Lao PDR

WASH Sector Brief

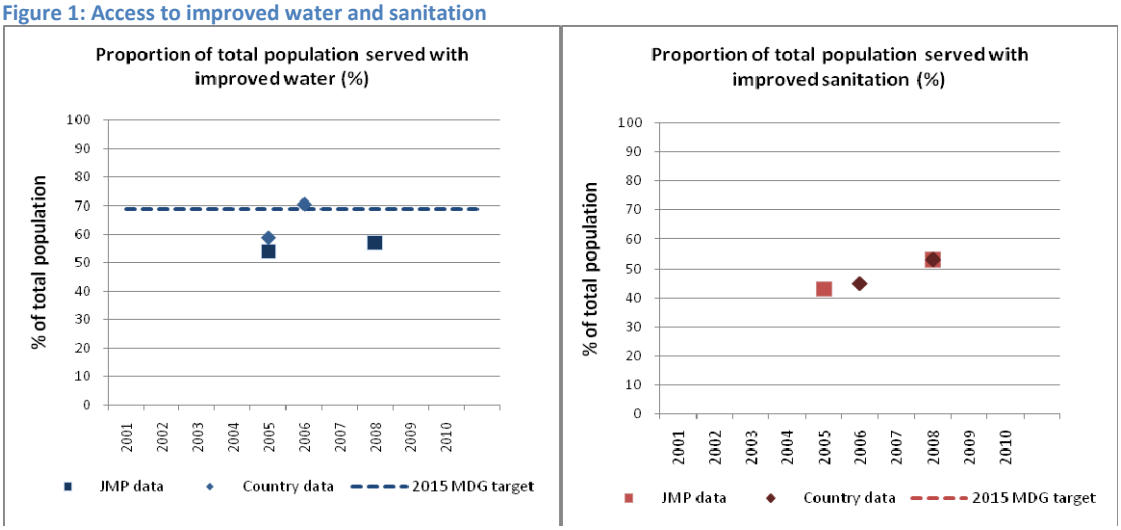
Headline issues

- Reported figures on coverage should be interpreted with caution as there are issues related to definitions of indicators and reliability of data in the absence of strong arrangements for systematic sector monitoring. Actual access figures are likely lower than those reported by the Joint Monitoring Program.
- The rural WASH sector receives low priority. There is a need to increase investment in the rural sector and to focus on sustainability of investments through institutional strengthening.
- Sanitation has received less attention than water supply. Efforts are required to increase coverage in rural areas and manage the impacts of inadequate sanitation in urban centres, with poor wastewater and sludge management presenting public health and environmental concerns.
- While policies have been developed, sector fragmentation driven by poorly defined institutional roles and lack of human resource capacity, particularly in sanitation, continue to hinder progress.
- The sector receives little external support and householders bear most or all of the costs.

Coverage and WASH-related health statistics

According to UNICEF/WHO Joint Monitoring Program (JMP) Lao PDR is not on track to meet its Millennium Development Goal (MDG) water target for 69% of the total population to have access to improved water by 2015, and is placed into their category of "progress but insufficient".[1] Despite very high rates of open defecation reported in the rural sector where 70% of the population lives, Lao is viewed as "on track" to meet the sanitation target according to JMP and many people within government believe the target has already been met, according to a recent World Bank's Water and Sanitation Program (WSP) study.[2] There is, however, some inconsistency in the accepted MDG sanitation target.

Figure 1: Access to improved water and sanitation



Source: WHO/UNICEF Joint Monitoring Program (JMP) (2010) data for 2008.[1] Country data from SNV (2009).[3] The MDG target for sanitation is not shown due to inconsistencies in definition as discussed below.

The Lao Government refers to an 'Initial MDG Target' of 46% of the total population with access to improved sanitation by 2015,[4] while UN and World Bank sources note 2015 MDG sanitation targets of 52%[5], 63%[6] and 70%.[7] Coverage values in 1990 are reported as zero for both improved water and sanitation in JMP data,[8] which may mean that data was unavailable and has been extrapolated from more recent data to arrive at 1990 values on which the targets are based. This may explain the differences in estimated targets. Furthermore, the WSP study points to an anomaly in the survey data on which JMP data is based, which implies a very steep rise in sanitation coverage from 45% to 53% between 2006 and 2008, which the authors suggest to be the result of differences in indicator definitions.[2] The JMP data and national country data are seen in Figure 1, revealing the main disparities lying in recent water access coverage.

Overall water supply coverage is low and service quality often fails to meet government standards.[6] Urban households often receive inadequately disinfected water at low pressure for only a few hours a day, and many urban households use wells and water tanks to supplement public water supplies.[6] The 2008 JMP figure of 72% with access to improved water in the urban sector conceals wide disparities between the five largest towns and the smaller towns (70% versus 21% access in 2006).[10] Although Lao has made very significant progress in improving water supply in urban centres, rapid urbanisation makes it difficult to maintain the access figures.[9]

The government's recent National Growth and Poverty Eradication Strategy (NGPES) of 2010 identifies water, sanitation and hygiene (WASH) as one of four priority sectors and has set a goal of 80% coverage with 24 hour piped water supply for urban populations by 2020, which is consistent with the 2015 MDG urban water targets.[10] A similar explicit target for rural water in the NGPES could not be located within the scope of this desktop study, beyond the aspiration reported in the World Bank's sector review in association with the NGPES to: "ensure equitable service coverage for all regions of the country."[6]

Rural water supply has made much slower progress, particularly in areas with limited road access. Across the country, as many as 30-50% of villages suffer water scarcity for an average of 2.7 months annually.[4] The most common safe rural water supplies are bottled water, boreholes and public taps.[9] The World Bank reports that water quality in rural supply systems generally does not meet national drinking water standards.[6]

Sanitation is given low priority at both national and local level with low levels of government investment in the subsector.[7] Access to sanitation in Lao PDR was below the regional average for Southeast Asia in 2005,[7] and has not received greater priority since then. Urban sanitation is typically on-site consisting of pour-flush toilets with a soakage pit or septic tank.[11, 6] The capital, Vientiane, has a small area served by piped sewerage, and a small number of pilot small bore sewerage systems.[11] Even where coverage is high, such as in Vientiane, on-site systems suffer from poor design, construction and maintenance, and threaten surface and ground water, with urban drains acting as secondary sewers.[11] This problem is likely to worsen with rapid urban growth and increasing population.[11] As with water supply, rural sanitation fares worse than urban sanitation. Open defecation was practiced by 52% of the rural population in 2008.[1]

Investment driven by MDG targets preference the urban sector because it is seen to be economically more efficient in increasing the numbers with access.[6] It is likely that other drivers such as effective use of installed facilities, service quality and sustainability of management would lead to different patterns of investment and greater inclusion of the rural WASH sector.[12]

In terms of WASH-related health statistics, the UN reports that approximately 30% of infant mortality is attributed to poor WASH.[6] According to a World Bank report, over 90% of the 3,600 annual deaths from diarrhoea nationally are children under five, and are directly correlated to poor WASH.[7] Further WHO statistics on infant mortality, disability adjusted life years (DALYs) and WASH related deaths are presented in Table 1 and demonstrate the significant health impacts of the low access to improved water and sanitation in Lao PDR.

Table 1: Summary health statistics

Infant mortality (deaths per 1000 births)[13]	59
WASH-related DALYs (% of all DALYs)[14]	11%
Total WASH related DALYs (Years)[14]	176,470
Total WASH related deaths per year[15]	4,562
WASH related proportion of deaths (%)[15]	9%

Finance trends

The Lao PDR government estimates of water and sanitation MDG costing for the five years to 2014/15 are $US206M and $US185M for urban and rural areas respectively – and average of $US78M annually.[6] To meet the government's NGPES target to supply safe and reliable water to 80% of the urban population alone requires $US270M between 2011 and 2020, of which Japan International Cooperation Agency (JICA) and Asian Development Bank (ADB) are expected to fund approximately $US235M, with almost half the total to be invested in Vientiane.[10,6] A further $US140M is needed for urban wastewater and $US100M for rural WASH, which translates to annual investment of $US40M over the decade. Historical annual levels of investment in WASH are estimated at around $US8M for urban water (with 97% contributed by development partners and remainder by provincial governments), nil for urban sanitation, and $US3M for rural WASH.[6] The likelihood of increasing funding four-fold to meet NGPES or MDG targets is therefore low.[6] However, lack of detailed monitoring may mean that not all WASH contributions from development partners are able to be captured and reported.[4]

Sanitation is greatly neglected, with no single government agency responsible for budget allocation.[11] Little information on expenditures for sanitation and hygiene is available. A modelled estimate for 2008/09 suggests expenditure of the order of $US5.9M of which over 70% is for hardware. Over 50% of the funds are estimated to come from households for latrine construction, 35% from development partners and 12% from government mainly as staff resources and administration.[2]

Investments in rural water supply and sanitation during 2000-2009 are estimated to be $US27.5M, of which 80% was used in water supply. Around 65% of this was funded by development partners or international non-governmental organisations (INGOs), 25% by households, and 10% by central and/or local governments.[6]

Although the above highlights serious funding constraints for the future, the Global Analysis and Assessment of Sanitation and Drinking-Water (GLAAS) survey is more optimistic, with country respondents estimating availability of funding as 'between 50% and 75% of needs' for urban water and sanitation, and 'more than 75% of needs' for the rural subsector.[16] However the GLAAS survey also indicates that less than 50% of funds for rural water, urban sanitation and rural sanitation are reflected in the government budget, suggesting significant underinvestment.

Sector governance

Since the late 1990s, the Government of Lao PDR has been in the process of improving the regulatory environment for water supply and sanitation.[10] The *Water Supply Law (2009)* and *Water and Water Resources Law (1996)* provide the policy frameworks for overall sector oversight, including infrastructure, private sector participation, funding and tariff policies, rights and obligations of parties, dispute resolution etc. These await issue of an implementation decree.[6,10]

The capital city, secondary towns, provincial centres, small towns/district centers with more than 2000 inhabitants at densities greater than 30 persons per hectare are classified as 'urban'. The urban water services sector is overseen by the Ministry of Public Works and Transport (MPWT), while sanitation and rural water services come under the Ministry of Public Health (MoH) through its Centre for Environmental Health (*Nam Saat*).[6,10] The Ministry of Education (MoE) plays a role in WASH for schools. The World Bank notes that having both MPWT and MoH responsible can result in inefficiencies in planning and resource use, and recommends MPWT be responsible for water and sanitation infrastructure and MoH be responsible for hygiene promotion to improve knowledge and habits to support safe water and sanitation.[6] It is hoped that the forthcoming rural WASH strategy will clarify agency roles and responsibilities.

Respondents from Lao PDR to the 2010 GLAAS review shown in Table 2 describe an optimistic picture of the status of policy and governance in the WASH sector, and point out that the major constraint lies in human resource capacity. The survey indicated that there are no in-country education and training institutions for drinking-water and sanitation professionals for any of the four-subsectors, although human resource needs are addressed in the national strategies.[16] Due to limitations associated with the GLAAS methodology, the relatively positive assessments of sector coordination and planning should be read with caution, with other sources citing fragmentation as a critical issue.[6]

Table 2: GLAAS assessment of overall perception for urban/rural water/sanitation[16]

Implementation and coordination of national policies and institutions	7/10
Planning, monitoring, and evaluation of the sectors	6/10
Financial planning and resources for the sectors	6/10
Human resources availability/development	3/10

Subsector governance

Urban Water

The Ministry of Public Works and Transportation (MPWT) is responsible for urban water supply at a central level. The Water Supply Regulatory Committee (WRSC) and Water Supply Regulatory Office (WaSRO) direct overall regulatory activities in the sector, including monitoring and supervision of both public and private service providers. [6,10] The Department of Housing and Urban Planning within MPWT is tasked with delivery, which is further delegated to the *Water Supply Division*. Development partners provide technical assistance and capacity building to enable the WRSC and its departments to fulfill their roles.[6]

Water service delivery is devolved to 17 provincial water utilities (referred to as Nam Papa State Enterprises NPSEs or Provincial Nam Papas PNPs), under the policy set by a Prime Ministerial decree in 1999 on *the Management and Development of Water Supply and Wastewater Sector*. The NPSEs are required to operate as

financially autonomous state-owned enterprises, but in practice have no corporate plans and little experience of operating as commercial entities – they are reported to operate more as line departments of the provincial Departments of Public Works and Transportation.[6,10] Under the current arrangements, consumers are required to be metered and pay tariffs to recover costs. The WRSCs activities have been focused on tariff reviews and the preparation of NPSE annual reports.[6]

There are 34 District Nam Papas within the 17 NPSEs, operating close to 150,000 urban water supply connections.[6] The government has been working with development partners to improve the financing and efficiency of urban water services including decentralised delivery and private sector participation. This has resulted in a range of different service delivery models with varying degrees of private sector participation from joint ventures with private investors, build-operate-transfer arrangements, NPSEs operating assets funded by (non-governmental organizations) NGOs, or community owned, or privately owned assets (or combinations of these), privately owned and operated concessionaires (under the MIREP program) and some large rural systems owned and managed by the community.[6]

Urban Sanitation

Policy and legal development of sanitation are reported to be lagging due to lack of clear lines of responsibility[11] within complex and overlapping institutional arrangements for urban sanitation. MPWT is reportedly responsible for urban sanitation, including development of the sector strategy, investment plans and technical regulations, which it delegates to the *Urban Development Division* of MPWT's Department of Housing and Urban Planning, while Provincial Urban Development Administration Authorities are tasked with the provision of infrastructure services for wastewater management, as well as drainage and solid waste management.[6] At the same time, the MoH's *Nam Saat* is also reportedly responsible for both urban and rural sanitation.[4,7] World Bank Water and Sanitation Program (WSP) report that poorly defined scope of responsibilities, limited financial resources and limited staff capacities constrain *Nam Saat,*[7] which is calling for a clarifying Ministerial Decision/Instruction to enable greater effectiveness.[4]

Onsite sanitation systems built by households are reported to be poorly regulated.[6] The building regulations that specify standards for onsite systems have a number of shortcomings and no system for ensuring compliance. There is no regulation of sludge removal and disposal, nor public sludge removal services. Unregulated private service providers with little knowledge of safe management are reported to usually dispose untreated sludge in rice fields and open spaces.[6,11,17]

Rural Water

Nam Saat has responsibility for rural water services. A new rural WASH sector strategy is under development, to replace the 2004 revision of the National Strategy for Rural Water Supply and Environmental Hygiene (1997). The original strategy envisages provision of improved access to basic water supplies, but not necessarily of drinking water quality.[6] The 2004 revision sought to encourage cooperation between private sector providers and *Nam Saat*, whilst requiring service quality standards to be met.[18] It also sought to improve community participation and bottom-up planning, inclusion of disadvantaged groups, and better support from district and provincial authorities.[9] A '7-Steps' approach to implementation is a key element of the Strategy, and had good results when used.[4] However, the supporting materials for the approach have often been unavailable at the

provincial and district level, and human resource constraints in the sector has meant few personnel have been trained to use it.[4] Overall implementation of the previous strategy has been poor.[6,18]

Ownership and responsibility for operation and maintenance of rural water infrastructure is ambiguous.[4] *Nam Saat*'s program requires WatSan committees to be created, headed by the village chief, to be responsible for village rural water supply operations.[6] The limited technical and financial capacity of community-based committees, who are not provided adequate training, results in a large proportion of constructed systems being non-operational.[4,6]

Rural Sanitation

The institutional framework for rural sanitation is combined with rural water, described above. With nearly half the rural population estimated to practice open defecation, the sector has suffered serious neglect.[4] The new draft Rural WASH Strategy notes the need to revise the '7-Steps' approach to incorporate methods such as community-led total sanitation (CLTS).[4]

Health and Hygiene

Sanitation and environmental health and hygiene are treated as a single sector, with promotion of environmental health and hygiene again the responsibility of *Nam Saat.*[4, 6] Since most of its professional staff have medical backgrounds and skills to enable behavior change interventions to improve health, *Nam Saat* may be better suited to this role that water and sanitation infrastructure service provision which required more engineering oriented professionals.[9] However, their ability to create the necessary change is limited by highly constrained human resources in the rural sector, where each health sector worker is required to cater to 70 villages (or around 43,000 people), on average.[4] The Ministry of Education also plays a role for WASH in school , and schools WASH programs with a strong element of hygiene education are implemented with support from UNICEF and NGOs..

Climate change and water resources

A high dependence on climate-sensitive natural resources makes Lao PDR vulnerable to climate change.[19] In recent years, Lao PDR has experienced longer dry seasons, extreme floods, forest fires, and significant agricultural land lost to drought and floods (57,000 hectares in 2005).[20,19] This creates concerns for water security, despite Lao ranking 'mid-range' in terms of freshwater availability with 54ML/person/year. Further, the pronounced seasonal variability in water availability creates challenges for sustainability of water and wastewater systems. The need for concern is echoed in the assessment shown in Table 3 which shows indicators of Lao PDR's climate vulnerability set to increase over the coming decades.

Table 3: Summary status of water resources and vulnerability

Renewable water (ML/population)[21]	54
Overall Climate Vulnerability factor 2010[22] (on scale of *Acute, Severe, High, Moderate, Low*)	Moderate
Overall Climate Vulnerability Factor 2030[22] (on scale of *Acute, Severe, High, Moderate, Low)*	High
Environmental Vulnerability Status[23] (on scale of *Extremely vulnerable, Highly vulnerable, Vulnerable, At risk, Resilient)*	At risk

Donor environment

Multi-lateral and bilateral support has been dominantly focused on the urban water supply sector. For the period 1999-2014, urban water supply in Lao has received funding commitments of $US125M (averaging $US8M annually), with over half provided by ADB ($US65.5M). Other significant donors are JICA ($US27M) and the French Development Agency ($US14M), with lesser commitments of $US2-4M from World Bank Water and Sanitation Program (WSP), UN Habitat, the Korean International Cooperation Agency (KOICA), Belgium and Norway.

According to the GLAAS survey, in the urban sector absorption of donor funding has been high (greater than 75% of funds used) whereas in rural areas it has been low (less than 50% used).[16] Lower use of funds in rural areas reflects capacity constraints at the provincial and district levels.

UNICEF has been a key actor collaborating with *Nam Saat* in the rural WASH sector.[9] UNICEF's role has included provision of latrines, schools WASH programs, capacity development for Nam Saat staff at all levels (in cooperation with SNV), and development of a National Rural Water Supply and Sanitation Strategy.[9,24]

Beyond this, there are at least 20 INGOs including ADRA, SNV, CARE, Oxfam and World Vision listed as active in the WASH Sector in the Internet Directory of NGOs in Lao PDR[25] or included in a recent study of civil society contribution to the WASH sector.[26] They are predominantly active in rural WASH programs, filling a crucial gap in government priorities. SNV is active in the sector and leading coordination efforts as well as seeking to build sub-national government capacity.[12] In cooperation with World Bank WSP, SNV also developed manuals in support of CLTS, schools sanitation, and 'Handwashing with Soap' programs.[24] French NGO, GRET, has provided financial and technical support to the MIREP program piloting private-public partnerships in rural and peri-urban water supply schemes.[6,26]

Sector monitoring

According to WSP, sector monitoring is weak from multiple perspectives, making data unreliable.[7] Lao Ministry of Health report that an effective monitoring system for rural water and sanitation is lacking, especially in terms of the functionality of existing systems, and the population that actually has access to services installed.[4] Therefore officially reported coverage figures are largely speculative, as they assume that installed systems are still operational and available to the entire population in villages.[4] The data submitted by NPSEs or private water service providers is not comprehensive or reliable, and have little opportunity for audit and verification, limiting the WRSC's ability to regulate and monitor their performance.[10] Systematic water quality surveillance does not exist, hampering ongoing public health risk assessment that can be used to avoid public health hazards from different sources of water pollution. GLAAS survey results indicate that there is no annual review process of the performance of access and services for the rural WASH sector, however that there is one in place for urban drinking water.[16]

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[13] The probability per 1,000 that a newborn baby will die before reaching age five (2009). Source: World Bank Open Data from the Inter-agency Group for Child Mortality Estimation.

[14] Disability-adjusted life year (DALY) measures the years of life lost to premature mortality and the years lost to disability. Source: 2004 update of the Table 1 and Annex of the publication 'Safer water, better health', by Prüss-Ustün et al, WHO, Geneva, 2008. Available at http://www.who.int/quantifying_ehimpacts/publications/saferwater/en/index.html.

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[22] Source: Climate Vulnerability Monitor 2010 http://daraint.org/climate-vulnerability-monitor/climate-vulnerability-monitor-2010. Countries are classified according to: ACUTE+, ACUTE, ACUTE-, SEVERE+, SEVERE, SEVERE-, HIGH+, HIGH, HIGH-, MODERATE, LOW. For information on included datasets and methodology for aggregation and categorising, see http://daraint.org/wp-content/uploads/2010/12/CVM_Methodology.pdf.
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