

The cost of sustaining sanitation services for 20 years can be 5-20 times the cost of building a latrine

Expenditure on sanitation in countries where WASHCost has carried out research is too low, and is focused almost entirely on the capital costs of building latrines. There is a striking difference between the expenditure required to provide a basic service and what is actually being spent. Too little is spent on stimulating and sustaining demand for hygienic latrine use and in ensuring that latrines are kept clean and in good repair. The absence of arrangements for pit emptying and measures to ensure environmental protection is adversely affecting service levels.

Although governments have policies to develop safe sanitation and programmes to build latrines, in rural areas, sanitation is largely left to families. In India—where the Government recently increased subsidies for poor families—there is an unaddressed gap between the number of people with access to latrines and the number who use them.

Expenditure on keeping latrines clean and in good condition is generally far too low. However, there exists a constituency of families who highly value their facilities and regard them as a worthwhile family investment. It would be of great benefit to identify the key factors that motivate these families and to try to replicate that in stimulating demand. These are the findings of WASHCost research in Burkina Faso, Ghana, Mozambique and the state of Andhra Pradesh in India.

Expenditure for constructing latrines

The minimum expenditure required to provide a basic level of sanitation service ranges from US\$ 7 for a basic pit latrine to US\$ 36 (2011 prices) for a VIP latrine. Expenditure below the benchmark figures risks reduced service levels or long-term failure.

Table 1 Capital expenditure benchmarks for sanitation*

Cost component	Latrine type in area of intervention	Cost ranges [min-max] in US\$ 2011
Total capital expenditure (per facility)	Traditional pit latrines with an impermeable slab (made often from local materials)	7-26
	Pit latrines with a concrete impermeable slab, or VIP type latrines with concrete superstructures (with ventilation pipe and screen to reduce odours and flies)	36-358
	Pour-flush or septic-tank latrines, often with a concrete or bricked lined pit/ tank with sealed impermeable slab, including a flushable pan	92-358

Source: WASHCost Infosheet 1 - Providing a basic level of water and sanitation services that last: cost benchmarks (WASHCost, 2012, p.1).

* The benchmarks demonstrate the expenditure required to provide latrines capable of providing a basic level of service.

Where the cost of materials and construction is comparatively high, the benchmarks suggest that a pit latrine can cost US\$ 26 and a VIP latrine as much as US\$ 358 to provide a basic level of service.

The cost of building latrines varies widely within and between countries, reflecting differences in local conditions and markets, and in construction quality and standards. In general, latrines cost more in urban and peri-

urban areas than in rural areas, and the cost rises with the sophistication of the technology.

- i) The cost of constructing VIP latrines is five times higher in Burkina Faso than in Ghana and Mozambique.
- ii) The cost of VIP latrines in more densely populated peri-urban areas can be two to three times higher than in rural areas.

Recurrent expenditure for sustaining sanitation services

Building a latrine is only a first step towards an effective sanitation service. The latrine must be used, kept clean, maintained and replaced at the end of its useful life if families and communities are to benefit. The recurrent costs of keeping the latrine clean and maintained, of emptying the pit and the safe disposal of sludge and of “capital maintenance” to ensure that major repairs are carried out, are essential for sustainable sanitation.

There is some evidence, at least from Andhra Pradesh, that the higher the operational expenditure, the cleaner and more sanitary the latrine.

Recurrent expenditure also covers the costs of support to those who provide services. If planning and budgeting is based on capital expenditure alone, latrines are unlikely to be sustainable.

Table 2 Recurrent expenditure benchmarks for basic sanitation services

Breakdown of recurrent expenditure*	Cost ranges [min-max] in US\$ 2011 per person, per year		
	Traditional pit	VIP type latrines	Pour-flush or septic-tank latrines
Operational and minor expenditure	0.5-1	1-4	1-4
Capital maintenance expenditure	0.5-1.5	1-3**	2-6**
Expenditure on direct support***	0.5-1.5	0.5-1.5	0.5-1.5
Total	1.5-4	2.5-8.5	3.5-11.5

Source: WASHCost Infosheet 1 - Providing a basic level of water and sanitation services that last: cost benchmarks (WASHCost, 2012, p.2).

*‘Cost of capital’ and ‘expenditure on indirect support’ are not included owing to insufficient and unreliable sources of information.

**Based on pit emptying figures derived from Chowdhry and Kone, 2012. Figures used for pit emptying assume that traditional VIP type latrines require emptying every five years, and pour flush/ septic tanks every two years. These figures may be adapted to context-specific situations.

***Derived from a soon-to-be published dataset from a large implementation programme in the sector.

Recurrent expenditure to achieve a basic service level (covering operation and maintenance, capital maintenance and direct support) ranges from US\$ 1.5 for low-cost pit latrines per person per year to US\$ 11.5 per person per year for the most expensive pour-flush or septic-tank latrines.

The benchmark expenditure to achieve a basic service with a traditional pit latrine may reach US\$ 4 per person per year to meet all the recurrent costs, while expenditure on achieving a basic service with a VIP latrine can reach US\$ 8.5 per person per year¹.

The 20-year cost of sustaining a basic level of service with a basic pit latrine in WASHCost research areas is US\$ 30-80 per person after construction. That is more each year than the construction cost per person which ranges from US\$ 1-4.

The cost of keeping a household latrine clean and in good daily condition (operation and minor maintenance expenditure) does not vary widely between different kinds of latrine. The benchmarks range from US\$ 0.5-1 per person per year for traditional pit latrines, and from US\$ 1-4 per person per year for VIP, pour-flush or septic-tank latrines. It has proved especially difficult to relate these costs to service levels because of lack of data and because of generally low expenditure.

- i) In rural areas in WASHCost countries, actual expenditure on operation and minor maintenance is usually well below these benchmark figures; and in most cases below US\$0.50 per person per year.
- ii) A significant minority (10-15%) of households in Burkina Faso and Ghana spend more than US\$ 15 per person per year on keeping their latrines clean and in good condition. These “high-spending” households—many of whom beautify their latrines and bathrooms—are more common in peri-urban areas and amongst households with more technologically advanced latrines.

¹ These are the interquartile figures, excluding the highest and lowest 25% of data findings so as not to include ‘special cases’.



Cost of emptying latrines and major repairs (capital maintenance)

The capital maintenance expenditure (pit emptying, major repairs and replacement) required to maintain a basic level of service ranges from US\$ 0.5 to US\$ 6 per person per year, depending on the type of latrine.

Without proper attention to emptying latrines and to high-cost major repairs, most fill up or fail within two years in peri-urban areas, and in five to eight years in rural areas. If latrines do not fill up, it can indicate that they are not being used by all family members. Widespread lack of use and failure of household latrines are both public health and environmental issues – not simply family problems.

- i) The majority of household, public sector and other providers spend nothing on pit emptying and major repairs or cannot remember what they spent.
- ii) Data on pit emptying is especially scarce, underlining that this is a rare event.

The 20-year cost of emptying latrines and of major repairs range from US\$10 to US\$ 120 per person, with the highest costs required for more sophisticated latrines.

Advocacy and support for safe sanitation and environmental protection

Direct support covers the promotion of latrine construction and use, stimulating demand and working towards sustained behaviour change. These 'software' costs are usually neglected.

Regular campaigns are needed to promote regular pit emptying and environmental protection, including checks to ensure that water sources are not contaminated with faecal material. Expenditure on structured efforts to support sanitation and environmental protection is known as expenditure on direct support.

In Mozambique, a participatory community education initiative known as PEC, has been introduced alongside initiatives to construct latrines. Research is under way to test its cost effectiveness. This is an exception. In most places, such initiatives are sporadic or non-existent.

- i) Benchmark expenditure on direct support on sanitation to maintain a basic service ranges from US\$ 0.5-1.5 per person per year to maintain a basic service.
- ii) In fact, actual expenditure on direct and indirect support together is five to ten times lower than this, ranging from US\$ 0.1 and US\$ 0.2 per person per year in rural Andhra Pradesh and Mozambique.
- iii) Actual expenditure on indirect support—policy making, planning and training at a higher level to strengthen the sector—was virtually invisible for sanitation in WASHCost research countries.

Bringing costs and services together

The WASHCost sanitation ladder provides a method of looking at service levels and comparing them with costs. The ladder can be used as a tool for monitoring and assessing value for money.

Official statistics that simply measure “coverage” by the number of latrines built are crude measures of sanitation services that fail to factor in latrine use, and the need for quality and maintenance. Service level analysis that encompasses access, use, reliability and environmental protection, leads to a more developed and nuanced understanding of underlying problems. For sanitation, WASHCost considers a basic level of service to be in place when the following criteria are achieved by the majority of the population in the service area:

- i) At least some members of the household use a latrine with an impermeable slab available at the house, in the compound or shared with neighbours.
- ii) The latrine is clean even if it may require high user effort for pit emptying and other long-term maintenance. The disposal of sludge is safe and use of the latrine does not result in problematic environmental impact.

Table 3 Sanitation ladder devised by WASHCost to assess service levels *

	Accessibility	Use	Reliability	Environmental protection
Improved service	Each family dwelling has one or more toilets in the compound Easy access for all family dwellings	Facilities used by all household members	Regular or routine O&M (including pit emptying) service requiring minimal effort Evidence of care and cleaning of toilet	Non problematic environmental impact/ Safe disposal and re-use of safe by-products
Basic service	Cement or impermeable slab at national norm distance from households (per household or shared)	Facilities used by some household members	Unreliable O&M (including pit emptying) requiring high level of user effort Evidence of care and cleaning of toilet	Non problematic environmental impact/ Safe disposal
Limited 'service'	Platform without impermeable slab separating faeces from users	No or insufficient use	No O&M (e.g. Pit emptying) taking place and no evidence of cleaning or care for the toilet	Significant environmental pollution, increasing with increased population density
No service	No separation between user and faeces, e.g. open defecation			

Source: WASHCost Working Paper 3 – Assessing sanitation service levels (Potter et al., 2011, p. 19).

* This service ladder is designed for domestic sanitation at household level only. Criteria are adjusted to meet national standards in each country. No/ unacceptable service is assumed to exist where facilities do not effectively separate faeces or urine from the user or environment. It was not possible to collect reliable data on infant faecal disposal or to accurately differentiate which household members did or did not use the latrine.

WASHCost findings on costs and service levels include:

- i) In Burkina Faso, Mozambique and Ghana, higher levels of service are achieved in peri-urban areas and small towns compared with rural areas, due to improved environmental protection and reliability.
- ii) In Mozambique, the very poor are twice as likely to defecate in the open as the less poor and less likely to have access to anything other than a traditional latrine. Three quarters (73%) of those classified as “less poor” have access to sanitation, compared with two thirds (67%) of “poor” families and half (52%) of the “very poor”.
- iii) In Andhra Pradesh, 17% of households received a financial incentive from the government to construct latrines, but only 32% of household latrines are used by all family members and 17% are not used at all. Households were more likely to use latrines when they have invested their own resources. Even in villages that won government prizes for becoming “open-defecation free”—slippage is a problem, meaning that people return to open defecation.
- iv) In Andhra Pradesh, investment in latrines is less in villages where families spend a long time fetching water. WASHCost found a positive relationship between household expenditure on latrines and economic development, farm size, having cash and higher rates of literacy.

Take away global messages

- ❑ Public expenditure on sector sanitation policy, planning, monitoring and staffing (indirect support) is not prioritised in the countries where WASHCost research was carried out. There are equity issues especially in rural areas. WASHCost research suggests that it is unlikely that poor families can meet the costs of a basic and decent system of sanitation. A better understanding of the real costs of sanitation for the poorest families is needed, together with a more detailed picture of affordability. WASHCost benchmarks can help decision makers to plan and budget for sustainable sanitation services in rural and peri-urban areas.
- ❑ Technically advanced latrines cost more but do not necessarily deliver significantly better services. This may reflect an expenditure gap that is damaging service levels and sustainability.
- ❑ Improved traditional pit latrines are capable of delivering similar levels of service to more expensive latrines, and do not seem to require higher operating and maintenance expenditure.
- ❑ Expenditure by households, the public sector or service providers on capital maintenance and direct and indirect support is virtually non-existent across all four countries. Expenditure on operations and minor maintenance is low for the vast majority of latrines sampled.
- ❑ In Burkina Faso, Mozambique and Ghana, higher levels of service are achieved in peri-urban/ small town areas in comparison with rural areas, due to improved environmental protection and reliability. This coincides with generally higher expenditure on construction and recurrent costs. The need for improved sanitation in higher-density urban areas is apparently recognised by households.
- ❑ There is a strong case for policy makers to refocus sanitation priorities. Planning for demand creation and latrine construction is important. It is also critical to plan for higher expenditure on support and measures to promote latrine use and environmental protection, including systems for pit emptying and the safe disposal of faecal sludge.



For a family of seven people, the cost of constructing a basic pit latrine that delivers a basic level service ranges from US\$ 1-4 per person.

The benchmark per person cost of building a VIP latrine ranges from US\$ 5-51 per person.

The benchmark per person cost of building a pour flush or septic-tank latrine ranges from US\$ 13-51 per person.

But...

The cost of sustaining sanitation services for 20 years can be 5-20 times the cost per person of building a new latrine.

WASHCost Briefing Notes and Working Papers for further reading

Global

- Providing a basic level of water and sanitation services that last: cost benchmarks
<http://www.washcost.info/page/2386>
- Applying the life-cycle costs approach to sanitation: costs and service levels in Andhra Pradesh (India), Burkina Faso, Ghana and Mozambique
<http://www.washcost.info/page/1626>
- Ladders for assessing and costing water service delivery (Second edition)
<http://www.washcost.info/page/753>
- Assessing sanitation service levels (Second edition)
<http://www.washcost.info/page/902> (English)
<http://www.washcost.info/page/1765> (French)
<http://www.washcost.info/page/1837> (Portuguese)

Burkina Faso

- Applying the life-cycle costs approach: latrine costs in Burkina Faso <http://www.washcost.info/page/1702>

Ghana

- Costs of rural and small town sanitation services
<http://www.washcost.info/page/1442>

Mozambique

- Sanitation service levels: assessing services in rural and peri-urban Mozambique
<http://www.washcost.info/page/2025>
- Cost of PEC-zonal activities in Mozambique: analysis of contract costs from 2008 up to 2011
<http://www.washcost.info/page/1804>

India (Andhra Pradesh)

- Rural sanitation in Andhra Pradesh: some progress on toilets... much less on use
<http://www.washcost.info/page/1652>
- Can WASH Services be improved by TAPping? Insights from WASHCost (India) Project, Andhra Pradesh
<http://www.washcost.info/page/1647>

Other materials for further reading

- WASHCost project reveals that toilet campaign in India fails to change family customs (web article)
<http://www.washcost.info/page/1355>
- Assessing sanitation costs and services in Andhra Pradesh, India (conference presentation)
<http://www.washcost.info/page/1073>
- Overcoming caste biases improving access to WASH services <http://www.washcost.info/page/2006>
- 'Slippage': The Bane of Rural Drinking Water Sector (A Study of Extent and Causes in Andhra Pradesh) in Journal of Social and Economic Development , vol. 13, no. 2 (Abstract only)
[http://www.isec.ac.in/Journal%20Vol%2013%20\(2\)%20for%20isec%20web.pdf](http://www.isec.ac.in/Journal%20Vol%2013%20(2)%20for%20isec%20web.pdf)

Visit the WASHCost website at www.washcost.info or IRC's WASH library at www.washdoc.info.nl to access global and country-specific publications and research material.

WASHCost

This Infosheet presents key messages about sanitation expenditure and service levels emerging from WASHCost's research. WASHCost teams in Burkina Faso, Ghana, Andhra Pradesh (India) and Mozambique collected and analysed cost and service level information for water, sanitation and hygiene in rural and peri-urban areas, applying the life-cycle costs approach. The life-cycle costs approach examines the complex relationships between expenditure, service delivery, poverty, effectiveness and sustainability.

The research has identified expenditure on provision, support and long-term maintenance and replacement required to ensure that sanitation services meet national standards and serve families into the future. It offers a financial perspective on sanitation problems, which are exacerbated by limited affordability and limited effective demand.

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