%	40%	63%

Table B1 Input data for rural water supply (continued)

Item	Cambodia	Indonesia	Laos	Papua New Guinea	Philippines	Timor-Leste	Vietnam
Distribution of facilities at the target year (% of population)							
Piped to dwelling/premises	8%	58%	15%	0%	45%	22%	15%
Public tap	0%	5%	35%	38%	13%	42%	4%
Tubewell/Borehole	72%	5%	35%	0%	33%	4%	24%
Protected dug well/spring	20%	29%	15%	8%	8%	11%	22%
Rainwater collection	0%	3%	0%	20%	0%	1%	11%
Unimproved	0%	0%	0%	34%	0%	20%	25%
Unit cost of facilities (US$ per person)							
Note: Year in which prices are quoted	2012	2010	2010	2010	2010	2010	2010
Piped to dwelling/premises	35	40	75	82	128	190	140
Public tap	-	4	25	8	28	140	100
Tubewell/Borehole	21	40	45	-	27	190	72
Protected dug well/spring	16	22	30	91	19	35	47
Rainwater collection	-	40	-	90	19	34	50
Life span of facilities (years)							
Piped to dwelling/premises	15	30	15	20	25	9	20
Public tap	-	30	15	10	8	9	20
Tubewell/Borehole	10	5	10	-	6	8	10
Protected dug well/spring	10	5	10	17	10	10	5
Rainwater collection	5	4	-	18	10	10	5

Note: "-" .. not included/provided

Table B2 Input data for urban water supply

Item	Cambodia	Indonesia	Laos	Papua New Guinea	Philippines	Timor-Leste	Vietnam
Year for analysis							
Base year	2012	2011	2011	2010	2008	2011	2011
Target year	2025	2019	2020	2030	2025	2020	2020
(Regional) population (million persons)							
Base year	3.1	119.8	1.8	0.9	43.8	0.3	25.4
Target year	6.1	146.0	2.5	1.5	63.4	0.5	43.4
Access to improved facilities (% of regional population)							
Base year	94%	52%	83%	87%	94%	93%	58%
Target year	100%	100%	100%	94%	100%	100%	85%
Distribution of facilities at the base year (% of population)							
Piped to dwelling/premises	70%	14%	60%	58%	59%	43%	76%
Public tap	0%	5%	7%	14%	5%	25%	0%
Tubewell/Borehole	17%	15%	12%	0%	22%	16%	0%
Protected dug well/spring	7%	19%	4%	3%	7%	9%	0%
Rainwater collection	1%	0%	0%	12%	1%	0%	0%
Other improved	0%	0%	0%	0%	0%	0%	24%
Unimproved	6%	48%	17%	13%	6%	7%	0%
Distribution of facilities at the target year (% of population)							
Piped to dwelling/premises	90%	90%	80%	84%	71%	70%	85%
Public tap	0%	5%	0%	9%	8%	13%	0%
Tubewell/Borehole	6%	0%	15%	0%	20%	10%	0%
Protected dug well/spring	4%	5%	5%	0%	2%	7%	0%
Rainwater collection	0%	0%	0%	0%	0%	0%	0%
Other improved	0%	0%	0%	0%	0%	0%	15%
Unimproved	0%	0%	0%	6%	0%	0%	0%

Table B2 Input data for urban water supply (continued)

Item	Cambodia	Indonesia	Laos	Papua New Guinea	Philippines	Timor-Leste	Vietnam
Unit cost of facilities (US$ per person)							
Note: Year in which prices are quoted	2012	2010	2010	2010	2010	2010	2010
Piped to dwelling/premises	117	181	138	82	89	379	244
Public tap	-	91	25	9	28	140	-
Tubewell/Borehole	21	160	45	-	27	190	-
Protected dug well/spring	16	56	30	74	19	-	-
Rainwater collection	16	21	-	90	19	-	-
Life span of facilities (years)							
Piped to dwelling/premises	25	30	20	20	25	20	20
Public tap	-	30	25	10	8	9	-
Tubewell/Borehole	10	5	10	-	6	8	-
Protected dug well/spring	10	5	10	15	10	-	-
Rainwater collection	5	4	-	18	10	-	-

Note: "-" .. not included/provided

Table B3 Input data for rural sanitation

Item	Cambodia	Indonesia	Laos	Papua New Guinea	Philippines	Timor-Leste	Vietnam
Year for analysis							
Base year	2012	2011	2011	2010	2008	2011	2011
Target year	2025	2019	2020	2030	2025	2020	2020
(Regional) population (million persons)							
Base year	11.3	116.5	4.6	6.0	46.5	0.8	60.9
Target year	11.4	112.4	5.1	9.1	59.1	1.0	53.1
Access to improved facilities (% of regional population)							
Base year	25%	39%	48%	41%	79%	27%	67%
Target year	100%	100%	80%	68%	100%	68%	85%
Distribution of facilities at the base year (% of population)							
Pour-flush to sewers	1%	0%	0%	0%	3%	0%	0%
Pour flush to septic tank/pit	24%	27%	47%	4%	56%	6%	15%
Shared	0%	12%	0%	1%	15%	0%	17%
Other improved	1%	0%	1%	36%	5%	21%	23%
Unimproved	75%	61%	52%	59%	22%	73%	45%
Distribution of facilities at the target year (% of population)							
Pour-flush to sewers	2%	0%	0%	0%	4%	0%	0%
Pour flush to septic tank/pit	95%	80%	78%	8%	70%	38%	51%
Shared	0%	20%	0%	1%	22%	0%	13%
Other improved	3%	0%	2%	58%	4%	30%	21%
Unimproved	0%	0%	20%	32%	0%	32%	15%
Unit cost of facilities (US$ per person)							
Note: Year in which prices are quoted	2012	2010	2010	2010	2010	2010	2010
Pour-flush to sewers	60	-	-	-	57	-	-
Pour flush to septic tank/pit	20	31	23	39	27	21	75
Shared	-	10	-	27	25	-	25
Other improved	5	-	4	15	11	13	25

Table B3 Input data for rural sanitation (continued)

Item	Cambodia	Indonesia	Laos	Papua New Guinea	Philippines	Timor-Leste	Vietnam
Life span of facilities (years)							
Pour-flush to sewers	10	-	-	-	25		-
Pour flush to septic tank/pit	9	20	25	25	13	10	20
Shared	-	20	-	17	11	-	10
Other improved	3	-	3	10	5	3	5

Note: "-" .. not included/provided

Table B4 Input data for urban sanitation

Item	Cambodia	Indonesia	Laos	Papua New Guinea	Philippines	Timor-Leste	Vietnam
Year for analysis							
Base year	2012	2011	2011	2010	2008	2011	2011
Target year	2025	2019	2020	2030	2025	2020	2020
(Regional) population (million persons)							
Base year	3.1	119.8	1.8	0.9	43.8	0.3	27.1
Target year	6.1	146.0	2.5	1.5	67.7	0.5	43.4
Access to improved facilities (% of regional population)							
Base year	82%	73%	87%	71%	94%	68%	10%
Target year	100%	100%	100%	84%	100%	93%	45%
Distribution of facilities at the base year (% of population)							
Pour-flush to sewers	41%	0%	4%	15%	3%	0%	10%
Pour flush to septic tank/pit	40%	62%	82%	32%	74%	20%	0%
Shared	0%	9%	0%	7%	17%	0%	0%
Other improved	1%	1%	1%	17%	1%	48%	90%
Unimproved	17%	27%	13%	29%	6%	32%	0%
Distribution of facilities at the target year (% of population)							
Pour-flush to sewers	50%	6%	15%	59%	20%	9%	45%
Pour flush to septic tank/pit	49%	80%	85%	17%	80%	65%	0%
Shared	0%	0%	0%	0%	0%	0%	0%
Other improved	1%	14%	0%	8%	0%	19%	55%
Unimproved	0%	0%	0%	16%	0%	7%	0%

Table B4 Input data for urban sanitation (continued)

Item	Cambodia	Indonesia	Laos	Papua New Guinea	Philippines	Timor-Leste	Vietnam
Unit cost of facilities (US$ per person)							
Note: Year in which prices are quoted	2012	2010	2010	2010	2010	2010	2010
Pour-flush to sewers	250	426	150	899	250	1,807	375
Pour flush to septic tank/pit	45	55	36	45	25	21	-
Shared	-	18	-	27	27	-	-
Other improved	5	294	4	15	12	12	-
Life span of facilities (years)							
Pour-flush to sewers	35	20	25	25	25	20	20
Pour flush to septic tank/pit	15	20	20	25	13	15	-
Shared	-	20	-	17	11	-	-
Other improved	3	20	3	10	5	5	-

Note: "-" .. not included/provided

Annex 3
SDA Costing Tool Outputs

Table C shows some of the key outputs for each sector and country

Table C Selected results from the costing tool

Item	Cambodia	Indonesia	Laos	Papua New Guinea	Philippines	Timor-Leste	Vietnam
Population requiring access in order to meet target (000 persons/year)							
Rural water supply	302	9,283	250	218	1,343	41	1,919
Urban water supply	260	14,637	124	41	1,410	24	1,823
Rural sanitation	658	8,380	209	184	1,171	53	2,008
Urban sanitation	275	8,791	104	41	1,811	34	1,546
Required capital expenditures : Total[a] (million US$/year)							
Rural water supply	32	772	30	22	324	19	520
Urban water supply	60	3,975	37	8	514	20	1,042
Rural sanitation	33	414	15	12	182	3	372
Urban sanitation	86	2,341	19	58	437	13	771
New capital expenditures required to meet targets (million US$/year)							
Rural water supply	6	328	11	8	91	6	174
Urban water supply	30	2,629	15	3	150	9	444
Rural sanitation	13	236	4	4	33	1	151
Urban sanitation	40	1,061	8	35	186	10	580

Table C Selected results from the costing tool (continued)

Item	Cambodia	Indonesia	Laos	Papua New Guinea	Philippines	Timor-Leste	Vietnam
Replacement capital expenditures required to meet targets (million US$/year)							
Rural water supply	25	444	20	15	233	13	346
Urban water supply	30	1,346	22	5	364	11	598
Rural sanitation	19	178	11	9	150	2	221
Urban sanitation	37	721	10	23	218	3	191
Other capital expenditures required to meet targets (million US$/year)							
Rural water supply	-	-	-	-	-	-	-
Urban water supply	-	-	-	-	-	-	-
Rural sanitation	-	-	-	-	-	-	-
Urban sanitation	9	560	1	-	33	1	-
Required capital expenditures: Public (million US$/year)							
Rural water supply	24	315	22	20	189	16	211
Urban water supply	53	2,868	33	7	315	16	1,042
Rural sanitation	3	4	1	3	12	0	63
Urban sanitation	71	1,439	8	49	274	12	771
Required capital expenditures: Households (million US$/year)							
Rural water supply	2	457	9	2	135	4	309
Urban water supply	3	1,107	3	2	199	4	-
Rural sanitation	24	410	14	9	171	3	308
Urban sanitation	1	902	11	9	163	2	-
Anticipated capital expenditures: External sources (million US$/year)							
Rural water supply	5	58	2	2	3	2	36
Urban water supply	22	25	18	10	4	4	100
Rural sanitation	3	29	0	0	0	-	16
Urban sanitation	4	28	1	11	11	-	164

Table C Selected results from the costing tool (continued)

Item	Cambodia	Indonesia	Laos	Papua New Guinea	Philippines	Timor-Leste	Vietnam
Anticipated capital expenditures: Domestic sources (million US$/year)							
Rural water supply	1	733	4	7	29	13	29
Urban water supply	2	747	2	2	302	11	43
Rural sanitation	0	39	-	3	1	0	10
Urban sanitation	2	400	0	15	284	5	41
Anticipated capital expenditures: Households (million US$/year)							
Rural water supply	2	457	2	1	23	4	95
Urban water supply	3	298	2	2	194	3	-
Rural sanitation	24	410	2	9	20	1	127
Urban sanitation	1	439	2	5	163	1	-
Anticipated capital expenditures: Total[b,c] (million US$/year)							
Rural water supply	8	1,248	9	9	55	18	160
Urban water supply	27	1,069	22	14	500	18	143
Rural sanitation	27	479	2	12	21	1	153
Urban sanitation	7	866	4	30	458	5	205
Financing[d] (million US$.year)							
Rural water supply	(24)	476	(22)	(13)	(269)	(1)	(360)
Urban water supply	(33)	(2,906)	(15)	5	(14)	(2)	(898)
Rural sanitation	(6)	65	(12)	0	(162)	(2)	(219)
Urban sanitation	(79)	(1,475)	(15)	(28)	21	(8)	(565)

[a] Required capital expenditures: total = new capital expenditures + replacement capital expenditures + other capital expenditures = required capital expenditures: public + required capital expenditures: households

[b] Anticipated capital expenditures: public = anticipated capital expenditures: domestic + anticipated capital expenditures: external

[c] Anticipated capital expenditures: total = anticipated capital expenditures: public + anticipated public expenditures: households

[d] Financing = anticipated capital expenditures: total – required public expenditures: total

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Further Reading

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