

IRC

Priceless!

Uncovering the real costs of
water and sanitation

Peter McIntyre, Deirdre Casella, Catarina Fonseca
and Peter Burr

Supporting water sanitation
and hygiene services for life



At IRC, we believe that turning on a working tap should not be a surprise or cause for celebration.

We believe in a world where water, sanitation and hygiene services are fundamental utilities that everyone is able to take for granted. For good.

We face a complex challenge. Every year, thousands of projects within and beyond the WASH sector fail – the result of short-term targets and interventions, at the cost of long-term service solutions.

This leaves around a third of the world's poorest people without access to the most basic of human rights, and leads directly to economic, social and health problems on a global scale. IRC exists to continually challenge and shape the established practices of the WASH sector.

Through collaboration and the active application of our expertise, we work with governments, service providers and international organisations to deliver systems and services that are truly built to last.

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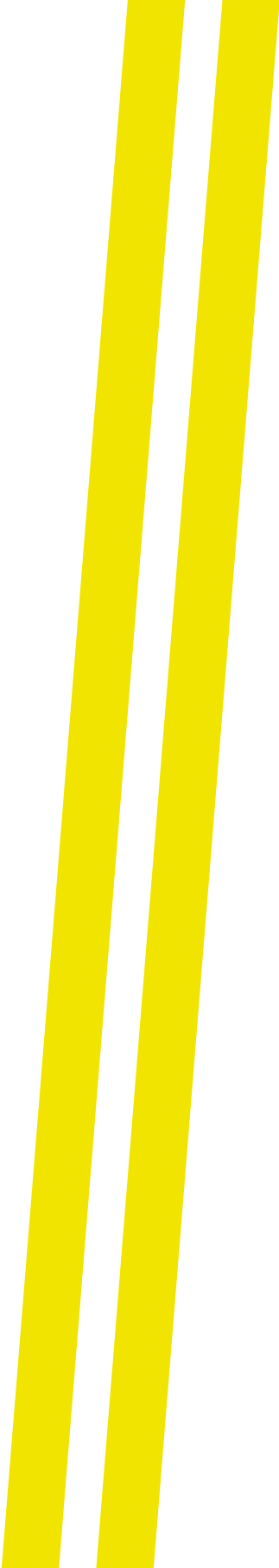
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Priceless!

Uncovering the real costs of
water and sanitation



To Louis Boorstin, Deputy Director of the water, sanitation and hygiene program of the Bill & Melinda Gates Foundation from 2005 to 2013, for leading boldly and believing in the WASHCost vision, and to Rachel Cardone, Program Officer for water, sanitation, and hygiene at the Bill & Melinda Gates Foundation from 2007 to 2012, for supporting us in its implementation.

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And finally to the whole WASHCost team and partners who worked collectively with us to achieve WASHCost's ambitious goals.

This book describes how we did it together.

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Foreword

This book describes a five-year journey, undertaken in four countries and in the international arena, to identify the costs of providing sustainable water, sanitation and hygiene services and to find ways of embedding that knowledge in governance structures. The WASHCost project has been called “bold as hell,” and the donor who funded it, the Bill & Melinda Gates Foundation has also been described as brave. Such words are sometimes used to describe something dangerous or even foolhardy. But WASHCost reached its endpoint safely, and its success can be measured in terms of the influence it has had on the international agenda and on the governance systems in three sub-Saharan African countries and one state in India.

This book is not about the outcomes, which are described in the many publications available from the IRC website and were reviewed in the independent end-of-project assessment. Rather, it is about how a multi-country, multi-year project, with a significant budget, prepared for and set out on a journey of discovery and change. It shows the conceptual challenges that emerge when trying to translate excellent ideas into practical results, and how assumptions fare when faced with the realities of research and implementation. It tells of a collective effort to understand why water, sanitation and hygiene services continually fail and need to be replaced, why budgets do not match needs and how changes can be introduced. It shows the internal life of the project as country teams and project leaders struggle to match aspirations to the art of the possible. It poses the challenge of how to compile and use cost data in settings where almost none exists and where patchworks of different types of services emerge from haphazard provision and periodic failure. It shows how costs and service levels are intertwined and how budgeting and costing make sense only when attached to a clearly defined and agreed – and acceptable – level of lasting service delivery.

In rural and peri-urban communities, families make daily decisions about how they access ‘services,’ what they pay for, how they make their own arrangements and where they put their priorities. These are the realities that service providers need to know about and take into account if they want their services to be used and to be effective. That is why WASHCost did its primary research in community settings: asking households about their daily practices and sitting at water points to see who did what. The other reality is within local and national governments, where those responsible for planning and facilitating (and sometimes also providing) services grapple with poor information, inadequate infrastructure, and limited resources. Often, district level officials have a duty to assist rural communities but lack the transport to reach villages. The individuals who function at these levels are often inspired and dedicated professionals, but they generally fly blind, with out-of-date or non-existent information. This is the other arena where WASHCost teams spent time, collecting data and talking to national and district government authorities about what it would cost to provide adequate levels of support. WASHCost has highlighted the lack of budgeting and funding in this area, and the costs of direct support to service providers remain a critical question for the sector.

This was not a project done in an ‘academic bubble.’ WASHCost identified the realities in both arenas and collected data about costs and the service levels being delivered into systems. WASHCost engaged the people at country level who are held accountable for the quantity and quality of services. It became a joint enterprise: a mutual process of discovery and learning.

Of course, it was often also a process of frustration. Almost nothing in action research happens as you expect it to happen. Everything turns out to be more complicated, more difficult to analyse and more time consuming than anticipated. WASHCost was no quick fix. The five years of the project gave enough time to collect the information and to share it – but embedding systems to use the information for practical planning and budgeting takes longer.

WASHCost has opened windows of opportunity within countries and influenced international discussions about the post-2015 targets for WASH services. It has also had a profound effect on thinking within the host organisation, IRC, of which I am now Director. WASHCost and its sister project, Triple-S, demonstrated that the government agencies responsible for services are very determined to learn to improve the planning, budgeting, delivery and monitoring of services. The projects have underlined the need for accurate information and for methods of translating information into action. But they have also confirmed that this is a journey for the long haul. It cannot be completed over the lifetime of one project, even projects with a five-year lifespan.

IRC is determined to work for the long term inside countries – with the people responsible for delivering services. If we are serious about services that last – and we are – then we must also be serious about staying the course and helping countries to see the job through. This is why we continue to work in all the countries where WASHCost did its research, and why the life-cycle costs approach has become part of the overall IRC approach being applied in other countries. The project is over, but the experience is enriching the work of IRC, wherever we function.

This is a challenge not only for the countries and for think-and-do organisations like IRC that aspire to put theory into practice. It is also a challenge for donors that want to see results from their funding. Donors are willing to back inspirational ideas. But inspiration can take a few moments to conceive and many years to turn into reality. How is it possible to fund the long term, patient and not very glamorous work of embedding the life-cycle costs approach and methodologies for monitoring and decision making at the country level so that governments can deliver on the right to safe water, sanitation and hygiene?

That is the journey that IRC is on: as we attempt to work with others to make a reality of services that last. This book shows how WASHCost has written an important chapter in that story.

Patrick Moriarty
CEO, IRC



Area mechanic in the Ashanti region, Ghana in charge of maintenance and post construction (Photo by Peter Di Campo).

Abbreviations

ADB	African Development Bank
CESS	Centre for Economic and Social Studies (India)
CFA	Communauté financière d'Afrique, Financial Community of Africa (currency of Burkina Faso)
CoP	community of practice
CRA	Water Regulatory Council (Mozambique)
CREPA	Centre Régional pour l'Eau Potable et l'Assainissement (Burkina Faso)
CWSA	Community Water and Sanitation Agency (Ghana)
DFID	Department for International Development (United Kingdom)
DGIS	Directoraat-generaal Internationale Samenwerking, Directorate General for International Cooperation (The Netherlands)
DGRE	Direction Générale des Ressources en Eau, Water Resource Directorate (Burkina Faso)
DNA	Direcção Nacional de Águas, National Directorate of Water (Mozambique)
GAS	Grupo de Água e Saneamento, Water and Sanitation Group (Mozambique)
GDP	gross domestic product
ICT	information and communications technology
IWRM	integrated water resources management
JMP	Joint Monitoring Programme (a UNICEF/ WHO initiative)
KNUST	Kwame Nkrumah University of Science and Technology (Ghana)
LCCA	life-cycle costs approach
LCPD	litres per capita per day
MDG	Millennium Development Goal
MS	Microsoft
MUS	multiple-use service (water)
NGO	non-governmental organisation
NLLAP	National Level Learning Alliance Platform (Ghana)
ODI	Overseas Development Institute (United Kingdom)
PRONASAR	Programa Nacional de Água e Saneamento Rural, National Rural Water Supply and Sanitation Program (NRWSSP, Mozambique)
QIS	qualitative information system
RCN	Resource Centre Network (Ghana)
RICHE	Information and Communication Network on Water, Hygiene and Sanitation (Burkina Faso)
RWSN	Rural Water Supply Network
TREND	Training, Research and Networking for Development (Ghana)
Triple-S	Sustainable Services at Scale (an IRC initiative)
UN	United Nations
UNESCO-IHE	United Nations Educational, Scientific and Cultural Organization-Institute for Hydraulic Education
USAID	U.S. Agency for International Development
VIP	ventilated improved pit latrine
WASH	water, sanitation and hygiene
WASSAN	Watershed Support Services and Activities Network (India)
WATSAN	water and sanitation (Ghana)
WEDC	Water, Engineering and Development Centre (United Kingdom)
WHO	World Health Organization
WSA	Water and Sanitation for Africa
WSP	Water and Sanitation Program (multi-donor partnership administered by World Bank)
WSSCC	Water Supply & Sanitation Collaborative Council



Maria, dreaming of improved health and a better future for her children, Mozambique (Photo by Peter McIntyre).

Chapter 1

The cost of failure and the origins of WASHCost

Global efforts to improve water, sanitation and hygiene (WASH) services during the final third of the 20th century were focused on providing modern infrastructure. The first water decade (1981 to 1990) brought water to more than a billion people and sanitation to almost 77 million, yet left almost 1.1 billion people without access to safe water and 2.4 billion without adequate sanitation. Many gains were later eroded: what was put up did not stay up; toilets were abandoned when full; wells fell out of use after handpumps failed; hygiene was largely overlooked.

In the second water decade, the 1990s, it became apparent that achieving water for all would take more time and money than expected. “Some for all, rather than more for some” was the slogan, but efforts still focused mainly on extending coverage where it did not exist, and much less on sustaining what was already there. In parts of Africa and South Asia, it was possible to track the progress of attempts to solve the WASH crisis through construction alone; by following the trail of abandoned wells and water towers. As a result, the next decade saw a strong drive for maintaining and improving what already existed, at the same time as extending services.

Donors and governments were increasingly challenged to look at governance and make changes to achieve a greater degree of sustainability. The human cost of failure was the most striking, but its financial cost also hit hard. Continually resupplying the same communities with the same infrastructure consumed resources that governments could not afford and donors increasingly questioned. In India this repeated process of two steps forward, one step back acquired its own term: ‘slippage’. The Millennium Development Goals (MDGs) set new targets and placed a premium on the effective use of financial resources. However, little was known about the overall costs of WASH services – especially the costs of sustaining services. This was the context in which WASHCost came into being.

Box 1.1 IRC’s approach to improving WASH services

IRC evolved alongside the WASH sector. Founded in 1968 as an offshoot of The Netherlands Ministry of Foreign Affairs’ Directorate-General for International Cooperation (Directoraat Internationale Samenwerking, DGIS), IRC became an independent, international non-governmental organisation (NGO) facilitating the sharing, promotion and use of knowledge to support poor men, women and children in developing countries to obtain water and sanitation services. As a think-and-do tank, IRC works with governments, communities and NGOs to challenge business as usual approaches and transform the way those working in the sector think and act.

IRC aims to strengthen national and local government capacity to manage resources and plan and develop comprehensive services that last, recognising that change requires a combination of learning and action, as well as persistence and commitment. At the heart of this, is the development of people’s competency and their capacity to maintain services.¹

The five key areas of IRC’s work today are:

- Supporting governments and WASH organisations to transform the way they work.
- Experimenting to find solutions that work.
- Advancing effective practice internationally.
- Catalysing change at district level.
- Transforming the way global decision makers address WASH challenges.

¹ For more information, visit the IRC website at: www.ircwash.org.

Early cost estimates

The cost of WASH facilities was a sector concern long before the WASHCost project started. In 1992, the Dublin Principles declared water to be an economic good and emphasised the need to assess willingness to pay. Over the subsequent 15 years, arguments ebbed and flowed over models of payment and financing water, with large-scale privatisation followed by some high-profile failures and political disillusion. Terms like ‘willingness to pay’ and ‘ability to pay’ were abstractions, since no one knew the actual costs of a service. By the end of the first water decade, the inability of many governments to provide for their populations had become apparent, and the NGOs that stepped in to provide support fared hardly better, despite their enthusiasm: NGOs came, installed systems and left. Their systems, too, suffered failures and were abandoned.

In 1984 the World Health Organization (WHO; Carefoot and Gibson, 1984) provided unit costs for urban and rural water supply to ministries and agencies responsible for water supply and sanitation (table 1.1). These per capita estimates included all the one-off hardware (infrastructure) and software costs (such as training, project design, hygiene education and regulation) for providing water and sanitation services. Over the following 25 years, other global and country-specific estimates were produced, but the 1984 figures were considered authoritative benchmarks and were used primarily as the basis for planning and budgetary calculations by NGOs, donors and governments throughout the developing world.

Table 1.1 WHO costs for urban and rural water supply (one-time-only hardware and software construction costs), 1984

Technology	Total one-time cost per capita (in 1984 US\$)
Urban water supply	\$ 200
Peri-urban water supply	\$ 100
Rural water supply	\$ 30
Urban sanitation	\$ 350
Peri-urban sanitation	\$ 25
Rural sanitation	\$ 20

Source: Carefoot and Gibson, 1984.

After the MDGs were adopted by the United Nations (UN) in 2000, a flurry of reports gave donors, agencies and governments guidance on how to assess the costs of achieving the water and sanitation targets; to halve the number of people without access to safe services. Between 2000 and 2004, cost estimates were produced by the World Water Vision, Global Water Partnership, Camdessus Report, World Bank, French Water Academy, the Water Supply & Sanitation Collaborative Council (WSSCC) Vision 21, the UN MDG Task Force on Water and Sanitation and the WHO/ UNICEF Joint Monitoring Programme for Water Supply and Sanitation.

In 2004, Rachel Cardone, then a senior consultant at Environmental Resources Management, and Catarina Fonseca, an economist and programme officer at IRC, were asked by the Water, Engineering and Development Centre (WEDC) to compare available estimates of the cost of achieving the MDGs. They found that many of the global estimates were squarely based on the 1984 per capita estimates: US\$ 30 for rural water and US\$ 20 for rural sanitation (Fonseca and Cardone, 2005). Not only were the figures 15 to 20 years out of date – they had not been adjusted for inflation or country context.

Reliable cost data was not the only missing element; current funding levels were also not available. The Joint Monitoring Programme report of WHO, WSSCC and UNICEF (1993) observed that, “In the case of management and funding, either the information does not exist or it is so dispersed that it is difficult to consolidate and/ or estimate at the national level.”



WASHCost, searching for ways to uncover, document and monitor the real costs of sustainable services (Photo by Lokaalmondiaal).

Several studies attempted to determine how much a successful WASH effort might cost but none disaggregated the costs of providing a water supply or sustaining a service. Fonseca recalled, “There was no reference to what happens after construction. It was still very much focused on one-off costs. That is what you see across the literature – a budget with one cost category [capital expenditure] for the whole world.”

Cost estimates varied widely, and the sources (usually regional averages) were based on little other than WHO’s 1984 data and professional judgement (Cotton, Fonseca and Cardone, 2004). Fonseca and Cardone began contacting the authors of the various estimates to discuss weaknesses in the data, and problems in arriving at accurate estimates. Fonseca said, “This was the start of a small network of the few people in the sector working with costs... the few economists working in the sector trying to figure out how to come up with cost information, independent of the organisations we were all working for.”

Questions arose about how to make global cost comparisons when the context and WASH technologies of countries and regions were utterly different, and on how to relate them to a ‘safe’ or ‘improved’ water supply, or safe sanitation, according to WHO and UNICEF definitions. In Ouagadougou, Burkina Faso, at a 2005 WaterAid meeting on tracking local government expenditure, one notable sector economist told Fonseca that it would be impossible to relate costs to services; she should stick to trying to assess current expenditure. To Fonseca this made no sense. As she said: “To be able to compare like with like, we would need to compare costs for providing a similar level of service.”

The following year, Cardone and Fonseca were asked by WEDC to present their global cost estimates in more detail, and to add country examples. Their report (Fonseca and Cardone, 2007) considered the accuracy of existing cost estimates for each country, and how national expenditure and aid could be

made more effective. But it was tough going. Fonseca recalled, “We were putting all the data together and nothing made sense. I remember asking for how many years we would be writing reports that said ‘The cost data in the sector is simply not good enough.’ We wondered on what basis everyone was making investment decisions.”

Their study for WEDC, based on data for 12 countries in sub-Saharan Africa, concluded that cost estimates per capita for the provision of water and sanitation were gross underestimates because they did not include all the cost components that make water and sanitation services sustainable. Most estimates were one-time expenditures; after construction, it was assumed that users (or governments) would pay to maintain and replace systems. The cost of rehabilitation and support to maintain the ability of communities to manage were often ignored, along with the ongoing costs of building institutional capacity and technical assistance.

Table 1.2 illustrates the variability in cost estimates revealed by the WEDC study. The WHO estimates do not include rehabilitation. The UN Millennium Project estimates exclude some direct and indirect costs, such as the cost of monitoring systems. Notably, the Water and Sanitation Program of the World Bank (WSP) estimates are more robust since they assess annual costs, not just the one-off cost of installation; they include rehabilitation, policy formulation, sector monitoring and regulation but not hygiene education.

Table 1.2 Per capita cost estimates for water supply and sanitation (US\$)

Country	WHO, 2000	UN Millennium Project, 2004	WSP, per annum, 2002
Burkina Faso	\$ 1.94	\$ 0.98	\$ 6.53
Ethiopia	\$ 2.23	—	\$ 5.67
Mozambique	\$ 2.23	\$ 0.18	\$ 7.26
Uganda	\$ 2.23	\$ 4.30	\$ 7.84

Sources: Hutton and Haller, 2004; WSP-AF, 2006; UN Millennium Project, 2006, cited in Fonseca and Cardone, 2007.

In WEDC’s WELL briefing note 36, Fonseca and Cardone (2007) recommended, inter alia, that, “Per capita cost estimates should reflect maintenance costs and ongoing support costs of water and sanitation. Updated costs could be discussed and adopted at country level by donors and other sector stakeholders, to feed into budgets, investment planning and projects to provide more reliable estimates.”

During the same year, IRC and Cranfield University were commissioned by the African Development Bank (AfDB) to deliver guidelines for user fees and cost recovery for water and sanitation in rural and urban settings, as well as for integrated water resources management (IWRM).² A fruitful collaboration emerged amongst Catarina Fonseca (IRC), Richard Franceys (Cranfield University) and Chris Perry (formerly of the World Bank and the International Water Management Institute, responsible for its IWRM component). The guidelines, developed jointly with AfDB staff over a period of a year, were designed to help regional member countries, service providers and investors formulate and appraise projects and policy in water supply, sanitation and irrigation or related agricultural projects. They made clear the necessity of understanding a number of different cost components, not only for the year of construction, but on an annual basis over the long term.

² The AfDB’s report is available for viewing or download at: www.afdb.org/fileadmin/uploads/afdb/Documents/Project-and-Operations/2011_03%20Guidelines%20for%20User%20Fees%20Cost%20Recovery_Rural.pdf.

At the AfDB headquarters in Tunis, the team studied the urban cost components laid out in documentation by the British Water Services Regulatory Authority and began to adapt them to make them suitable for guidelines for rural water supply. Fonseca said, “This was the first time I really understood the importance of capital maintenance in the sector, as well as the consequences of not including it in cost estimates. Probably this was the light bulb moment, when I thought, ‘We need to simplify this language.’” She decided to do her PhD research on the ‘real’ costs of WASH, with the idea of using cost data from Ethiopia; where IRC was involved in the RIPPLE project³, advancing evidence-based learning on WASH financing, delivery and sustainability to improve access for the poor in Ethiopia and the wider Nile region.

A new investor and a leap of faith

In 2007, in the lobby of the World Bank in Washington, DC, during a Water Week, Fonseca met Louis Boorstin, the deputy director of water, sanitation and hygiene at the Bill & Melinda Gates Foundation (Gates foundation). Boorstin asked about the real costs of providing sustainable WASH services per capita. The answer – “no one really knows” – was insufficient. He wanted something better so that the foundation could invest in the sector, at scale.

At the request of the Gates foundation, Fonseca and Cardone (2007) developed an overview of cost ranges and trends for delivering safe water, sanitation and hygiene services, based on literature that included global and country-level unit costs for the period 2000–2006. The resulting compilation provided very broad, non-comparable cost estimates but despite this weakness, still managed to highlight the shortcomings of the existing information. The primary conclusions drawn from the 2007 data analysis were that:

- Many global estimates lacked country and region-specific cost data.
- Global data estimates for capital investments tended to be lower than country-specific estimates.
- The most detailed studies focused on urban and networked water, not on rural water or sanitation.
- Most cost estimates failed to specify technology choices clearly, making cost comparisons meaningless.
- The estimated unit costs had not been validated or reviewed. Cost-benefit and cost-effectiveness analyses were based on perceived unit costs, some of which came from a single case study or project.
- Most sector cost data used US dollars as the baseline currency, without reference to the local currency or date, making cross-country comparisons impossible.
- Costs of the technology were not related to population density and the number of people served by each type of technology.
- Most studies included capital and everyday operations and maintenance costs but ignored the capital maintenance costs of replacing and rehabilitating infrastructure.

From these it became evident that anyone trying to fund and plan improved service delivery had no idea of the true cost of providing water, sanitation and hygiene services. In the summer of 2007, therefore, the foundation asked IRC to develop a concept note to address the most obvious gaps, with examples from diverse countries. In particular, the foundation identified the need for:

- A consistent accounting framework that could be used by the whole WASH sector.
- Costs that were validated and representative of many different contexts.
- Awareness raising about the consequences for sustainability if capital maintenance and direct support were ignored.

³ RIPPLE was funded by the UK Department for International Development, DFID.

Fonseca had been discussing these issues in detail with colleagues in IRC. She and her colleagues concluded that good-quality unit cost data, embedded in decision-making processes, would allow communities, governments and donors to deliver more effective WASH services. They wanted to put this hypothesis – what became known in IRC as a “leap of faith” to the test. Indeed, IRC proposed to play a leadership role in bringing about such a transformation in the sector. And when in turn, the Bill & Melinda Gates Foundation became convinced that better information on costs was central to improvements in water and sanitation, things began to move with a sense of urgency. Fonseca recalled:

In July 2007 the request from the foundation to develop a concept note came when all the senior staff were on leave, and we had a tight deadline. Charles Batchelor, an IRC associate, came to our rescue. He also came up with the name of the project: WASHCost – the cost of WASH, clear and simple. Willem Horbach, then IRC controller, played a key role in discussions about a proposal beyond anything IRC had done before in scope and volume. It was clear that if IRC was to deliver on WASHCost, it would need to change as an organisation.



Charles Batchelor (left) and V. Ratna Reddy (right) of the WASHCost India team in a planning meeting in The Netherlands.

The WASHCost project proposal

WASHCost was designed as a five-year project of action research: a method of learning-by-doing that brings together practitioners and researchers to find solutions to real-world problems. The project would be located in countries where sector professionals and influential members in government were open to new ideas and were looking for changes. Those engaged in action research would test their theories in practice, assess the results and apply what they had learnt in a recurring sequence of planning, action, observation and reflection. Patrick Moriarty, who was then the governance specialist for WASHCost Ghana, and since 2013, IRC Chief Executive Officer (CEO), wrote:

People are more likely to take ownership of and apply new ideas that they have helped to develop themselves... When people realise that 'business as usual' is not working, the space to try new approaches is created. Only when the desire for change is strong and personally motivated will resistance to change be overcome.

This approach was built into the WASHCost project. Indeed, the project proposal was based on a clear understanding that business as usual was not working. It is interesting to review the original WASHCost project proposal (IRC, 2007) that IRC submitted to the Bill & Melinda Gates Foundation on 14 September 2007.

The proposal laid out the context for the problem. The shift that had taken place towards devolution and decentralisation and the increasing emphasis on demand-led service delivery had given communities, NGOs and local governments greater responsibility for providing water, sanitation and hygiene services. But decision makers at these levels had little idea of the true costs, since country-specific data was inadequate. Studies tended to focus only on urban water services, rather than on rural areas and sanitation. Estimates ignored the costs of replacing or rehabilitating existing infrastructure and failed to specify technological choices clearly when making comparisons. A document might give the cost of a borehole without specifying whether this was for a shallow borehole with handpump or a motorised deep borehole supplying a small town water network. Comparisons between countries suffered from lack of clarity about currency exchange values. There was little input from the entities that most needed the data – utilities, local and national government. Sometimes information was collected from contractors who had a commercial interest in promoting high unit costs. One result was that local authorities that lacked information on costs or services could not plan for or finance essential maintenance. As Franceys, who became an adviser to the project, put it (WASHCost, 2008a)⁴:

In Africa, typically 30% of handpumps are out of action at any one time. It could be because of very minor maintenance – someone has not been able to access a spanner to put a washer on. But it could be that the rising main has come adrift and dropped down the hole, meaning that you have to bring in a crew from outside with a crane, fish out the rising main and rebuild the entire borehole. That resource and finance stream is lacking.

Stressing the importance of WASH services to the wider aims of economic development, health and livelihoods, IRC assessed the main problem as being a lack of accurate data, especially in rural and peri-urban areas, which prevented governments and other stakeholders from monitoring investment and outputs, and made it impossible to realistically estimate the cost of extending sustainable, good-quality water and sanitation services to the poor. This problem was compounded by lack of transparency, which shielded corruption and obstructed comparisons of efficiency and value for money.

To address the problem, the WASHCost project would collect and collate information on disaggregated costs in the life cycle of WASH service delivery to poor people in rural and peri-urban areas in four countries. The project would involve decision makers and stakeholders in analysing data and help them use results in planning WASH service delivery, at the same time embedding pro-poor decision-making processes.

⁴ Most materials authored by WASHCost are the written work of Peter McIntyre, WASHCost's communications and documentation specialist. Similarly, quotations and accounts throughout the book are derived from several WASHCost progress reports and/ or face-to-face interviews conducted by McIntyre throughout the duration of the project.

Project objectives

The primary hypothesis underlying WASHCost was that access to accurate, disaggregated costs and benchmarks for WASH service delivery would lead to improvements in water governance, transparency and cost efficiency, and eventually to measurable improvements in the sustainable and equitable delivery of services in rural and peri-urban areas. The project would emphasise the need to embed changes in understanding and practice within government bodies.

WASHCost clearly then had twin aims. The first was to collate accurate data about costs and make it accessible. The second involved changes that would lead to improvements in governance procedures and the quality of WASH investment decisions in research countries and international organisations. IRC's (2007) project proposal described the overall purpose:

To achieve measurable improvements in water, sanitation and hygiene service delivery by improving access to accurate knowledge on disaggregated costs and by embedding improved decision-making processes in lead organisations in the WASH sector at intermediate, national and international levels. This impact will be felt first in project countries, but will also influence thinking and practice globally.

Fonseca said, "WASHCost had an inclusive approach to learning and changing practices based on an understanding of how financial decisions in the sector were made. The eventual expected longer-term impact of the project will be a sector with better-planned services that are more sustainable and financially viable."

The proposal made clear that improvements in WASH services would be measured not primarily in terms of the hardware used to deliver them, but in terms of quantity, quality, reliability and convenience – values later reflected in service delivery ladders and in the IRC-led Sustainable Services at Scale (Triple-S) project. The proposal read, "The service delivery approach adopted in WASHCost thinks about sustainability and scale and... considers the mix of systems necessary to provide a service to an entire population and focuses on wider governance systems required to improve service provision" (IRC, 2007). WASHCost was relating costs to service delivery and targeting issues of governance, skills and capacity building to bring change. However, as Fonseca recalled, these ideas were somewhat unformed: "We knew that we would have to measure the costs against something, but we did not know exactly what that something would be. We had not translated these ideas into a framework as we did later with the service ladders."

The proposal sketched out disaggregated cost categories that were later developed into the WASHCost life-cycle costs approach. Neglected categories were identified as the costs of institutional development and capacity building, hygiene awareness programmes, source protection, the design of water systems for productive use; issues related to climate change and stakeholder platforms that would promote cost efficiency. Noting that cost efficiency is about value for money rather than reducing costs, the proposal stated, "Disaggregating costs and developing a benchmarking framework will make it easier to pinpoint areas where cost efficiency is most needed, and to develop carefully-targeted strategies for realising improvements."

Building on existing partnerships and communities of practice (which later became referred to as learning alliances), it would be possible to "identify practical approaches to improving the planning and governance of WASH service delivery and embed improved pro-poor decision-making processes in lead WASH organisations, mainly at intermediate and national levels." Advocacy at the international level would harness the authority of international organisations that were already taking an interest in costs.

WASHCost goals were divided into those achievable by the end of the project (five-year aims) and the longer-term results (the ten-year vision). The expectation was that embedding the understanding and use of life-cycle costs would set in a series of changes that would become self-supporting and continue after the project closed.

Box 1.2 WASHCost's vision

The short-term vision:

... within five years, good quality WASHCost data, benchmark criteria and knowledge from four countries is readily accessible and is being used by national and international decision makers for the WASH sector in rural and peri-urban areas. Accessibility will be through an interactive tool, which includes a decision-support system.

The long-term vision:

... within ten years, good quality disaggregated cost information and knowledge is readily accessible, and being used globally by national and international decision makers in the WASH sector to improve the outcomes of planning processes, in particular, to achieve:

1. a 25% improvement in cost efficiency, and
2. a situation where at least 25% of WASH implementation plans are explicitly linked to unit costs analysis and poverty reduction strategies.

The document was, however, somewhat equivocal about these projections. A footnote acknowledged that changes in governance systems take a long time, particularly at intermediate and local levels, and that the 25% cost-efficiency figure was “somewhat aspirational, but realistic: even if WASHCost contributes to a 10% cost-efficiency improvement, that would be a major achievement.”

Project design

WASHCost would focus on four research areas:

- Obtaining information on the disaggregated costs of providing WASH service delivery levels in rural and peri-urban areas, and the factors that determine those levels.
- Understanding the relative importance of factors that influence cost levels, and the extent to which these factors can be controlled.
- Assessing the extent to which access to disaggregated costs and benchmarks would improve pro-poor WASH governance leading to improvements in cost efficiency, transparency and sustainability.
- Assessing the conditions and incentives required to replicate and ensure the uptake of methodologies and tools developed during the project.

WASHCost also had the wider objective of embedding access to disaggregated costs in governance processes, thereby improving transparency and cost efficiency.

The project plan included three main phases (figure 1.1):

- Inception: Establish ownership for the project amongst country teams, the advisory group and partner organisations. The process of embedding a new approach in national WASH governance systems would begin with the establishment of communities of practice.
- Research: Collect and analyse information, establish an information and knowledge base and develop an information-sharing tool.
- Influencing and embedding: Raise awareness about life-cycle costs and test the use of disaggregated cost information in WASH governance systems.

Priceless! Uncovering the real costs of water and sanitation

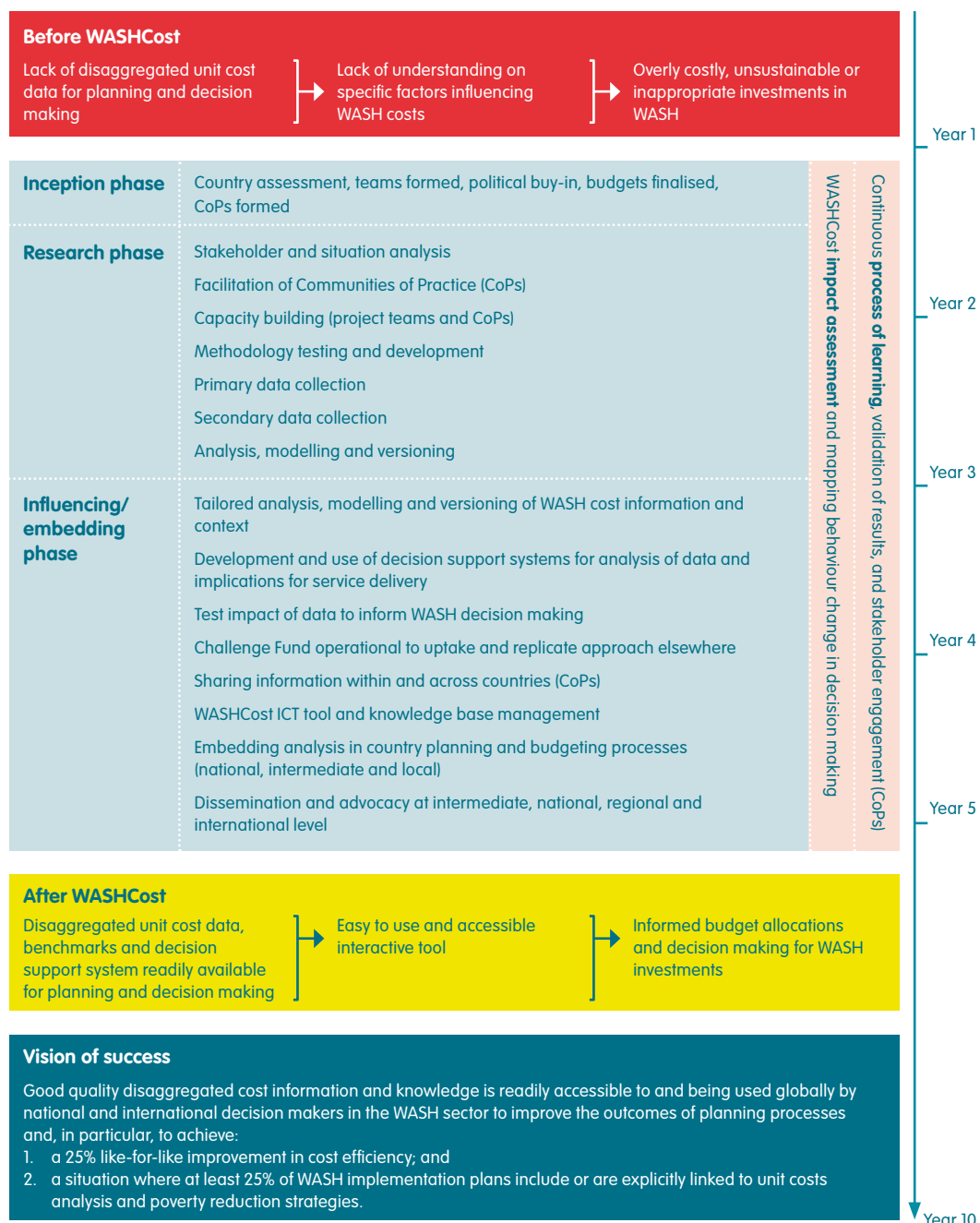


Figure 1.1 WASHCost main activities with timeframe, phasing and vision

Research procedure

The WASHCost project team sought countries that would be “willing partners in efforts to improve WASH service delivery to the poor.” Lead partner organisations would be appointed in each country, and communities of practice would take ownership of the project and form alliances with WASH programmes. This inception phase would be followed by research: secondary (existing) information would be collected and shared, and a project-wide common set of definitions would be adopted. After agreeing on a methodology and following training and piloting, participants would collect data from about 100 sites in each country or state (figure 1.2).

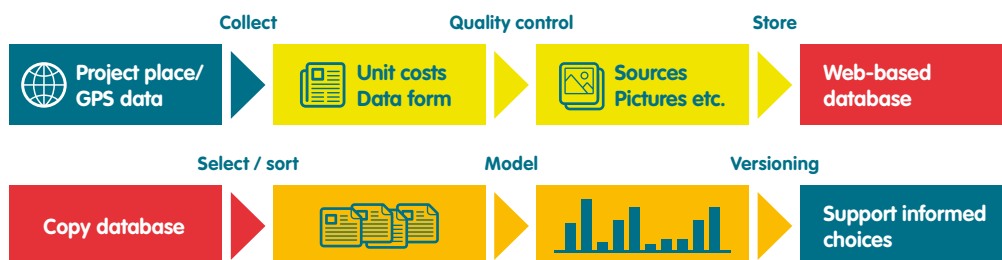


Figure 1.2 Information management process

This information management process was devised on the assumption that good data existed and could be easily collected and shared. In fact, cost information was not only scarce and difficult to collect but also unreliable: the little data that was available could not be used to strengthen budgeting and planning. The messy reality of collecting, storing, sharing and analysing data posed a major challenge that stretched the project’s resources and capacities, and demanded a huge collective effort. Partly as a result, one country partner eventually left the project. The project design also did not make sufficient allowance for the time it would take to address practical difficulties, and fill the gaps in skills and capacities. The proposal did anticipate that the project would require a continuous process of learning, validation of results and stakeholder engagement but certainly underestimated its intensity.

International support

At the international level, the proposal called for a project advisory group to provide specialist input. Of the people named to the advisory group, Richard Franceys provided advice and support throughout the project’s duration; Kristin Komives, of the International Institute of Social Studies in The Hague, contributed significantly during the inception phase and piloting but later had to pull back because of other commitments; UK consultant Charles Batchelor became the governance specialist for the India team; and three other appointees did not stay with the project for long. After the first year it would be inaccurate to describe this as a group in any functioning sense, although Fonseca found the support of Franceys and Komives essential:

We needed academics who could provide a critical review of the process, and Richard Franceys and Kristin Komives did deliver that. I am glad we managed to create the spaces where those constant reviews were given. It is not easy to create constructive feedback loops between academics and practitioners, and there is always some resistance from both sides. However, the WASHCost research team did integrate what the advisory group was advising throughout the project. You have to have external people poking and giving suggestions. You can call it tough love or being challenged. But we were also constantly challenged by the Bill & Melinda Gates Foundation at every step, and in a way the countries were getting the same scrutiny from us at IRC. In the end it made us stronger and better.

Mechanisms of change

The WASH proposal laid out mechanisms to influence users and embed a new approach in countries' WASH governance structures (table 1.3).

Table 1.3 Embedding and user-influencing mechanisms

Mechanism	Objectives	Targets
1. Establishment of Communities of Practice (CoP)	To ensure ownership, relevance, credibility and adoption of relevant outputs by lead WASH stakeholders in country, state, region, district and municipality. To make an impact on country, state, region WASH policy.	CoP members, their own organisations and their networks
2. Alliances with large, ongoing WASH implementation projects and programmes	To promote improved pro-poor planning and budgeting by ongoing programmes. To provide quick wins on user-level impact.	Ongoing in-country, state, region WASH projects and programmes
3. Challenge Fund	To provide seed funds that can be used by CoP members and others to implement and/or adapt unit cost data and benchmarks. To develop a bidding process that makes sure that funds go to activities with potential to embed project outputs in WASH governance systems. To ensure that project staff provides active support for resulting initiatives.	CoP members, intermediate and local-level users
4. Advocacy materials (e.g., articles in country, regional and international newsletters, presentations at events and conferences, multi-country cost fact sheets)	To influence decision and policy makers in the field of improved approaches to pro-poor WASH planning and budgeting. To use a whole range of media opportunities to draw attention to WASH cost information/ knowledge base and information and communications technology (ICT) tool.	International and national policy makers, potential users of ICT tool
5. Preparation of WASH cost guidelines, benchmarks, tools, training materials and decision support system	To develop a range of materials and outputs that can show impact in using unit costs for planning and allocation; can be used for the development of guidelines for contractors; and can support in training and capacity-building initiatives within and outside the project's scope.	Potential WASH cost users at all levels
6. Training and capacity-building events within and outside project	To organise training and capacity-building events for the project team, but also interested members of CoPs. If demand is created, to support the organisation of capacity-building and training events for potential users outside project scope.	Potential WASH cost users at intermediate, national and international levels
7. Networking	To use existing WASH and related sector networks as means of influencing potential users of WASH cost information.	Potential WASH cost users at all levels

Expected outputs

IRC anticipated that peer-reviewed, high-quality outputs would inform decision making for planning and budgeting, improve cost efficiency, and reduce corruption. This would be seen first in the four research countries, and would then have implications worldwide. The proposal identified the following outputs:

- Information and knowledge base with high levels of detail and accuracy.
- Interactive website with GIS-based costs, benchmarking criteria, and a decision-support system.
- Guidelines and tools to incorporate cost information into planning, budgeting and governance.
- Decision-support tool to assess planning options using WASH unit costs.
- Training materials to contribute to building capacity in the use of WASH costs and benchmarks.
- Advocacy materials, such as articles, newsletters, presentations and fact sheets.
- Impact assessment information relating to WASH costs information and benchmarks.
- Case study information from Challenge Fund activities and initiatives.

Implementation plan

IRC believed that WASHCost would succeed if the action research was driven by communities of practice (later, learning alliances) that included those who could use costs data in budgeting and planning. Each country would require a team, a leader, a data analyst and auditing specialist, a WASH governance specialist, an administrative and data-processing assistant, and field staff for the research.

The plan indicated that Fonseca would be a part-time project director, with a Netherlands-based team that consists of a project coordinator, WASH governance specialists, an information and management specialist, a specialist in capacity building and training, a data analyst, a project assistant, and support from others in IRC for management, accountancy, information and computer technology, secretarial and editorial support. Only the project assistant would be officially full time, but in practice, the project



WASHCost Ghana team collectively mapping out their implementation plans in selected research areas (Photo by Peter McIntyre).

director position turned out to be a full-time role. The data analyst was not appointed, mainly because countries wanted to analyse their own data (a decision that later caused problems). Other variations reflected the evolving demand for different skills throughout the different phases of the five-year project.

The proposal contained an extensive section on monitoring, evaluation and process documentation, all geared towards achieving the learning objectives. Emphasis was on assessing “whether and how improved access to disaggregated cost information changes decision making in the different sites, and how these affect target projects and programmes within the sector.” Monitoring was an area of intense discussion and learning in the project, and it took a long time to settle the indicators that could show that the project was making progress (see chapter 10).

The management structure was streamlined with a project executive committee, a project management committee and country management committees. A research group, made up of lead researchers from each country team, with governance specialists and some other support, met several times a year in one country or another, and between times online. Regular reports – initially four times a year, later three times a year – would keep the donor informed about progress.

Potential risks

The proposal listed potential problems that could derail or slow down the project:

- Lack of stakeholder engagement because of vested interests in the status quo.
- Systematic uncertainties or biases in data acquisition and analysis.
- Turnover of country project staff and community of practice members.
- Difficulties in accessing secondary information.
- Lack of skills at the country level for facilitating the communities of practice.
- Resistance to changing governance processes at intermediate and local levels.
- Burdens of time and effort involved in managing the Challenge Fund.
- Problems and delays in using ICT tool.

In each case a prevention strategy and a mitigation strategy were sketched out. Lack of stakeholder engagement was considered to be a severe risk but in practice this was not a problem. Stakeholders were interested and engaged, even impatient for results. Other concerns, such as lack of secondary information, were worse than anticipated: accurate and useful disaggregated data did not exist in any of the countries. In Ghana, where information was said to be available, all that was known was that a small town's water system cost approximately US\$ 100,000; no detailed breakdown was available.

Selection of countries and partners

Criteria for selecting countries for WASHCost action research were that they should have a conducive policy environment, a diversity of WASH services, and a partner organisation with the skills, experience and capacity to collect, analyse and disseminate data. By the time the proposal was submitted, seven countries had been considered, of which two, Burkina Faso and Ghana, had been pre-selected. Nigeria and Bangladesh were eliminated mainly because of concerns about the policy environment at that time. In Ethiopia, financing mechanisms for service delivery were said to be complex and fragmented, and this promising candidate was also not included. Mozambique and Andhra Pradesh (an Indian state with a larger population than the three other countries combined) were selected.

Batchelor, who was closely involved in writing the proposal and selecting the countries, recalled that the final choice hinged on practical considerations: “A lot of the discussion was about what constituted a global project. The foundation would have preferred seven or eight countries and suggested that if it was to have a global reach, it should include Central America.” However, there was concern over whether such a project would be manageable. There was also a suggestion, ultimately rejected, to include a second Indian state, Gujarat, in addition to Andhra Pradesh.

The final four country hosts were the *Centre Regional pour l'Eau Potable et Assainissement* (CREPA,⁵ Burkina Faso), the Kwame Nkrumah University of Science and Technology (KNUST, Ghana), Prowater Consultores (Mozambique) and the Centre for Economic and Social Studies (CESS, Andhra Pradesh, India).

In 2008 the Bill & Melinda Gates Foundation approved one of its largest-ever grants to the water and sanitation sector. The five-year WASHCost project was budgeted at US\$ 15 million for action research across four countries and globally, and at peak activity involved more than 100 staff, mostly part time. Of the two people who had done the first fact-finding research into existing data, Catarina Fonseca became the project director for WASHCost and Rachel Cardone became the foundation's grant manager for WASHCost.

⁵ Centre Regional pour l'Eau Potable et l'Assainissement (CREPA) in 2011 became Water and Sanitation for Africa (WSA).



Bibata bathes daughter Kadi, Burkina Faso (Photo by Dreyse/ laif).

Chapter 2

Country context, learning alliances and expectations

A significant WASHCost goal was to embed the concept and practice of life-cycle costing in countries. The inception phase was designed to ensure country ownership of project objectives and activities and to start embedding the project in lead government and non-governmental WASH organisations. The focus was on how countries would use the research and the methodology so that those planning and budgeting for services could engage more realistically, based on actual expenditure, costs and service levels.

The country context was vital to the success of WASHCost. Research countries were selected in part because they had expressed interest in using data as part of their own budgeting and planning. WASHCost set out to engage stakeholders from national and local government, international NGOs, the private sector, donors and banks, decision makers in finance ministries and regulators, as well as officials in water ministries and national water departments. The question was how countries would use the research and the methodology, and how it would help ministries of water and finance interact in a beneficial way.

Changes in institutional approach and coordination would come about, the WASHCost team believed, only when a broad vision and understanding of the costs of water and sanitation was shared. Local governments needed to start thinking about the life cycle of service delivery, not only in terms of capital and recurrent costs but also in terms of quality of performance, and to use this knowledge for improved budgeting and financial planning. As Kwabena Nyarko, country director for WASHCost Ghana, put it, “We want [stakeholders] to think of a longer time frame and get them out of a fire-fighting mode and out of short-term planning” (WASHCost, 2008a).

At the international level, WASHCost aspired to influence the practices of large donors and agencies, to encourage them to address long-term post-construction costs, develop a life-cycle costs approach to feasibility studies and share information about the unit costs they used to prepare and analyse projects. WASHCost found that some donors were already moving towards supporting broad service areas rather than funding individual projects. The project emphasised that NGOs could contribute effectively if they were to seek better integration of their WASH services/ projects by ensuring that these complemented the efforts of local government, rather than substituting for them.

Nobody had any illusions about the challenge of engaging with and influencing stakeholders in this way. Charles Batchelor, one of the authors of the proposal and governance specialist for WASHCost India, said, “The project is going to be very difficult – if we are going to really shake the tree, it is going to be tough and we have to be aware of how complicated things are” (WASHCost, 2008a).

One early challenge was addressing partner expectations for the project to produce rapid results and provide countries with an immediate framework for planning and budgeting. Country partners that were most supportive and committed to WASHCost had high hopes and felt a sense of urgency. Managing expectations about the speed with which usable outputs could be produced became a significant concern.

Learning alliances

Learning about costs and how to use information about costs was a critical part of the project, and a mechanism was needed to bring together all those with an interest in better data and budgeting. The communities of practice outlined in the project proposal were renamed learning alliances: the essential difference being that communities of practice are meeting points (platforms) for people doing similar jobs, whereas learning alliances are broader platforms that can bring in interested parties (stakeholders) from national government, sector institutions, local government, the community and elsewhere (box 2.1).

Box 2.1 Learning alliances

Learning alliances are platforms that support a learning sector where stakeholders share knowledge, innovate by testing solutions, adapt practices and scale up success. In its most complete form, a learning alliance comprises platforms at different institutional levels: there may be a platform at the national policy-making level, another for specialists in line ministries and another at the local government level, which can also include participants from the community where services are delivered. With good links such a system can quickly feed innovation at the local level up to the policy level so that learning is not confined to a few individuals but shared widely in the sector. The purpose of the learning alliance is to agree on what action research will be done, then share and discuss experiences within and between platforms. The participatory, action research approach is based on the belief that research and outputs must be relevant to the everyday lives of sector practitioners if they are to influence sector practice.

Source: Smits, Moriarty and Sijbesma, 2007.

Each WASHCost country team developed or joined a learning alliance-style platform with stakeholders to encourage collaborative learning, reflect on the goals of the research process and ensure that research outputs were aligned with country goals. These learning alliances also served as useful conduits for disseminating research outputs. They were specific enough to relate directly to the cost and expenditure issues of WASHCost, but were also well connected to the sector. Each country adopted a slightly different approach, and the emphasis changed over the course of the project. At the beginning it seemed important to have specific WASHCost platforms for intensive discussion of the project's aims and means. Most country teams, however, found it more productive to work collaboratively within existing sector structures so that issues of costs, expenditure and service levels did not become isolated from broader debates within the sector. The principles of learning eventually came to be seen as more important than the mechanics of how learning alliances should be put together. Relevant discussions often took place through a mix of one-to-one discussions, large stakeholder and small advisory group meetings.

The next three sections of this chapter describe the WASH sectors in Burkina Faso, Ghana, Mozambique, and Andhra Pradesh, India, as the project began; the information comes largely from the rapid assessment of sector structures published in Moriarty, et al. (2010).

Burkina Faso

Burkina Faso is divided into 13 regions, 45 provinces and 351 communes, of which 49 are urban and 302 are rural. In 2005 there were more than 48,000 water points in the country, 60% of which were boreholes, 35% modern wells and 5% standpipes.

Burkina Faso began to reform the water sector in 2000, devolving authority for water and sanitation to municipalities and making communities responsible for the management of their own services. The primary unit for planning and delivering services was the commune, supported by provinces. Since 2006, communes have had elected councils and mayors, but in rural areas most day-to-day decisions were made by staff of technical ministries or by NGOs and donor projects, without access to cost data.

When WASHCost began, the sector was led by the Ministry of Agriculture, Water and Fishery Resources (*Ministère de l'Eau et des Ressources Halieutiques*) through the General Directorate for Water Resources (*Direction Générale des Ressources en Eau*, DGRE), and from 2009 the General Directorate for Sanitation, Sewage and Excreta (*Direction Générale de l'Assainissement, des Eaux Usées et Excréta*, DGAEUE), guided by a 2006 national plan for water and sanitation and a 2007 memorandum of understanding between the state and partners. Service norms for rural and urban water delivery differed according to the type of settlement (table 2.1).

Table 2.1 Service norms for water provision in Burkina Faso, 2006

Parameters	Norms		
	Village	Rural commune centre or village of more than 3,500 inhabitants	Centres of urban communes
Quality	WHO standards	WHO standards	WHO standards
Quantity	20 litres per capita per day (lpcd)	20 lpcd	Standpipe: 20 lpcd Household connection: 40-60 lpcd
Distance	Modern water point within 1km	Standpipe within 500m	Standpipe within 500m
Accessibility	1 modern water point per 300 people (or per village if less than 300 people)	Maximum 500 people per standpipe 100 people per standpipe with a separate tap for each household (point de distribution collectif) 10 people per private connection	Maximum 1,000 people per standpipe 100 people per standpipe with a separate tap for each household (point de distribution collectif) 10 people per private connection

N.B: lpcd = litres per capita per day

Source: Adapted from Moriarty, et al., 2010, p.18.

The National Office for Water and Sanitation (*Office National de l'Eau et de l'Assainissement*, ONEA), had a programme for services that would cover urban areas. However, when WASHCost began its work, about 60% of investment planned by 2015 was earmarked for the cities of Ouagadougou and Bobo-Dioulasso, leaving only 40% for the rest of the country. For sanitation, for example, more was allocated to Bobo-Dioulasso alone than to all small towns combined; even more was allocated to Ouagadougou.

A national programme on WASH was undertaken to meet the MDG with a budget of 543.7 billion CFA⁶ (approximately US\$ 1.2 billion), and Amah Klutsé, research director for the Burkina Faso team, reported that the minister in charge of water and sanitation wanted WASHCost results to help address the MDG challenge (WASHCost, 2008b).

There were costs for civil engineering but not for water and sanitation. Investment costs had been calculated for handpumps and small water supply systems, but there was little information on sanitation and hygiene promotion, which received low allocations. Supply chains for sanitation parts and equipment were said to be weak.

Government, NGOs, the private sector and donors used infrastructure unit costs, schedules of prices, market prices and estimates for decision making and planning. However, each institution derived figures in a different way – they were not comparable – and the Ministry of Finance wanted a robust schedule of prices to verify budgets. As in other countries, there were difficulties in obtaining information, even when it existed.

Cyril Amegnran, country coordinator for WASHCost Burkina Faso, reported that sector professionals saw the need for better information, but the sector had low capacity and few experienced water professionals and interested politicians. “You have water professionals who actually do not know

⁶ CFA (Communauté financière d'Afrique, Financial Community of Africa) is the currency of Burkina Faso.

how to budget,” he said. “Basically, they lack planning and budgeting skills, and this is related to lack of capacity for effective and efficient investment in the water and sanitation sector” (WASHCost, 2008b). Capacity building was a major challenge in a sector with many WASH networks and platforms. However, donors were eager to support the project to improve the efficiency of existing WASH financial strategies, and contribute toward sector reforms, which called for sustainable maintenance to be integrated into all future projects.

The Burkina Faso launch ceremony attracted major players in the sector and generated high levels of expectation. A learning alliance was established as a stand-alone platform with members from government, research and academic institutions and the NGO network. The learning alliance was involved in devising the project’s strategy, and members also took part in institutional mapping and pilot research. Although the learning alliance and the research task force met regularly, and preliminary work to mainstream WASHCost methodology and results into academic courses was done, the learning alliance was not strongly connected with decision makers in government.

Christelle Pezon, governance specialist for the Burkina Faso team, concluded that in retrospect, this first version of the learning alliance functioned mainly as a working group to support the project host in methodology development, sampling and data collection, rather than serving as a learning platform for decision making. Later in Burkina Faso, WASHCost and IRC in general, adopted an alternative strategy involving government-led working groups, and discontinued the stand-alone learning alliance in the country.

From the start there was pressure on WASHCost for quick results. The sector wanted information about capital expenditure and cost drivers, but there seemed to be less commitment to developing tools and a sector understanding of life-cycle costs. WASHCost, many sector actors hoped, would simply produce the data that would enable them to carry on doing what they had always done, just with better information.



WASHCost Burkina Faso team examining a latrine in Poa (Photo by WASHCost Burkina team).

Ghana

As WASHCost began its work, donors in Ghana were moving towards a common fund for at least some budgetary support to WASH, although the sector remained primarily dependent on donors. Unit cost information was used in preparing a strategic investment programme for the water and sanitation sector. However, some cost components were missing, and costs for awareness-raising efforts in communities about WASH services and local government support to community bodies that were managing their own supplies, were not available.

The main responsibility for policy development lay with the Water Directorate (in the Ministry of Water Resources, Works and Housing) and the Sanitation Directorate (in the Ministry of Local Government and Rural Development). Across the country, a decentralisation programme was under way. But although districts were awarded annual budgets through the District Common Fund, allocations were small and often earmarked for particular purposes, including the salaries of district water and sanitation teams. In practice, there was little money for support services and none for regular capital investment.

There were two main lines of finance for the WASH sector: disbursements from the national to district level via the District Common Fund, and project funds used mainly for new infrastructure. Project funds typically flowed through the Community Water and Sanitation Agency (CWSA), which oversaw water and sanitation services in rural communities and small towns, and the Ghana Water Company Ltd., which was responsible for services in urban areas.

The main technologies used for water supply in rural areas were boreholes with handpumps, hand-dug wells with handpumps, rainwater harvesting tanks and limited piped systems. In small towns, water was delivered through piped systems supplied from boreholes, treatment plants, or gravity/ slow sand filtration systems. Little was known about the long-term costs of small piped networks. For sanitation, households used ventilated improved pit (VIP) latrines, pour-flush latrines or ecosan.

There was an appetite in Ghana to improve the sector knowledge about costs. Long before WASHCost arrived, the CWSA had commissioned reports on unit costs in 1999 and 2004. The 1999 survey obtained basic information about the average costs of boreholes, wells and latrines, and some support costs. The 2004 initiative was aimed to set out an ideal cost structure. In 2008, CWSA asked regions to supply the average unit cost of a list of activities, from construction of hand-dug wells to small piped water schemes and several sanitation options. However, these were effectively lump-sum investment costs with little disaggregation into critical component parts. CWSA had also set a standard for population coverage – for example, a borehole should be designed to cover a population of 300 people for ten years.

Kwabena Nyarko, country director for WASHCost Ghana, shared in the WASHCost launch meeting that there was a lot of work to be done before district authorities had cost data for water services: “These are rural areas or peri-urban small towns, where their accounting system is very simple, not sophisticated. Most of them just capture revenue and expenditure. Capital maintenance expenditure is not recorded. They do not have a proper maintenance budget” (WASHCost, 2008a). For the WASHCost team, helping CWSA and district assemblies to understand and use cost data would help them think about sustainability issues.

Transformation of sector understanding of what costs were significant and why was prioritised in Ghana. Said Kwabena, “if you think about costs that more or less means investment costs and in some cases a portion of the maintenance costs... the other costs are not considered at all. For me, the first step is to improve on data collection and use the unit costs” (WASHCost, 2008a).

WASHCost Ghana established a learning alliance that included the major institutional partners: CWSA, Ghana Water Company Ltd., the Water Directorate and the Environmental Health and Sanitation Division of the Ministry of Local Government and Development. A steering committee was formed, comprising the senior managers of the learning alliance partners, with an ad hoc working group for day-to-day work.

Face-to-face meetings were held with NGO leaders active in the sector. Alex Obuobisa-Darko, country coordinator for WASHCost Ghana, said, “We infiltrate WASHCost into the sector and the stakeholders at

every opportunity we have.” The WASHCost Ghana team offered IRC training in WASH governance issues as a tangible benefit to maintain the interest of partners, with such topics as monitoring and evaluation, financing and cost recovery, support to community institutions, and participatory and strategic approaches.

Several programmes had already set up learning alliance-style groups, including SWITCH, the Tripartite Partnership and Safi Sana. Later, Triple-S (Sustainable Services at Scale) also developed structures for learning and sharing. The overlap was clearly unwieldy and wasteful. In October 2009 the sector-wide National Level Learning Alliance Platform (NLLAP) was launched, hosted by the Ghana WASH Resource Centre Network, with the overall goal to improve sector learning and dialogue. This unified learning platform was effective for all the projects, programmes and institutions in the sector; it has met more or less monthly ever since. The very first report at its first meeting was produced by WASHCost. WASHCost kept its own steering committee to guide the project and its own working group, but used this wider learning structure to share its findings. In November 2012, the NLLAP hosted the WASHCost end-of-project meeting, and offered training sessions on the life-cycle costs approach following the project meeting.

The Ghana team believed that sharing all research results – even if the information was not double-checked and final – kept the learning alliance alive. Patrick Moriarty said, “Every test-bed study, and bits and pieces of research methodology is fed back into the sector. We are giving presentations all the time. We say, ‘Here is what we are getting – it is very rough.’ They are interested and they discuss it” (WASHCost, 2010a).

Mozambique

Efforts to achieve the Millennium Development Goal (MDG) targets for water and sanitation had made Mozambique Government institutions in the WASH sector highly receptive to cooperative approaches. Between independence in 1975 and the end of the civil war in the early 1990s, water coverage increased from less than 5% to more than 51%, but the sector lacked reliable data for planning and budgeting, and communities did not have enough information to select appropriate services. In 1993 the government introduced a demand-driven approach, with the aim to guarantee sustainability, and decentralise funds, activities, responsibilities and competencies. The 154 districts in Mozambique were increasingly defined as the most important administrative units in development, but had only just begun to receive money directly and lacked capacity for planning and budgeting. The WASH sector in Mozambique was overseen by the Ministry of Public Works and Housing, with the National Directorate of Water (*Direção Nacional Águas*, DNA) as the lead.

When the government signed an agreement with WASHCost in 2008, it specifically recognised the importance of planning, budgeting and monitoring to reach WASH targets and to support its five-year government plan and poverty reduction strategy. The 2009–2015 National Rural Water Supply and Sanitation Programme (*Programa Nacional de Abastecimento de Água e Saneamento Rural*, PRONASAR) was launched to improve quality and increase coverage and sustainability, broaden the range of technologies and management models, decentralise and strengthen sub-sector institutions and strengthen the relationships amongst planning, financing and decentralisation.

Government and donors were keen to understand more about sector costs and they welcomed WASHCost. The project liaised closely with governmental institutions and had a physical presence (its own cluster of desks) within DNA. WASHCost was hosted by the management consultancy company Prowater Consultores Lda (formerly Cowater Consultores Lda).

WASHCost Mozambique established links with UNICEF, CARE, Water and Sanitation Program (WSP) of the World Bank, and the University Department of Civil Engineering and Economics at Eduardo Mondlane University (*Universidade Eduardo Mondlane*) in Maputo. It was welcomed as a contributor to the PRONASAR to define the true costs of service. The government wanted WASHCost to become a driving force to establish a water and sanitation information system – something that had been under development since 2005.



WASHCost research in Nampula province Mozambique, April 2009 (Photo by Egidio G. Vaz Raposo).

WASHCost Mozambique decided against building a stand-alone learning alliance (*Aliança de Aprendizagem*) but instead to work within the *Grupo de Água e Saneamento* (GAS): a sector-wide entity established at a time when donor aid was increasing rapidly. The GAS group, coordinated by DNA and jointly chaired with UNICEF, brings together government, donors, NGOs and other implementing agencies, and acts as a technical support forum to government in addressing WASH targets. Angelina Xavier, specialist in water and sanitation for UNICEF Mozambique, described GAS as a place where stakeholders could learn from each other: “We are there not only to give information but to receive feedback from what is going on. We focus on how programmes are operating in the real world” (McIntyre, 2009a). WASHCost fed the results of its first pilot research in Nampula province to the GAS group as a way of checking that it was on course.

Messias Macie, who became the director of planning and control in DNA, saw the potential to revolutionise planning and budgeting in rural water supply and sanitation and provide the missing impetus towards sustainability: “Let me stress that expectations around WASHCost outputs are high,” he said, “as the results will help to improve the welfare of more than 80% of the Mozambican population” (WASHCost, 2010b).

Suzana Saranga, deputy director of DNA, reported in 2009 that her department and others were already impatient for results. Many in the sector wanted the results “yesterday”: “We are aware that the results will contribute to efforts to fight corruption and strengthen decentralisation and deconcentration and will also contribute to access to sustainable services for people in rural and peri-urban areas” (WASHCost, 2010b).

André Uandela, country director for WASHCost Mozambique, was delighted with the positive reception but concerned that people expected too much too soon: “People have unrealistic expectations about the speed at which WASHCost can deliver data – they think it will be available immediately.” To Uandela, the project needed to promote the longer-term goals of and focus on uptake of the concepts, rather than just on providing quick data. He said, “The project rationale needs to be better advocated so that people do not have such short-term expectations of WASHCost” (WASHCost, 2010).

India

One obvious difference between the project task in Andhra Pradesh and those in the African countries was population size. Andhra Pradesh has 80 million people, half as many as the three African countries combined (table 2.2). This issue of scale became a significant factor as learning alliance members pressed for higher levels of data collection. Another major difference between India and other WASHCost countries was the very small extent to which India relied on donors for financial support – water services were largely financed by government sources.

India has been decentralising decision making since 1993, although Andhra Pradesh has lagged behind many other states. State government has shifted from being a service provider to planning, policy formulation, monitoring and evaluation and providing some financial support. Below the state level are the *Panchayati Raj* institutions at district, sub-district (*mandal*) and village levels.

Table 2.2 Approximate populations of India versus Burkina Faso, Ghana and Mozambique, by institutional level

	India	Burkina Faso	Ghana	Mozambique
National population	1.148 billion	15,265,000	23,383,000	21,285,000
State	Andhra Pradesh 80,000,000			
	District 2-3,000,000	Region 1,000,000	Region 1,000,000	Province 1,000,000
	Sub-District (Mandal) 100,000	Province >10,000	District 100,000	District 100,000
		Commune <10,000		

Source: WASHCost, 2008b.

In the African countries, the main problem is accessing water; in India water tables are falling and the quantity of water available is a growing concern. Some village schemes had failed or had piped systems that worked for only an hour or two a day. There was debate within the state over the best approach to address this problem: to improve groundwater management through regulations and appropriate allocations, or to import water from other places (mainly from surface reservoirs) and establish multi-village schemes, connected through a network of pipelines, pumping houses and storage tanks. The second idea was based on the (unproven) assumption that large surface water bodies are less stressed and more reliable than groundwater.

The schedule of rates for engineering was updated every year and governed all pricing decisions in the sector, including contractors' bids, even though managers and government departments acknowledged that these book rates were probably unrealistic. The first challenge was to reach a common understanding with stakeholders on unit costs and what should be covered, since many professionals calculated only the engineering costs and did not adequately consider the costs of sustainability and contextual factors.

State officials were open about the unreliability and age of their data. Sri H. U Mankanth Rao, chief engineer for rural water and sanitation told WASHCost that official coverage of 90.4% for water translated into 57% for full access. Officially, 66% of households had sanitary latrines at home, but overall use of toilets was well below 30%. Challenges in rural water supply and sanitation included water scarcity, poor quality, lack of awareness, inadequate maintenance and lack of dedicated, skilled staff (WASHCost, 2008b).



Mekala Snehalatha, WASHCost India coordinator, addresses WASH practitioners, decision makers and community representatives.

The WASHCost approach fitted well with the guidelines for the water sector, both in the state of Andhra Pradesh and in India nationally. The New Rajiv Gandhi National Drinking Water Mission Framework for Implementation 2008–2012 recognised that a habitation could not be considered fully covered “unless every household in the habitation has been fully covered with potable water in sufficient quantity” (GoI, 2010). The guidelines called for implementation to be devolved from the state to the *Gram Panchayats* (*mandal* and village governance bodies) so that all communities “develop its own village water security plan taking into consideration the present water availability, reliability and its different usage and equity” (GoI, 2010). The guidelines recognised many of WASHCost’s components for a life-cycle costs approach, including operation and minor maintenance and sustainability of sources and systems.

For sanitation and hygiene, the focus was on total sanitation campaigns, consisting of a demand-driven approach and a package of interventions to convert villages into clean places to live. *Gram Panchayats* were expected to develop a plan for maintaining cleanliness by establishing systems that remove garbage and dispose of drainage water. The main intervention related to sanitation was to promote individual sanitary latrines, including encouraging families to build them by providing subsidies.

Mekala Snehalatha, country coordinator for WASHCost India, found that the state was mainly interested to bridge the gap between theoretical coverage and actual access. She reported during the end-of-inception meeting (October 2008) that the then principal secretary of the Andhra Pradesh Rural Water Supply and Sanitation Department was concerned about slippage in service levels after villages were provided with water schemes. “He wanted us to find out the reasons, apart from the costs, why the villages are slipping back, what are the sustainability issues, why the service levels are low and how do we improve the situation” (WASHCost, 2008b).

WASHCost India was hosted by the Centre for Economic and Social Studies (CESS) in Hyderabad. Other partners were the Watershed Support Services and Activities Network (WASSAN), which became

responsible for collecting data on service levels and for documenting the project, and the Livelihoods and Natural Resource Management Institute (LNRMI).

WASHCost was quickly integrated at the national and state levels, working formally and informally with its learning alliance and wider networks. The learning alliance structure consisted of a policy-level advisory group and an implementation-level working group. All members were part of existing networks, and were well known in the sector. The advisory group comprised senior officials (including some retired officials with experience and time) and was chaired by the Rural Water Supply and Sanitation principal secretary. Learning alliance members wrote position papers for the launch meeting of WASHCost and remained active throughout. The presence of a senior team opened many doors for WASHCost and made it possible to cooperate with state structures. For example, the minister for Rural Water Supply and Sanitation joined a WASHCost visit to look at community-based drinking water facilities and WASH services in Gujarat.

The upside of this high-level learning alliance was the commitment on the part of governmental partners to engage with the research. The first WASHCost data, from a small number of villages, showed startling results, suggesting that over a 30-year period, investment in the state's water services had been six to seven times more than World Bank estimates. When the first international team meeting was held in Hyderabad in 2009, Mrutyunjaya Sahoo, then principal secretary for Rural Water and Sanitation in Andhra Pradesh, described the WASHCost figures as "mind-boggling": "If that cost is really true, and I think that there must be some truth in it, then I think in India, even in this poor country, we are spending a very good amount of money without realising it for providing water and sanitation services to the rural areas" (McIntyre, 2009b). He wanted WASHCost to help provide answers, as well as challenge the sector with data. "What I expect from this project is to throw more intense light by testing it out on a larger canvas across the state and then possibly we can be sure what we are doing; where we are and what kind of course correction might be possible."

These expectations led to a knock-on effect in terms of workload and capacity. Government partners in India pressed WASHCost to work at a larger scale and cover more villages and households so that the data would be more representative. In fact, even with the extensive data collection achieved by WASHCost in Andhra Pradesh, the information could not be considered nationally representative, although it was representative of different zones and climatic conditions in the state. India undertook by far the largest data collection of any of the project countries, giving the team very rich material – and a challenge in processing the information.

Expectations at the country level

It was a positive sign that partners in countries had high expectations, but expectations needed to be managed. Collecting cost data from stakeholders and households was difficult, partly because information did not exist in disaggregated form and partly because there was sometimes a reluctance to share.

Not all life-cycle costs data can be found in the same place. Information on capital expenditure, for example, had to be collected at different governance levels and from different sources, including household surveys, water point committees, construction contracts, programme budgets, and local, regional and district government agencies. A seemingly simple question – "What was the capital expenditure on infrastructure in service area x?" – became more complex as multiple rounds of expenditure from different agencies over several years were uncovered.

As Kristin Komives from the international advisory committee warned at the very first WASHCost meeting in February 2008, "There is a reason why cost information out there is so scattered and diverse and difficult to interpret – because it really is scattered and diverse and really will be difficult."

Once collected, data had to be reclassified to fit the life-cycle costs approach categories. A country's established accounting frameworks, which generally list annual expenditure, had to be harmonised

with the life-cycle costs approach. In addition, to be meaningful, the costs had to be matched to service levels. Life-cycle costs assessment can be seen as a cross between an anthropological dig and a detective novel, with researchers delving back through records and memories and trying to fit the pieces together to make sense of them. The nature of the task became clear as the project developed its detailed methodology and tested it in the field.

Even some WASHCost team members were surprised by how difficult it was to collect good-quality data on disaggregated costs and link this information to service levels. Arjen Naafs, country coordinator in Mozambique, admitted that he was overly optimistic:⁷

My very first thought was, okay, there is a big gap on costs, but it shouldn't be too difficult to find them. Some people thought we would have results on the table within half a year, but it was more laborious than that. One of the achievements of WASHCost was to link costs with service levels and that step was new. If you want to embed this as a process, and not as quick data collection, it takes a lot longer. Embedding takes simply more time than I thought would be needed.

This was equally important at the international level, where WASHCost set out to influence what large donors, agencies and institutions funded and how they addressed long-term post-construction costs.

Learning at international level

At the international level the project team decided that a community of practice (CoP) would be more appropriate than a learning alliance to provide a 'light touch' mean for sharing information and discussing funding issues. The CoP was constructed outside the project framework and was tasked to develop a methodology to answer questions such as, "What are the unit costs of our implementation programmes?" and "Are we getting value for our money?" Advocacy at the international level went beyond the project's horizons and promoted work on costs being done by others.

There was initial interest from the Directorate-General for International Cooperation of The Netherlands (*Directoraat Internationale Samenwerking*, DGIS), the UK Department for International Development (DFID), WHO, WSP, the International Water Association, WaterAid, Water and Sanitation for the Urban Poor, UNICEF, the Bill & Melinda Gates Foundation and others – the CoP began work with 30 registered members. WASHCost set up a web platform to share information about cost data and held a face-to-face meeting during the 2010 Stockholm World Water Week. Points of discussion included the types of cost data useful for each organisation and the most appropriate format and medium for sharing methodologies, data and outcomes from different cost studies.

In a few months it became clear that the group was not fulfilling its potential. The WASHCost team was sharing draft reports, but there was no additional sharing amongst participants. The web-based discussion forums were sparsely attended, perhaps because social media platforms were not yet widely used at these levels. By the end of 2010, WASHCost had developed more confidence in its results and methodology through testing and discussions at the country level and began sharing these online, even in draft form. The CoP was allowed to taper off as WASHCost provided monthly e-updates, which had a wider national and international audience, and made presentations at international events.

WASHCost and Triple-S were sister IRC projects and increasingly worked together at the international level. Catarina Fonseca, the director of WASHCost, and Harold Lockwood, co-director of Triple-S, toured international agencies to discuss the twin issues of the life-cycle costs approach and sustainable services. WASHCost began nurturing a network of the growing number of individuals interested in life-cycle costs methodology, presenting concrete results from its action research, and organising half-day training courses at international conferences. By the end of 2012 the e-update – by this time a shared resource with the Triple-S project – was being circulated to about 1,500 sector professionals.

⁷ Interview, 20 November 2012.



Across all WASHCost research areas, costs associated with operations and maintenance, including skills transfer and training, often receive minimal (or no) budget allocation (Photo by Lokaalmondiaal).

Chapter 3

Shaping the research agenda

On 10 March 2008, the IRC management team approved Burkina Faso, Ghana, Mozambique and Andhra Pradesh (India) as the four WASHCost research countries, and on the following three days the core project team and the external advisory committee⁸ held a kick-off meeting in Delft, The Netherlands. Ben Lamoree, then the director of IRC, opened the meeting by saying that the research community welcomed the research but had doubts about whether results could be embedded in decision-making processes; while the sector was generally enthusiastic about the potential to improve services, the research community questioned whether the research could actually be done.⁹

WASHCost was predicated on the idea that improving the availability and quality of information about the cost of providing services would lead to improvements in quality and cost effectiveness. The assumption was that those involved in WASH service delivery were motivated by a desire to use resources rationally and provide the best service level possible. Costs would be of interest to three groups:

- service users (consumers) and those who represented their interests, such as community-based organisations, politicians, interest groups and service authorities or regulators;
- service providers who are the people and organisations involved in the day-to-day delivery of WASH services; and
- financiers who invest in services through loans or grants.

The WASHCost theory of change, illustrated in figure 3.1, assumed that information would improve planning, budgeting, financing, regulation and delivery of services and therefore prompt sector workers to collect and use their own data to further improve service levels. Without such a trigger, the effect of WASHCost would be transitory. Success depended on the ability to catalyse change in a country's capacity to collect and analyse WASHCost data: "If WASHCost succeeds in raising awareness on the range of critical issues surrounding service delivery and life-cycle costs, then it may also create the conditions that would lead to cost analysis becoming institutionalised, owned and alive within national sectors" (Moriarty, et al., 2010, p.37).

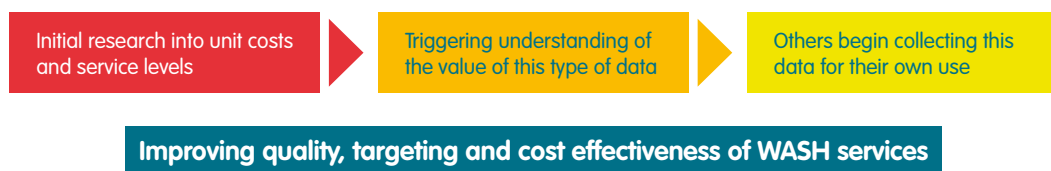


Figure 3.1 WASHCost theory of change

Source: Moriarty, et al., 2010, p.4.

To test the hypothesis, WASHCost worked with learning alliances, described in chapter 2, to make cost-benefit comparisons amongst service options, shifting the focus from the physical infrastructure to the quality of service experienced by users. The different levels of service were eventually developed into service ladders and are discussed in greater detail in chapter 4.

⁸ The external advisory committee (later known as the international advisory group) was established to provide specialist knowledge and act as a sounding board for the project. As explained in Chapter 1, it did not function as such for long, although two members, Richard Franceys of Cranfield University (UK) and Kristin Komives of the International Institute of Social Studies in The Hague (NL) provided long-term support and advice to WASHCost.

⁹ Accounts of discussions at the WASHCost kick-off meeting are based on WASHCost (2008a) and the WASHCost end of inception phase meeting (WASHCost, 2008b). Other quotations and opinions in this chapter are based on interviews conducted for this book in 2013.

Determining what data to collect

Country teams were established and the basic approach was set over the first nine months. The inception phase was designed to ensure country ownership of project objectives and activities, to start to embed the project in governmental and non-governmental WASH organisations and to prepare for data collection and analysis. There was no blueprint: WASHCost was breaking new ground; agreeing upon the research protocol in all four countries was a learning process that lasted for the better part of two years.

Was it realistic to achieve a quantifiable improvement in the sector within ten years? Project director Catarina Fonseca said that the overall goal was a shift in the mind-set and practices of those who set budgets and provided services so that they would share information and plan for sustainability (WASHCost, 2008a):

What I aspire to is that in ten years, national and local government authorities are using cost data to budget and for planning, that NGOs are aligning investments in the sector, looking at the costs of a sustainable service, not just at capital costs, and that there will be more transparency and accountability and better governance.

The study would focus on all the financial costs incurred by stakeholders trying to provide services: the costs of design, development, procurement and construction, commissioning, hardware, maintenance and operation, extending the system, providing support and building capacity. WASHCost would not assess opportunity costs (what else could have been done with the money) or the wider economic costs of not having access to clean water, sanitation or hygiene.

If the big picture was becoming clearer, the detail proved more challenging. Amongst the early questions that had to be answered in the design stage were the following:

- Should teams collect cost data about all household water sources or should this be limited to sources that were officially considered safe (even though many officially 'safe' sources were not actually tested)?
- How could researchers capture the costs of the factors that make a system sustainable?
- Would it be possible to determine historical costs from older systems, if no costs had been recorded?
- How could WASHCost collect data about the costs of emptying latrines and safe disposal of faecal material, when this process was rarely done?
- Was there a way to monitor the cost of introducing safe hygiene practices and assessing hygiene effectiveness without measuring health impacts?
- How could costs be compared between countries?
- Should data be collected on all technologies used in each research country or only on technologies common to all countries?

The type of costs to be collected – how much users paid, what had been spent, or what should have been invested in a water or sanitation system for long-term functionality – was one intensively debated question. The price paid by the user might be inflated or, because of subsidies, artificially low. The design costs for system construction were likely to be below the actual costs of a functioning system. On the other hand, budgetary restrictions might limit actual expenditure to a level below the design estimates. In all cases data would probably be missing. Richard Franceys, adviser to WASHCost, believed it would be possible only to approximate real costs and therefore proposed triangulating what users, service providers and contractors said about costs and prices. Actual costs, when available, would not be the same as the expenditure required to provide an acceptable and sustainable service (WASHCost, 2008a). Ultimately, WASHCost collected data on actual expenditure incurred to deliver the service.

The project also needed to find a way to relate unit cost data to specific levels of service. Initially, service levels were thought of as defined by the technology: for example, handpumps broadly provide one level of service while piped water supplies provide another. As the service ladders were developed, attempts were made to define service-level criteria that would be independent of the technology used to achieve them. Ultimately, there was some rapprochement between these positions; it was agreed that particular technologies are indicative of the service levels they can provide.

Balancing international and national needs

WASHCost would develop a database of costs across countries and a methodology that would transform each country's planning and budgeting models. How could a research methodology achieve both purposes?

Different stakeholders emphasised different aspects of the project. The funder, the Bill & Melinda Gates Foundation, was particularly interested in understanding what it would cost to provide water, sanitation and hygiene services to large populations, and ultimately to all people, in many countries. This approach of measure, plan and provide had worked well for other areas, such as immunisation, the delivery of anti-retroviral drugs for HIV, and the drive to eradicate polio. In his 2013 annual letter,¹⁰ Bill Gates described “the innovation of using measurement” as central to the approach of his foundation. To Gates: “setting clear goals, picking the right approach, and then measuring results to get feedback and refine the approach continually – helps us to deliver tools and services to everybody who will benefit.” WASHCost project leaders also emphasised the need to engage with the WASH sector in each country so that cost data would be used for planning and budgeting.

During the inception meeting in March 2008, Fonseca emphasised that the project must meet both objectives. It was important to limit data collection to what was realistic and usable, and to give the country teams ownership of the process of choosing and collecting the data. However, there was also a need for metadata that could be compared internationally.

Patrick Moriarty believed that the top priority was to provide data that could be used by countries for planning. He contrasted this with the data produced for the Millennium Development Goals Joint Monitoring Programme – information that was widely quoted at international conferences but little used for planning within countries: “It is difficult and expensive to collect data, and people in countries have to see a clear reason for doing so.”

Kristin Komives, senior lecturer in rural development, environment and population studies at the International Institute of Social Studies in The Hague and a member of the external advisory committee, doubted that WASHCost could deliver a database with numbers on what it would cost to provide water to everyone worldwide:

I personally don't think we are going to come up with such a thing. It is much more complex and I don't think it is very useful to think like that. The danger [is] that we end up with a huge range of numbers that we cannot understand or use in any useful way. On the one hand, we need to see the complexity, and on the other hand, we have to find a way to make some sense of that.

Alana Potter, governance specialist for WASHCost Mozambique, pointed out that one aim for countries was to have data that would help them assess the cost of decentralisation and make choices, such as, “Do we provide half of the district with standpipes, or do we provide handpumps for the whole district?”

Kwabena Nyarko, research director for WASHCost Ghana, was confident that WASHCost would be able to meet both international and national aims. His priority would be to transform the national sector's understanding about significant costs, but the donor's aims were also important: “We need to identify these two clearly and pursue them so that both parties will be happy. If the donor also wants to see an Internet-based decision-support tool, computer-based software, it is possible to do it.”

Charles Batchelor, governance specialist for WASHCost India, saw the project's main benefit in injecting realism into planning, taking full account of the costs of strengthening institutions, ensuring that the poor have adequate services and sustaining water sources for current and future demand:

A lot of the activities that we know are needed to produce sustainable WASH delivery tend to be ignored... We are going to generate information that can be used as part of planning processes that are already very complex. However, WASHCost information on its own is not going to do it. It has to be part of an overall improvement in water governance.

¹⁰ Read the Bill & Melinda Gates Foundation's annual letter 2013 and view video materials at: www.gatesfoundation.org/Who-We-Are/Resources-and-Media/Annual-Letters-List/Annual-Letter-2013.

For Franceys, the potential was to help governments understand the costs of sustainability:

We tend, as donors and governments, to have a budget to build something, implement it and then walk away; and it goes wrong in two or three years. It is not possible to make radical change, but it is possible to help governments to take the next steps in understanding the true costs of what they are trying to achieve and the service levels they can get out as a result.

However, Franceys warned against expecting fundamental change in a short time:

It might take five years to do the project, but it will take ten years to embed, and scaling up will take another generation. I am very optimistic about the long-term outcomes. In some countries it will suddenly be taken up far faster than we expect. In other countries it will appear not to be taken up at all, but it will be embedded and will emerge in a different way, at a different time.

Despite those differences in emphasis, there was a common desire to achieve some global comparability and to learn from other countries about planning, budgeting and costs. Arjen Naafs, country coordinator for WASHCost Mozambique, pointed out that sector people already made international comparisons: “We are seen as the most expensive country in the water and sanitation sector and so people are eager to see why things are cheaper in the other country.”

The project leaders agreed that the main driver for WASHCost research should be country needs. But country teams did not want to be inward looking: what was happening in other countries was of interest to them and to their government partners. Managing expectations and finding a balance between national and international goals continued to be an issue throughout the five years of the project.

Developing and testing the methodology

By October 2008 country teams had assembled some secondary (existing) data and had a better idea of what information was already available. It had already become evident that it would be difficult to generate good-quality data from existing sources. At international level, too, a search of existing literature had revealed both demand for more accurate costs and confusion over what costs donors and UN agencies already had. Fonseca had found that while some sector agencies believed they had good cost data, many reports failed to include continuing costs or capital maintenance, while others were based on contractors’ estimates or bills of quantity.

From India, Mekala Snehalatha, country coordinator, reported finding large amounts of secondary information in fragmented form, much of it out of date. It could be characterised as “hype and hide” – not easy to find and unreliable to use. Arjen Naafs also found difficulties in Mozambique: “Many government partners and international NGOs say they are willing to give data, but when you ask for it there is a famous delay. It is not that people are not prepared to share data, but they are not doing so in time.”

The project would have to devise a fresh methodology for collecting data, and researchers settled on a life-cycle costs approach (LCCA). Life cycle in this context does not refer to conventional cradle-to-grave system analysis; rather, it indicates that in a sustainable service, costs follow a cycle, from initial capital investment to operation and minor maintenance, capital maintenance and eventual replacement of infrastructure. The costs are what is needed to build, sustain, repair and renew a water or sanitation system throughout its cycle of use. Sustainable service also requires that financial and human systems be in place to improve and extend WASH systems in response to changes in demand.

Life-cycle costs represent the aggregate costs of ensuring delivery of adequate, equitable and sustainable WASH services to a population in a specified area. A life-cycle costs approach highlights the full costs of achieving adequate, equitable and sustainable WASH services.

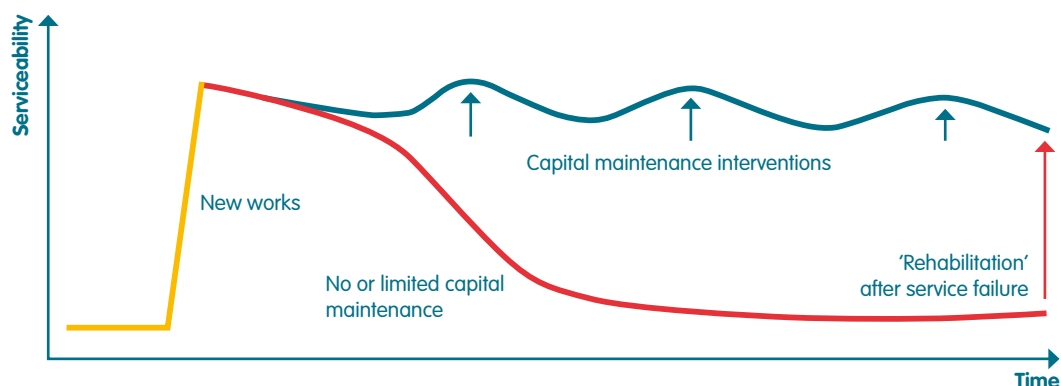


Figure 3.2 Capital maintenance approach for maintaining serviceability

Source: Franceys and Pezon, 2010, p.3.

The unit cost components were agreed early in the project, based on work already done by Fonseca, et al. (2011, pp. 7-8). These are:

Capital expenditure (CapEx)

Consists of the capital invested in hardware (concrete structures, wells, pumps, pipes, toilets) and software (preparation costs with stakeholders before construction or implementation, such as planning, community mobilisation or hygiene education). It also includes the expenditure on expansion and enhancement to improve the system. CapEx is occasional and “lumpy,” which is why future expansion, enhancement or replacement of major parts must be planned in advance.

Cost of capital (CoC)

The cost of financing a programme or project – the cost of accessing the funds – includes interest on any loans and, in the case of private equity, the return on the capital invested.

Operational and minor maintenance expenditure (OpEx)

Includes regular, recurrent expenditure on labour, fuel, chemicals, materials and soap. Minor maintenance is routine repairs and adjustments needed to keep systems running at design performance. OpEx also includes household coping costs – the money households spend to achieve a satisfactory level of service, such as the cost of cleaning products and energy.

Capital maintenance expenditure (CapManEx)

Expenditure on asset renewal, replacement and rehabilitation relates to major repairs and replacement of equipment to keep systems running (figure 3.2). The timing may be unpredictable, but major repairs will be needed at some point. Accounting rules guide what is included under capital maintenance (versus CapEx or OpEx), and there should be a broad equivalence between accounting charges for depreciation (designed to build up a reserve for renewal) and actual expenditure on capital maintenance. If CapManEx is properly budgeted, it can replace the need for repeated CapEx following system failures. Lack of finance streams for capital maintenance is a major cause of system failure.

Expenditure on direct support (ExpDS)

Local providers or user groups need help from local governments and back-up services so they can react to breakdowns, manage contracts and monitor services. Failure to fund post-construction support puts sustainability at risk.

Expenditure on indirect support (ExpIDS)

Macro-level support, capacity building, policy making, planning, regulation and monitoring contribute to the sector's effectiveness but are not particular to any programme or project. Support covers the costs of institutional arrangements and capacity building for professionals and technicians.

One way to present the life-cycle cost approach components is in a pie chart (figure 3.3), which ultimately proved the best approach. However, the pie comes with a caution that these costs cannot simply be totalled. Whereas CapEx and CapManEx are occasional, “lumpy” costs, OpEx and ExpDS are regular, ongoing costs – these costs cannot just be added together because of their different time frames. The pie is a useful way to conceptualise the cost components, but should not be read literally. If CapManEx is properly budgeted, it can replace the need for repeated CapEx following system failures.

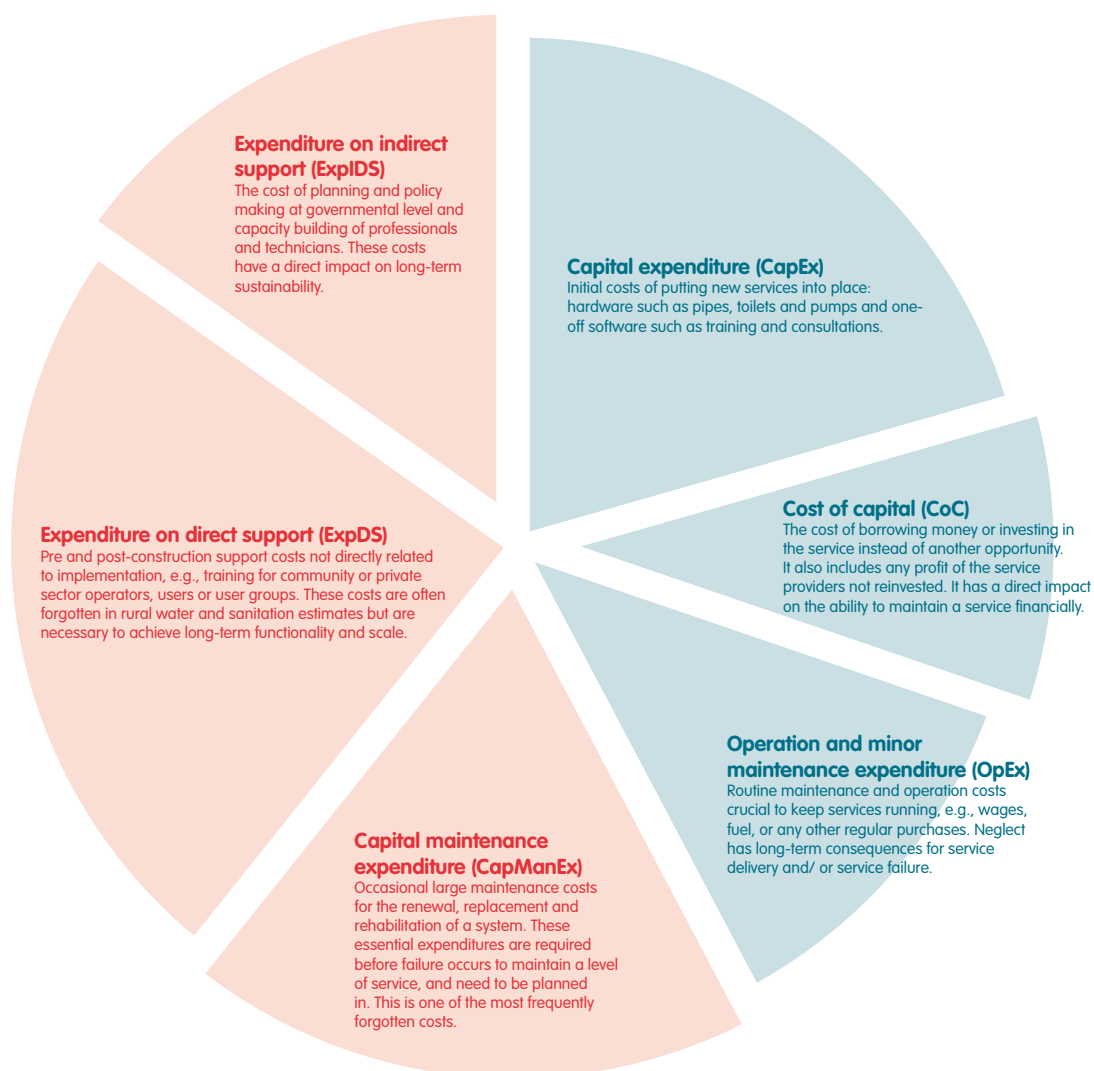


Figure 3.3 Cost components represented in a pie chart¹¹

¹¹ Cost components were first presented in a pie chart in WASHCost's brochure on life-cycle costs approach, available at: www.ircwash.org/news/life-cycle-costs-brochure.

Frameworks for standardising information

The life-cycle costs approach underwent refinements as the WASHCost project progressed, as it took time to determine how some costs should be categorised. The first attempt to devise a common approach to collecting data was drafted by the external advisers. The ‘common information framework’ identified the major characteristics of services and was intended to capture information in a standardised way to allow comparisons between countries (table 3.1). Cost data would be collected for different aspects of service delivery, categorised as water resource costs; the costs of building, operating and maintaining the service; and the costs that households contributed. Country teams were encouraged to discuss with their learning alliances what technologies to include, and to test and refine the tool.

Table 3.1 Draft common information framework

Component of service cost	Resource costs Costs involved in making a water resource available for a scheme	Cost of service delivered Costs involved in building, operating, and maintaining a scheme and the service level it provides	Cost of service upgrade Costs that households assume to upgrade the quality, reliability, and convenience of the service they receive (from tap to mouth)
CapEx hardware capital investment in fixed assets			
CapEx software one-off work with communities to prepare construction and management (pre-construction community work)			
Cost of capital cost of programme/ project financing			
OpEx routine maintenance and operation costs			
CapManEx asset renewal and replacement costs			
ExpDS e.g., post-construction support activities that reach the community or operator			
ExpIDS e.g., macro-level support, planning and policy making			
<div> <div>Level of service provided by scheme</div> <div>Level of service after upgrade by households</div> </div>			



Richard Franceys, advisor from Cranfield University, explaining the overall goals of WASHCost during the project Inception Meeting in Hyderabad, India, 2008.

The idea was to agree on a common approach to what questions should be asked, even if the precise questions varied according to the context of each country. Franceys noted that attempts to standardise questions across countries had not been successful in other projects. An international meeting might settle on a questionnaire, but when researchers started interviewing, they each found slightly different versions of reality and quickly began to diverge from the script. “You can have cross-country comparability if you force everyone into an unrepresentative box,” Franceys said, “but it won’t represent the real costs and people will not have ownership of the costs. They need permission to let the process develop” (WASHCost, 2008a).

In retrospect, the framework was better suited to data analysis than as a template to enter raw data into Excel sheets. The framework was ultimately rejected as over-complicated for country use, especially since the classification of costs and determination of water and sanitation service levels had not yet been fully developed. Teams were also concerned about being forced into a data collection straitjacket. At the end of the October 2008 meeting, the WASHCost project management committee concluded that the framework “was advanced in conceptual development but not sufficiently informed by the work in countries” (WASHCost 2008b).

Tension arose between the country teams and the core team in The Netherlands. Country teams wanted greater input into the decisions. After consideration, the project management committee agreed, stating, “The project is not made up of ‘country teams’ and a ‘global team:’ there is one WASHCost team.” Planning decisions would be made at the level of the overall project management committee, but countries would be involved. Following this meeting, it became the practice to think of the project as having five teams: four in the research countries and one in The Netherlands.

An alternative way of categorising data was put forward by Batchelor and the India team, who divided costs between resources, infrastructure and demand/ access (RIDA; table 3.2). Resources covered source protection measures, water conservation measures and flood control. Infrastructure was the capital cost of all the hardware. Demand/ access included community contributions to infrastructure, connection charges and whatever private action households took to improve their supplies, such as installing storage tanks or private borewells.

Table 3.2 RIDA framework for categorising costs

Life-cycle cost components	Resources	Infrastructure service delivery	Demand/ access-user coping costs
Water	Costs involved in sustainable provision of water resources of required quantity and quality.	Costs incurred by service providers when constructing, operating and maintaining water supply infrastructure.	Costs incurred by users who routinely access formal, informal and private water supply systems to meet demands (domestic, municipal, commercial, industrial, MUS, livestock, etc.). These costs include any costs that are not met by the service providers.
CapEx hardware capital investment in fixed assets first time, extension, enhancement and augmentation	<p>Costs of WASH-related land treatment: source protection measures involving extensive land treatment, construction of small recharge structures, bending and terracing to prevent soil erosion and sedimentation, water conservation measures within urban areas, etc.</p> <p>Costs of WASH-related engineering structures: flood control structures, large groundwater recharge structures, etc.</p> <p>Costs of unconventional water sources: desalination plants, wastewater treatment, inter-basin transfer.</p> <p>For triangulation purposes: government subsidies.</p>	<p>Costs of constructing water storage infrastructure: reservoirs, tanks, etc.</p> <p>Costs of water supply infrastructure: wells (public and private), canals, pumps, reticulation systems, balancing reservoirs, water tankers (public and private), water trains, offices, warehouses, etc.</p> <p>Costs incurred when dry or low-yielding borewells are drilled.</p> <p>Costs of water treatment plants: desalination, fluoride, polluted water, etc.</p> <p>Costs of ‘overdesign’ relating to demands of floating populations, climate change mitigation, etc.</p> <p>Additional pro-poor costs: related to pro-poor setting of water points and/ or provision of MUS water.</p> <p>Costs of small-scale water supply infrastructure: community roof water harvesting systems, community storage tanks, community connections, etc.</p> <p>Costs of installing water meters: point of supply meters, telemetry systems, vehicles, IT systems for processing info, etc.</p> <p>Costs of water quality monitoring: test kits, laboratories, vehicles, buildings, sampling equipment, etc.</p> <p>Costs of putting in place of billing system: vehicles, IT costs, etc.</p> <p>For triangulation purposes: government subsidies to construction.</p>	<p>Community contribution to initial infrastructure costs e.g., percentage charged by service provider.</p> <p>Costs of water supply infrastructure purchased by users e.g., water storage tanks or cisterns, filtration systems, piping, roof water harvesting systems, etc.</p> <p>Costs of private borewells: If needed by users, to augment supply from water provider.</p> <p>One-off connection charges: e.g., charge for connecting supply to individual houses.</p>

Source: Adapted from Moriarty, et al., 2007, p.81.

The RIDA framework was a checklist for ensuring that data collection covered all angles and that the questionnaires had a common core so that the results would be comparable. Identifying the questions (and resulting indicators) to ask about service levels and costs was a long process. Each country refined its questionnaire during the pilot and testing phase, and as stakeholders became more interested in the cost of services, the number of questions grew. As a country team added a question, the others would have to follow to make sure that data would remain comparable. Fonseca, initially expressed a concern over the amount of data that teams were collecting. She felt that the questionnaires contained too many “nice to know” questions and should focus on “need to know” questions about quality, quantity and access that could support planning processes. Country teams believed that standardised questionnaires and structured interviews failed to take into full account the context in which services were provided and used. Information on this could be obtained only by observation or through semi-structured interviews. Later, Fonseca recalled, “We made the decision: Okay, we have only one chance to collect all this data, so we collect it all, and then we analyse what indicators and questions work best and what is the absolute minimum needed.”

Despite attempts to harmonise, household and infrastructure surveys were to an extent developed country by country. As had been predicted at the kick-off meeting, it was indeed difficult to coordinate data collection across several countries. However strict the protocol, there were always ambiguities.

Over a series of intensive meetings, the questionnaires were compared and consolidated. The process ultimately arrived at 1,000 indicators for the pilot data collection. Even after the pilot, there remained 691 variables, including 112 variables on contextual information, 264 on water and sanitation cost components, 79 on technology types and 89 on water service-level indicators. In June 2009, after the pilot phase, the research group, with representatives from each country team, met in Hyderabad, Andhra Pradesh to discuss whether questionnaires could be radically shortened and data collection simplified by limiting the range of infrastructure studied.

Rachel Cardone, the donor's project officer, wanted WASHCost to focus on questions that would give practical answers for decision makers; she suggested looking for ‘golden indicators’ that would be easy to collect and provide critical information. Naafs suggested restricting data collection to a smaller range of infrastructure to make results more comparable: “I think it is absolutely essential that, at least at a certain level, we collect the same kind of data. If not, it will remain a country exercise and we will not be able to create an opportunity or tool for any other country.”

Most participants, however, felt that data collection could not be cut back without losing the richness of the research. Ratna Reddy, the research director for WASHCost India, argued that broader questionnaires – asking households about income and expenditure, for example – helped triangulate findings. Indeed, India collected data on social caste, literacy and other factors that the team felt influenced people's behaviour in relation to water, sanitation and hygiene. Moriarty agreed: “You need broad-based research, collecting loads of data you may never use, and then out of the data you find the good research questions.”

Capturing data on multiple sources and uses

Early in the project it became clear that some assumptions about how people accessed services were simplistic. The implicit assumption has been that a family collects most of its water from a single source and uses it for all domestic purposes. In reality, rural families with little cash were making hard-headed decisions about when to spend money on water from an improved source and when to collect water from a traditional unimproved source. In Mafi Lutta village in Ghana's Volta region, for example, villagers collected 60% of their daily water from the official water scheme but relied on traditional, low-quality but free sources for the rest; about 40 to 50 litres.

Reddy reported that in some Indian villages, households used up to 11 water sources, each with a different cost and providing a different level of service. There was no ‘primary’ source. This meant that researchers had to collect more information than they initially intended and needed to interview several family members about their use of formal and informal sources.

Christelle Pezon, governance specialist for WASHCost Burkina Faso, pointed out that people's water habits have profound implications for policy makers. Team members in Burkina Faso spent days sitting by water points, watching who came to collect water, asking how much they collected and why. The results were surprising – prompting discussions in the sector that continued after the project had ended. The researchers discovered that the primary source of water in rural areas was self-supply from traditional wells. Even in Sahel Region, the driest region in Burkina Faso, half the population never visited a water point. “People in Burkina Faso were amazed when they saw the numbers,” Pezon said. If WASHCost had only priced the infrastructure and not talked to the families, the scale of this abstention from formal services would have gone unnoticed. “You need to know who is going to the water point and how much water they take,” said Pezon. “You need to know whether they use it for the basic needs of drinking, cooking and washing or where else they go to fetch that water.”

Random versus purposive sampling

One early discussion was about whether to use purposive or random sampling. Purposive sampling involves selecting areas likely to yield good data; it is often used instead of random selection when little information is available. In rural areas, if formal water services are missing, it may be necessary to purposively select communities that are known to have the relevant improved facilities so that data about costs can be collected. A variety of rural and peri-urban communities is needed to generate robust results.

The country teams sought to collect data from areas that were representative of climatic regions and typical of service delivery areas. Statistically reliable and representative national data would have required a sample beyond the scope of the project, however. Even in India, where WASHCost conducted around 10,000 household surveys in 180 rural habitations across nine agro-climatic zones, data could be considered representative for the state but only indicative for the country. The Ghana team collected data in three regions (Ashanti, Northern and Volta) with some additional data from Greater Accra and from the Central region. Burkina Faso collected data from six communes (each comprising several villages) in the Nord, Centre and Hauts-Bassins regions, each in a different climatic zone. Choices were determined by issues of governance (where decentralisation had taken place) and by hydrologic and other factors, and the sampling aimed to be regionally but not necessarily nationally representative.

Mozambique adopted a similar approach but also did some purposive sampling, working with a sampling cluster model devised by the country's National Bureau of Statistics (*Instituto Nacional de Estatística*, INE). The country's multiple indicator cluster survey outlined 715 enumeration areas of up to 150 households each and was considered representative at national, provincial and urban-rural levels. Naafs believed that going to places where services were known to exist was essential in order to be able to link costs and service levels. Even so, data on costs and service levels often had to be obtained from different areas: “With hindsight, I would have liked to go for islands of information because in the end, we took a huge leap of faith when we were linking costs with services. We linked nationally representative service levels with cost data from a completely different sampling frame.”

There was a clear trade-off between nationally representative data (considered very important for the stakeholders and the embedding process) and the availability of good information (from areas with recently implemented projects and agencies that would provide data).

A harmonised WASHCost methodology

The research protocol continued to be harmonised and developed well into 2010. Country teams adjusted parameters and criteria to fit local conditions. In retrospect, some said the autonomy given to the countries came at a price. Naafs thought that more guidance up front, with a core of common indicators and methodologies for data collection, would have saved pain and time when it came to the analysis:

One of the good things of WASHCost is that it always allowed country decisions to lead the research. [But] country ownership meant that in-country resources were used to re-invent solutions to the same problems. This could have been different. For example, if one country had been a year ahead in its research development, they could have shared an adaptable framework for data capture and analysis. This would not have been so diverse between countries and would have saved a lot of time. As it was we all had to think our own questions and later on we had to fit them together to see if they worked. Although this was useful, it may not have justified the time spend on these activities.

That issue was also raised by the mid-term WASHCost evaluation team, who called the decision to start simultaneously in all four research countries “brave.” However, Fonseca said that starting with one country would have prevented the other countries from having their own rich input into the methodology:

Many people have asked why did we not test the methodology in one country and then roll it out in the other three countries. The answer is we did not have one methodology, we had several pieces which only came together when the teams tested them, and we developed a globally relevant methodology. The LCCA research methodology is solid because it was developed to answer the needs of the WASH sector in very diverse countries and contexts. We would not have discovered what we did without the cross-learning that was generated within a multi-country, multi-disciplinary, multi-language research team.

The learning that took place during the research meetings brought together years of experience in the sector and was the most understated process in WASHCost and was perhaps undervalued. “We would not have come up with the LCCA methodology if we were four or five sector professionals sitting in The Hague,” Fonseca said. “The action research process is what makes WASHCost different from so many other data extractive projects that leave no lasting results, and no lasting capacities. Looking to the future, I would design research programmes in the same way again.”

Moriarty believed that all multi-country research carries inherent difficulties and that the struggle to understand and develop the methodology was probably one of the most beneficial aspects of the project, that could not just be handed on from country to country:

What we were doing was genuinely innovating. We didn't invent anything by saying you should look at the costs of projects in the water sector over their whole life cycle; the innovation was in working out how you do it, learning how to do it and dealing with all that slog. Possibly you could have done it faster if you had done it in one country and I always debate whether the costs of doing it multi-country are worth it. But the question is how much real cross-fertilisation was there in the early stages. Were people capable of understanding the messages that were coming from the other countries? By the end you had a WASHCost family but a substantial chunk of the overall costs was maintaining an infrastructure for cross-country comparison and learning.

Some project leaders changed their views over time. More or less throughout the project, the India team strongly advocated for countries to follow their own path to capture local context and not be over-constrained by what was decided elsewhere. Snehalatha, in retrospect, concluded that lack of agreement at an early stage made it difficult to pull the data together into a common database at the end of the project:

I think your theoretical frameworks and theory of change should be very strong and formed at the beginning of the project. That should lead the rest of the activities and objectives. If these frameworks were really ready, these little areas of uncertainty may have been cleared up more quickly. We could have been much more confident and we could have planned for action research and for modelling. I think maybe one year of

homework could have been done after the sanctioning of the project... to develop these tools for the framework.

This debate is relevant to many development projects and programmes. Research in only one country makes it difficult to differentiate particular circumstances from generalised lessons and carries the risk that the methodology will not be appropriate for other countries. Doing common research across several countries involves moulding a common approach. In WASHCost, each country had an equal status and an equal role in shaping the research agenda. Arguably, there was no alternative to grappling with the problems and contradictions and trying to make them work. If one country had indeed started a year ahead of the others, would the other countries have bought into their solutions? However, the fact that the methodology continued to develop after the start of data collection did create problems for cross-country comparisons.

During and after the data collection pilot, project officer Jeske Verhoeven worked to simplify the data collection process, reducing the number of indicators to 500 and then to 100:

We started by looking at what all countries were able to collect. For example, India had collected 50 indicators on quality, many not reliable, and none of the other countries could collect so much water quality information. Mozambique was collecting a lot of information on the management of service delivery. It was interesting but not done by any other country. So we tried to come with what would be the absolute minimum to compare costs with service levels. Everything else was relevant at country level but was thrown out from the global comparisons.

Later still, when Verhoeven was developing the WASHCost training course in 2012, with support from the research teams, the best indicators were chosen from each country and the major cost and service-level indicators were cut back to 30. The minimum set of indicators for monitoring costs was identified, although some contextual granularity was lost. The WASHCost Share tool, which was developed for checking financial sustainability, further reduced the questions to 11 – approaching the golden indicators that Cardone had asked for in 2009.

It can be argued that WASHCost took a wrong turn in 2009 by not adopting a common information framework and a much smaller set of uniform questions. If the goal of WASHCost was simply to collect cost data, it could have been done with a much lighter data set. However, the project was exploring the interface between costs and service levels. The researchers plunged into complexity and then tried to synthesise what they discovered. The simplified approach, with just 30 or 11 questions, emerged out of the greater understanding that resulted from the 1,000 questions in the pilots and the 691 variables in the main data collection; simplicity out of complexity. At the stage when the teams were grappling with 1,000 questions, they could not have predicted which would turn out to be “golden.”

Examples of questions included in country questionnaires (adapted)

Household level: facts about the family

Record location with GIS; add photos to descriptions.

- Number of people per household?
How many eat together?
- Who is the respondent?
Name, sex and position in the family?
- Type of dwelling? Own or rent?
Years living there?
- Type of household (poor, medium, better off)?
Proxy for wealth could be how many animals owned, owning watch, radio or other goods.
- Occupation?
- Average income per household per month or year? To analyse capacity to pay, income per year may be easier for farmers who receive cash only after selling crops.
- Expenditure: how much is spent per month for school fees, health fees, food, transport, and others?

Household level: water

- Main source, alternative source(s)?
- Use of sources: what, when, how regular?
- Location of sources? How far, or how long does it take? Use GPS to measure distance.
- Waiting time at systems?
- Collection: how many times per day?
- How many litres per day?
- How much paid per container? Include description of container.
- Frequency and form of payment?
- Who collects?

Water storage and quality

- Storage of water: cost?
- Containers: cost?
- Household water treatment: cost?
- Quality impressions: taste, smell, colour?

Household level: sanitation and hygiene

- Who has latrine?
- Type of latrine?
- Why not a latrine?
- Where do you defecate?
- Do you pay to use a public latrine?
- Existence of handwashing facility?
- Do you wash your hands before eating?
With what, or why not?
- Does the latrine have soap?
- How is wastewater removed? Cost?
- Cost of latrine? How much was paid for construction? Include cost of digging, lining pit, slab, superstructure, vent pipes, seat, ceramics, wash basins, labour, transport.
- What has been the source of funds? If loan, include interest rate and repayment period.
- Annual cost of emptying pit (CapManEx) or rebuilding latrine? Other OpEx?
- Construction costs of slab installation?
Transport, labour?
- Superstructure costs?
- Cash contribution from community?
Any non-cash?
- Direct support costs, such as regular hygiene promotion?

QIS on water and sanitation with focus groups

Qualitative information systems, QIS, were used to assess satisfaction with services. In QIS, people respond to different scenarios or questions, and their qualitative opinions are converted into quantitative scores.

- Service quality?
- Condition of drainage?
- Type of decision making?
- Functioning of water and sanitation committees?
- Women's participation in decision making?
- Use of individual sanitary latrines?
- Information and education on sanitation and hygiene?

System-level water management

Go through the books at systems level to ascertain or check this information. Use QIS scoring on functionality and quality or quantity issues.

- How much time to repair last breakdown?
- Who is responsible for maintenance?
Who did last maintenance?
- Who pays for maintenance?
Who paid for the last maintenance?
- Where are spare parts available? Distance?
Transport costs?
- When was last rehabilitation?
- Accessibility? Reasons for problems or non-functionality?
- Stagnation around water point? Hygiene?
- Quantity?
- Does it get dry? Which months?
- What management model? Is there a committee? When created? How many members? Meetings in last 12 months? Payments for committee?
- Supervision of infrastructure?
- Is there a guard or attendant?
Payment per month?
- Payment system for water?
- Are there social barriers to access water point?
- Is there an account book? What is the balance?
Use this for triangulation.
- How much was spent on repairs?
Date and type of repair? Cost of parts, transport, labour?
- How do local authorities respond to water problems?
- What financing source has been used?



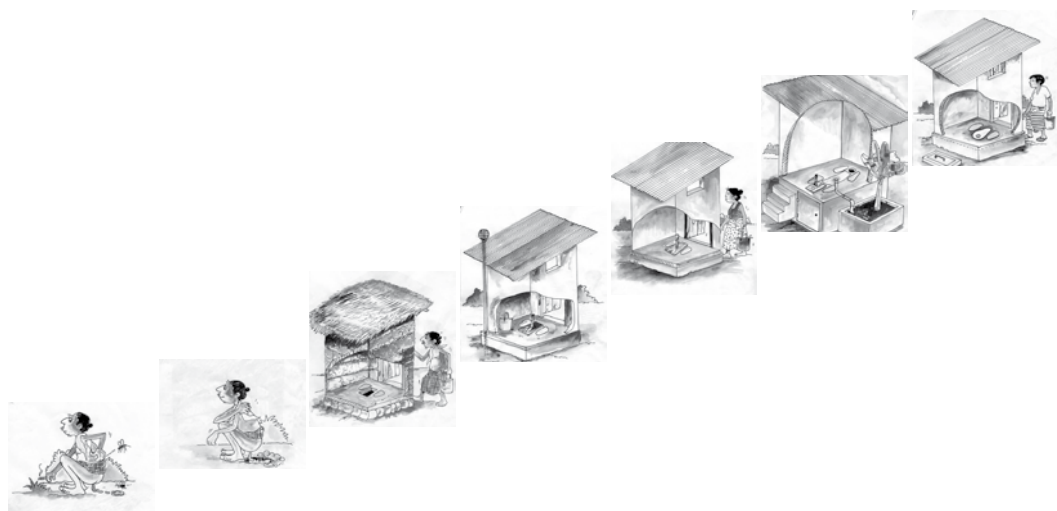
For IRC, a ladder represents an ambition to improve services and ultimately, see a world where "all people enjoy services that are truly built to last" (IRC manifesto, 2014).

Chapter 4

Service delivery ladders

The link between costs and service levels was implicit in WASHCost from the outset, but there was no framework for comparing the two. Catarina Fonseca, project and research director of WASHCost, had recalled that during the planning stages, “we knew we would have to measure the costs of something but did not know exactly what or how that would come about.” Patrick Moriarty, governance specialist for WASHCost Ghana, who played a leading role in developing the water service ladder, said the initial impetus came from the simple idea that “If the service is lousy, then knowing it cost US\$ 25 a head is not very interesting.”

The ladder metaphor was already being used in the sector, mainly for comparing hardware. In sanitation, it was used to encourage people to move up from basic pit latrines towards well-built, ventilated improved pit (VIP) latrines.



Sanitation ladder used to promote hygiene promotion in Sri Lanka (by COSI Foundation for Technical Cooperation, 2006).

In some cases the steps on the ladder were linked to construction costs, as in the sanitation ladder developed in 2008 by the Community Water and Sanitation Agency (CWSA) and Training, Research and Networking for Development (TREND) in Ghana. This was published as a poster for ‘sanimarts’ community market events where families could make choices based on cost and technology.

One of the earliest attempts to set criteria to define water services was made by Lloyd and Bartram (1991), who identified five indicators: coverage, continuity, quantity, cost and quality. The ladder metaphor was later used by Renwick, et al. (2007) and developed by van Koppen, et al. (2009) to illustrate gradations between basic, intermediate and high water services for productive uses. Householders and small farmers who climbed the ladder would have water for an increasing range of economic activity. Distance was an important indicator, since research suggested that if householders had to carry water more than 100 metres, they were unlikely to collect more than ten litres per person per day (Moriarty, cited in WASHCost, 2009).

The Joint Monitoring Programme (JMP) of WHO/ UNICEF (2008) defined broad levels of service for water and sanitation but only in terms of the technology:

- unimproved sources, such as unprotected dug wells or surface water;
- other improved sources, such as standpipes, tubewells or rainwater harvesting; and
- piped water on premises: in the house, plot or yard.

The JMP ladder did not cover distance to access water, the number of people sharing a source or its reliability and did not account for new trends in drinking water use. For example, in Ghana, 8% of drinking water came from bottles or sachets bought from stalls, but this did not qualify as an improved service under the JMP criteria.

The WASHCost ladder for water service

WASHCost began to discuss the ladder concept, using a wider range of criteria, at the project's research meeting in Accra, Ghana, in February 2009. The aim was to provide a structure for analysing cost and satisfaction data collected in different countries and settings, not just in terms of the technologies being used but also in terms of the services being received, so that clearly defined, nationally agreed service levels could be used to assess whether expectations were being met. Following the meeting, a group of researchers from each country was asked to produce a ladder with maximum of five rungs, which could be used to assess the quality, access and reliability of water services for typical technologies.

In June 2009, in India, Moriarty introduced the first version of the WASHCost domestic water ladder, with an emphasis on the level of service (figure 4.1). The ladder metaphor was a way of looking at service benchmarks as a whole, since all the criteria had to be met for a service to reach a particular level. A service would be considered improved only if it met the standards for quantity per capita, distance and service reliability. The ladder metaphor also conveyed the aspiration for achieving higher levels.

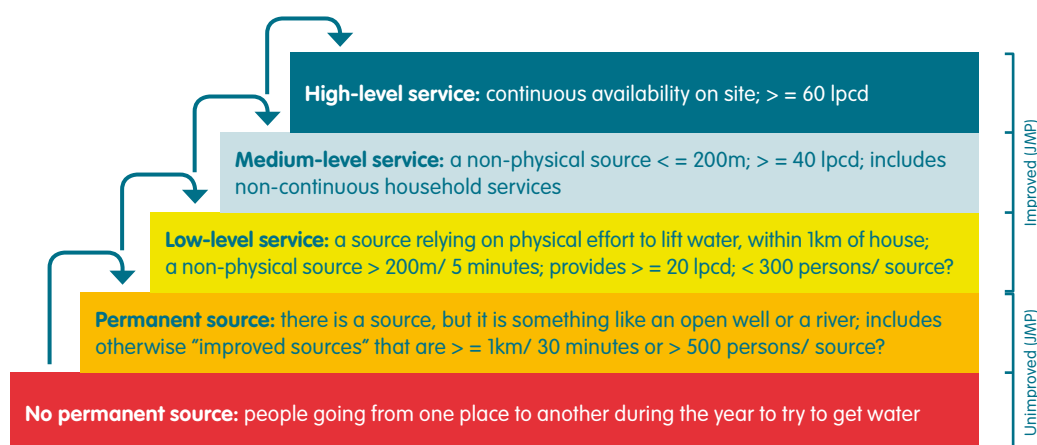


Figure 4.1 First draft of proposed WASHCost service ladder for water presented at the research meeting in Hyderabad in June 2009

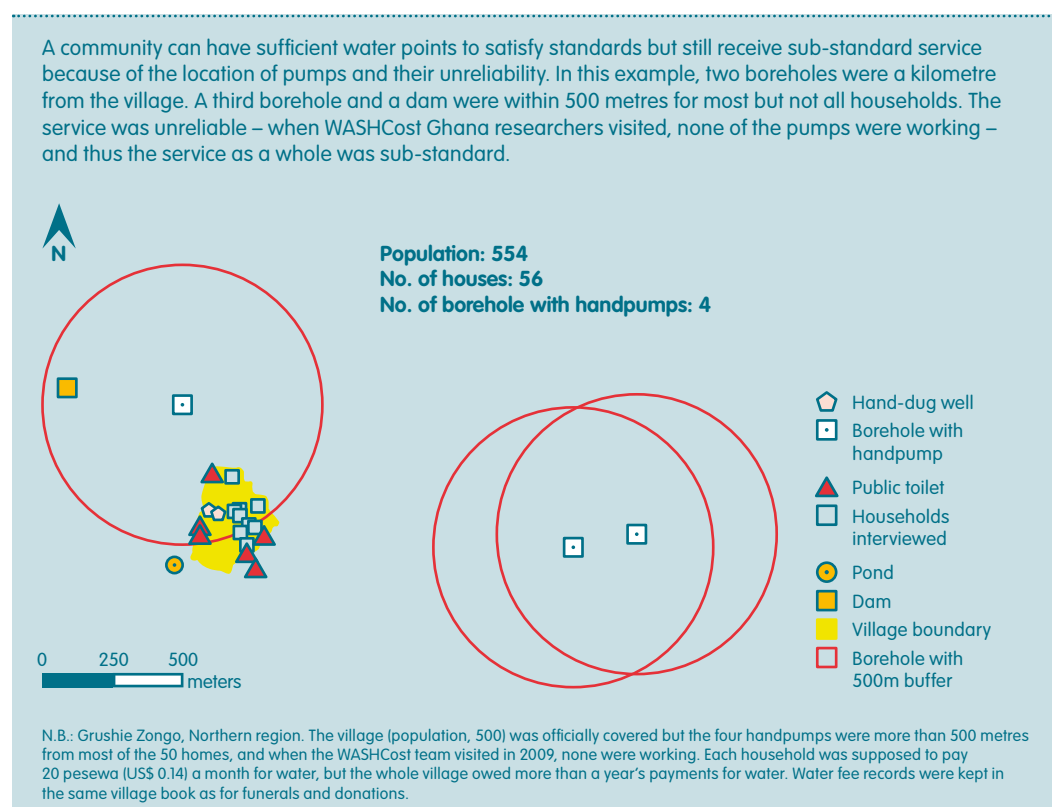
The 2009 ladder tried to match various service levels to the JMP criteria but separated service from infrastructure. Technology is often associated with different levels of service – a handpump provides

one kind of service, for example, and a tap that flows 24/7 provides another – but a standpipe can give different levels of service depending on its location, and a tanker service varies with the reliability, regularity, quantity and quality of water delivered. The desire to stress service levels was widely supported in the project. Ratna Reddy, research director in India, said that this put the emphasis in the right place for advocacy efforts: the technology should be chosen to achieve the desired service levels, not the other way around.

Service-level data was collected through household and technical surveys, group discussions and other qualitative methods in which people were asked, Do the systems provide the designed amount of water? Do they do so every day? Does everyone in the community have access? Do the water and toilets meet national norms for quality? The answers, taken together, defined the service as a whole. Thus the indicators reflected the actual experience of rural people, who are resourceful and may collect drinking water from one source but obtain water for washing clothes and watering animals and plants from other sources.

The WASHCost team considered how to categorise an overall service level when only one indicator was below standard. The team agreed that the overall level should be driven by the lowest score. If a household had access to water of good quantity and quality close to home but the source was unreliable, for example, then the service as a whole would be classified as sub-standard (box 4.1).

Box 4.1 Sample GIS survey, Grushie Zongo, northern region



Source: WASHCost Ghana, 2009.

National standards and international comparisons

Development of the ladders was complicated by variations within and between countries for what was considered acceptable water quantity and access. The WASHCost country teams had to evaluate the data against their own national norms while allowing comparability at the international level.

Table 4.1 Norms for service delivery in WASHCost countries in 2010

Indicator	Mozambique	Ghana	Burkina Faso	India
Access (distance)	No norm ¹²	< 500m	PS < 1000m SS < 500m	< 1600m horizontal < 100m vertical (in hilly area)
Access (crowding)	< 500 people	BH < 300 people W < 150 people SP < 300 people	SP < 300 people BP < 10 people PDC < 100 people BF < 1000 people	HP/ SP < 250 ¹³ people ¹⁴
Quantity	20 lpcd	PS, 20 lpcd HC, 60 lpcd	PS, 20 lpcd HC, 40–60 lpcd	40 lpcd 70 lpcd (with high livestock density)
Quality	WHO guidelines	Ghana standards	WHO guidelines	Bureau of Indian Standard 10500
Reliability	Nothing defined	Rural, nothing defined Service is available > 95% of time	Two formal water points expected	Security concept At least daily

N.B.: BF = borne fontaine (a type of public standpipe), BH = borehole, HC = house connection, HP = handpump, lpcd = litres per capita per day, l/m = litres per minute, PDC = poste d'eau communautaire (a group of standpipes, each dedicated to one family), PS = point source, SS = small system, SP = standpipe, W = well.

Source: Moriarty, et al., 2011, p. 4.

In Ghana, the CWSA standard was that every household should receive 20 litres of water per capita per day of standard quality (as defined by WHO), accessible within 500 metres of the dwelling from a water point shared by no more than 300 people. Burkina Faso national standards differed for large and small villages and for urban areas: households were supposed to have 20 litres per capita per day of WHO quality water except where there was a household tap, where the standard was 40 to 60 litres, and the acceptable distance to a water point was anything up to one kilometre in rural areas but half that distance in urban areas. In rural areas of Mozambique, the government's standard of accessibility – within 500 metres – had been dropped as being unachievable.

India's ladder had four levels, from no service to high service, and indicators covering quantity, quality, accessibility (in terms of time to collect water), security (as a proxy for reliability) and JMP status. The Indian government judged security by how many systems a village could access, rather than by continuity of service, on the assumption that having access to more than one water point provided better reliability, since all services break down sometimes.

¹² Until 2007, the norm for Mozambique was more than 500 metres. The standard was dropped because of the difficulty of meeting it, given the scattered nature of the population in some rural areas.

¹³ The number of people per source is based on the assumed output of 12 litres per minute.

¹⁴ In cases of independent habitation (village or part of a village), one source of potable water is to be provided even if the population is greater than 250. A habitation with a permanently settled population of 20 households or 100 persons should be provided with potable water source.

Measuring the accessibility of a water point was tricky. It was agreed that time taken to fetch water was the best measure, since it covered both the distance to the source and the time spent waiting at the water point. However, enumerators found that community members were not good at estimating time. They therefore settled on distance and queuing as the indicator for accessibility. The distance was measured using GIS. The degree of crowding – the number of people using a source – was based on each country's national norm for how many people a source should serve. The ladder therefore allowed for the use of time or distance, according to what data can be collected.

Reliability is equally complex. It refers mainly to predictability: does the service function as people expect? Reliability was measured as the percentage of the time the service worked to expected standards. In India, as explained above, reliability was measured according to whether multiple sources were available, on the assumption that this would provide continuity of service. Similarly, in Burkina Faso, where information on functionality was rarely available, reliability was also measured by proxy according to the availability of two formal water points.

Such problems had to be overcome. As Moriarty said, "This goes to the heart of the project. Without agreement on the level of service being targeted, we cannot make meaningful statements about what it costs or if we are succeeding."

For analysis, presentations and advocacy in research countries, WASHCost compared the data against national norms, since these were the standards that local service providers were mandated to achieve. For international comparisons, WASHCost harmonised standards as much as possible. For example, Burr and Fonseca (2013) compared water services across WASHCost research countries against a basic level of service, defined as achievement of the following criteria by a majority of the population in the service area:

- access to a minimum of 20 litres per person per day;
- water of acceptable quality (judged by users' perceptions and country standards);
- an improved source that functions most of the time without serious breakdowns; and
- no more than 30 minutes per day per round trip (including waiting time) to access water, or less than 500 metres from an uncrowded source.



Fieldwork taking place in Mozambique.

A difficulty arose in categorising a community with differing levels of service – for example, when 75% of households were covered and 25% were not. One proposal was to mark the whole community at the level of the lowest quintile (20%). On this basis, few communities would be considered covered, and the approach would not capture the actual situation, since communities with 80% coverage would be categorised the same as communities with 20% coverage. It was therefore agreed, where possible, to show what percentage of a community achieved a particular service level.



Figure 4.2 WASHCost water service ladder, November 2011

Source: Moriarty, et al., 2011, p.14.

The completed water ladder was presented by Moriarty at the WASHCost Project team meeting in Kumasi, Ghana, in June 2010 (figure 4.2) and published by WASHCost later that year; a revised paper outlining its significance and use was published in November 2011.

WASHCost was not able to include every enhancement. For example, it was not possible to incorporate water for productive uses (multiple-use service), mainly because non-formal sources were frequently used for productive uses and could not be easily quantified. As Arjen Naafs, country coordinator for WASHCost Mozambique asked, “When people go to the river for washing or with animals, how can you assess how much water they use?”

Matching service and cost data

It proved far from straightforward to match service data to costs. The latter had to be collected from a variety of sources for systems provided by different governmental and non-governmental entities at different times. Governmental information was difficult to find and access, and many NGOs that had installed boreholes had moved away or ceased to exist.

For WASHCost, costs were usually collected for systems and were therefore related to specific technologies. Christelle Pezon, governance specialist for WASHCost Burkina Faso, proposed that it might be possible to cost the management system that provided the service for simple systems, where the infrastructure and management system coincide. However, different systems often existed side by side, provided in different ways, installed at different times and sometimes managed under different management models. In such circumstances, it would be necessary to know how much of each service a household used. A family might use a standpipe regularly but rely on a seldom-used pump whenever the standpipe broke down. To which of these sources should the cost of security or reliability be attributed?

Ultimately, WASHCost presented cost data either by system or by service delivery area, which usually matched community boundaries. It was rarely possible, except in communities with single simple systems, to precisely correlate the service delivery findings in a community with its service costs.

The WASHCost ladder for sanitation

Work on the sanitation ladder was led by Alana Potter, governance specialist for WASHCost Mozambique, with Amah Klutse, research director for WASHCost Burkina Faso. In many ways, the sanitation ladder was more difficult to construct than the water ladder, since basic sanitation services were uncommon in many rural areas and often self-supplied. Although sanitation may be considered a household responsibility, it has a collective social dimension: one family's sanitation failure is another family's pollution. As with water, each of the WASHCost countries had national criteria for sanitation, usually related to access to toilets.

The Joint Monitoring Programme of WHO/ UNICEF (2010) produced a ladder that mainly focused on the type of technology. In the jargon of the sector, it focused on the containment part of the sanitation service chain and did not look at disposal, treatment or reuse. Other ladders described functions, such as containment, access and management.

The first attempt at a WASHCost sanitation service ladder in 2010 addressed service rather than the type of toilet, with six indicators: accessibility, use, security and reliability, health and safety, environmental protection and scale. Security was related to robust construction, longevity and good maintenance, including desludging and emptying. Scale referred to the level of coverage in a service area, since community safety depends on achieving comprehensive coverage.

Although some physical aspects of the toilet (notably, having an impermeable slab) were included, the ladder did not depend on particular types of technology. The sanitation paper (Potter, et al., 2010, p.20) notes:

... a well-made and well-maintained double pit VIP latrine, where the composted material is safely used in a vegetable garden offers the potential for improved service (where all members of the family use it and wash their hands); while a flush toilet that discharges effluent in such a way to threaten groundwater and/or human health, does not.

As with the water ladder, some desirable elements had to be dropped for practical reasons. For example, it was eventually decided to exclude reuse of safe faecal material as a separate indicator, mainly because if this was a requirement, almost all services would fall into the no service level. It was also decided to drop scale as an indicator and instead analyse how many people had access to different levels of service.

The first version of the sanitation ladder for internal discussion had four service levels – highly improved, improved, basic and no service. 'Limited service' was introduced as a step above 'no service' to recognise

that some methods (such as dig and bury) were better than open defecation, even though they were still unacceptable, bringing the total service levels to five.



Figure 4.3 WASHCost sanitation service ladder, 2010

Source: Potter, et al., 2010, p.23.

In 2011, a revised version of the working paper and ladder was published (figure 4.4), following field testing in the four WASHCost countries. This ladder amalgamated the high and improved levels because there were no examples of high level services in the research communities.



Figure 4.4 WASHCost sanitation service ladder, 2011

Source: Potter, et al., 2011a, p.22.

The differences between both sanitation ladders mainly relate to the utility of the indicators and the time and financial resources that were required to collect data. As with the water ladder, having a tool that was useful and easily replicable necessitated excluding some indicators.

Perhaps the most significant change was that for basic service, the indicator became facilities used by some members of the household rather than facilities used by all members of the household (which became an indicator for an improved service). It had become clear during data collection that this information could not usually be reliably collected. It might not be acceptable for a wife to admit, for example, that the husband was not using the latrine. It was also not possible to ascertain that the sanitation facilities were always used when family members spent long days away from home working in the fields. It was decided that it would be better to record use by some family members, rather than record use by all family members when enumerators felt that the answers were unreliable and could be inaccurate.

The WASHCost ladder for hygiene

The hygiene ladder, was the final service ladder to be developed, published in December 2011 (figure 4.4) and augmented by an August 2012 paper outlining the methodology in more detail, which addressed issues that could not be incorporated fully into the sanitation ladder, such as handwashing with soap. Three indicators were tested in 2012–13 in Ghana, Burkina Faso, Mozambique and Andhra Pradesh:

- faecal containment and the use of a latrine;
- handwashing with soap or substitute at critical moments, especially after defecation and before preparing food; and
- safe drinking-water management in the home, from source to mouth.



Figure 4.5 WASHCost hygiene effectiveness ladder, December 2011

Source: Potter, et al., 2011b, p.10.

Hygiene promotion interventions aim to change specific hygiene behaviours. Often these interventions also reduce the disease burden and improve health; they are linked to sanitation promotion and/ or improvements to water supply and sanitation. WASHCost outlined a method to assess the cost effectiveness of hygiene interventions by contrasting hygiene behaviour before and after an intervention, and linking it to life-cycle costs, including household costs and the costs of implementing the intervention (Potter, et al., 2011b; Dubé, et al., 2012).

As with water and sanitation, experience in using the ladder in the research countries prompted refinements. The first version of the ladder had five levels, from no service to highly improved. A revised hygiene effectiveness ladder, which reflects the three indicators used during the testing phase between 2012–2013, appeared in a briefing note published after the fieldwork in Mozambique (figure 4.6).

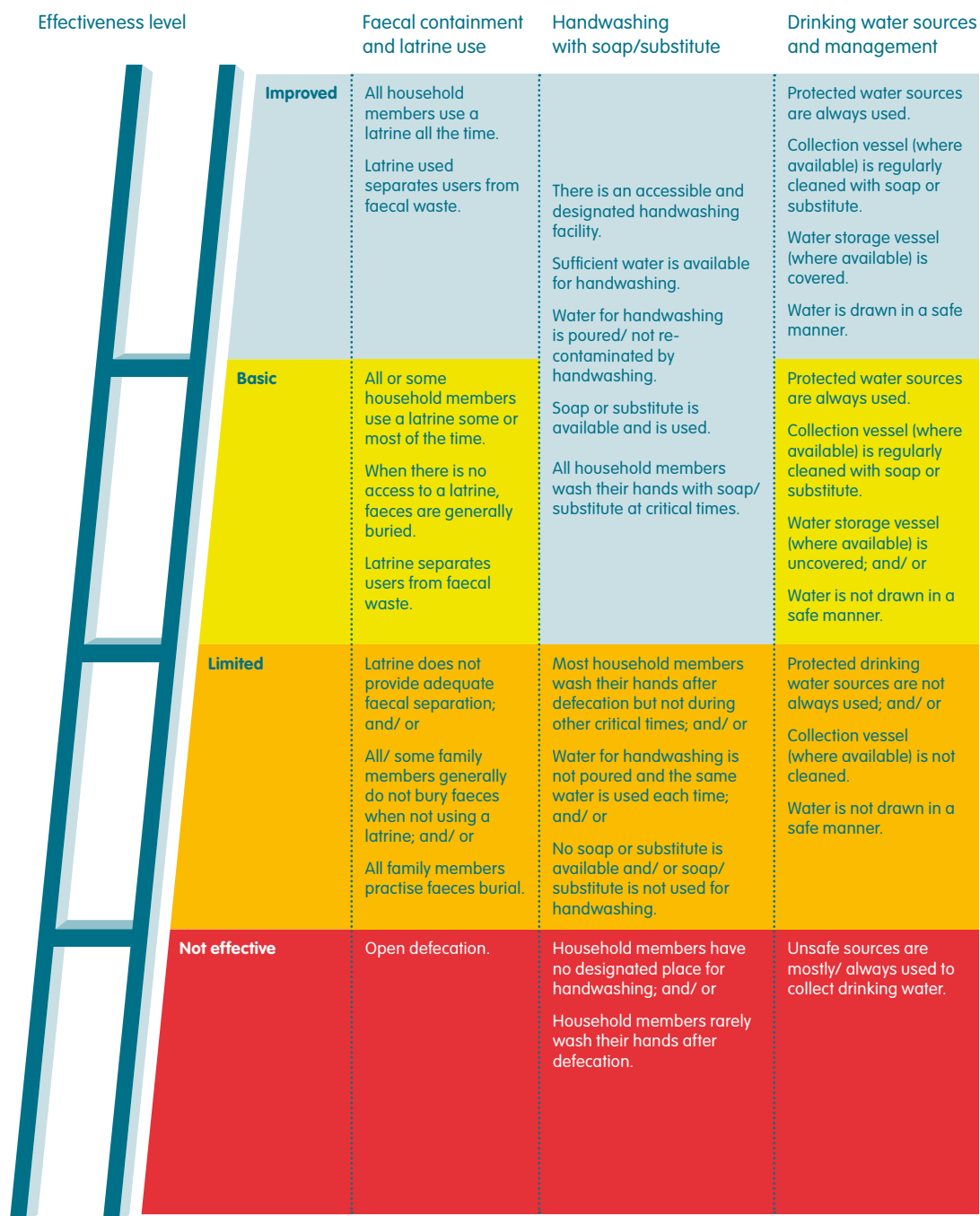


Figure 4.6 WASHCost hygiene effectiveness ladder, September 2013

Source: Adapted in a service ladder from Potter, et al., 2013, pp.6-7.

In Mozambique, the WASHCost team divided the three hygiene behaviour indicators into sub-indicators that could be assessed through household surveys. The surveys were conducted before and after interventions covering hygiene, water and sanitation in four districts of Zambézia province. Three flowcharts covering faecal containment and latrine use, handwashing with soap and safe water source and management were developed. An example of the first flowchart is presented below.

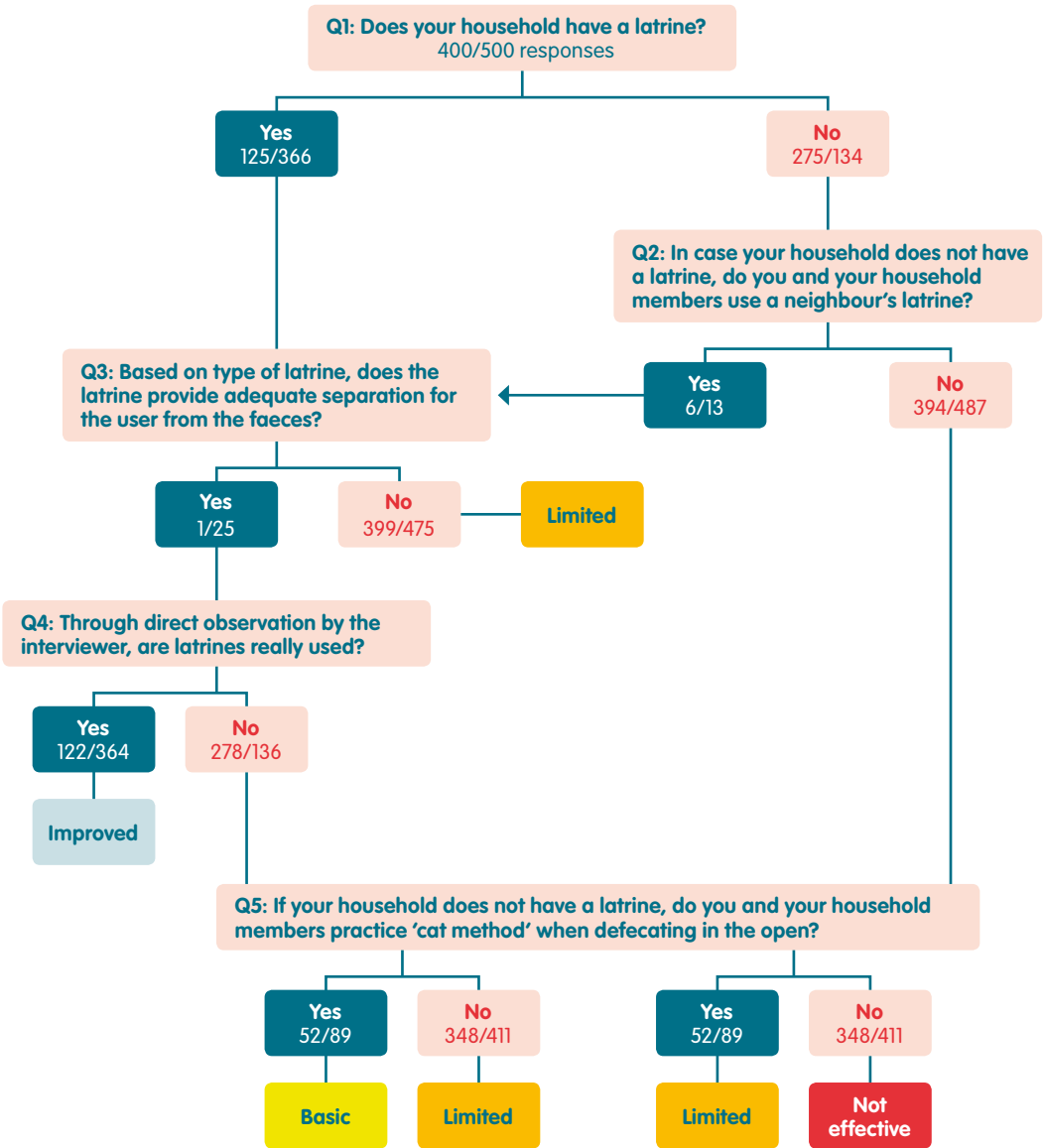


Figure 4.7 Faecal containment and latrine use flowchart, Mozambique
Source: Potter, et al., 2013, p.15.

Since this was a retrospective study, the costs of hygiene were based on estimates of the proportion of the interventions allocated to hygiene.

As well as finding some positive results for hygiene promotion conducted alongside or after water and sanitation infrastructure improvements, Potter, et al. (2013) demonstrated that the methodology was viable, but the sub-indicator questions could be improved to differentiate better between paths that currently lead to the same hygiene effectiveness level. The researchers recommended detailed documentation of the interventions and categorisation of intervention costs for future studies.

Service ladders: a conceptual step forward

The ladder metaphor for technology levels was not new; the innovation was in applying the concept to service levels. WASHCost conducted extensive research and produced ladders with criteria and indicators that could be linked to data on costs. The ladders were then tested at scale. Service ladders shift the focus from the cost of infrastructure and technology inputs towards the cost of water and sanitation service outcomes. Because improved service levels have generally been associated with improved health, and therefore with the resilience and earning potential of communities, the ladders represent one of the standout products from WASHCost. The WASHCost ladders for sanitation and hygiene are as well developed and articulated as the ladder for water services, and thus the set of ladders can serve as practical tools for data analysis in the WASH sector.

This chapter has described the conceptual development only briefly. Every seemingly simple indicator involved resolving difficult issues. Lengthy research team meetings alternated with fieldwork to test each iteration. The refinements came at a price: the revised ladders were published long after the main data collection process was under way. Because the survey questions did not fully reflect the nuanced understanding of the criteria that went into the tested versions, responses from household questionnaires and key informant interviews could not always be correlated with the indicators.



A source of safe and reliable water in Sunyani West, Ghana, managed by the community in partnership with government authorities.

Of course, if it had been possible to construct the ladders earlier, the data collection would have been more straightforward, and the results better aligned with the ladders' criteria and more comparable between countries. However, the ladders evolved from the action research, and could not have been designed in advance. Refinements came from a process of exploring the relationships between technology and service levels and making trade-offs between the ideal (e.g., use of latrines by everyone) and the realities found during the fieldwork. The process of collecting data strongly influenced the criteria for building the ladders. Potter had no doubt that the trade-off was worth it:

We cut new ground in terms of sanitation service levels, thinking beyond technology, looking at service and environmental dimensions. This was important for shaping our thinking in sanitation as a service, which was conceptually difficult given the limited role of service providers in rural sanitation particular. What we've come out with is relevant, interesting and not something that had been done before – setting out a conceptual and methodological approach to assessing service levels provided by water and sanitation infrastructure. 'Service levels' wasn't a term I was even aware of hearing – 'levels of service' sounds the same but was always tied to the concept of increasingly sophisticated technology. We challenged that idea. We started late with assessing the effectiveness of hygiene promotion in changing behaviour. Nevertheless, even here we contributed to sector thinking around the efficacy of hygiene promotion interventions and about the service level outcomes of water and sanitation infrastructure development.



Alana Potter, WASHCost Mozambique governance specialist speaking at the first WASHCost team training event, June 2008.

¹⁵ For the latest service levels on water, see: Moriarty, et al., 2011 at www.irchwash.org/resources/ladders-assessing-and-costing-water-service-delivery; sanitation: Potter, et al., 2011 at www.irchwash.org/resources/assessing-sanitation-service-levels; and hygiene: Potter, et al., 2013 at www.irchwash.org/resources/briefing-note-s03-costs-and-effectiveness-hygiene-promotion-within-integrated-wash.

Moriarty also believed that the service-level ladders were a major contribution to how the sector turns towards delivering service levels, rather than technologies, and they became central to Triple-S; WASHCost's sister project on service delivery.

I think service levels have been incredibly important to WASHCost and they have become hugely important to Triple-S. If WASHCost had not developed the service ladders, then Triple-S would have had to do it anyway because it goes right to the heart of what describing a service is all about.

The WASHCost papers on water, sanitation and hygiene ladders are now in their second editions as the concepts continue to be refined and adapted.¹⁵ The ladders are research tools, and the expectation is that they will see further improvements as IRC and others use them in future work. As the developers of the water ladder themselves acknowledged, “Based on WASHCost in-country experience, the four proposed indicators seem sufficient in assessing costs and service levels. However, there may be strong arguments to expand the set, or make it more specific to indicators of particular importance within a country” (Moriarty, et al., 2011, p.14).



Enumerator gathering data from households in Mozambique.

Chapter 5

Collecting the data

By the time WASHCost data collection began at large scale, the country research teams, in collaboration with their learning alliances, had developed survey tools and strategies with indicators for costs and service levels. Each team had tested the survey process and adapted the methodology to the local context. Data collection occurred primarily in 2010 but continued into 2011 and 2012. Altogether, about 100 people were involved in collecting data at national, regional, district and community levels. More than 20,000 household surveys were conducted: about 12,000 in India, 5,000 in Burkina Faso and the remainder in Mozambique and Ghana. Once the data had been cleaned, more than half of the surveys were available for final analysis.

Obtaining cost data from official sources was problematic because data did not exist or was difficult to extract. There was little collective memory about costs of systems that had been in place for more than three years, and available information did not distinguish sufficiently between capital and continuing costs, as demanded for the life-cycle costs approach. Researchers made repeated visits to government offices to find and obtain access to documents. At the community level, data collection required labour-intensive household surveys and interviews at water points. Data collection teams went house to house, conducting interviews with key informants and holding focus group meetings about the quality and cost of services.

Burkina Faso

Data was collected in nine rural and peri-urban service areas spanning three regions – the dry Nord, Centre (close to the capital, Ouagadougou), and Hauts-Bassins, a forested region in the Southwest. Choices were determined by issues of governance (decentralisation) and by climate and hydrology.

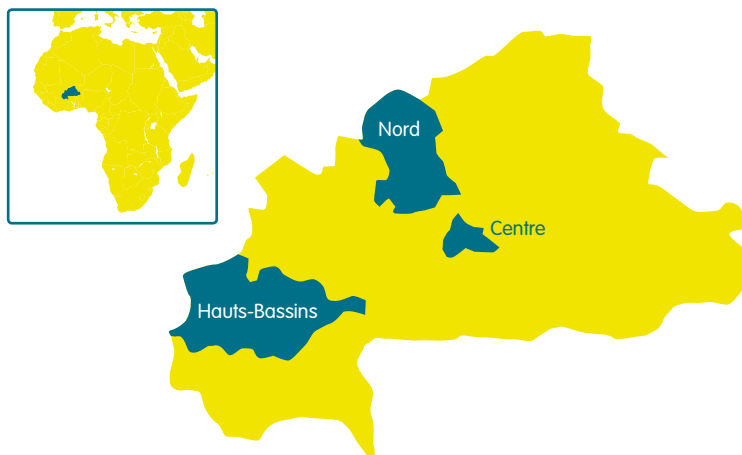


Figure 5.1 Research areas where data was collected in Burkina Faso

The sample size and distribution were designed to reflect the Burkina Faso context but did not represent a statistically significant sample at national level. Collection of primary data took place at households, villages, small towns and peri-urban areas; collection of secondary data was accomplished through interviews at communes, provinces and regions.

Priceless! Uncovering the real costs of water and sanitation

Within each region, the team selected a provincial urban centre, plus an urban commune and a rural commune surrounding it. One commune may contain a number of villages (sectors), each of which can have several smaller villages or sites. Several households were surveyed at each site.

The data enumerators organised a focus group for each village and peri-urban area and carried out a rapid household survey, looking at census data and using GIS to locate houses and water and sanitation facilities. This established the number and identity of household occupants and the quantity of water they were consuming. Teams then conducted more detailed surveys.

Altogether, the enumerators collected data on more than 5,000 households, 59 boreholes and five piped networks. However, because of concerns over the reliability of some data, the final analysis covered 3,000 households, 38 boreholes and two piped networks. Households were asked about the costs and services from 400 latrines (346 traditional pit latrines, 33 ventilated improved pit latrines and 20 ecosan latrines). It proved impossible to collect data on some waterpoints because the provider no longer existed or nobody had kept records.

Teams of enumerators were balanced with men and women to ensure they could approach all sections of the community. The enumerators were trained and a daily debrief with interviewers addressed any problems. Information was entered as it was collected, in collaboration with the International Institute for Water and the Environment, the University Polytechnic de Bobo-Dioulasso, CREPA Burkina Faso and the Catholic Organisation for Development and Solidarity.



Enumerators observing a water point at Poa, Burkina Faso.

Researchers found it easier to hold discussions with rural communities than in peri-urban areas. Research director for WASHCost Burkina Faso, Amah Klutse, noted that the rural focus groups were well attended and lively: “They give information very easily compared to the urban areas, where people are reluctant to give information and reluctant to assemble for a focus group discussion.” Community scorecards were particularly useful for recording community opinions on the quality of services.

Capital expenditure and capital maintenance expenditure information was collected from a variety of sources: government departments, national utilities, NGOs, community-based organisations, community water and sanitation committees and the private sector. Information also came from learning alliance and task force meetings.

With ten enumerators and seven GIS surveyors, data collection in each region took 20 to 25 days. Two supervisors and one coordinator were present in each region to ensure data quality and resolve problems on site.

The intensive phase involved sending the data collection team out on motorbikes, donkeys and bicycle to travel to communities, often through flooded areas. A main purpose was to establish how long it would take to cover ten or 20 households for data collection, data input and analysis, but the team also discovered that during the rainy season, communities made greater use of informal sources rather than official water points, and that the numbers would look very different in the wet and dry seasons. The team decided to collect more data in 2011 to capture the dry season.

WASHCost in Burkina Faso made a substantial investment in primary data collection at water points, posting two enumerators at each of 86 water points for two days to see who came to collect water, how long it took and how much they collected. This proved invaluable where household surveys were difficult to conduct or yielded questionable results. In rural areas, for example, many people did not know the distance to the pumps or how long it took to collect water. Some consumption figures obtained through the surveys seemed highly unlikely, and questions about the cost of the water puzzled people living in villages with free water points. Even where payment was expected, some water points had no supervisor, and people could collect water without paying. By observing from the water points, however, the enumerators obtained reliable information: people usually had to wait more than half an hour to have their containers filled, and even in dry zones, about half the people used alternative informal sources. Christelle Pezon, governance specialist for Burkina Faso, observed, “If you only look at the cost of infrastructure, you cannot see that. You need to know who is going to the water point, how much water they take, do they use it for the basic needs of drinking, cooking and washing themselves or where else do they go to fetch water.”

One of the difficulties of data collection common to all the research countries was the need to communicate in more than one language. In rural Burkina Faso, most community members in rural areas could not speak French, and technical terms were not easily translated into local languages. Amah Klutse described how they had to think in three languages to collect data and communicate with the wider project: “We are thinking in French, writing in English and then speaking in a local language!” (WASHCost, 2010, p.17).

In Burkina Faso, unlike the other research countries, the social structure in rural communities was not a good fit with the concept of household data collection, since many rural people live in compounds of extended families, and the household as such does not exist. Census records, obtained to use as the basis for community interviews, were out of date and consisted of tribal names that may have covered a compound with many houses and several hundred people. The team tried several methods to define household units, including asking people whom they usually ate with, to identify family structures.

Amélie Dubé, research officer for WASHCost Burkina Faso, found it problematic to match data from households with what the team collected at water points: “Some of the data wouldn’t fit and you would have some large discrepancies, with a larger household than the number of people in the compound. There was no way to check that back and we ended up getting rid of one part of the sample. This was not big, but was significant.”

Ghana

Under decentralisation in Ghana, districts take responsibility for rural services with support from the Community Water and Sanitation Agency (CWSA). WASHCost Ghana focused on collecting data in three districts: one each in the Northern, Ashanti and Volta regions, but also conducted case studies in the Central region and Greater Accra. Altogether, WASHCost covered 31 rural communities and four small towns from the three main areas of the country and from different agro-climatic zones: 37 focus groups were conducted, data for 1,273 households and 122 boreholes was collected, and 63 financial records of small-town systems were examined. As well, included in the sample were: a multi-village scheme in Greater Accra and for a cost and functionality study, 12 small towns in the Central region. WASHCost looked at two main water point technologies: boreholes with handpumps in rural communities and piped schemes for small towns.

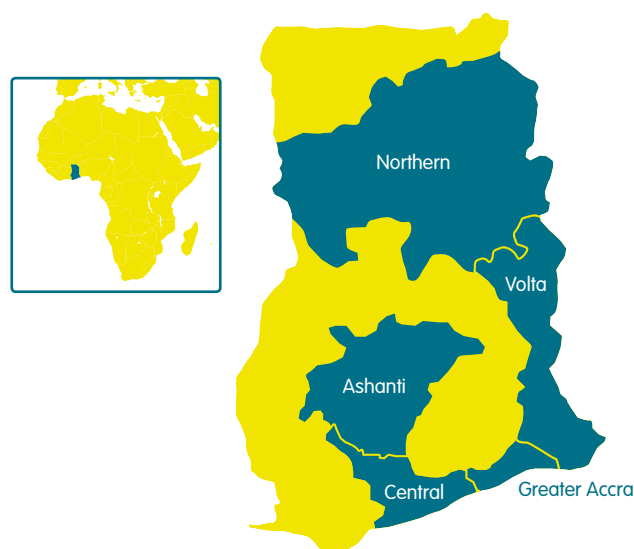


Figure 5.2 Research areas where data was collected in Ghana

Accessing historical data was problematic partly because data, previously collected by the Ghana Water Company Ltd., had not been transferred to CWSA when it began overseeing small-town systems. For infrastructure that had been installed more than ten years earlier, Alex Obuobisa-Darko, country coordinator for WASHCost Ghana, described the data as scattered and haphazard. It was rarely possible to obtain data for a long enough period for trends to emerge.

Information about capital expenditure for water came from CWSA, development partners and NGOs, rather than from district or community level. The most useful sources were design reports and project completion reports, some of which were provided by donors. However, there were many gaps.

Capital maintenance expenditure for water was obtained from water and sanitation committees and small towns' water and sanitation development boards. In one case the team asked a mechanic to visit the villages and list everything that had been done and how much it would cost to repair broken infrastructure. However, the figures were not considered to be reliable since a contractor who was hopeful of being asked to repair broken pumps had an incentive to inflate estimates.

The costs of major rehabilitation were obtained from CWSA and development partners. Support costs came from CWSA and from districts, based on estimates of the time that the district water and sanitation team spent on each scheme.



Conducting semi-structured surveys to understand the service provided by small-town systems took at least three weeks to complete (Photo by Lokaalmondiaal).

Each small-town system survey took about three weeks to complete. A typical discussion about capital maintenance expenditure with a water and sanitation board took about 2.5 hours, and an interview with a water and sanitation committee interview ran for 1.5 hours.

NGO records were scarce: some NGOs that had been active were no longer in the area, and in some cases, had never even told the district authorities what they were doing or where. The disconnect between NGOs and local government was highlighted and proved to be extremely damaging as the WASHCost team identified 'orphan' handpumps, for which there was no support system or record of costs. Some of the pumps constituted 'alien technology' for which spare parts and expertise were not even available in the country. Today, district authorities are identifying these orphans, trying to ensure that they are adopted, and gradually replacing unknown models with the modified India Mark 2 handpump favoured by CWSA.

The quality of WASH services and data about household expenditure was obtained through household surveys. The district water and sanitation office provided enumerators to support three WASHCost teams (each with a research officer, research assistant and enumerator). In each community, the field team visited the chief and other opinion leaders and met with the water and sanitation committee members to ask for their support. Over two days, about 80 household questionnaires were administered. GPS data points and photographs supplemented the findings; a research assistant and a village committee member mapped water schemes, toilets, schools, roads, churches and other contextual information. Eventually, the questionnaires were streamlined to the point where a household interview could be completed in 30 minutes and still yield the necessary information about water consumption in the wet and dry seasons, plus some information on sanitation.

Geographic boundaries (and the population) of some service areas were difficult to establish because base maps did not exist, so the team produced their own, based on GIS surveys overlaid onto Google maps. In small towns, the sampling was based on the age, functionality and technology of the infrastructure.

Data collection at Dedesua, Bosomtwe District, Ghana

A village in Dedesua, with a population of about 1,000 people, has a point source (borewell and handpump) less than a year old that is functioning well. There is also a spring, called Kaakaawere, in a cool, tree-shaded area. Community members clean this spring, which has cemented surrounds to prevent mud and stagnant water from polluting the source. The people say that the spring water tastes better than water from the formal point source because it is very natural, whereas the point source smells of rust. Occasionally they buy drinking water in little plastic sachets sold from stalls. These have become fashionable in Ghana even for people with low incomes; although the price per litre is much higher than the price of water from pumps.

The team was greeted by four people in front of their house. The structure was worn and lacked maintenance; the children in the house seem malnourished. Three families live here, sharing in the bathroom, kitchen, household cleaning, food and water. But I was pleased to hear them say that the community has enough water.

Children usually fetch water from the point source (at a cost of five pesewas a container) because it is closer. However, the sister, who lives there with her husband

and two children, prefers the taste of the spring water. The family does not have enough water storage but sanitation is her main concern: "There is no communal toilet for women. We all defecate in the bush and on the community refuse dump. I would be more than willing to pay to attend for use of communal latrine." Money has been collected to build a communal latrine but it had not been completed.

Some local community or village members ran from the WASHCost team, thinking they were town council tankas, who came to fine households for not keeping a clean environment. Capturing pictures and videos sometimes was a challenge. At Pease, a local liquor (akpeteshie) seller upon seeing the team became peeved, thinking that his workmen had betrayed him to government officials.

It was great to see the team capture so much information. I was impressed with how the team listened and cross-checked responses. The focus was on completing the household surveys, with no time to make stories that add to the data.

Michele Adjei-Fah, Communications and Documentation Officer (2008-2011); WASHCost Ghana, February 2010

The appeal of water from the lake

Surrounding Lake Bosomtwe, the biggest natural lake in Ghana, are 21 communities. The Abono community has two main sources of water for its population of 1,467 people. The formal source is a borehole fitted with a handpump, provided by the district assembly in 1998, and the informal source is the lake.

The borehole attendant, Margaret Afriyie, sells less water because many people use water from the borehole only for drinking, and water from the lake for other purposes, including cooking. Kwame Adu Berempon, water and sanitation committee chairman, said, "They believe food cooked with the lake water tastes much better than that cooked with water from the borehole."

Comfort Agyeiwaa, a member of the village water and sanitation committee, herself uses lake water when cooking yams and fish for sale. She told us, "The lake water adds some taste to the food and makes it palatable."

While we were there, a fisherman took his boat out to check his pots in the lake. A woman bathed her child close to the shore while other children swam and another woman scrubbed her clothes. Close to the same spot, inhabitants came to fetch water, walking some few steps into the lake to collect water that looked cleaner to them. The water must contain the effects of all this activity and was almost certainly not fit for drinking, although it is said that some families do drink lake water rather than pay the pump attendant for safe water.

Community beliefs are very strong, and when safe water is provided, perhaps discussion with the community about the taste is needed. These were the thoughts running through my mind as I contemplated the contaminated water people fetch for use at home.

Victor Narteh Otum, Communications and Documentation Officer (2011-2013); WASHCost Ghana, 24 November 2011



Kwabena Nyarko, WASHCost Ghana research director, addressing colleagues in the WASHCost Annual Planning Meeting, The Hague, 2010 (Photo by Peter McIntyre).

Kwabena Nyarko, research director for WASHCost Ghana, said that although communities generally collaborated, they lost interest when they realised that WASHCost had not come to install new facilities. As Nyarko pointed out, “Communities are not interested in data – they are interested in services.” However, as the Ghana team shared the data and maps with communities and their leaders this did generate more interest at local level in relating the level of continuing finances to the quality of services. Above the village level data could only be collected if the person requesting it was seen to have some official status. Nyarko noted, “You need a senior person to get this type of information for you. I think if this was done again that is still the approach you would need to use.”

The upshot was that the Ghana team, just like the teams in other countries, underestimated the time, effort and expense of collecting detailed data. According to Nyarko, however, the richness of the material justified the effort:

The idea of the project was to determine the cost of providing a sustainable service. So we started by looking into the costs. Then we decided that it was important to have a good grip on the service provided and spent a lot of time working on service levels. I do remember someone asking, Is this WASHCost or WASHService? But we needed to have a good understanding of the service level for the costs to have meaning. At the end of the day we had a lot of information to give us an understanding of the service levels from about 80 point sources and 10 small towns. By the nature of our sampling we had more on service than on costs – but a good thing is, it helped us to have a solid, robust methodology, taking into account both service levels and costs.

Service levels were lower than had been expected by stakeholders, not just because of non-functionality of water points but also because of limited quantities and the distance people had to travel. The results enriched understanding about how people collected and used water, and demonstrated that communities

Understanding the service levels that people choose

Many rural water users value easy access to water so highly that they do not see why they should travel farther to an official safe source.

Dodorkope is a poor rural community of about 1,200 inhabitants in the Ketu South District of the Volta region, where the main economic activity is subsistence farming. The community has four formal water point sources: three boreholes with handpumps and one borehole with a pedalflo pump. The community also has two communal hand-dug wells. At the time of the visit, the pedalflo system had been broken for over a year. The community told the team that people access hand-dug wells more often than the formal water point sources, although the wells are considered unimproved sources by CWSA.

Young water vendors fetch water for customers and bring it to their homes for a fee. The vendors fetch water from the hand-dug wells because “the quality is same as the pumps,” it is easier than pumping water at formal water points and “customers are satisfied.”

Most rural folk seem to prefer sources that are closer to them and base quality on taste. One mechanised water scheme is not used at all because water can be fetched for free from a dam at the same location. Vendor services seem to be used by almost half of households. One household of five people said they spent an average of GH¢ 2 (US\$ 1.40) a week for vendor services. The mother said this relieved her of stress about her water supply. An older woman commented, “I cannot pump the boreholes and my grandchildren are too young to fetch water.”

Perceived service levels often determine households’ choices, and there is a clear need to understand these. A community like Dodorkope may not necessarily need additional boreholes. Mechanising one or two existing boreholes would be a better way to achieve their preferred level of service.

Bismark Dwumfour-Asare, Research Officer; WASHCost Ghana

The value of zero

Maria has lived most of her life in Jonasse village in Matola Rio, Mozambique. Her husband has a job away from home, and she lives on their smallholding with two daughters and five sons.

The water supply, a ten-minute walk from her home, costs 50 metical (about US\$ 1.90) a month for an unlimited amount. But having to carry water ten minutes each way limits the amount she can collect, and she cannot always find 50 metical. Instead, she buys water from nearby houses with private taps at one metical for 20 litres, paying almost twice as much over the course of a month as from the official supply. She hopes that one day the expansion of Matola city will see a piped water scheme pass close to the house. In 2003 Maria and her husband paid a local bricklayer 7,000 metical (US\$ 260) to build the house and a further 1,000 metical (US\$ 38) for a toilet alongside it.

A few years later the whole toilet – pit and structure – collapsed. They had to use other people’s facilities, something that they found humiliating and inconvenient.

The family re-dug and re-built the toilet using local materials and their own labour. A few bricks from the original building remain, but the structure is mostly sticks, cloth and corrugated iron, tied together with twine. At the top it is open to the rain. Inside, the pit is covered; there is a small squat hole.

This toilet is sub-standard or even ‘no service’ on the WASHCost sanitation ladder, but the family values it. For all its weaknesses, it represents safety and family health. In the database the cost is nil. But to the family, even a poorly built toilet is better than nothing: priceless, rather than worthless.

Peter McIntyre, Communications and Documentation Specialist; WASHCost Global, 2011

do not confine themselves to official water sources. The majority of water used in rural villages came from informal sources, such as streams, rivers, dams and dug wells. Water from formal systems tended to be for domestic use; informal sources were used for productive use. In some rural areas, about half of respondents used an informal source for drinking and about two-thirds used it for cooking, even though such water is not safe. Families did not measure consumption of informal water as they did not have to pay for it. It seems that when monitoring, measuring and costing service levels, providers and donors need to take account of the extent to which populations opt out of official water services.

The results prompted some interesting reactions. In one remote region, district and community leaders said that national standards for the number of water points were too high – a lower standard would be acceptable. In areas close to Accra, leaders believed it could be more cost effective to provide new systems than to rehabilitate failing systems. Nevertheless, the results helped local and national government workers, especially district staff, focus on the service provided rather than the cost of delivery systems. They understood that the more people used the services they provided, the more cost effective those services would be.

Research results presented Ghana with some strategic choices for future spending, since piped water schemes were found to cost roughly three times more than boreholes with handpumps.

Mozambique

WASHCost and the Government of Mozambique signed an agreement that recognised the importance of planning, budgeting and monitoring of water and sanitation services for the Millennium Development Goals, the five-year government plan and the poverty reduction strategy. Support from the National Directorate of Water gave WASHCost credibility, but the data remained elusive. Decision making for rural water – from national to provincial to district and community levels – did not seem to be linked to funding flows or budgets, and reliable historical figures were scarce.



Figure 5.3 Research areas where primary data was collected in Mozambique



WASHCost research team visiting a water point in Mozambique.

The team found some good records at district and provincial levels but not all in one place, and costs were not itemised. It took several interviews with local district staff to find out how budgets were set and spent. Salary information was relatively easy to obtain – some communities even kept meticulous records of expenses and quantities of water used – but sending staff afield into communities was costly.

One issue was how to scale up data collection. When WASHCost was conducting surveys, the use of mobile phones for data collection was in its infancy. Arjen Naafs, country coordinator for WASHCost Mozambique, reported that three visits were required in each community: the first, to collect raw contextual data and identify the key people to interview; the second, to collect cost and service-level data; and the third, to verify the data with district staff. For every two days of data collection, one day was needed for processing. Even later, using mobile technology, researchers had to verify data with the sources. The experience of WASHCost suggests that postponing data cleaning to the end is a mistake: making sense of the information with those who provide it is essential for data quality.

Technical support and guidance for the research process were provided by the multi-stakeholder Water and Sanitation Group (*Grupo de Água e Saneamento*, GAS). This forum, coordinated by the National Directorate of Water, brings together a range of government departments, UN agencies, NGOs and the private sector to learn, share and update one another on issues of water, sanitation, planning and health. The team eventually settled on a data collection methodology that satisfied all partners – the multi-indicator cluster survey guidelines developed by the National Statistics Institute.

The WASHCost team found an existing survey that had data on households' time and distance to water points and was based on a nationally representative sample of communities. This survey covered 14,000 households in 400 rural clusters and listed the water and sanitation technologies commonly used. The information enabled the WASHCost team to skip rural communities that had virtually no service and

therefore no data. The National Statistics Institute also shared 2007 census data on latrines and water points used by households in wet and dry seasons. In addition, a household income survey conducted in 2009 included some information from 14,000 households on the costs of water.

Contracts were a major source of capital expenditure data, particularly for borewell and handpump systems. In all, 300 governmental contracts on the construction and rehabilitation of boreholes with handpumps were sourced from the National Information System for Water and Sanitation database. The annual books were inspected for small water systems, and focus group discussions yielded information about rural and peri-urban sanitation.

It was more difficult to collect costs for rural sanitation. Many rural people had built latrines from local materials and regarded them as having a zero financial cost. WASHCost was able to get cost data on only 300 of 1,000 latrines.

General information about rural and peri-urban water points came from either focus group discussions with community members and system managers or, in rural areas, from interviews at the water points.

Data on capital maintenance frequency and expenditure came from the financial accounts of rural and peri-urban water schemes and from interviews with district staff and communities. Information on operational and minor maintenance expenditure came from the official books of operators and water committees, from spare parts shops and, for water treatment, from households. Naafs found that communities were happy to share the information: "It is quite basic. You are sitting with the community and copying their books and looking at their expenditure and income."

Boreholes and related water systems were expected to last 20 years, but in reality their lifespans varied hugely. Drilling costs ranged from US\$ 8,000 to US\$ 13,000 in 2010, mainly dependent on the number of dry wells bored before water was found. However, inflation in Mozambique was high: 44.5% over the four years before data collection began. Naafs noted that the sector's assumptions on infrastructure costs were out of date: "When people are planning their budgets, they need to add 10% a year to cope with inflation. People's values are stuck in the past." A borehole that cost US\$ 8,000 in 2004 cost US\$ 10,000 by 2009 (Bacar, et al., 2011).

The team established a database of borehole drilling and rehabilitation costs. Updated borehole costs were published every six months and were available for planning by the National Directorate of Water. This not only helped with budgeting and procurement strategies but also alerted staff to contracts that deviated significantly from average costs. Speaking just as the project came to a close, Naafs said, "I am happy with... the setup of costs of contracts and the monitoring process that goes with it. We have now published four or five half-yearly cost updates in the sector and I can see this cycle continuing without WASHCost."

After WASHCost ended, Julia Zita, data manager for WASHCost Mozambique, worked with the National Water Directorate and trained provincial and district staff in the collection and use of data, with a methodology that has been incorporated into departmental planning for use by regional authorities. Zita noted that the breakthrough came when the department required provinces to give WASHCost access to contract data, after which the system became self-sustaining: "It became an obligation for the provincial chiefs to give to WASHCost the contract data... Now at the national level we have the results and use the briefing notes for planning, so the provinces also know and see the importance of giving information."

Andhra Pradesh, India

In India more than 95% of sector funding comes from the state or national government. The Government of Andhra Pradesh was the key stakeholder in the India team's learning alliance (working group) structure and also had a significant say in defining the methodology. Data came from official sources at the Rural Water Supply and Sanitation Department, as well as from village records. Maintenance records from the village local government (*panchayat*) were crosschecked with focus groups in the village.

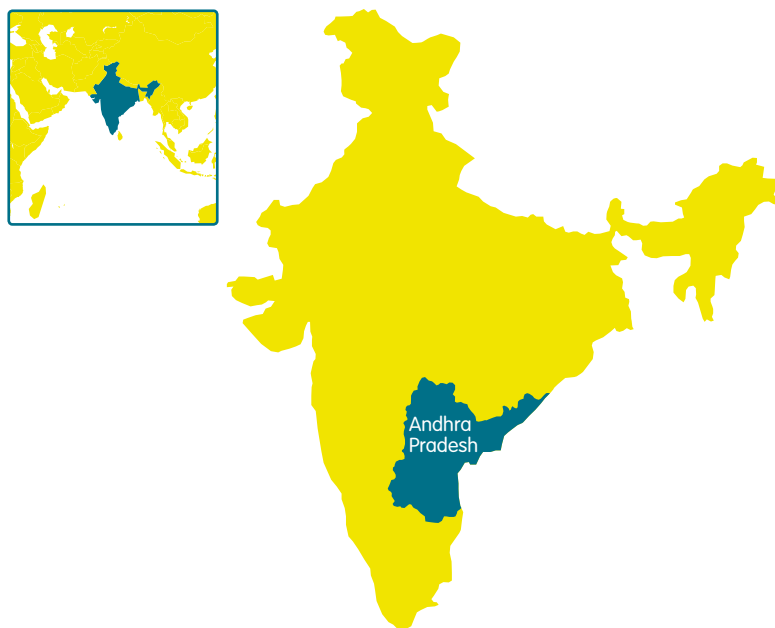


Figure 5.4 Research area (state of Andhra Pradesh) where data was collected in India

WASHCost India recruited some retired officials of the Rural Water Supply and Sanitation Department to help the team obtain data from official sources, and together with official backing for the project, this opened many doors. However, figures at the departmental level were still hard to track down.

For practical and financial purposes, the team had to decide how much household data to collect in a state with a population bigger than the other research countries put together. Mekala Snehalatha, country coordinator for WASHCost India, said it was not easy to get a consensus:

We are talking about over 72,000 habitations [small communities] in Andhra Pradesh, and WASHCost could look at just 200. From the perspective of the government of Andhra Pradesh, this is nothing, a sample of only 0.05% of the population. They wanted a bigger sample. At the global level, we were not bothered about large data, but we wanted good-quality data and findings that could talk about policy changes. But in India you can only have policy changes with big data and big evidence. Getting the balance between these two was challenging for WASHCost India. We decided to be responsive to the expectations of the government and the learning alliance members, even though this came with a high price tag in terms of human resources.

The WASHCost India team eventually collected data from more than 10,000 households within the same time constraints as the other country teams and sought to obtain useful data by spacing data

collection over more than one season and covering zones that differed in rainfall, water quality, water source and scarcity.

The primary concern of the state government was to stop the waste of resources through slippage: villages and communities that had been supplied with water and sanitation services reverting from fully covered to partly covered status (Reddy, Ramamohan Rao and Venkataswamy, 2010). In one village, what had been spent over 30 years on water and sanitation was six to seven times higher than the World Bank's average estimates for Andhra Pradesh. Mrutyunjaya Sahoo, then principal secretary for rural water and sanitation in Andhra Pradesh, described the WASHCost figures as "mind-boggling" (McIntyre, 2009b), suggesting that more was being spent on renewing failed water services than previously thought: "What I expect from this project is to throw more intense light by testing it out on a larger canvas across the state and then possibly we can be sure what we are doing; where we are and what kind of course correction might be possible."

Sahoo pointed out that with India's growing population, emphasis had been on expanding services and communities had lost the capacity to sustain them. Maintenance and repairs were not sufficiently covered in budgeting plans; systems were maintained through one-off sums from unplanned funding. "Unless we address in this country these kinds of things," he said, "our talk about water security or talk about sustainability, our talk about our stopping the migration from availability to a non-availability situation will be a perennial quest."

Issues of financial sustainability, raised by WASHCost, were also the target of sector reforms by the Rajiv Gandhi National Drinking Water Mission in India, which emphasises a shift from a quantitative approach (providing so many litres per capita per day) towards water security (ensuring access, equity and sustainability). New guidelines proposed allocating resources for source protection, water quality, minor operation and maintenance, large maintenance, planning, development and support activities.



V. Ratna Reddy, WASHCost India research director, presenting one method to compare water quantity.

Low levels of governance in villages

The Watershed Support Services and Activities Network reported on the views of 420 groups across 107 research villages and found low levels of transparency, accountability and participation despite efforts by the state government to promote participatory processes for decision making (Rama Chandrudu, Fanaian, and Naidu, 2011). Most people felt that they had little say in how WASH services were planned or implemented, and democratic structures to oversee good management failed to make a difference. Village water and sanitation committees were often invisible.

WASSAN conducted focus group discussions with the village leadership (Gram Panchayat), self-help groups of women, youth groups and focus groups in scheduled caste and scheduled tribe communities, gathering opinions and views on issues ranging from tariffs and water user fee collection to disposal of solid and liquid waste. Overall, 40% of the groups said there had been no public participation. The survey also spotlighted difficulties for women: three-quarters of the village groups said that women were not listened to, and in some villages the women found meetings hostile

or even threatening. This is particularly significant because the issues that women most wanted to raise concerned water, sanitation and hygiene.

Some villages had developed effective governance systems and good services. In Jankampet village in the Nizambad district, the water committee motivated villagers to make contributions to develop and maintain WASH facilities. Members of the water committee and the village development committee were selected by lottery, with places for every caste (although there was still a gender imbalance). Annual expenditure per person on investment and running costs was lower than the state average, and water was pumped to water points at lower cost than in neighbouring villages. Service levels were higher and repairs were prompt. Government funds were used to construct 11 small water storage tanks maintained by the Gram Panchayat committee.

WASSAN, WASHCost India, November 2012

Mapping to spotlight deprived areas

Tekulapally is a fully covered village with 11 hand-pumps, 19 public stand posts and 232 household connections. The village had made multiple investments to replace failed water systems; capital expenditure was three times higher than the World Bank's standardised observed costs. Capital expenditure dominated the expenditures, and it was difficult to obtain long-term operation and maintenance costs for 30-year-old systems.

Despite theoretical 100% coverage, water services scored low for accessibility, quantity and predictability. Women's participation in decision making for water and

sanitation was low, and the village water and sanitation committee scored zero for functionality. Poor planning had contributed to the problem. Ad hoc provision resulted in excess expenditure and low satisfaction levels. Distribution pipes were laid without considering the contours of the terrain, and some pipes led nowhere. Mapping homes and water points showed that the lowest provision of wells and water coincided with areas where the lowest-caste people lived.

WASSAN, WASHCost India, November 2012

In the pilot stage, WASHCost hired a local NGO to conduct household surveys and focus groups. However, the pilot research showed gaps and mismatches: some enumerators recorded water in litres, others counted buckets, and there were no insights into costs. WASHCost India took the process in-house, working with its partner NGO, Watershed Support Services and Activities Network (WASSAN), to train its own team of investigators in participatory rural appraisal techniques, such as interviewing, focus group discussions, transect walks and social mapping (WASHCost India, 2010). To inform their efforts, the enumerators also received training in the cost components, since simply asking “How much does your household spend?” would have produced a mish-mash of confusing answers.

Data collection involved two teams of five, including a member of the India team. Each team took four days to cover a habitation (sub-village) of 200 houses. Team members used GIS to identify households and obtained basic data on household occupants and their water consumption. They then conducted detailed surveys of 50 households, ensuring that they covered each caste and particularly looking at the difference in service at the ‘head’ and ‘tail’ of pipeline systems; households near the end of a system often had virtually no service because the water pressure was weak. Each detailed household survey took 45 minutes to an hour. In all, it took a team about ten days (50 to 60 person-days) to survey one habitation. Data entry took another six person-days, and the information was then triangulated with data from other sources.

Ratna Reddy, researcher director for WASHCost India, pointed out that over many years villages had been encouraged to invest in ad hoc systems to solve short-term problems rather than work towards a long-term plan. As a result, many villages had multiple water systems in various states of disrepair. Little routine testing was done to assess water quality. The multi-village schemes in particular, which are becoming more prevalent in rural India, often use polluted surface water sources; although this water is treated, the quality is not properly monitored: villagers often complained to WASHCost enumerators about the smell. The India team intended to include water quality testing as part of the research. However, laboratory results differed for the same samples, suggesting that the labs’ testing process was faulty. The team informed the communities whose water appeared to be unsafe, but otherwise did not make use of the water quality data, preferring to rely on the assessments of the communities themselves rather than on unreliable tests.

WASHCost India used a qualitative information system (QIS) to assess satisfaction with services. QIS is a participatory method of converting people’s opinions and judgements into quantitative scores: it enables comparison of services against each other or against acceptable standards and monitors changes over time. An assessor sat with a focus group of women who managed water or the latrine in their households; asking them to score water and sanitation services by placing one to five stones on the ground. This often generated a vigorous discussion about the reliability of a pump or what would happen when a supply failed, and was followed by efforts to reach a thoughtful consensus about the quality of services. The assessors recorded the scores and comments.

QIS was well accepted in communities: it appears to be a valid method for collecting and scoring opinions so long as the results are read as broad findings of opinion rather than as exact numbers. The methodology promoted dialogue within small groups and drew out a wide range of opinions. In so long as the researchers are well acquainted with the methodology and the research issues, QIS encourages participants to explore aspects of service and gives flexibility in following up any unexpected issues that arise. In India QIS and other participatory approaches provided triangulation for costs and service levels and enriched other material on governance in communities. However, when QIS was tried in Mozambique, the team did not find it useful.

The use of different methodologies did not invalidate comparisons between countries. Collecting subjective perceptions revealed how and why people made choices. Since the WASH service ladders developed by WASHCost are based on objective factors – quantity, quality, accessibility and reliability – participatory methodology added context.

In particular, participatory approaches cast light on the “two steps forward, one step back” problems that beset sanitation. WASHCost found that even habitations in India that had achieved the *Nirmal*

Gram Puraskar award for eradicating open defecation struggled to maintain their status. Discussions with households revealed that lack of monitoring, lack of activities to sustain behavioural change, faulty technical design of toilets, and bad smell and suffocation were amongst the reasons for non-use of toilets (Snehalatha, et al., 2012). WASHCost also found that even in fully covered habitations, households spent substantial sums on buying water from purification plants or water tankers.

The scale of data collection and analysis in India meant that the team was still collecting primary data in 2011 and even into 2012 when data processing and analysis were well under way in other countries. Data collection was also slowed by social unrest connected with the separatist Telangana movement.

The delays caused some tension between the India team and the project leadership in The Hague. Snehalatha, country coordinator for WASHCost India, felt they had no choice but to collect data from 10,000 households to meet the expectations of the learning alliance. Project director Catarina Fonseca believed that the extra detail was not necessary: “We already knew that costs were not sufficient and service levels were low after 2,000 household surveys. Collecting 8,000 more added accuracy but at a very high cost in terms of human resources and planning for WASHCost.” However, Fonseca recognised the importance of country ownership and accepted the decision of the India team: “Fortunately, the learning alliance thought that 10,000 households was a good enough number to believe the results.”



Data collection at water points in India using smart phones (Photo by Peter McIntyre).

Lessons learnt

Data collection for WASHCost took more time and effort than expected. As noted in the WASHCost mid-term review of the Burkina Faso research (WASHCost, 2010), the project was ambitious and created big expectations that the teams would quickly deliver quality results for governments to use. In each country, political, meteorological or social events outside the control of the project further complicated plans and timetables.

The collection of cost information was hindered by the absence of financial records, the scattering of information across many sources and the reluctance of some information holders to release information, especially about costs.

Factors outside the control of the project contributed to delays. The Mozambique team had to postpone testing because of elections, since communities assumed that any visit to their village was some kind of political event. Elections and turnover of officials also contributed to delays in Ghana and India. Floods in Mozambique and Burkina Faso, lengthy power cuts in Burkina Faso and political unrest in Andhra Pradesh all disrupted the research to some degree.

The extent to which general conclusions can be drawn from relatively small-scale surveys depends in part on local context and in part on statistics: a sample may be good enough to inform planning and budgeting even if it is not statistically representative. However, there was a tension between obtaining a statistically sound sample and keeping data collection doable. How many communities, and how many households within a community, should be studied will depend on the resources and expectations of the research project.

Charles Batchelor, governance specialist for WASHCost India, believed that the project underestimated the size of the task: “We did not recognise how difficult it is to get good information on household level quantity, quality, reliability and accessibility. The amount of water a household uses is very difficult to define.” Technical aids, such as ultrasound water meters attached to water pipes, could have helped, but the definition of household water use was tricky. “It depends on how and where you ask the question,” Batchelor observed. “Do you count the buckets of water at household level or at the waterpoint? People do their washing at the laundry site rather than the household. How does one measure that water? A lot of people fill their water tanks and because they don’t like stale water later tip it away. Is that considered used water or not?”

The methodology used in the project was elaborate, even cumbersome; that suggested in the WASHCost training package produced at the end of the project is slimmer and more appropriate for use by local governments. The WASHCost Share tool, mentioned in chapter 3 and described in chapter 12, settled on 11 questions for water and 11 for sanitation – closer to the golden indicators deemed ideal at the start of the project.

Although cost data quickly becomes dated, the qualitative information that WASHCost obtained – how communities manage and use water and how they make decisions about water consumption and sanitation options – are unlikely to change over the short term and should inform decision making for a number of years. Looking at the service from the perspective of the users revealed dramatic differences between official coverage data and actual service levels. This process also revealed what people considered worth paying for. It threw light on one of the most acute questions for those planning and spending budgets: how can we measure and monitor value for money?



Creating harmony, where possible, is key to achieving efficiency and effectiveness.

Chapter 6

Harmonising data from four countries

To draw the lessons from the four research countries, the WASHCost team needed to aggregate and analyse the data, show the cost of water, sanitation and hygiene in various ways, and identify its relationship, if any, to service levels. The aim was to answer five research questions:

- What are the current, actual magnitude and the relative magnitude of different cost components per technology?
- What are the current, actual magnitude and the relative magnitude of different cost components per service level?
- How do service levels received by poor and non-poor households differ?
- What are the main cost drivers of providing a sustainable service?
- What are the 'golden indicators' for the analysis of sustainable and equitable WASH service delivery?

Although country teams were mindful of the need to produce data that would be comparable internationally, their main focus was on influencing national decision makers, embedding data collection in country structures, and implementing the findings. In Mozambique, data on the cost of drilling boreholes would be used as the basis for regional planning in the country; the India team sought to influence policy that would address the overemphasis on funding infrastructure; Ghana researchers began working with the Community Water and Sanitation Agency to identify levels of capital maintenance and direct support that would make services more sustainable.

Such country-level priorities led to a divergence in methodology, as adviser to WASHCost Richard Franceys had forecast in the 2008 kick-off meeting: "You can have cross-country comparability if you force everyone into an unrepresentative box, but it won't represent the real costs and people will not have ownership of the costs" (WASHCost, 2008a).

The original project proposal called for a full-time data manager to support data collection, storage and analysis across the project. However, this post was not filled: at their own request, country teams managed their own data, following guidelines.

Jeske Verhoeven, the first project assistant for WASHCost and later project officer, recalled:

The research group decided that the central data manager position did not need to be filled. Each country team would take care of data management, and assumptions were made that countries could do it by themselves, and everyone had the skills and abilities to do it. The WASHCost governance specialists offered to play an important role in data and quality control. They said you do not need to recruit a full-time data manager; we do it.

That approach caused concern for project director and overall research coordinator Catarina Fonseca. In 2009, seeking to provide greater expertise on working with the data, the team in The Netherlands began looking for a university department connection or a team member dedicated to data management.

The country teams were reluctant to lose what they saw as the integrity of their data or the flexibility to present it in ways that would influence their national stakeholders. In part, this was driven by experience of the Joint Monitoring Programme, wherein data was widely used at the international level but not found useful for national planning. However, the country teams also recognised that postponing a decision about data management would only make it more difficult. In November 2009, Kwabena Nyarko, research director for WASHCost Ghana warned that the teams needed to agree quickly on the minimum data set for the global database so that they could settle on a methodology. He noted that every time the country teams came together, they changed the country parameters: "To move from the pilot phase to where we are now," he said, "we had to throw away all the coding and do it again. This week we will take decisions on the minimum global data and the coding will change again" (WASHCost, 2010).

At that stage it was simply agreed that all countries needed to show exactly how data had been collected and processed.

Data coding

In 2010, as research results started to come in, the organisation and management of data became an increasing priority for international comparisons. In February 2010, a week-long meeting of country data managers was held in The Hague to harmonise the organisation, coding, storage and sharing of data and to ensure that country systems were compatible and comparable. Some countries were struggling, however. Mozambique did not yet have a data manager (Julia Zita filled this role in late June 2010) and sent Arjen Naafs, country coordinator and lead researcher, accompanied by Egidio Vaz Raposo, WASHCost Mozambique's communications and documentation officer. In Andhra Pradesh, the data manager was having difficulties dealing with the huge volume of data on costs and service levels. The Burkina Faso data managers were committed but inexperienced and required training on advanced Excel functions. Only the Ghana team was comfortable: it had an experienced data manager (Kwaku Adjei), was collecting a small volume of data, and enjoyed a short feedback loop between researchers and data managers, who shared an office in Kumasi.

The 2010 meeting in The Hague produced a common framework and standards; participants agreed to share data on a monthly basis. The document that emerged read (WASHCost, 2010a):

The agreed system is simple and transparent and works within the different country contexts and existing ways of working. The aim has been to link the different systems together without causing much extra work or making it unnecessarily complex, rather than imposing the same structure on each country team. Harmonisation in this respect is not about being the same, but being compatible.

Nevertheless, this was the beginning of increasing oversight and quality control of data management and analysis by The Netherlands team.



WASHCost country team members harmonising, organising, coding, sorting and sharing data in a workshop in The Hague, February 2010.

Data differences

Centralised oversight did not make the problems go away. If anything, it threw a sharper light on the significant differences between countries in how cost information was being captured, cleaned and categorised. Verhoeven recalled:

It was a conscious decision by the research group to say that each country should be allowed to adapt the questionnaires to their country context, but nobody had looked further into what this would practically mean at the global level, and it wasn't clear how we could bring it together. We all said that it was really important that the countries have this freedom and can adapt to their own country context within the agreed framework; we would worry about the global aggregation later.

The whole idea of WASHCost was that the countries had a lot of freedom and power to make decisions, and this wasn't going to be a project that was going to be centrally directed where everybody had to do exactly the same. Countries had a lot of autonomy for data collection, but there was a minimum on costs and service levels which was important for everyone to collect. But if you want to run a project with a lot of country autonomy and a lot of country context, you will have some problems if you have to bring it all together.

A review of preliminary data findings revealed some inconsistent and questionable data for the 1,000-plus indicators. Although a research protocol had been developed, the global coding component was applied retroactively, after much of the data collection had taken place. Countries had their own coding, and Verhoeven's task – reconciling the differences and constructing a global database – showed where there were inconsistencies, which data was needed for global comparison and which was relevant only for countries. The water and sanitation ladders were also finalised only after the data collection: the information collected did not match the criteria for different service levels, necessitating interpretations and assumptions. In the end, the sheer amount of data collected ensured that the research questions could be answered but some detailed comparisons were not possible.

Extracting information from data

Whereas most researchers publish their findings after their project has ended, WASHCost researchers committed themselves to meeting a quarterly quota of briefing notes and conference papers as the project progressed. One incentive was the IRC symposium titled *Pumps, pipes and promises: costs, finances and accountability for sustainable WASH services*,¹⁶ held in The Netherlands in November 2010. This symposium brought together many of the world's leading organisations and experts concerned with more accurate costing and better financing of the WASH sector. Its aims were to examine challenges and opportunities in financing the WASH sector, look at the use of cost information for improved planning and decision making, strengthen accountability, improve synergies, share knowledge and increase collaboration.

Fonseca, one of the symposium organisers, committed WASHCost to presenting a series of peer-reviewed papers and initial research results based on the aggregated data sets (some results had already been reported at the country level). With six months notice, each country had to produce a research report – something short, sharp and well documented.

Preparation for the symposium was intensive. Drafts were peer-reviewed across country teams, and data, findings and papers flowed back and forth among the country teams, The Netherlands and the United Kingdom. IRC worked to make the symposium a success and the papers strong enough to withstand scrutiny. As Patrick Moriarty, governance specialist for WASHCost Ghana, pointed out, “the peer-review system ensures that everything is challenged, and if the researchers were not ready, their credibility would suffer.”

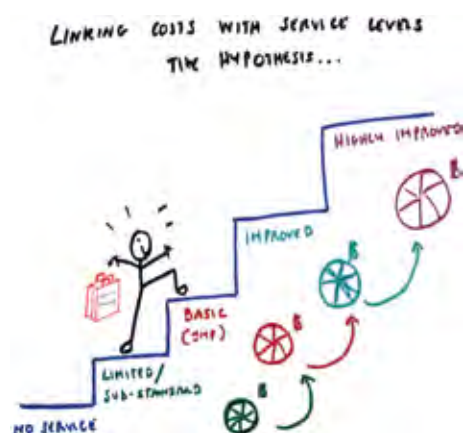
¹⁶ Access symposium paper presentations, proceedings and reports at: [www.ircwash.org/news/irc-symposium-2010-pumps-pipes-and-promises-1](http://www ircwash.org/news/irc-symposium-2010-pumps-pipes-and-promises-1).

Priceless! Uncovering the real costs of water and sanitation

Before the symposium, the project held its annual planning meeting. Researchers used role-play to clarify and test their messages at impromptu media conferences, facing sharp questions on the quality of the data and their interpretation. This later became an effective tool for WASHCost (and more widely for IRC) as researchers subjected their work to scrutiny and challenged one another to convey useful information, not merely recite the data.

At the symposium, each country team presented its findings. Papers discussed the use of cost information in planning and decision making in Ghana, sanitation costs in Burkina Faso, the life-cycle costs approach in Andhra Pradesh and improving decision making on planning and budgeting in Mozambique. Perhaps the starkest message was that service levels were uniformly low across the countries, and that these low-quality water and sanitation services came at a high cost.

Fonseca presented the overall preliminary results, using simple graphics. She observed that capital maintenance expenditure and direct support to communities were the most neglected costs, resulting in waste when expensive infrastructure broke down and new investments were required. The lack of accountability amounted to “borderline irresponsibility” as donors planned new infrastructure, governments focused on expanding coverage rather than resupplying communities they considered covered, and users felt that the broken pumps belonged to the NGOs that had installed them.



Correlation between financing and service levels: graphic presented by Fonseca at the IRC Symposium in November 2010.

“This is a huge amount of money going every year into capital expenditure over and over and over again,” Fonseca said. “We have all these histories of investments over several villages and communities, and the money that we could save is quite impressive. This is a very important message” (McIntyre, 2010). Fonseca concluded that defining service levels had opened the door to meaningful in-country comparisons of country norms and actual service. WASHCost, she said, would be developing training packages on the methodology for partners, with costs and services that would be context specific.

Summarising the presentations, Moriarty emphasised the high cost of providing low levels of service. Taking service levels above the ‘limited’ or ‘basic’ levels meant paying attention to quantity, quality, accessibility and reliability.

Symposium participants endorsed the view that changes for the Millennium Development Goals and beyond required more than just pumping extra money into capital expenditure. Guy Hutton, senior economist with the World Bank Water and Sanitation Program, welcomed the data and methodology and looked forward to moving from costing existing services (as done by WASHCost) to estimating what would be needed for ideal services. Mark Tiele Westra, editor of Akvopedia, said, “This must be some of

the most interesting data on WASH costs that I have ever seen. I am pretty sure that this also represents need-to-know information for everyone working in the water sector” (McIntyre, 2010). He challenged WASHCost to develop a communication strategy “to ensure that everybody hears about this.”

Validating the data

A new mood infused the project at the start of 2011. The symposium had been a success, and the mid-term review, delivered in November 2010, had on the whole been positive (see chapter 10). People who were engaged in budgeting and costing in the sector were waiting for the WASHCost results with a sense of anticipation. The evidence would be critiqued, but this was a project that people wanted to succeed. WASHCost had a willing audience.

Despite the realisation that the project was accumulating some successes, harmonising and analysing the data were proceeding slowly. It seemed that each question that was answered by researchers led to a series of more complex questions. Comprehensive country reports each now exceeded 100 pages, but were still incomplete and researchers feared that such long documents – the traditional vehicle for releasing results – would be as indigestible to read as they were laborious to write and therefore lack impact. During 2010, WASHCost had begun to publish working papers and briefing notes, and these now became the chosen vehicle: WASHCost would feed results to the sector as soon as they became available.

Even so, Fonseca was still convinced that the project needed a full-time data cruncher to work with the country teams and pull the data together into a coherent, “bullet-proof” story. Peter Burr, a former student of Richard Franceys’ at Cranfield University in the United Kingdom, was hired under a PhD agreement to collate and harmonise data and undertake a first level of analysis to establish the current, actual and relative magnitude of unit cost components per technology, per capita, per household and per service level. A second-level analysis would use accounting methodologies and Bayesian techniques to address the other research questions and start developing target cost data.

Burr read the draft reports with an outsider’s eyes and struggled to link the country findings to the shared common framework. He tried to cross-check results with source data sets but in some cases could not determine how the answers had been derived:

There was no way to go back and check everything. It made me quite uncomfortable because you always had to take these raw figures on trust, when you knew there were hundreds and hundreds of data points behind the figures. I did not really know how to take that data and certainly could not provide any contextual value. We really thought there should be some form of validation which required looking at the raw data itself.

Fonseca, Burr and Verhoeven decided that the best way for The Netherlands team to understand and validate the data at the global level would be to work directly with the data managers. In April 2011, two members from each country team, including the data manager, travelled to Rotterdam in The Netherlands to work on validating the data and calculating the cost per technology and per service level. To ensure that data analysis across the WASHCost project would be consistent, systematic, comparable and transparent, a template for data analysis was devised. This process came as a relief to the data managers themselves. One noted, “What we have done in our country in six months we have done in one week here.” Another said, “We discovered a lot of mistakes in the raw database that needed to be corrected. We now almost have a clean database and this is a big step, but it took more time than expected.”

Indeed, the variations in cost and service-level calculations between countries had become apparent. Burr had the impression, reinforced by country visits, that it was difficult for decisions made at global research meetings to be implemented at the country level, for several reasons:

- It could take weeks for country staff to recalculate data points spread over a large number of independent files. Country staff were reluctant to do this unless it would be the final methodology.
- Country briefing notes and academic papers were being written, and re-analysis of source data would necessitate major revisions.

- Some staff lacked the statistical skills to analyse the data; eventually these activities had to be centralised.
- Data was stored, analysed and shared in Microsoft Excel, a well-used and readily available tool that was not however ideal for data management.

There were also country-specific issues. The data manager in India left the project in the middle of data analysis, and the salary structure in the host academic department was not sufficient to attract researchers with the necessary experience. Ultimately the coordinator of the India team undertook the analysis herself and trained a project assistant. Collating, cleaning, coding and analysing the data involved a huge amount of time, effort and skills. Fonseca observed, “Sometimes something that seems very easy turns out to be extremely complicated.”

As a result of the Rotterdam meeting, country teams were asked to recalculate their data based on the new templates to ensure consistency and quality. Data would thus be analysed twice and mistakes would be spotted, but the extra step was a burden. To help, Burr began a round of hands-on, in-country support, in the course of which he achieved some centralisation of data analysis. Data points that did not meet the required indicators and were not fully reliable were excluded from the analysis.

By June 2011 the Mozambique team had more or less completed the recalculations; Naafs and Zita had sorted the data but were still trying to deal with missing capital costs.

The India team had completed several rounds of data cleaning and cross-verification and was updating research reports to reflect the new approach. However, with the wealth of data, pressure from stakeholders and a stream of publications being prepared, Mekala Snehathatha felt held back by having to repeat the data entry process to conform to the new templates.

The Ghana researchers had succeeded in entering data into the new template and were sharing draft briefing notes with stakeholders. The team was also entering cost details from contracts for a further 107 water points to strengthen the database on capital expenditure, since some boreholes for which they had originally collected data were 20 years old; they concluded that these historical costs were not useful. Researchers also began investigating outliers where costs were very high to see whether these would produce any insights.

The Burkina Faso team was facing serious problems. During 2011 the IRC agreement with the host CREPA (*Centre Régional pour l'Eau Potable et l'Assainissement*) was terminated and the project suffered staff turnover. Its head data processor, Richard Bassono, stayed on, working with the governance specialist Christelle Pezon, and the research officer Amélie Dubé, who is herself a strong analyst. Their research reports were delayed by the need to clean the data, but with good maps and geographically focused cost data, they were able to engage with decision makers in the country. Accurate messages depended on validating the data, so this became the next priority.

By November 2011, the country teams had taken large steps forward. In India, the team was still trying to improve its capacity to handle data, and staff overload was still seen as a risk. But data was being passed back and forth between Hyderabad and The Hague on a weekly basis.

Mozambique researchers had completed their first-level analysis on sanitation and were working on the water analysis although, André Uandela, country director, felt that the new data template had put their work plans back by two months. The results were being shared with partners in the country.

The Burkina Faso team, now working with a new host, Eau Vive, had cleaned the data set and was preparing a paper on sanitation for a national WASH forum and a paper for the end of the year. Dubé was optimistic that the team had succeeded in reconnecting with the sector.

Meanwhile, the Ghana team had produced four briefing notes and was discussing how to devise a system of data collection that would enable regions to update the data regularly.

In November 2011, to deal with the increasing workload and address the need for external communication, The Netherlands team decided to produce a single global research report; country outputs would focus on a series of briefing notes. In 2011, the project produced 109 articles, published on the WASHCost website and through the regular e-updates, 35 research publications, one research poster, one brochure and a training material package. There was a steadily growing interest in the project and its outputs. The number of website visitors rose sharply, and returning visitors doubled over the course of 2011. The first four international training courses on WASHCost methodology received high ratings with an average grade of 4.4 out of 5.

By early 2012, project participants were upbeat: things were coming together, the teams had collected more data on costs and service levels than any other project, and WASHCost was beginning to deliver what people had been waiting for. However, researchers had concerns about how cross-country data should be presented. Pezon said that Burkina Faso data was representative of particular villages and districts but could not be used for national comparisons with other countries. In Mozambique, areas had been selected as representative of a province rather than nationally. In Andhra Pradesh, government expenditure on WASH infrastructure was collected from 187 villages across nine agro-climatic zones, and information about household expenditure and service levels was collected in 5,242 household surveys covering 103 of these villages. Although a systematic procedure was used to select the sample and it was considered statistically significant by WASHCost, the government's rural water supply and sanitation officials said that the sample might not tell the complete story of a state with 72,000 habitations, 84 million people and a variety of geographic features, technologies, and groundwater situations.

Moriarty believed that the information from each country was highly useful, but cross country comparison would be unreliable. At the start of this project, he said, nobody knew what it cost per person per year to provide water; "now they know that in Ghana it costs US\$ 5–10 per person per year to provide water from boreholes with handpumps in rural areas and US\$ 15–20 per person per year to provide water through small town systems." His caution about direct comparisons between countries was echoed in the final working paper by Burr and Fonseca (2013, p.7):

The large database of actual expenditure on service delivery and of actual service levels collected by WASHCost teams is representative at the level of the communities, technologies and service areas where it was collected. Efforts were made to ensure that these were in turn representative of the country (or state) as a whole, or that they at least represented a range of typical service delivery areas reflecting a range of challenges. Data on expenditure was not always available for the same communities where data on service delivery was assessed, while service areas are typically poorly defined. Given these and other realities of data collection in the field, WASHCost cannot claim that this data is statistically representative at a national level. However, the WASHCost data set is the most complete of its kind that currently exists, and the WASHCost team is confident that the ranges identified are valid indicative ranges for the focus countries as a whole, and indeed for similar countries. WASHCost found local contexts to be very important in determining expenditure patterns and service levels, so comparisons to other countries should be made with care.

The most requested metric was cost per capita, defined as the cost divided by the number of people in a service area (cost per person) and the cost divided by the number of people regularly using the infrastructure (cost per user).¹⁷

¹⁷ This metric is applied in sanitation by Burr and Fonseca (2011), available at: www.ircwash.org/resources/washcost-briefing-note-3-applying-life-cycle-costs-approach-sanitation; water, also by Burr and Fonseca (2013), available at: www.ircwash.org/resources/washcost-working-paper-8-applying-life-cycle-costs-approach-water; and in the benchmark data for both sanitation and water published by WASHCost as WASHCost infosheets 1-3, available at: www.ircwash.org/resources/washcost-global-infosheets.

Could the journey have been easier?

The project's action research approach resulted in a continuous journey of discovery and an iterative process of learning, reflection and concept development by partners, stakeholders and the country teams. It also meant that some ideas that became the bedrock of WASHCost analysis were not fully formed until the second or even third year of the project – after data collection was well underway.

Fonseca concluded that the time between data collection and having a sharable database could have been shortened by six to eight months had a central data manager been engaged from the start. However, she acknowledged that the process of learning was central to action research. Others suggested that WASHCost should have piloted the methodology in one country and not conducted the research in the other three until it was settled. Piers Cross, who led the mid-term review of the WASHCost project in November 2010, questioned whether the drive to create change in the countries had taken the focus away from providing a useful database. It might have been better, he said, to have tried WASHCost one country at a time:

You are bold as hell. You do it everywhere at once and everyone is arguing about the indicators. You love to go the long hard route, but it does complicate the delivery of the global product. Even if you end up with methods and tools, there is still a demand for numbers. That remains in many people's minds as what this project is all about ... The impression was of a drift from one global research study to a set of country studies, coordinated rather than led by the centre.



Piers Cross, WASHCost external evaluator, addressing a team of WASHCost advisers and colleagues during a WASHCost Annual Planning Meeting (Photo by Peter McIntyre).

He suggested that the consensus style of management might be hardened up a bit – that maybe Fonseca needed to “bang a few heads together now and then.”

Although sorting out the methodology first and doing the research afterwards would have resolved some issues, it would have created fresh problems. If one country had pioneered the research, other countries would have had less of a stake in the outcome, and perhaps less engagement in addressing problems as they arose. The nature of action research is that research problems are dealt with as they emerge, and this needed to be done on a cross-country basis. Snehalatha herself also acknowledged the value of the many international discussions about how to proceed:

We learnt a lot from each of the country experiences and how the countries were operating and how they have approached the research. There was a lot of inter-country sharing... Some of us are purely academic researchers; some of us are purely implementers; and some are a mix of both. A combination of these things allowed us to come to a more practical tool and more practical approach.

The picture of costs and service levels became clearer through this process of debate and discussion. As Verhoeven put it, “It takes brains and preferably a room full of brains to get the messages out of the data – which is why the research meetings were so important.”

If the WASHCost teams were doing the same research today in a new country, they would certainly be able to agree on the methodology in advance. But in 2010 and 2011 nobody had done this before. Hindsight was not an option.



→ Kosten van water
→ installatie
→ onderhoud
→ beheer en exploitatie
→ afvalkosten
• • • • •

Catarina Fonseca, WASHCost overall project director, presenting life-cycle cost categories during the 2014 WASH Sustainability Forum in Amsterdam (Photo by Felix Kalkman).

Chapter 7

Conceptual challenges in cost categories

The challenges of calculating and presenting life-cycle costs were not easy to resolve: researchers needed both to meet accounting norms and to provide definitions that could be understood and shared inside and outside the project. Some of the problems were technical, while others were conceptual. WASHCost Briefing Note 1a (Fonseca, et al., 2013) explains the background for different accounting techniques. However, many of the standards were difficult to put into practice. Accounting systems were generally better in the urban sector, but WASHCost teams were confronted with incomplete, patchy cost data for rural services. This chapter touches on a few of the issues that arose and how they were resolved.

Lack of information

In rural communities, sanitation is largely a household matter and finding data was especially difficult. In the African research countries, families often built their own latrines using local materials, and since they did not cost their own time, the financial cost was zero. The Mozambique team collected data from 1,710 households, but only 378 of these were able to supply any information about the cost of building a household latrine. Many households did not have a latrine; others had done the construction themselves using local materials; others did not know what the cost had been. At first the Mozambique WASHCost team excluded these households from their data and presented average capital costs based on those who were able to supply data. In Ghana, the team estimated capital costs where households could not remember what they had spent, but recorded costs as zero where households had spent nothing. India and Burkina Faso also distinguished between households that reported zero costs and those that did not know what they had spent.

For consistency, the research group (bringing together researchers from each of the five country teams) decided that in Mozambique the zero costs should be put back in, and if costs were not known, they could be estimated. The cost of self-provision (family labour), however, was not included because WASHCost was intended to capture only financial costs for service provision. Economic analysis of household expenditure was done later in separate IRC studies, such as in Schweitzer, et al. (2013).

Distinguishing capital maintenance from operational and minor maintenance

One recurring issue was defining the boundary between capital maintenance expenditure (CapManEx) and operational and minor maintenance expenditure (OpEx). Capital maintenance expenditure is the cost of renewing infrastructure and restoring the level of service to what was delivered when the system was new. Examples include replacing the motor, pump rods, rising main or handle of a handpump, cleaning or re-excavating the base of a hand-dug well, and flushing a borehole that no longer delivers the desired flow. Operational and minor maintenance covers the predictable, day-to-day and week-to-week costs that are built into regular budgets. The distinction involves the quantity and regularity, and therefore predictability of costs.

The WASHCost research group decided to allocate borderline activities as either OpEx or CapManEx to ensure consistency across countries (table 7.1).

Table 7.1 Operational and minor maintenance versus capital maintenance expenditures

	Operational and minor maintenance expenditure	Capital maintenance expenditure
Sanitation	Latrine pit emptying or re-siting (if regular) Cleaning material for latrines Chemicals for waste treatment Salaries (if applicable)	Latrine pit emptying or re-siting (if not regular) Repairs or replacement of impermeable slab and superstructure Sewer pipe cleaning or repair
Water	Electricity, fuel, transport Salaries Greasing and above-ground repairs of handpump Repair of minor distribution pipe leaks	Below-ground repairs to handpump Borehole flushing Replacement of motor, motorised pumps Major repair to electrical components Transmission pipe leaks Major repair to civil works

Latrine pit emptying is a good example where there was uncertainty. In theory this should be a routine activity that is part of the operating cost of a latrine. However, in rural areas in many countries, pit emptying is anything but routine, and safe methods of emptying do not exist. A family pit may take more than a year to fill, and some traditional pit latrines are not emptied but simply re-sited when they are full. In WASHCost the emptying or re-siting of a pit was defined as capital maintenance because this reflected the reality for rural areas. If routine emptying became available, the cost would be classified as operating expenditure.

One-time costs and recurring costs

The WASHCost life-cycle costs approach defines all the costs involved in water and sanitation services. One important aim is to derive a single figure that represents total expenditure per person per year, or TotEx. This figure could be used to compare water or sanitation systems across different countries and contexts and communicate findings. Arriving at a credible TotEx figure was of great interest to the country teams and stakeholders. However, because various expenditures occur at different frequencies across time, have different magnitudes and are incurred by different actors, they are not easy to add together. How, for example, can one-time capital costs, the costs of policy making and the costs of providing capacity support in communities be aggregated into a single cost per person per year?

In the cost pie that IRC and WASHCost use in training and for advocacy, all these costs are presented as part of the same circle (figure 7.1).

As a graphic, the pie illustrates the range of costs that need to be included “in the circle” in a life-cycle costs approach, but it does not accurately reflect how these costs can be put together. In particular, capital expenditure is a one-time cost, whereas all other costs occur repeatedly throughout the life-cycle of the system and can relatively easily be presented as annual costs. It is harder to reach agreement on how to do that with capital expenditure.

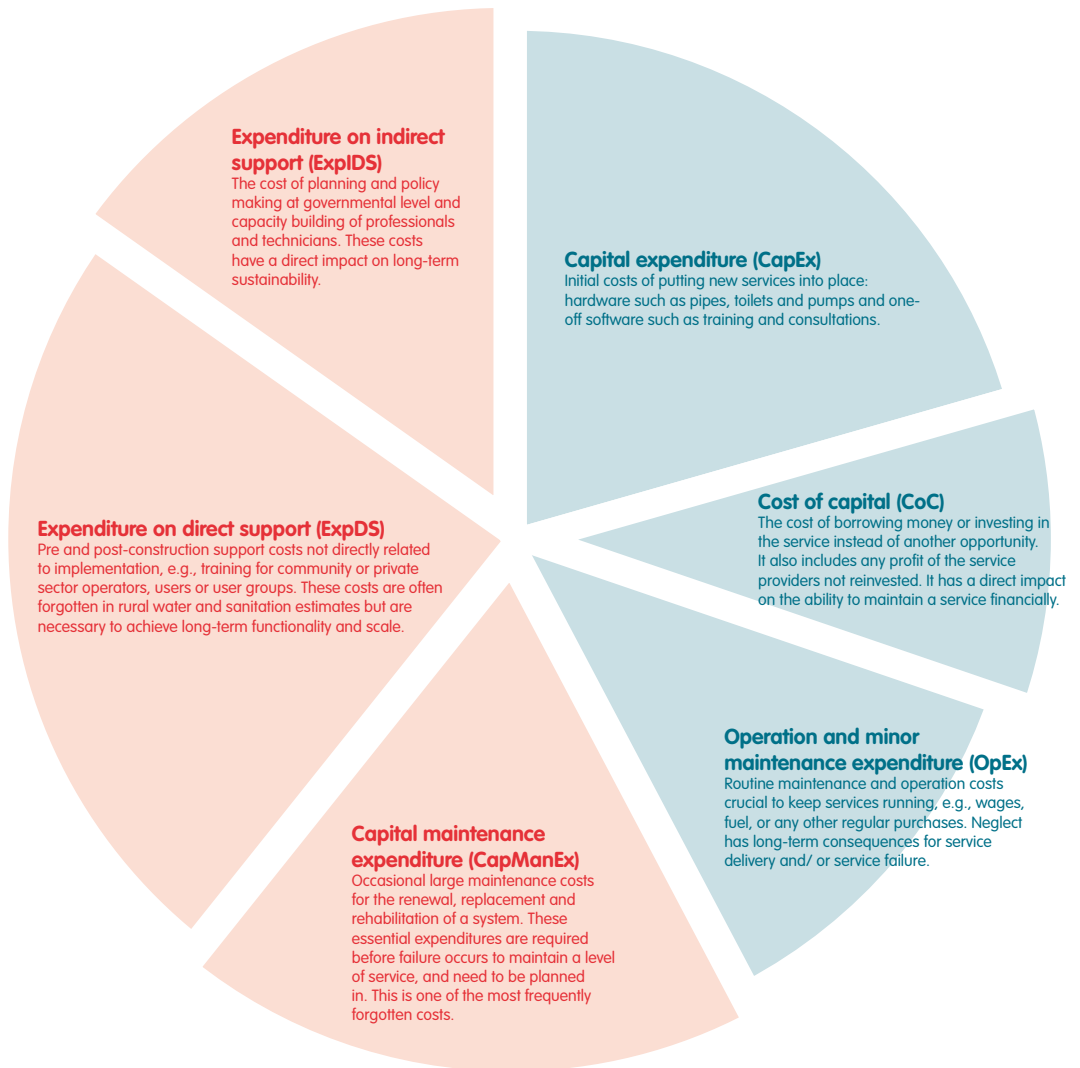


Figure 7.1 WASHCost pie

Distinguishing capital expenditure from capital maintenance expenditure

Capital expenditure (CapEx) is the one-off cost of constructing infrastructure, such as boreholes, pumps and pipes for water supply, and latrines and sewerage networks for sanitation, to deliver a service or to enhance or expand an existing service. Capital maintenance (CapManEx) covers infrequent (and often unexpected) major replacements or significant repairs of existing assets beyond the scope of minor maintenance. Both are “lumpy” costs, in that they are irregular and can be large. It is inevitable that capital maintenance will be needed at some point, but when and how much, is not easily known. Breakdowns can be expected but their timing is rarely predicted.

In developing countries, where money is not set aside for major repairs, a water system that breaks down is often abandoned leading to the suspension of at least part of the service. If it is later renewed, should the cost be recorded as new capital expenditure or as capital maintenance? This reflects the age-old discussion about replacing first the head and then the shaft of a broom (Is this the same old broom, now repaired, or a completely new one?) and Plutarch's question, posed 2,000 years ago, about replacing all the parts of Theseus' ship (Is it a new ship or the same one?). The rule of thumb used by WASHCost was that if service delivery had ceased for a number of years, the major rehabilitation or replacement of infrastructure should be considered the start of a new service, and therefore capital expenditure. If the period of downtime was shorter or there was an expectation of near-term renewal, the rehabilitation or replacement should be considered as capital maintenance expenditure.

Annualising capital expenditure

Once the distinction between capital expenditure and capital maintenance had been agreed, a further problem was how to compare capital expenditure that took place in different years and how to allocate it as an annual cost. When analysing the costs of infrastructure that had been installed five, ten and 20 years ago, the current value of what had been spent had to be calculated, to allow for inflation. The tool used to do this is based on changes in the value of the country's gross domestic product (GDP), rather than simply on changes in a cost-of-living index, which usually measures the cost of a fixed basket of goods and services in different years. Changes in the value of gross domestic product are monitored through a GDP deflator, based on a set of goods and services which change in line with consumption and investment patterns and therefore reflect the way that an economy and society is changing.

Once the current value is known, it is possible to annualise the capital cost so that it can be added to other recurrent costs and combined into an annual TotEx figure, something that is very attractive to those responsible for planning and budgeting. To achieve this the capital expenditure needs to be divided over a number of years – but over how many? One approach is to divide the cost by the number of years that have passed since the infrastructure was installed. However, this produces arbitrary results since it does not reflect the eventual total lifespan; a system built 20 years ago would appear to have a much lower annualised cost (expenditure/ 20) than one of equal cost built five years ago (expenditure/ 5).

Another way is to divide the cost by the actual (real time) lifespan of the infrastructure. This would provide the most appropriate data. However, the lifespan of a particular piece of infrastructure is not known until its life is over; determining average lifespans requires accurate information about many different installations. In practice, there was insufficient data from WASHCost countries to allow for realistic averages to be calculated.

Another approach is to annualise the cost based on the design life of the infrastructure – how long it is supposed to last. This puts new and old infrastructure on an equal footing, and it has the advantage that it can show cost effectiveness if more expensive assets built to higher specifications last longer than those which have a lower capital cost. However, evidence from the rural water sector suggested that design life was often overestimated and varied greatly according to the quality of construction and maintenance regimes and other contextual factors. Evidence to compare actual lifespan with design life was lacking.

The approach adopted was a combination of trying to collect data and expert opinion on reasonable lifespan figures. In March 2010, Kwabena Nyarko, research director for WASHCost Ghana and Arjen Naafs, country coordinator for WASHCost Mozambique listed a range of technologies that could be found in most of the research countries; ‘useful lifespan’ was defined as the period during which a system is expected to be usable with normal repairs and maintenance, and common threats to each.

Box 7.1 shows the proposed useful life for a public toilet block and an Indian Mark II handpump as ten years. Presented by Nyarko and Naafs, the toilet block was mainly at risk from vandalism and poor usage; the handpump was considered more vulnerable: having a shorter lifespan because of the intensity of use or lack of maintenance.

Box 7.1 Proposed design lifespan for infrastructure

Public latrines

Public latrines most commonly used are of the VIP type, but grouped together and accessible to more than one family. Due to intense usage and poor maintenance, public latrines have a shorter life span than the family versions.

Life span is threatened by

- Vandalism
- Poor usage
- Poor technical design

Recommended useful life for WASHCost: ten years
CapManEx

- Cement works
- Desludging
- New door, new pipe



Afridev or Indian Mark II handpump

Installed typically on boreholes or shallow wells from 10-45m, many parts can be regular replaced. Though over time, almost the whole pump is gradually replaced.

Life span threatened by

- Intensity of usage
- Type of maintenance
- Corrosion
- Verticality of the hole
- Quality of spare parts

Recommended useful life for WASHCost: ten years
CapManEx

- New rising mains/ rods
- New pump head
- Full replacement



This was a useful step forward, but the conclusion of the WASHCost research group was that design lifespans were not sufficiently reliable to use for cross-country comparisons.

In June 2011, the research group looked more closely at lifespan data for infrastructure. International comparisons required lifespan data that was standardised between countries, but country-level researchers said that this was not necessarily appropriate at national level. In Burkina Faso, for example, Christelle Pezon decided that country-level design data would represent the ideal costs. The research group therefore agreed that each country would determine its own “best guess” lifespans for the common technologies, based as much as possible on data. The different lifespans – ‘ideal’ or ‘by design’ and ‘real’ based on data collection – would be acceptable for comparison at international level.

Avoiding double counting

Probably the most difficult of these issues was how to account for both capital expenditure and capital maintenance expenditure without double counting or creating confusion. One commonly accepted accounting system is to include an annual depreciation charge for capital investment, rather than accounting for capital expenditure in one lump sum at the point of investment. However, there is a problem with adding an annual depreciation charge to an annual capital maintenance cost, included to ensure that the value of an investment remains constant, and that repeated capital sums do not have to be expended because infrastructure fails. Depreciation and capital maintenance represent different ways of spreading the cost of replacement over the years. The former looks at past capital expenditure and spreads it across the years, so that when it needs replacing there is money available to do so; the latter looks at what will be needed in the future and tries to anticipate that by budgeting for it each year. Including both capital maintenance and an annualised CapEx figure (or depreciation) would lead to double counting.

Examples of capital maintenance expenditure were difficult to find, but in many instances, infrastructure was long lasting. The Ghana team found handpumps still working after 30 years, even though about 36% of systems in Ghana were at the time of the research non-functional. In many cases broken equipment was simply left unrepaired, so there were no maintenance costs to record. Examples of money being set aside for capital maintenance in rural areas were even rarer. As Catarina Fonseca, project and overall research director put it, replacement costs were idealised as CapManEx but spent as CapEx. Ratna Reddy, research director for WASHCost India, agreed: “Allowing for capital depreciation does not really happen in practice.”



At the time of the WASHCost research, about 36% of systems in Ghana were considered non-functional (Photo by Lokaalmondiaal).



A low-cost technology for clean water: but uncovering the costs is still highly complex.

In June 2010 a research group meeting in Kumasi, Ghana, agreed that capital maintenance together with the cost of capital (the cost of borrowing the original investment) would account for the capital costs so long as the sum set aside for capital maintenance allowed fully for replacement costs, and did not just reflect inadequate historical expenditure.

The concept of normative CapManEx (sometimes known as ideal capital maintenance) was introduced to convey what should be set aside or spent every year for capital maintenance to keep a system functioning well. This could be calculated by converting the original capital expenditure to current value (using the GDP deflator) and then annualising it.

With sufficient data, it would be possible to compare annualised normative CapManEx with actual CapManEx, in other words to compare what was being set aside for capital maintenance with what would be needed to keep the infrastructure at optimum level. It would also be possible to compare real capital maintenance costs with design costs, which would help policy makers and service providers when specifying equipment. Comparing normative with actual CapManEx and with service levels could also help planners and policy makers identify the link between quality and costs and allow the comparison of systems of different ages.

The June 2010 WASHCost meeting report records, “It was agreed (to applause) that this issue is now sealed and closed.” In fact, the issue had been resolved only conceptually. By January 2011 Peter Burr, WASHCost researcher, had found inconsistencies in the use of actual population served versus designed-for population, and actual lifespan versus normative lifespan; furthermore, both CapEx normative and design CapEx were sometimes listed as annual costs. WASHCost was embarking on complex calculations, and costs that were based on the design life had to be clearly distinguished from the real costs based on actual data. If it was impossible to obtain real costs, ideal costs could be used, but the basis of each set of figures had to be made clear.

Here, as in many other aspects of cost accounting and the WASH sector in general, there was a wide gap between theory and practice. The precise way for capital maintenance to be annualised and how it relates to capital expenditure had become an issue for WASHCost. But however, the calculations were done, the simple truth was that capital maintenance in the sector was far too low or non-existent.



Videographer filming a focus group meeting on village water services in India.

Chapter 8

Communicating the results and messages

Communication does not take place only through formal initiatives; communication is about how people talk to each other – the questions they ask, the extent to which they listen, even the way they answer the phone. As Russell Kerkhoven, former IRC head of communications, put it, “The question is not who we are communicating to, but who we are communicating with. It is about making relationships.” A core value of the WASHCost project was that communication should not be owned by specialists; communication would take place in every piece of community research, at every meeting and in every effort to report information and findings. Project staff therefore needed a common narrative about aims, methods and theories of change.

On a technical level, WASHCost messages were communicated using a range of channels, methods and products to reach an international audience and contribute to the sector debate on costs and service levels. The success of the overall effort was apparent in increased awareness of the importance of life-cycle costs for sustainability and increased use of the life-cycle costs approach. WASHCost became a known brand in the sector, and the life-cycle costs approach changed the way that donors and national governments understand the financing of sustainable services.

However, it took time for WASHCost to deliver messages clearly and effectively. Although everyone acknowledged the importance of timely, clear and accurate messages, it was not always apparent who the target audiences were, how best to reach them, and what could be shared before the research was complete. The significance of communication to the project as a whole was assessed in the WASHCost communications strategy drawn up in 2010:

WASHCost is... an action research project with a profound need for effective advocacy and communication, to bring the reality of what happens on the ground to the attention of policy makers, budget setters and donors. WASHCost outputs will not only consist of data, but will include credible explanations to convince decision makers to act on the data. WASHCost must successfully communicate both the data and its significance with the support of process documentation.

A strategic decision was to be transparent from the beginning. IRC (2008) issued a press release in February announcing the project as “a € 9.86 million reality check for water and sanitation costs.” At the close of the end of inception meeting in October 2008, WASHCost developed a two-sentence explanation of the project, linked to what became known as the theory of change and included on all communication materials:

WASHCost researches the life-cycle costs of water, sanitation and hygiene (WASH) services in rural and peri-urban areas in four countries, Burkina Faso, Ghana, Mozambique and Andhra Pradesh, state in India. The rationale is that WASH governance will improve at all levels as decision makers and stakeholders analyse the costs of sustainable, equitable and efficient services and put their knowledge to use.

The WASHCost communications strategy had four objectives:

- To interest actors in the project and life-cycle costs approach.
- To inform existing project parties about the findings.
- To influence stakeholders' opinions and/ or behaviours.
- To improve the project and interactions between project parties.

The first and third objectives – engaging the sector and influencing stakeholders – called for communication that would appeal to the values of the audience, while all the objectives required that communication activities and products be specific, measurable, achievable, realistic and time-bound,

or “smart.” In the early stages there were four main avenues for communication: face-to-face meetings, presentations at conferences, leaflets and other publications, and the website. Later, particularly as staff began to work more closely with the Triple-S project on sustainability, attention was paid to influencing specific organisations and individuals. As the WASHCost methodology and results began to emerge, a production schedule was developed and target audiences were defined.

From the beginning WASHCost had a website and a newsletter to reach the sector, policy makers and the wider WASHCost team. Those championing and working with the project in the research countries and internationally needed to be informed and the donor needed to be kept up-to-date. Materials had to be produced and updated rapidly, but finding the right “voice” was a challenge.

The project put resources into communications, not only through IRC communications specialists but also by appointing documentation and communication officers as part of each country team. The teams needed communications skills to explain the methodology to stakeholders and learning alliances, to manage expectations about the research and to keep stakeholders on board during the lengthy period of data collection and analysis. The more that WASHCost could engage stakeholders in selecting research areas and developing the methodology, the greater the stake they would have in working with the outcomes. The Mozambique team presented results of early research to Grupo de Água e Saneamento, the sector learning alliance. The Ghana team produced village profiles showing water assets and shared them with the village chairmen and the water and sanitation committees. The India team likewise shared maps that plotted community water points against household income and caste. Even beyond the end of the project in 2013, IRC continued to share data with the Burkina Faso communities where the information had been collected.

The WASHCost identity

WASHCost as a name had been fixed during the proposal stage, and once the project got underway a clear identity was important within the research countries and internationally. Rutger Verkerk, project coordinator for WASHCost, recalls:

One of the hosting requirements was for WASHCost to develop its own identity. WASHCost did research. WASHCost published. WASHCost was invited to a seminar. WASHCost with its own logo became a brand that was recognisable. We have the WASHCost tool, the WASHCost training and the WASHCost approach. We did not want to be an IRC project or a Bill & Melinda Gates Foundation project. We were WASHCost and we wanted to be remembered by this name and what it stood for.

Nick Dickinson, communications coordinator for WASHCost in the first years, had the task of branding WASHCost separately from its IRC host. A series of templates were developed so that WASHCost materials could be presented in a recognisable way. Although the WASHCost website was a portal from the IRC website, it had its own address and its own look and feel. Having a separate site contributed to the WASHCost identity, but Dickinson noted that keeping the site functional and up-to-date was a challenge:

IRC as the host organisation was not set up to facilitate this type of communication, at a fast pace, with communications staff of partner organisations in other respective countries. Communications people working on WASHCost, both in IRC and in country teams, had to acquire new skills, and this took time.

At the international level, communication was a twin-track approach – staff were directly influencing international donors and agencies, while making presentations and conducting training events at conferences and meetings. The strategy was to piggy-back onto existing events and take advantage of every opportunity to engage with others in the sector.

The role of documentation in the research countries

To document what the country teams were doing and help them reflect on progress and problems, three country teams appointed full-time documentalists; in India this role was taken by the Watershed Support Services and Activities Network, an NGO led by Rama Chandrudu. The communications and documentation officers were also responsible for external communications and produced copy for the newsletter and website: stories about how communities access and pay for water, summary accounts of research findings and reports from the researchers. As part of the branding process, country-level leaflets and stickers gave WASHCost visibility. The Mozambique team, for example, published a *10 questões* booklet to introduce the issues and themselves to the sector in the country.



Mozambique booklet (by WASHCost Mozambique, 2009).

Process documentation uses a range of media to capture events and interactions in a way that helps project teams to reflect and learn; it creates a record of what team members are doing and what is changing as a result, capturing the culture of a project as well as its events. The pilot research, for example, was documented with photographs showing the communities and infrastructure. Although process documentation overlaps with monitoring and communication, it is not just about measuring progress and targeting information and messages. It is more about providing the material from which projects can learn, and collating the collective memory of the project.

In WASHCost the first objective for monitoring was to assess the terminology and concepts of life-cycle costs and the data collection methodology and analysis. The tendency was to document these processes only in terms of how many people attended a meeting and what key words were used during presentations, but documenting a change in language did not necessarily reflect a change in understanding or practice. By contrast, process documentation shows how people think and behave and how minds are changed, practices are altered and lessons are learnt. The documentalist had to become a sharp observer of people and assume a more active journalistic role, rather than just recording events.

The project proposal (IRC, 2007) made explicit the links between monitoring and process documentation:

Impact assessment and process documentation will map and monitor changes in planning and decision-making processes at all levels and measure changes in cost efficiency and WASH service delivery to poorer social groups. In this context, process documentation focuses on monitoring and documenting the process by which WASH-related decisions are made. Process documentation is particularly useful in assessing behavioural change.

Team coordinators and directors needed the documentalists to be a full part of the team and to keep a good record of project activities, but they also wanted them to act as an early warning system if things were going off track. However, documentation and communication officers, as full members of country teams, could not have a formal role in monitoring the project. A workshop on impact assessment in Burkina Faso in November 2008 agreed that “process documentation will not be part of monitoring, but its outputs will inform monitoring and learning.”

The first process documentation training was held in Accra in February 2009, when the country teams had begun to test the methodology during pilot studies. Participants agreed on a common definition for process documentation and priorities, and developed plans for what would be documented. They also received training in the use of media, techniques and tools. The course, which was attended by communications specialists from WaterAid, the Resource Centre Network in Accra, and the SWITCH project, reached agreement that “process documentation is an approach that tracks events and

happenings, discerns underlying reasons and highlights issues that need action.” A list of principles for process documentation emerged:

- Base information on solid (verified), accurate data.
- Make content clear, simple, understandable.
- Align process documentation with objectives of the project.
- Focus on useful information that is targeted for each specific audience.
- Get information cleared by someone else before it goes out.
- Remember that the documentalist is part of the team.
- Process documentation is a group effort.

The practical guidance and the sharing of experiences were an important part of team building. The documentalists later met regularly online to discuss problems and progress.

Early work reflected the need for country teams to establish their identity and become well known in country sectors. This included documenting the inception phase of country programmes, documenting existing practices for collecting unit costs, and collecting examples of good practice. The Mozambique documentalist, Egidio Vaz Raposo, aimed to record the process of validating research methods and tools with the learning alliance. Some communication outputs, particularly from the India team, focused on providing feedback to learning alliance members and communities where the research had taken place. Dickinson decided that the main objective of process documentation at the international level should be to document sector stakeholders’ current thinking on unit costs and service delivery and their response to WASHCost advocacy.

Although beneficial in building a common approach, the training did not resolve all difficulties. WASHCost documentalists had responsibilities for communication, knowledge sharing, monitoring, office management and logistics that competed with the need to record field research and produce



WASHCost cross-country teams meet in Accra to learn about process documentation.

videos and stories for publication. Pascal Dabou, communications and documentation officer for Burkina Faso, saw workload as a major challenge: “The main frustrations,” he said, “were related to the short notice and the subsequent unrealistic deadlines assigned to some important activities.” He would advise future projects to divide the roles of communication, documentation and web management.

The documentalists needed an intimate knowledge of the project and the ability to build relationships and instil confidence. However, one issue that emerged was whether their status with the teams was sufficient to give them credibility when they offered criticism. Young documentalists found it difficult to question older and highly qualified researchers. Michele Adjei-Fah, who later left her post as communications and documentation officer for the Ghana team, said it was hard even to set up an interview with a senior male member of the learning alliance because of her young age and her sex. She cited a Ghanaian saying about asking probing questions: “If you dig deep into the grave, you can see the ghost.”

Their reports did succeed in bringing accounts of the country work to life.

- Chandrudu described a learning alliance meeting in India at which the principal secretary for the Rural Water Supply & Sanitation Department of the Government of Andhra Pradesh advised the WASHCost team to be bolder in their approach: “Let the study be more courageous and bring out such factors, externalities and gaps in WASH governance.”
- In southern Mozambique, Raposo interviewed a young teacher and secretary of the village water committee who was questioning whether the community could maintain the community pump despite a rise in prices. “Our sources of income and our purchasing power are proportionally depreciating each year, making us incapable to cope with various needs,” he said. “I therefore fear that one day, we’ll no longer be able to collect enough contributions for these pumps.”
- Adjei-Fah and Dabou prepared an article on how the Ghana and Burkina Faso teams would work more closely together on research methodology for their household surveys and data collection.

The communications and documentation officers had some success in working with media in their countries to publicise issues and findings. In Ghana a water and sanitation journalist network was launched in 2008 with support from WaterAid; Victor Otum, who joined the project in 2011, had a background in journalism that helped him in this role and later as communications officer for IRC Ghana. Raposo, who also had a background as a journalist, sought to establish a prize for print and broadcast journalists who reported on rural water and sanitation issues, and although he could not find a sponsor for a prize, he helped develop a media group involving NGOs in Mozambique. In India Chandrudu worked with journalists to generate publicity in newspapers and on television about WASHCost and the need to budget for maintenance. In Burkina Faso the Information and Communication Network on Water, Hygiene and Sanitation (RICHE) was established in 2005 to encourage journalists to report on progress towards the MDGs in the water and sanitation sector, and here too WASHCost had contact with members.

Chandrudu felt that the most significant product they achieved in India was a short film¹⁸ about why services were so much better in one particular village than in neighbouring communities, highlighting the importance of village governance in addressing cost issues. Chandrudu uses this film in training sessions, noting that “because of the subtitles it is a direct kind of experience and does not have to be facilitated. It is a natural kind of story. Through WASHCost,” he said, “I realised the importance of using this medium for general communication and for documenting good practice and particular issues and I am applying this in my other projects. We are seriously into this medium now and trying to convert this experience into a regular approach.”

The India team introduced ‘write-shops’ to develop stories with communities: they invited community leaders with a message to meet with communications specialists to clarify and improve their accounts of village development. The result was a product they could use to promote their work. Several villages told their water, sanitation and hygiene stories in this way.

¹⁸ View the film People’s institutions for improving WASH services: Lessons from Jankampet village Andhra Pradesh India here: www.indiawaterportal.org/articles/peoples-institutions-improving-water-and-sanitation-services-video-showing-experiences.

WASHCost website and publications

The main means for external communication were the website, the newsletter, responses to questions arriving by e-mail, and research papers. In the final year of WASHCost, these were augmented by an online Twitter campaign.

By the latter half of 2009 WASHCost was attracting increasing attention internationally with sessions at the World Water Week in Stockholm and an invitation for the project director to make a presentation to the UN Secretary-General's Advisory Board on Water and Sanitation. The teams were struggling to keep up with the demand for information – mainly on the approach and methodology – while trying to prepare the data for analysis. In November 2009, The Netherlands team decided to renew the focus on international advocacy and communication and to improve the content on the website by linking it to an external monthly newsletter.

In April 2010 the internal newsletter, a compilation of documents and articles, went public and became known as the e-update. The country teams' communications and documentation officers were responsible for ensuring that each issue carried news from their country. These materials were targeted towards professionals working in the field, government staff and international donors and institutions. In 2011 Angelica de Jesus from the IRC communications team was appointed to organise and coordinate contributions; the flow of stories improved and the website and newsletter began to reflect the richness of the project. De Jesus attributed the difference to good organisation:

What worked well was providing two notices about submitting articles on time.

It was also useful to set an absolute deadline for the 20th of each month for article submissions. Keeping the format simple on Word also helps with the editing process.

The collection process, the writing process, and the editing process are smooth now.

I think this system works.

In October 2011 WASHCost and Triple-S merged their public communications efforts, and thereafter *Water and Sanitation Services That Last*¹⁹ delivered a monthly package of stories on the life-cycle costs approach, the service delivery approach and sustainability. By the end of 2012 the monthly electronic newsletter was being sent to more than 1,500 contacts around the world.

The publication of project working papers and briefing notes underwent a similar change. For the first two years of the project, production was ad hoc and papers shuttled between authors, reviewers, editors and designers without an organised workflow, resulting in delays and duplication of effort. After Anjani Abella, IRC publications coordinator was appointed to work with the team, an editorial process was established, the work was done according to a timetable, and the flow of publications improved.

The lesson was that good communication needs a schedule and an organiser who can coordinate activities and hold to account those who must provide the material. Dickinson believed this would have happened more quickly if WASHCost communications had been better integrated within IRC: "Perhaps what differentiated WASHCost from other projects in IRC was that it was bigger and we had the intention to communicate as a project itself. There were communicators in the project, and it meant that not all of our news was going through, say, Source [the IRC newsletter]." IRC and WASHCost communications went through many changes, but once a system was in place, WASHCost exceeded its publication commitments.

By the end of the project, WASHCost had published 176 articles and documents, including research publications. The WASHCost website was visited by 194 people per week in 2012, and traffic was still increasing in 2013. Information sheets on the benchmark costs of sanitation and water services were the most popular downloads. Even after the project ended in 2013, the research was still being mined for data that could inform policy. Articles and news related to WASHCost were published in Spanish and French, in addition to English.

¹⁹ The latest edition is available at: <http://us5.campaign-archive2.com/home/?u=df6e16177d418dd9c2938bfbfa&id=d60e6862b4>.

Country teams produced documents for use within their own national and regional sectors, in addition to the research reports. These included materials calling for better data and budgeting, information files on the Burkina Faso research communities, regular reports on contract costs for digging borewells in Mozambique, and mapping and community reports in Ghana. The India team produced advocacy documents to convince the federal government of the need to change funding practices. India also produced calendars with WASH-related cartoons and sent them out widely in the sector. WASHCost Mozambique distributed electronic versions of country publications to all 128 districts and all provinces. Country teams also posted short video interviews with stakeholders.



WASHCost India calendar, 2010.

What needed to be communicated?

For the first two years of the project, the primary message from WASHCost at the international level was that life-cycle unit costs were the missing link for planning sustainable services. The two-sentence summary statement introduced as a standard insert in publications initially explained what the project was about, but such statements need to be refreshed or they become formulaic and stale.

In 2009-10 the message shifted to the need for a methodology that could be widely used in the sector, and in 2010-11 there was a further shift to encourage sector professionals to adopt the life-cycle costs approach. In November 2010 the WASHCost team met in The Hague to review findings and agree on messages to be delivered at the IRC symposium, Pumps, Pipes and Promises. By their nature, key messages simplify complex situations, and in this case, the task was to construct convincing messages backed by sound evidence even though the findings were not yet entirely clear.

Some researchers felt there was no point in attracting interest until WASHCost could deliver definitive findings. "Are we advocating that analysing costs is important or that WASHCost is an important strategy, or what?" was one question. Another researcher warned that a campaign for life-cycle costing could undermine confidence in the objectivity of the data. The earliest version of a message about WASHCost data - "This is the best data set on costs and service levels anywhere in the world" - was received poorly by researchers, who were aware of the need to analyse and validate their findings. The statement was qualified, as described below.

Researchers are concerned with accuracy and are aware of complexity; communicators emphasise effect and simplicity. These approaches can be complementary. A simple message is of no use if it is inaccurate or misleading, and research has little consequence if the findings are lost in the footnotes. Guy Hutton, economist for the Water and Sanitation Program of the World Bank, told participants attending the 2010 IRC symposium that research rarely gives policy makers something they can act on. Often the key message to a policy maker is, "Sir, it's complicated!"

By the time of the 2010 symposium, country teams were ready to share some interim conclusions. To hone their presentations, country teams delivered findings at mock press conferences while project staff asked questions. This provided a safe environment in which presentations could be tested and seemingly contradictory messages reconciled. For example, the research in India showed that water infrastructure generally failed before its design life had been reached. In Burkina Faso, however, some pit latrines had been found to last 20 years without maintenance or rehabilitation. The apparent contradiction sparked a discussion amongst country teams about lifespans of different kinds of

infrastructure in different countries and the effect on costs. Participants agreed that presenters should not overgeneralise: context is everything.

A small team synthesised the following five messages from what had been presented:

- This is the best data set there is for water and sanitation services and costs for rural areas in developing countries, but more data needs to be collected.
- We have a method for data collection and analysis that can be contextualised.
- Total water services costs are surprisingly low, and total sanitation costs are surprisingly high.
- Basic and below-basic services cost a lot, regardless of the technology.
- To rise above the basic service level, providers have to get a lot of things right, but they could do a lot more with what they've got.

At the 2010 symposium, WASHCost delivered short, simple messages from the main platforms but longer and more complex findings in the group discussions. A set of 'napkin drawings' presented by Fonseca provided highly effective; data-heavy presentations by country teams were also appreciated. Researchers had been concerned about criticism if they released preliminary findings before analysis was complete. However, far from trying to trip the researchers up, people with an interest in financing the sector were genuinely supportive of what WASHCost was doing.



Demonstrating the need for continued maintenance to provide sustainable and reliable water and sanitation services, through illustrations (by Catarina Fonseca).

By 2012, research documents were being regularly published, WASHCost had become a strong brand, and the life-cycle costs approach was coming into its own. The number of stories generated for the website had increased, and the number of visitors had more than doubled since 2010. About half of the visitors to the site later returned; an indication that they had found something useful. However, staff believed that the communications effort had room for improvement. Country stories did not sufficiently focus on how the life-cycle costs approach was being adopted and were not sufficiently targeted for non-specialists who wanted to know what was being done.

The challenge for the final year of the project was communicating findings in an accessible and eye-catching way. Vera van der Grift, who had taken over IRC communications on behalf of WASHCost, planned a web-based campaign to promote the importance and potential uses of the life-cycle costs approach so that governments, NGOs and other relevant organisations would adopt it for their budgeting policy and planning processes. Four topics were chosen, each with its own schedule:

- Costing sustainable sanitation services (October–November 2012)
- Costing sustainable water services (December–January 2013)
- Uptake of the life-cycle costs approach by organisations and governments (February–March 2013)
- Hygiene findings (May–June 2013)

WASHCost staff identified and compiled key messages, which were then checked with country teams. Campaign web pages were designed such that visitors could see a revolving series of photos with short



Media in Kumasi quizzing research director Kwabena Nyarko about what unit costing means for Ghana (Photo by Peter McIntyre).

text (no longer than the 140 characters of a Twitter message) and click for more detailed information.²⁰ A Twitter campaign was used to tell people about the site. Each topic took about two weeks to prepare, check and launch after the messages had been finalised.

Preliminary findings from 2010 are reflected in these messages, backed with more evidence and context. The IRC communications team helped draw out new insights from the data. For example, one message added to the site was that “the 20-year cost of sustaining a basic level sanitation service per person in certain countries is anywhere from 5–20 times the cost per person of building the latrine in the first place.”

Publication is not the end of the process: findings need to be exposed to discussion and debate and be tested in sector forums. To be an effective change agent, van der Grift said, IRC needed to engage in discussions with the wider audience that high-profile campaigns attract, particularly on outside websites: “After the communications team have done their work and shared these messages,” she said, “content experts in these areas need to take up the conversations on these external forums.”

Internal communication

With four country teams plus The Netherlands staff, and with teams speaking several languages – Portuguese, French and English – good internal communication was essential. There was a strong flow of communication from the project leadership team and a very supportive approach to open communications. Countries held their own team meetings, which gave opportunities for reflection and discussion. As pressure mounted for completion, and in part based on recommendations from the mid-term review, however, there was a turn towards holding teams more accountable for delivering what was promised.

Face-to-face meetings were important to good internal communication, and each year several team meetings or research group meetings were held in different countries and hosted by a country team. Intended as opportunities for country teams to make formal reports on their progress, each meeting became a forum to discuss complex issues and debate competing interpretations of the research.

²⁰ As a time-bound web-based initiative, this web page is no longer available for public viewing. For more information on the campaign, contact IRC.

Detailed work on the service ladders, decisions about capital maintenance and how to sum up life-cycle costs were addressed, not only in plenary sessions but in small working groups late at night and early in the morning. The narrative emerged from debate and argument.

Illustrated reports of these meetings, with summaries of presentations and discussions, became a valuable archive for the project. Between meetings, researchers took part in open Skype sessions to share data and ask questions.



A selection of WASHCost progress meeting and activity reports between 2008 and 2012.

Reporting to the donor

WASHCost prepared formal reports to the donor at regular intervals to describe project milestones and commitments. At first these reports were rather dry, to the extent that the project management team became concerned that they were not capturing the narrative arc of the research. Countries were urged to provide more context rather than simply relate facts and figures about meetings held or sites visited. The 2009 annual report had to be rewritten and resubmitted after the donor's reviewers commented that they knew that WASHCost had done far more than it had reported.²¹ Reporting was reshaped to capture richer experiences and focus on how activities and achievements related to the theory of change.

Even so, there was a recurring tendency for reporting to become routine. In 2011, Patrick Moriarty, governance specialist for WASHCost Ghana, urged colleagues to make all their communication shorter, simpler and more frequent:

The donor has spent US\$ 14 million on this project and they continually complain, 'We don't know what you guys are doing'. They don't know because we are so focused on doing it and on internal reporting that we are not telling the world what is going on. Our website communicates with the Foundation and with the global sector. We need to give the donor the feeling that we are doing something – because we are doing something!

²¹ A fuller account is found in chapter 11.

Use of technology

WASHCost took place just when the mobile smartphone revolution was maturing, Twitter was becoming a worldwide phenomenon and YouTube was the standard platform for videos. Although these technologies offered new opportunities for sharing and communicating, it was unclear, in 2008 and 2009, how best to use them and whether they would catch on.

Initially, the project sought to use a Socialtext wiki, whereby teams could store information and reports and interact with each other. Despite efforts to train team members, many never became comfortable with using it: most people had difficulties in searching the site and were confused by its complex interface. When it failed to take hold, more training was offered, but by 2011 the wiki had largely fallen into disuse, except as an archive.

Other tools, mainly those that were also more successful in the wider world, were quickly adopted. A Google group included all team members in every country and, this technology being familiar to anyone who used e-mail, became their main method for communicating with each other. DropBox became the go-to tool for sharing documents, pictures and other files,²² and by 2010 Skype was used for international one-to-one or small group conversations.

Alongside technological changes came a change in what was considered internal to the project and what should be external and public. Increasingly, WASHCost had the confidence to post materials on the website and make information publicly accessible.

In 2012 and 2013 Twitter became a useful tool to signpost interested people to websites and WASHCost products and publicise the sector's financing issues. By the end of the project, Fonseca, project and overall director for WASHCost had more than 750 followers, and Cor Dietvorst, IRC information specialist had another 700, reaching an audience that might not have been engaged by other means.



Nick Dickinson, communications coordinator for WASHCost, documenting key take-home messages.

²² IRC no longer uses Dropbox because of a perceived lack of security.

Wordpress was used as a blog site for longer, more thoughtful pieces. IRC also installed a meeting software that allowed team members to participate remotely in meetings held in The Hague.

By mid-2013 many of the technology problems that people faced even five years ago had been resolved and innovative technology had become solid and well established. With hindsight, it is easy to see that tried and tested systems work best as internal communication tools. However, in an era of rapid technological change, it is not immediately obvious which technologies will prove useful and which will exhaust everyone's patience. Moreover, research projects attract people with intellectual curiosity, many of whom want to push the boundaries of technology and become early adopters. Moriarty advised those promoting new forms of social networking and electronic communication to take it slowly: "Never underestimate the depth of our ignorance." A learning point is that project-specific innovative software may be less successful than software that is already being widely used outside the project.

One continuing problem in low- and middle-income countries is the poor reliability of Internet connections. Despite upgrades in country offices, this changed to a surprisingly small extent over the life of the project. Those living and working in Europe, the United States and other countries with fast broadband networks increasingly rely on Internet and cloud-based services and no longer suffer the daily frustrations of broken and slow connections common in the developing world. Country teams pleaded for e-mail file sizes to be kept small and for pictures to be downsized. Poor technology dropped team members from online meetings. On the other hand, the dramatic and rapid spread of mobile phones in low- and middle-income countries, witnessed over the course of the project, suggests that some familiar technologies may be more reliable: better to spend cash on a short but effective phone call than miscommunicate during a faulty Skype connection.

Lessons from WASHCost on communication

One of the main lessons was that the more complex the project, the simpler and clearer the communication must be. WASHCost at the beginning seemed to be a highly technical project about financing and the cost of services, but at its heart, it was about how people obtain, use and pay for water and how service providers plan, budget and perform. Peter McIntyre, communications and documentation consultant for WASHCost, said,

Communication was about relating the cost issues involved in water, sanitation and hygiene services to the reality of people's lives, and in the end we understood this. I wish we had been able to do it more quickly. We spent time polishing a communications strategy when we could have been giving people in the project a clearer voice earlier in the process.

Among the lessons that can be drawn from this experience are the following:

Keep it simple (1). The things that worked best in WASHCost – the pie chart of costs, the napkin drawings, the stories from countries – delivered simple messages in an effective manner. The project teams had to learn how to do this.

Keep it simple (2). Some time, effort and resources were wasted on trying to adopt tools and software that would automate the communication process. In Africa especially, face-to-face dialogue was considered to be the most appropriate way to engage with stakeholders and convince them of a new way of doing things.

Set deadlines. Without deadlines, findings often remain provisional. Regular team meetings provided deadlines for country reports, and the IRC 2010 symposium created a deadline for the development of preliminary messages. The deadlines helped bring work in progress to a conclusion.

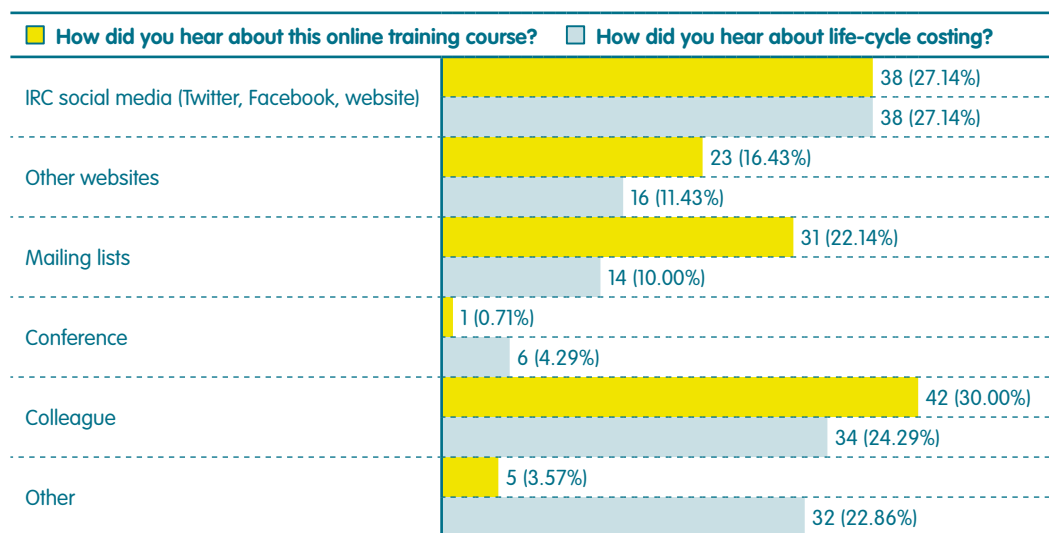
Communicate from Day 1. Explaining the rationale of WASHCost through presentations, one-on-one meetings and publications helped create a receptive audience for the methodology and findings.



WASHCost 'costoons' (by Victor Ndula Amatieku of Graphein Consult, Nairobi, 2009).

Use face-to-face communication. Engaging with sector stakeholders through presentations at events and one-on-one meetings was effective and helped the teams improve their messages. Kwabena Nyarko, research director in Ghana, said it was important for WASHCost to participate in events so that every time someone talked about costs in the sector, they would talk about WASHCost.

Employ multiple channels. Combined, the website, newsletter, videos and Twitter messages were effective in creating a market for the WASHCost online courses about the life-cycle costs approach (figure 8.1).



N.B.: The total number of respondents was 141.

Figure 8.1 Sources of information about online training, January 2013

Refine messages in group discussions. In special sessions at team meetings, communications people and researchers worked together to formulate key messages to inform briefing notes, websites, newsletter articles and presentations.

Block time to write. In 2011 the research team in The Netherlands started organising monthly writing weeks, which helped the project deliver an increasing number of research outputs. Fonseca recalled:

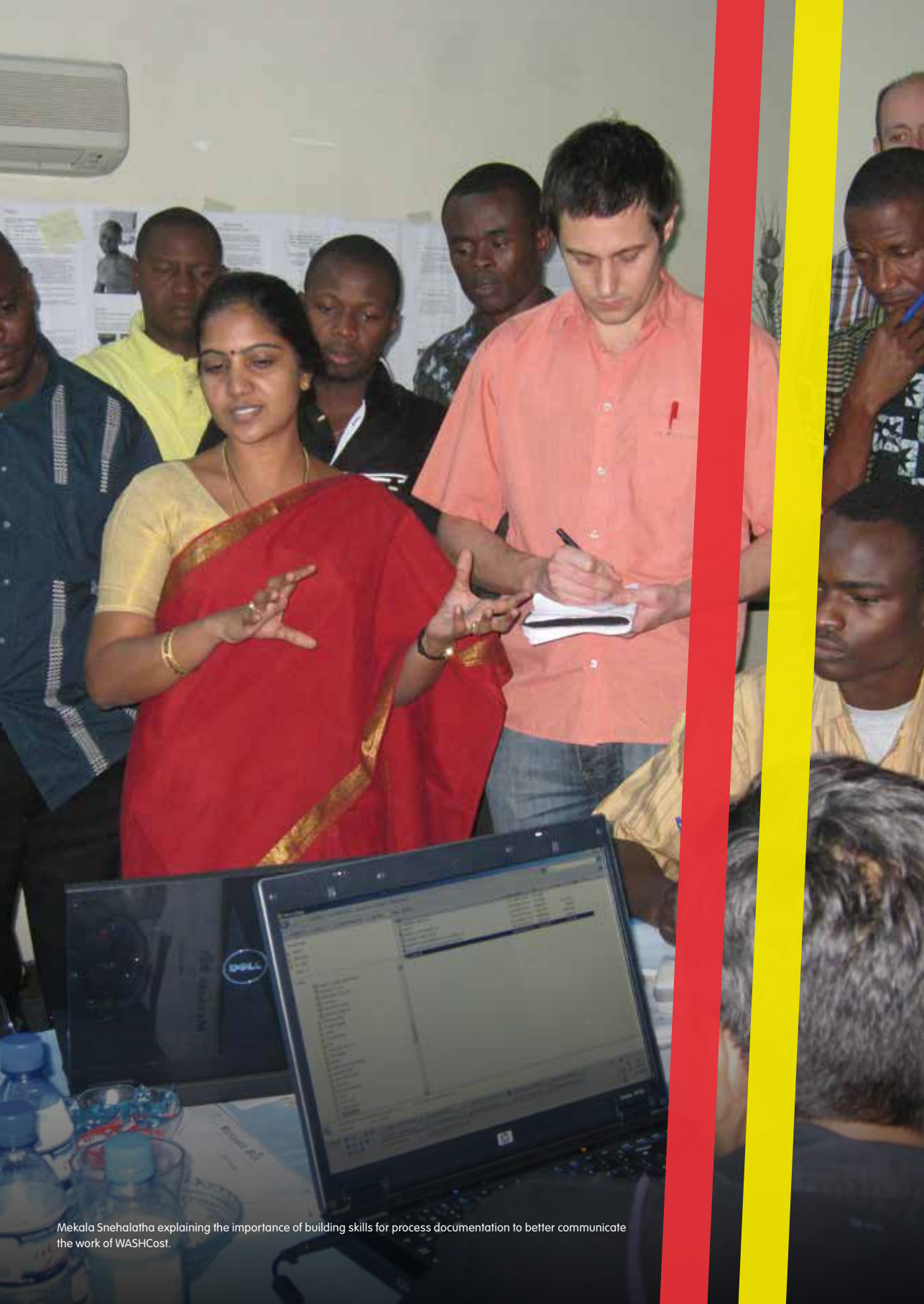
It was difficult to focus on writing in our day-to-day work. The process of revision and getting feedback from colleagues on draft documents also took a long time as everybody was engaged with the on-going analysis of data. We therefore decided to go away from the office for a week (usually to rural places with poor Internet) with a small group of researchers to focus on finalising certain outputs. We noticed that within the short period of a week, we came out with several finalised papers and briefing notes. The exchange of ideas throughout the days and blocking e-mail during the day worked quite well. We would have never been able to manage this if we would have been in the office.

Bring in the right support skills. Staff with journalism backgrounds worked closely with research teams to sharpen their messages. McIntyre travelled to the research countries to support communication specialists in producing stories that could be used on the website and in newsletters and presentations. Jeske Verhoeven also travelled to provide communication support, while Fonseca, Peter Burr (WASHCost researcher), and others also built capacities within the teams.

Set realistic priorities. For everything that is high priority, something else must be a lower priority. Good communication demands good time management.

Set up systems for producing publications. For the first half of the project, WASHCost functioned without dedicated staff support for publications. Once this function was taken over within IRC, writing, editing and layout became more routine.

Work with the media and journalists. Media conferences are one way to publicise issues and results. Arranging field trips to rural communities lets journalists experience areas themselves, ask questions and write stories.



Mekala Snehalatha explaining the importance of building skills for process documentation to better communicate the work of WASHCost.

Chapter 9

Capacity building and training

The WASHCost project executive committee and the donor agreed that the project required a multi-disciplinary team in the Netherlands plus a team in each research country. Those teams would need capacity building and training so that they could conduct research and then influence policy soon after delivering findings. WASHCost was also considered an opportunity to build skills more broadly in the sector.

A capacity-building and training strategy plan was therefore developed to delineate what was necessary for distinct audiences and purposes within each team, each country and internationally. Dedicating resources to training and capacity development within WASHCost had several aims:

- To achieve project objectives and milestones.
- To ensure rigour in action research activities.
- To create favourable conditions for broad uptake and ownership of WASHCost research findings, tools and methods.
- To garner support from stakeholders outside the project.
- To contribute to a WASHCost legacy in the countries and internationally in the sector.

Training events were organised for individuals and teams, with specific learning outcomes directly related to the knowledge and practices required to achieve the project's research objectives and tasks. Training sessions were often attached to team meetings, to encourage sharing of skills and learning from others. Beginning in 2010, training was provided on the life-cycle costs approach (LCCA), service ladders and service delivery approach, both for WASHCost staff from the five country teams and for stakeholders at the national and district levels.

Capacity development was defined as learning opportunities that could promote the embedding and uptake of WASHCost concepts and outputs and effect institutional change in the sector. Such learning opportunities included exchange visits, workshops, team orientation events and on-the-job training and support. Training in Microsoft Excel, data analysis or process documentation competencies were also offered to team members and partners of WASHCost country teams to build skills and engage the wider group in the action research.

Training needs of country teams

The first priority was to ensure that the multi-disciplinary WASHCost teams had sufficient skills to conduct the research and manage the project. An organogram – that is, an overview of project staffing and human resources – was drawn up. As profiles for specific functions were identified and staff were recruited, it became clear that the capacities and skills, particularly of country teams, varied greatly. There was clearly a need to invest time and money in capacity development.

Beginning in 2009, the WASHCost project planning and reporting formats were adjusted to reflect country teams' capacity building and training in a systematic way. Topics included the following:

- Financial administration and reporting procedures;
- Microsoft Excel, both basic and advanced, for project management and data management;
- Business English;
- Statistical data analysis;
- Monitoring and learning methods: most significant change, programme logic and theory of change, outcomes mapping;
- Process documentation and communications; and
- Skills sharing during research team meetings.

Additionally, every international project team meeting included presentations on methodology followed by discussions about how to collect, interpret or present data. There were also experiential exercises, such as a press conference role-playing followed by plenary reflection and refinement of messages to be communicated at different stages of the project.

IRC and WASHCost staff provided most of the training, but some specialists were contracted to meet particular needs, such as training in data analysis using Microsoft Excel and basic and advanced courses in French for Francophone staff of The Netherlands and Burkina Faso teams.

With a typical five-year staff turnover rate,²³ WASHCost struggled to maintain a continuous level of technical skills in data processing and analysis, communications, process documentation and country-level financial and administrative management. A self-assessment survey of capacities, skills and areas for professional development was introduced to track and respond to changes in teams' competencies, but the survey results were not reliably objective: team members demonstrated reluctance to admit lack of knowledge and skills that they might be expected to have. For example, research staff members with few database management skills often hesitated to admit their lack of experience. The shortcomings of the self-assessment approach posed a challenge to planning and delivering the necessary training.

The slow pace of data collection and analysis caused some frustration. But the fact that all the teams – including the project team in the Netherlands – were learning by doing meant that their new skills were practised over and over and became very strong. This was true not only for the technical data-processing skills but also for representing data on community maps, writing for the website, giving presentations to policy makers and communities and presenting findings at international conferences. The members of the country teams are today very secure in their knowledge and skills and have become invaluable resources for their countries and internationally. Learning is a process, and the development of the many individuals associated with WASHCost is an achievement of which the teams are collectively proud. The progress that was made should not be underestimated.

It is also important to look at the often underrated non-technical skills that are critical to action research. The country team members were experts in going into communities and making a connection with water users and water and sanitation committees. They did not go in to preach but to learn, and as a result they earned respect and were listened to. WASHCost country team members possessed great skill in asking community members about their experiences. In all four countries, teams could enter a village for the first time and within a matter of minutes get people talking easily about where they collected water, where they defecated, how much they paid for services and what they considered to be value for money. At the level of regional, district and sub-district management, too, sector professionals who were struggling with their mandates learnt about potential solutions to problems of sustaining services and managing costs. Country team members also were able to connect and interact with policy makers. The action research approach to engaging with key actors and addressing their needs is a subtle way of building capacity – in this case, on the life-cycle costs approach – of the very people who are most critical for its future implementation.

Lessons from the experience of developing and implementing the WASHCost capacity-building and training strategy underline the need to enhance the basic skills of team members early in a project. One cannot assume that people have particular competencies based solely on their curricula vitae or formal qualifications. In fact, every team member had weaknesses or skill gaps, and a system was

²³ The UK-based Chartered Institute of Personnel and Development (CIPD) cites a general rate of labour turnover in the UK as 18.1% in their Annual survey report 2007: www.cipd.co.uk/NR/rdonlyres/746F1183-3941-4E6A-9EF6-135C29AE22C9/0/recruitretntsurv07.pdf. More specifically, the 2006 data for the UK voluntary, community and not-for-profit sectors indicates a turnover rate in those sectors of 18.9%, while Bailey, et al. (2005) in *People count, 2005: benchmarks on human resources in UK voluntary and community sector* reported the overall turnover rate to be 20% for voluntary sector and 17% for international development agencies, excluding staff in expatriate posts: www.peoplenaid.org/pool/files/pubs/people-count-2005-executive-summary.pdf. Salomons, et al. (1998) in *Building regional and national capacities for leadership in humanitarian assistance* estimated expatriate turnover rate to be 25%: www.cihc.org/members/resource_library_pdfs/3_Humanitarian_Workers/3_1_Team_building_and_Management/doc13928.pdf.

needed to draw these out without causing embarrassment. In particular, an effective strategy needs to accomplish the following:

1. Identify at the outset of a project the competencies and functions that will be required within a team – and how these will change as the project proceeds.
2. Recruit and train accordingly, but recognise that recruiting staff who have all the desired competencies and experience is unlikely.
3. As the project begins, determine which skills are missing, and do not rely on self-assessment, since professionals may not reveal weaknesses in areas they feel they are expected to know already.

Developing a capacity-building and training strategy for an action research project with emergent outcomes taught the core team many lessons. Designers of the project had anticipated the need for training the research teams, as well as organisational change and capacity development requirements, but implementation, given the decentralised human resources planning and recruitment processes across the five WASHCost teams, each with independent planning and action agendas, was another matter. People with certain competencies were needed at the start, to set the project in motion, yet team members needed time to develop their skills as the action research agenda took shape.

One example is that the learning alliance approach required support for communications and process documentation. Suitable candidates for this work were recruited, but few had exactly the right skills for this pioneering work: their previous experience was not easily transferable. A more probing assessment at the time of recruitment might have revealed the gaps more quickly.

Training activities to enhance uptake and embedding

At the outset of the WASHCost project, the priority was to build and support country teams. However, from 2010 onwards, questions started to come in via e-mail and at international conferences from people wanting to know about LCCA, and requesting support in its application. In response, the WASHCost mid-term assessment in September 2010 recommended that the project “develop ‘WASHCost-light’ methodology: a basic and affordable approach for countries to get a handle on the cost structure and service levels provided in the rural and peri-urban WASH sector” (WASHCost, 2010c, p.4).

Demand from sector professionals for training in LCCA continued to grow as the project shifted towards the uptake and embedding phase. A training package was the result, produced first in PDF for use in training sessions, and later as a successful and popular online interactive course. Project plans were amended to include the development and implementation of a training package and sessions at country and international level.

The development of training materials began soon after preliminary results from the action research were published in working papers and briefing notes, from 2010 onwards: the research findings formed the foundation of the training materials.

From 2011, the training seminars on LCCA gained importance and became a major part of the WASHCost project. That same year, together with Triple-S (the WASHCost sister project that focuses on broader concepts of sustainability and the service delivery approach), WASHCost developed a training plan that initially targeted staff in national government agencies and such international stakeholders as donors, NGOs, charities, bi- and multi-lateral agencies and research institutions – all external actors involved in financing, budgeting and implementing WASH services. Training thus became an important way to support sector actors who could incorporate LCCA principles into their day-to-day activities.

The aim was to help sector professionals and practitioners understand, adapt and apply LCCA in their work. The package consisted of an explanatory PowerPoint presentation, a set of exercises (with notes for a facilitator) and hand-outs. These translated the methodology detailed in WASHCost working papers and briefing notes into an accessible, step-by-step approach that did not presume prior knowledge of LCCA financial analysis. Each hand-out was linked to publications that explained the



Catarina Fonseca (centre, in black) with LCCA training participants at the WASH Conference 2011 in Brisbane (Photo by Harold Lockwood).

concepts in depth and presented the research results. The package was designed for adaptation and could be used to facilitate anything from a one-hour session to a day-long training.

The content of the package was guided by the initial requests for an explanation of the methodology. The first version of the package explained the life-cycle costs components, described water and sanitation service levels and provided general information on how to collect and analyse life-cycle costs and service-level data.

Training exercises were tested with USAID staff in January 2011 and in a meeting with the Bill & Melinda Gates Foundation in March. The full package was first used in May 2011 at the *Towards Sustainability in Water, Sanitation and Hygiene Conference* in Brisbane, Australia, at which the WASHCost and Triple-S project directors were invited to facilitate a one-day training session. This invitation set a clear deadline for finalising the first version of the training package.

Training strategy

As requests for presentations and training continued to grow, the strategy for 2011 was to organise training sessions piggy-backed on mainstream sector events, such as AfricaSan3 and the Rural Water Symposium Network (RWSN). This minimised costs for both the project staff and the participants who were already attending the conferences. Before each training session, presentations were updated with the latest research findings, and the content which was designed to be flexible, was adapted to the interests of the audience. For example, in July 2013, at the third African Conference on Sanitation and Hygiene (AfricaSan3) in Kigali, Rwanda, the WASHCost team focused on training on the two topics under discussion, omitting, on this occasion, water.

Training sessions in 2011 were well attended, with 38 participants in Australia, 21 at the Water and Health Conference in the United States and 42 in Kampala at the RWSN forum. The package was well

received. Post-training surveys indicated that more than 80% of participants shared what they had learnt with their colleagues, and 85% would recommend LCCA training to others. Participants rated the training format and facilitation as good or very good, and on a scale of 1 to 5, the training materials were given an average grade of 4.44. Almost two-thirds of respondents (61%) said that the training benefited their work. A third indicated that they intended to apply LCCA in their own work (figure 9.1).

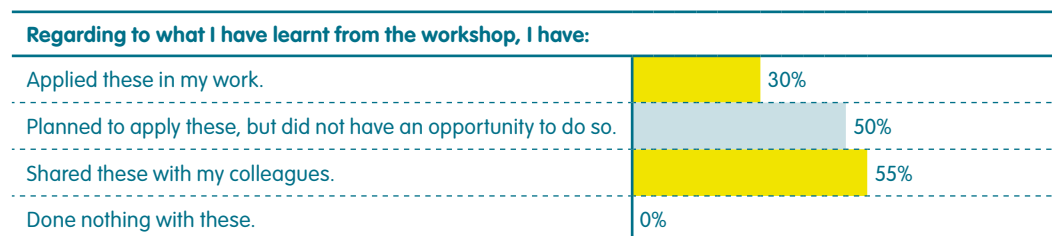


Figure 9.1 Face-to-face training feedback, 2011

Source: Jacimovic and Bostoien, 2011, p.42.

The 2011 training sessions in the WASHCost countries were facilitated and delivered Fonseca, with the country coordinator or research director of a WASHCost country team, or an IRC staff member. The aim was to familiarise more team members with LCCA so that a wider range of people could facilitate future training sessions and enable country teams to adapt the materials and conduct training at national and district levels in 2012.

In 2012 and 2013, the training expanded from one-day events focused on the benefits of LCCA to longer sessions that trained people in using the approach (table 9.1). The Millennium Water Alliance, WaterAid and Catholic Relief Services requested tailor-made courses for their partners and staff.

Table 9.1 Life-cycle costs approach training events, 2011–2013

Event	Place	Date	Participants
International-level face-to-face training			
WASH Conference 2011	Brisbane, Australia	May 2011	38
3rd African Conference on Sanitation and Hygiene (AfricaSan)	Kigali, Rwanda	July 2011	10
Water and Health Conference: Where Science Meets Policy	Chapel Hill, North Carolina, USA	October 2011	21
6th Rural Water Supply Network Forum	Kampala, Uganda	December 2011	42
Life-cycle Costs Approach Training for Millennium Water Alliance Partners	Addis Ababa, Ethiopia	8-10 May 2012	30
Life-cycle Costs Approach Training for WaterAid	London, UK	15-16 May 2012	10
28th AGUASAN Workshop	Gwatt, Switzerland	18-22 June 2012	42
LCCA Training Event for Government of India	The Hague, The Netherlands	26 June 2012	13
LCCA Training Event for Governments of Ghana and Uganda	The Hague, The Netherlands	14 November 2012	19
LCCA Training Event for Government of India	The Hague, The Netherlands	20 November 2012	23

Priceless! Uncovering the real costs of water and sanitation

Event	Place	Date	Participants
LCCA Training Event for Government Staff of Sierra Leone at National and Regional Levels	Kumasi, Ghana	May 2013	15
LCCA Training Event for Communication and Design Agencies Involved in Development of WASHCost	The Hague, The Netherlands	13-15 February 2013	5
LCCA as part of a Two-week ESUDAR Training Course for Graduates	Vilanculos, Mozambique	5 March 2013	30
Learning and Sharing Workshop on WASH Service Delivery and LCCA for Sector Professionals	Addis Ababa, Ethiopia	12 April 2013	32
LCCA Three-day Training on request of Catholic Relief Services	Nairobi, Kenya	6-8 May 2013	21
Total international-level			351
Country-level face-to-face training			
Life-cycle Costs Approach Training	Brong Ahafo Region, Ghana	13-14 March 2012	14
Life-cycle Costs Approach Training	Volta region, Ghana	20-21 March 2012	12
Life-cycle Costs Approach Training	Northern Region, Ghana	3-4 April 2012	14
Mole XXIII Conference	Tamale, Ghana	23-24 August 2012	50
Life-cycle Costs Approach Training	Accra, Ghana	30 November 2012	30
Life-cycle Costs Approach Training	Mozambique	June 2012	26
Training of Trainers	Mozambique	June 2012	7
Total country-level			153
International webinars			
Rural Water Supply Network, World Bank webinar on LCCA	Online	15 May 2012	110
WASH Sustainability Webinar: Looking Through the GLAAS	Online	17 August 2012	83
Total webinars			193
Costing Sustainable Services online course			
Total online course subscriptions, 15 October 2012-13 June 2013			852

Source: Jacimovic, van Soest and Bostoen, 2013, p.22.

Feedback from participants in 2011 indicated what additional tools were needed to help people use LCCA. For example, many participants did not know how to convert costs accurately from one currency to another so that they could compare costs, or how to compare costs from different years and understand different expenditure levels. An Excel sheet for currency conversions and a step-by-step hand-out were developed.

In 2012, the training package was extended with new modules on using LCCA and analysis of life-cycle costs and service levels. As the WASHCost data analysis and understanding evolved, training materials were also added on hygiene service delivery, the service delivery approach and service delivery models. Examples of uptake and replication of LCCA followed. The training for members of the Millennium Water Alliance led to the inclusion of LCCA elements in new project proposals. Following training for WaterAid staff in London in May 2012, the organisation's country offices started a cost study of their own interventions in several countries.

Going online

By the end of 2011, it became evident that WASHCost could not meet the demand for training courses through face-to-face events. The training at the Rural Water Supply Network forum in Kampala in November 2011 was fully booked, and someone on the waiting list suggested that the WASHCost team film the session so that he could watch it online. This prompted the team to transform the training package into an online course freely available to those who could not attend sector events. The online course would also remain available after the WASHCost project ended, and it would help course participants refresh or increase their knowledge so that they could implement the approach.

Development of the online course, Costing Sustainable Services, began in early 2012 based on the experience from 2011, and it incorporated major elements of Triple-S. An online course was not part of the original funding proposal, so it officially had no resources. Being new to online educational materials, the core team chose a technology that was easy to manage and could be used by participants without extensive facilitation.

Moodle software was chosen for the following reasons:

- It is open-source (free) software.
- It has low set-up costs.
- It is widely used by peers in the WASH sector (e.g., UNESCO IHE, the World Bank).
- It does not require great expertise.
- It supports all the training package materials, including PowerPoint, Word, PDF, and video files.
- It allows coursework to be conducted both online and offline using a CD or a USB stick.
- It allows course materials to be downloaded and printed.

A beta version of the free course went online in October 2012, announced via the WASHCost and IRC websites, the *e-update* newsletter, Facebook and Twitter. Word of mouth spread fast, and in fact, most participants heard about it through a colleague (figure 8.1 in previous section).

To cope with overwhelming demand, the team decided to limit participants to 150 per month. Within three months the Costing Sustainable Services online course had 450 registered participants (table 9.2).

Table 9.2 Registered participants for Costing Sustainable Services online course

Month	Participants
October 2012	150
November 2012	150
December 2012	150
February 2013	130
April 2013	141
June 2013	131
Total	852

The face-to-face and online training sessions reached audiences from a larger group of countries than the four WASHCost research countries, including places where IRC had not recently been active (figure 9.2).

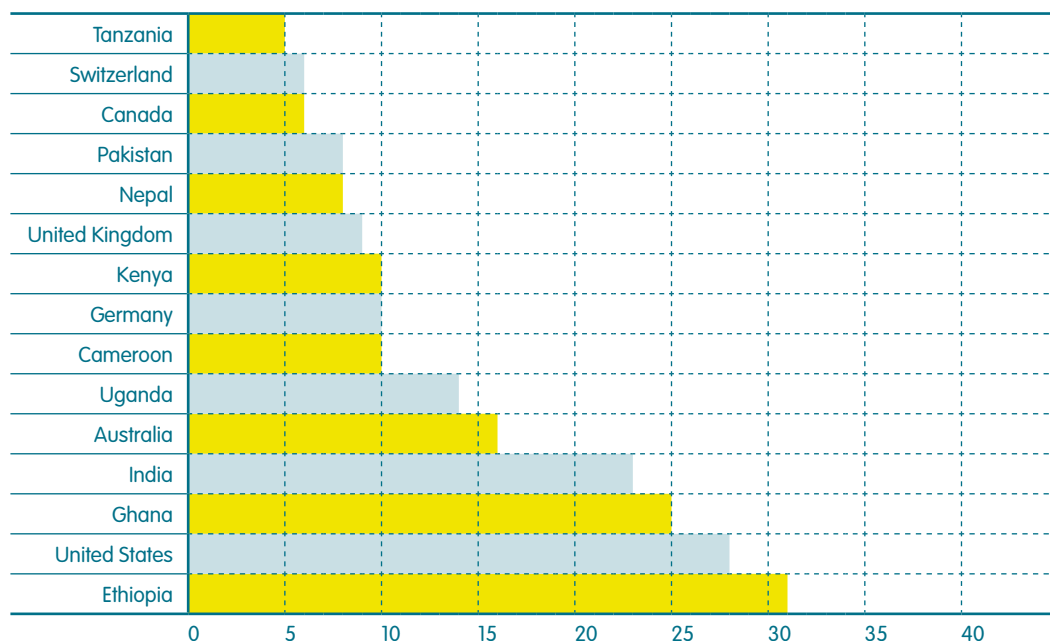


Figure 9.2 Top 15 nationalities of registrants in LCCA training courses

Source: IRC, 2013.

The profile of participants in the online course also differed from that of the training sessions; the majority of the participants were less senior and performed technical support rather than working in management (table 9.3).

Table 9.3 Typical participant profile in face-to-face and online training courses

Characteristics	Face-to-face training events	Online training courses
Sex	Male (71%), Female (29%)	Male (67%), Female (33%)
Employer	International NGO (47%)	International NGO (46%)
Experience in sector	> 10 years (36%)	< 5 years (53%)
Position	Management (47%)	Technical support (55%)

Source: Jacimovic, van Soest and Bostoën, 2013.

Mainstreaming LCCA training in countries

The Costing Sustainable Services training package was adapted by the four WASHCost country teams, who then trained local government staff at provincial and district levels. In-country training on LCCA, especially at district level, has helped districts plan and budget for recurrent expenditures, especially capital maintenance and direct support.

- In Mozambique, in the provinces of Gaza and Zambézia, two events were held with 26 provincial and district WASH technical staff. During the sessions, districts developed an asset management table based on a tool provided by WASHCost Mozambique. As a result, all 10 districts have information on the budget needed for capital maintenance of water sources.
- In Ghana, the WASHCost team organised a two-day LCCA training workshop in each of three regions – Brong Ahafo, Volta and Northern. Each training session included participants from three selected districts and a team from the regional Community Water and Sanitation Agency offices. As part of the training, all nine districts drafted budgets for their direct support costs.
- In Burkina Faso, three workshops were organised in 2012 with district officials and technicians and regional government decision makers to discuss WASHCost unit costs and service levels of water and sanitation.
- In India, training sessions on LCCA have been incorporated in the training curriculum of the Centre for Good Governance and Engineering Staff College of India. These training institutions are responsible for the capacity-building programmes for Department of Rural Water Supply and Sanitation personnel.

Parts of the package have been incorporated into other organisations' curricula. For example, through a technical assistance assignment funded by The Netherlands Organisation for International Cooperation in Higher Education, IRC was asked to develop components of the water and sanitation module of the Bachelor of Science degree in rural engineering at the University of Eduardo Mondlane, Mozambique. Elements of the LCCA training package were incorporated into the module, which was piloted at the university in March 2013 and then became a part of the curriculum. LCCA has also become part of the Rural Sector Wide Approach training activities in Mozambique and has been included in the 2013 PRONASAR Project Implementing Plan.

Another example of uptake comes from the work of Tanvi Nagpal, who teaches a graduate seminar on delivering services in developing countries at the School of Advanced International Studies at Johns Hopkins University, Baltimore, Maryland, USA. According to Nagpal, LCCA helps students understand the long-term costs associated with sustainable service delivery:

We use the WASHCost approach to critically understand the shortcomings in service from a long-term budgeting perspective. In my experience, students come away with two very valuable lessons. First, WASHCost breaks down the long-term costs associated with sustainable provision in an easy-to-understand manner. This means that when they plan budgets in class they take into account not just upfront capital costs and some operation and maintenance estimates, but also critical repair and replacement costs, the costs of capital and software that have been neglected in the past.

Second, because we focus on delivering services and not goods, students begin to examine different characteristics associated with good service delivery – reliability, affordability, and convenience – in a very serious way... This not only allows us to understand where we are and where we want to be, but because we talk about trade-offs and costs, it also helps to grapple with the real world of second-best solutions.

In 2013, IRC began hosting the Costing Sustainable Services online course as part of its training services. The course ran bi-monthly in 2013 and has been translated into French. Additional staff members have been trained to teach LCCA courses as IRC seeks opportunities to embed the approach in the training and educational curricula of other initiatives and organisations.



Freeing this girl in Houndé from the burden of fetching and carrying water could give her more time to pursue an education
(Photo by Lokaalmondiaal).

Making monitoring and learning “fit for purpose”

A point of agreement among monitoring and evaluation practitioners in the field of development cooperation is that frameworks for monitoring, evaluation and assessment must be “fit for purpose” – well suited to their designated role (Norman and Franceys, 2013). In WASHCost there were vying opinions on what was meant by suitable.

The Bill & Melinda Gates Foundation expressed an interest in the WASHCost project as an opportunity to innovate through process-led, action research interventions with strategic policy change objectives. At the time, in 2007, this was a much contested yet not well-understood area of impact assessment. Best practices for impact assessment could be found in the health, education and sustainable development sectors (World Bank, 2008; NONIE, 2008) but not in water, sanitation and hygiene. The WASHCost team wanted to develop a practical monitoring framework that would enable efficient, effective and adaptive management of project resources to achieve the short- and long-term goals articulated in the WASHCost grant proposal (box 10.1).

Box 10.1 The WASHCost vision of success

- Long term:** Within ten years, good quality disaggregated cost information is readily accessible to and being used globally by stakeholders in the WASH sector to improve the outcomes of planning processes and, in particular, to achieve 1) A 25% like-for-like improvement in cost efficiency and 2) A situation where at least 25% of WASH implementation plans include or are explicitly linked to unit costs analysis and poverty reduction strategies.
- Short term:** Within five years, good quality WASHCost data, benchmark criteria and knowledge from four countries, is readily accessible through an interactive tool which includes a decision support system and is being used by national and international decision makers for the WASH sector in rural and peri-urban areas.

Of course, one could not wait five and ten years to check progress. A monitoring system was needed to show achievements on an annual basis and, internally at least, more frequently. This chapter details how WASHCost participants reached a consensus on a “fit-for-purpose” WASHCost monitoring and learning framework, and the lessons learnt along the way. It also examines some of the outcome-based monitoring methods that were considered but not used, for reasons that not proceeding with a particular method may have greater value for the wider sector.

Ultimately, pragmatism won out and WASHCost was monitored in a relatively traditional way: using interviews, surveys and questionnaires, tracking access to information and references, logging requests for information and training, and reflecting and reporting. Teams reported on four outcomes related to the WASHCost theory of change (Moriarty, et al., 2010), then reflected amongst themselves on progress – the basis for reporting to the project donor. Process documentation was used to capture learning processes in countries and internationally, and an external team carried out a mid-term review and an end-of-project evaluation. Learning took place through reflection within country teams and at international team meetings, at learning alliance meetings within countries and through publications. The website, WASHCost newsletter, publications and presentations at national and international events were all methods of spreading lessons after internal reflection.

Box 10.2 Terms of monitoring, evaluation and assessment

The terminology of monitoring, evaluation and assessment varies; this is how terms are understood by IRC and were used by WASHCost.

Assessment	An on-going, participatory investigation to learn why and how changes occur, with the objective of improving the assessed intervention as well as future ones (Parker, et al., 2001).
Impact assessment	An investigation to understand the long-term effects produced by a development intervention.
Impact evaluation	An assessment of the changes (intended and unintended) attributed to a particular intervention (World Bank, 2008).
Monitoring	The ongoing, systematic collection of data on specified indicators to give managers and stakeholders indications of the extent of progress achieved with the use of allocated funds (OECD-DAC, 2002).
Monitoring and learning	A continuous cycle of improvement in which emerging insights are used by a project team and its partners to jointly reflect on progress and inform adjustments to the initiative.

Impact assessment

The donor believed that WASHCost could contribute to sector knowledge by identifying indicators and tools for monitoring large-scale policy change interventions and perhaps also by setting a standard for measuring long-term outcomes. The project team and IRC also saw value in advancing sector knowledge, albeit with a healthy degree of caution. Because of divergent views on how to match the project's ambitious theory of change with meaningful indicators and assessment frameworks, WASHCost sought external expertise. The donor connected WASHCost with the Rollins School of Public Health at Emory University, Atlanta, Georgia, USA, where an innovative team was working on impact evaluation. A section on impact assessment was added to the final version of the grant proposal and a block fund of US\$ 875,000 was allocated for this purpose.

Although IRC lacked experience in monitoring institutional and policy changes, the team was aware of the need to distinguish between an impact assessment framework and a project monitoring framework. IRC already had experience in participatory monitoring, assessment and evaluation of community water supply, sanitation and hygiene interventions and had established the thematic areas of governance and accountability as focus points for knowledge development. During the inception phase, the WASHCost team became convinced that impact assessment was better suited to experimental approaches in the more controlled environments of the health and education sectors. The WASH governance environment was much looser; how would it be possible to attribute changes to the WASHCost programme?

Areas of concern focused on attribution of change, the relevance of household-level survey data and the monitoring of results in particular communities. Internal reflections of the Emory team read, "There remains a gap or assumption that measured institutional changes in policy and practice will create benefits in terms of sustained use of improved services for the peri-urban and rural poor. The WASHCost evaluation must find creative ways to test this essential question" (Center for Global Safe Water, 2008).



The Emory team proposing an assessment method during a WASHCost meeting in Delft, June 2008.

The project team wanted a monitoring and learning approach that would enable WASHCost to respond and adapt as the action research project was being implemented. The task was to track uptake and use of unit cost data by major WASH sector organisations – governments, finance agencies, donors and implementing agencies – to see whether accurate numbers would inform decision making and, in the longer term, improve access to water and sanitation services. One obvious problem was that the ten-year goals could not be assessed during the five-year project duration. Information was needed to keep the project on track and improve its effectiveness, but sector changes would be observable only over a longer timeframe.

The proposed assessment methodology would map the availability and use of cost information by decision makers, document improvements in accountability and transparency and monitor changes in policy and resource allocation at sector or national level, and in the expectations of international donors. For example, would improvements in information and benchmarks for rural water supply increase donors' willingness to provide funding for long-term sustainability?

A detailed project-level assessment would be conducted at each research site to assess such things as changes in cost efficiency, service levels, user fees and community contribution. Targeted community-level assessments would be conducted where changes in policies or practices resulting from WASHCost had been implemented for long enough to have had an effect. The results of new approaches could then be compared with the status quo.

The Emory team's proposed assessment is summarised in figure 10.1, which shows a linear track from project interventions through changes in governance to effects on beneficiaries at community level. The sector-level assessment resonated with the WASHCost team, but the project-level and community-level assessments' focus on beneficiaries did not. WASHCost would collect data at the community level, but the use of data would take place at governance levels; any ability to monitor benefits at the community level seemed very remote. Such a framework would be appropriate for a ten- to 15-year study but was unrealistic for a five-year project.

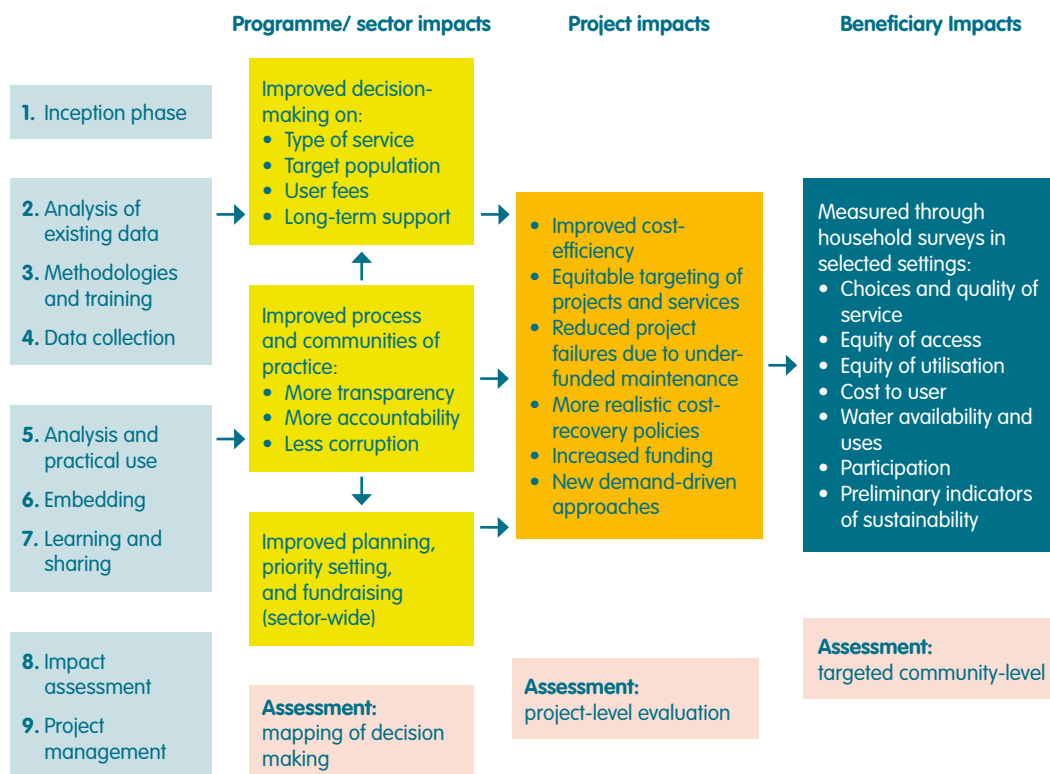


Figure 10.1 Proposed WASHCost conceptual framework for impact assessment

Source: IRC, 2007.

Expert round table and planning meeting

IRC needed to learn more about monitoring intangible and difficult-to-quantify outcomes. In May 2008, IRC was awarded a grant from the Bill & Melinda Gates Foundation to organise and host a conference, titled Mapping the measures of success: an expert round table on impact evaluation for strengthening governance of WASH Services. The event brought together 30 practitioners and academics with expertise in WASH governance, monitoring and evaluation. Participants, including several members of the WASHCost project team, discussed possible methods and indicators.

The round table's final report by McIntyre (2008, p.15) notes that managing for results in institutional change and governance interventions:

... is geared towards constantly improving project and organisational performance, rather than towards hard scientific evidence of results. It implies a strong learning dimension, based on collecting information continuously on emerging changes at beneficiary (or client organisation) level. It promotes greater ownership by staff, downward accountability towards clients and upward accountability to donors. It promotes greater sustainability of results. There is no simple time-related sequence between outputs, outcomes and impacts, but rather a complex, interlocking and often unpredictable cause-effect relationship. Changes can be seen as effects, outcomes and/ or impacts, which are indications of the final impact, but emerging much earlier.

One product of the round table grant was a thematic overview of the literature on monitoring and evaluation approaches and on complexity. The review emphasised the need to adopt a complex adaptive systems approach and noted that “the numerous interrelated and interconnected stakeholders and influencing factors are dynamic, constantly changing and adapting to each other in an effort to maintain, or regain, equilibrium... [t]hese adaptive agents and their constant change make complex WASH services, interventions and their outcomes and impacts unpredictable; they ‘emerge’ during implementation” (Garandeau, Casella and Bostoen, 2009).

Outcome mapping

WASHCost had a better understanding of some of the complexity issues involved in monitoring but still needed a methodology to track and measure what it had set out to do. In July 2008 in Delft, the London-based Overseas Development Institute (ODI) put forward an alternative monitoring approach known as outcome mapping as a means to visualise the complexity of linking the elements of interventions (actions, interactions and inputs) with desired outcomes.

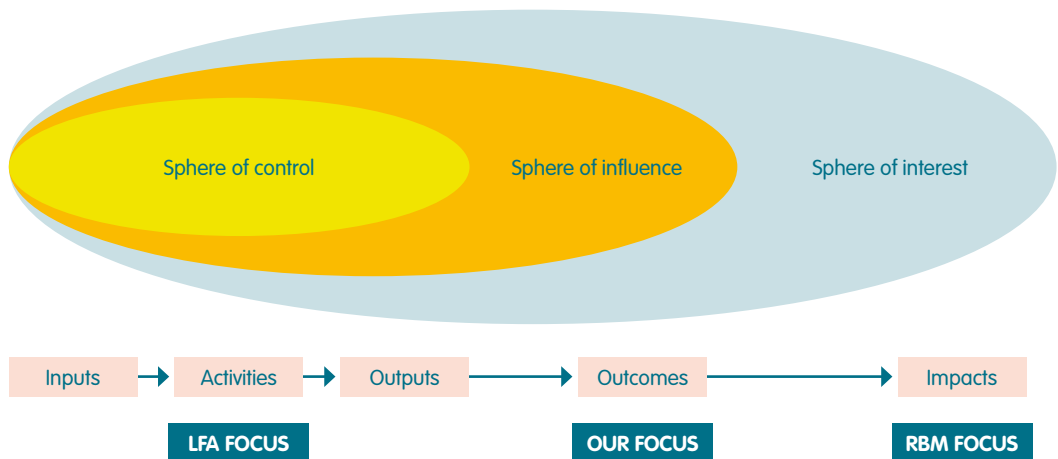


Figure 10.2 Circles of influence in ODI's monitoring approach, 2008

Source: Adapted by ODI (2008) from Montague, 2000.

Outcome mapping, however, is designed for use before an intervention has been planned, and by this time, many aspects of WASHCost were already in motion. Using this approach to the fullness of its potential would have required revising the entire project design. However, some of the ideas – in particular the alignment, interest and influence matrix (Mendizabal, 2010) – were adapted for use.

In February 2008, a first exercise using the alignment, interest and influence matrix took place; its purpose was to plot the stakeholders in the sector and their interest and alignment with the concepts of life-cycle costs analysis. The matrix showed how the project needed to reposition these stakeholders. The strategy was to first raise interest and then realign the target stakeholders; a strategy for engaging with each of the priority stakeholders was identified.

Success would mean that organisations and governments were using the life-cycle costs approach and had changed from focusing on systems to emphasising service. The target audiences were prioritised according to their leadership influence in the WASH sector.

The alignment, interest and influence matrix was revised annually to determine priorities and focus for advocacy efforts. Once the WASHCost and Triple-S international work streams merged, the matrix became more detailed and additional strategies for change were developed. Whereas other methods were tried and discarded, the matrix remained a monitoring and learning tool throughout the project and was also used in annual strategic planning. “We became more sophisticated in crafting strategies for influencing key sector figures as well as in tracking observed changes arising from these efforts,” said WASHCost project coordinator Rutger Verkerk.

In early 2008, Kristof Bostoen, IRC monitoring and learning specialist who had attended the round table and the impact assessment meeting, was recruited to join the project. In the second half of 2008 and into early 2009, the project built its capacity to develop and implement the monitoring framework. Bostoen, who is now IRC’s monitoring and learning coordinator, worked with WASHCost team members to articulate the outcomes to be tracked and test suitable tools to capture change.

Although the decision was not to apply outcome mapping to its fullest extent, some of its elements were attractive to WASHCost for the following reasons:

- Focus is on how programmes facilitate change rather than how they control or cause change.
- Method prompts an understanding of logical links between interventions and outcomes, rather than trying to attribute results to particular interventions.
- There is recognition that programme goals are located within the context of larger development challenges and processes.
- Method promotes ongoing involvement of programme staff and partners throughout the process.

The method enables characterisation and assessment of contributions at programme, project, or organisational level and identifies changes in behaviours, relationships, actions, and/ or activities of people and organisations in a development process (Earl, Carden and Smutylo, 2001). The methodology was introduced to the country research teams by ODI at a workshop in Ouagadougou in November 2008; the teams then reached consensus on the changes they wanted to bring about and the strategies they would use. This framework addresses four questions:

- What is the vision (i.e., why is the intervention being undertaken)?
- Who are the boundary partners?
- What changes are being sought?
- How will this be done?

Monitoring would be done in the research countries with support from the WASHCost monitoring and learning specialist, Kristof Bostoen, backed by the ODI team. The structured approach that outcome mapping offers to articulating short- and long-term outcomes enabled WASHCost to develop a monitoring and learning framework that recognised the complexity of the pathway.

Theory of change and WASHCost outcomes

A theory of change, or programme logic, is used to define the building blocks (outcomes, results, accomplishments, or preconditions) required to bring about a long-term goal (Center for Theory of Change, n.d.) and depicts them in a graphic representation known as a pathway of change, or results chain. This pathway describes the activities, outputs and intermediate outcomes and makes explicit the underlying assumptions and complex web of activities required to achieve long-term goals.

The final monitoring and learning framework was a blend of outcome mapping and the theory of change (Bostoen, Casella and Fonseca, 2009). It recognised the interconnectedness of activities and outputs and used measurable indicators to identify and track outcomes, thereby closing the monitoring and learning feedback loop by distinguishing expected from realised outcomes and thus supporting adaptive management. The theory of change helped WASHCost focus on both long-term goals and short-term, intermediate outcomes.

Four long-term outcomes, identified in November 2009 at the WASHCost annual meeting in Mozambique, became the indicators that would be monitored during the project and used for the mid-term and end-of-project assessments (box 10.3).

Box 10.3 Four outcomes used for monitoring in WASHCost

- Outcome A** The terminology and concepts of life-cycle costs, methods of data collection and analysis are widely shared, understood and valued by project staff, country learning alliance members and the international community.
- Outcome B** National learning alliances and their activities strengthen local ownership, adoption, up-scaling, adaptation and embedding of the life-cycle costs approach within WASH governance processes at all levels.
- Outcome C** International and national learning alliance and project activities result in sector-wide adoption and support for the life-cycle costs approach so that national and international organisations incorporate it into WASH policy and budgeting frameworks.
- Outcome D** Effective project management leads to the achievement of project objectives and milestones on schedule and within budget.

The framework was strengthened during a training workshop conducted by Andy Kenyon of Clear Horizons during the WASHCost team meeting in Kumasi in 2010. This helped teams develop monitoring plans for the four project outcomes.

Communications and documentation officers were intended to lead the monitoring and learning, but they lacked sufficient dedicated time and specialist skills. An attempt to appoint monitoring consultants in each country team was unsuccessful: they were not closely integrated into the work of the country teams. Some researchers viewed monitoring activities as a distraction from their core research and embedding efforts. The constant testing of methods in the first three years of the project, coupled with changing human resource requirements, meant that the flow of resources for monitoring and learning – although substantial, at 9% of the grant budget by project's end (Cross, et al., 2013) – was not consistent. And in the final two years of the project, monitoring and learning had to compete against other pressing demands.



WASHCost India theory of change diagram, drawn on shower curtain.

Monitoring and learning in practice

Monitoring was designed to be conducted by both country teams and the staff in The Hague, with specialist support as needed. Monitoring and learning consisted of periodic assessments of the delivery of planned outputs, and expected and unexpected effects of WASHCost interventions on stakeholders. The reporting system had the dual purposes of learning internally from the outcomes and reporting to the donor – at first three times a year but later twice a year, plus an annual report. Because the annual plan and periodic reports were central to managing and learning about WASHCost activities, the monitoring and learning framework was linked with the reporting process, and reporting formats followed the four outcomes.

For each report, country teams would reflect on their outcome monitoring and what this would mean for the next reporting period. Accounts of what had been done were organised according to the four outcomes and combined with reports from the various functional groups (e.g., communications and documentation, finance). These reports were submitted to The Netherlands team, which compiled the project data and organised reflection meetings to inform planning for the following period. A single monitoring and learning report was then sent to the donor. The types of reflection and analysis that were captured in the country reports illustrate these.

By scheduling time to reflect, eventually WASHCost succeeded in integrating monitoring and learning activities with programme activities. Monitoring brought data and findings to the table, and the teams' reflections and discussions about those findings facilitated learning. Assessments of outputs and outcomes were included in reports and informed action to improve future activities, creating a process of self-assessment and improvement – what Verkerk called the mind-set required to implement the “fit-for-purpose” monitoring and learning framework.

Annual project reports were 10-20 pages long and consisted of a narrative account of what had been done, assessments of achievement in relation to the four outcomes and accounts of any setbacks or problems.

At annual project team meetings, reports from country teams were subject to intense scrutiny from colleagues. These meetings enabled the WASHCost country teams to share progress updates on research, communications, uptake and embedding activities, jointly reflect on the status of the country projects and adapt decisions about priorities for action in ensuing project annual cycles. Regular Skype calls and phone-in meetings provided opportunities for sharing intermediate results between international project team meetings and reporting periods.

At the country level, lessons gleaned from reflection and learning and adaptive management cycles were taken back to the learning alliances and sector bodies. However, as Bostoen reflected, “this was not always based upon data collection and joint analysis.”

Because the project ended after five years, the monitoring objectives for long-term change proved unrealistic: in no country was WASHCost able to analyse “the proportion of organisations/ governments that support life-cycle cost approach for planning and monitoring WASH sector activities,” as the monitoring and learning working paper proposed, although countries were often able to point to examples where life-cycle costing policies were being adopted. Likewise, it was premature to monitor the “proportion of funding (as % of total funds in the WASH sector on annual basis) of non-WASHCost projects that are considering life-cycle unit costs (i.e., beyond CapEx).”

Sample country teams’ inputs to annual reports

Progress towards Outcome A (terminology and concepts) – WASHCost Ghana

The Water Directorate, Ministry of Water Resources, Works and Housing, is implementing an EU funded project called Improvement of Water Sector Performance Management Framework (IWSPMF). As part of the project implementation a quick scan of cost of implementing water programmes in both urban and rural interventions was required. The project manager, Atta Arhin, consulted WASHCost to assist with the methodology and strategies for implementing such

process. Dr Kwabena Nyarko [research director], was asked to chair the workshop that considered the report of the consultant, in August 2010. It became clear that the WASHCost methodology is an appropriate tool for benchmarking the urban water sector in Ghana. The WASHCost methodology will enhance utility asset management planning, general planning, and budgeting for achieving universal service obligation in the urban areas.

Progress towards Outcome B (national learning alliances and embedding) – WASHCost India

There is a clear (if coincidental) synergy between [life-cycle costs approach, LCCA] and the 2010 Rajiv Gandhi National Drinking Water Mission Guidelines. The emerging policy framework provides legitimacy and a clear rationale for developing, piloting and, where appropriate, scaling up [LCCA]. WASHCost is expected to provide significant inputs towards operationalising these guidelines. It is an opportune time for the WASHCost project to facilitate effective implementation

of the guidelines by providing research inputs and embedding strategies, especially at state level. Some [learning alliance] members have expressed willingness to adopt LCCA in their WASH programmes. [Life-cycle costs] data was collected by Organisation Catholique pour le Developpement et la Solidarité on their recent completed WASH projects, in order to build homemade data base which will be useful in their WASH project proposal and project budgeting.

Progress towards Outcome C (global adoption) – WASHCost Mozambique

[Learning alliance] members are starting to ask WASHCost for data for their budgeting process. In particular:

- The National Directorate for Water is an early adopter and wants to use WASHCost data to budget for 2012 and lead the disbursements for 2011 (the budget process was already concluded for 2011).
- The Water Regulatory Council (CRA) has requested WASHCost to provide data to support the planning and budgeting for the small piped systems in order to strengthen sustainability.

- UNICEF has adopted some of the WASHCost tools in its evaluation of the One Million Initiative.
- WaterAid asked WASHCost for assistance with its 2011 budgeting.

Progress towards Outcome D (project management) – WASHCost Netherlands (Global)

With the (partially obliged) introduction of an outcome-based reporting, the narratives have improved. That, together with better structuring of reflection moments, is positively influencing the reporting philosophy and the mind set to learn from reflection and the

reporting process. The ability to analyse [monitoring and learning] data that derives from the (partially over-tooled and outdated) [monitoring and learning] framework is least developed.

Sources: WASHCost, 2010a; 2012.

Mid-term assessment

In 2010 a mid-term assessment determined the project's progress towards the outcomes identified in the measurement and learning framework and the WASHCost theory of change, with specific attention to embedding the use of lifecycle costing data and methodologies in sector planning and budgeting. It also explored wider opportunities for replication, uptake and embedding in each of the four countries. One question was whether the WASHCost approach was changing the mind-set and practices of stakeholders and practitioners in the four WASHCost countries so that they incorporated what they were learning into practice: to what extent was the life-cycle costs approach understood and integrated into policy, budgets and activities, nationally and globally?

Piers Cross, a former global program manager for the Water and Sanitation Program of the World Bank, founding chief executive officer of the Mvula Trust in South Africa and former chair of the Rural Water Supply Network, led the six-person assessment team. He observed that this "bold project" (WASHCost, 2010a) began at a time when the sector was significantly under resourced to reach its global goals:

WASHCost is a project that goes to the heart of the matter in two respects: understanding what things cost is the fundamental starting point to efficient use of limited resources; and understanding lifecycle costs gets us thinking about how to finance WSS services after the construction phase. We have to ensure that we are making smart use of the money we have got by making sure that services are built to last, can be rehabilitated and replaced and that we are costing all the fundamental things people are talking about now.

WASHCost is a once in a generation opportunity for the sector. It is great timing. Good on the Gates Foundation and yourselves for taking it on!

However, he also observed different expectations for the project. The international community wanted cost data, whereas countries saw costs as an entry point for wider reforms, and the scope of the project had expanded to address both objectives. He suggested that creating change on the ground had become a greater priority than creating a global database: "Even if you end up with methods and tools," he said, "there is still a demand for numbers. That remains in many people's minds as what this project is all about. There is a strand of thought that you have taken the project against its initial thinking."

Cross concluded that expectations were high, the research teams were well mobilised and respected, and the research had rich potential. However, he found tension between the decentralised research design and consistent global methodologies, and a lack of clarity on what the global research products would be: "The impression was of a drift from one global research study to a set of country studies; coordinated rather than led, by the centre."

At the country level, it was too soon to say whether efforts to embed WASHCost had prepared decision makers to make the tough decisions that were needed. The embedding strategy needed to be bigger and bolder.

WASHCost Burkina Faso was found to be on schedule despite some delays. Stakeholders perceived the project as useful, timely and important. However, the timeframe was very short to deliver on ambitious expectations, and the government was in a hurry for results. Better communication and advocacy were needed, with more training of government staff and partners. Embedding would require more human resources.

The Ghana team was congratulated for "a super and very well implemented project" whose research activities and outputs were heightening sector awareness of service sustainability and full life-cycle costing. The National Level Learning Alliance Platform had filled a gap in the sector, but there was a need to build learning at the regional and district levels.

The India team had generated a very large and comprehensive data set – an effort that would be costly and difficult to replicate. The team was encouraged to focus on data analysis to establish the methodology and empower sector actors with information for policy decisions.

The Mozambique team was dynamic and had embedded the project in some sector bodies – not all of which were making a difference, however; WASHCost probably needed a plan B for embedding. The forum being used as a learning alliance was a good entry point for long-term embedding, but some tension existed between the project’s timescale and its partners’ expectations.

Cross advised the project team that the next six months, following the mid-term assessment (December 2010–May 2011), were critical and teams should focus on the main research messages. He encouraged Catarina Fonseca, project and overall research director for WASHCost, to give up other IRC-related work to manage WASHCost full-time. Amongst other recommendations, the assessment team proposed the following:

- Adopting a bolder global embedding strategy with intensive communication support from partners so that international agencies would buy into the life-cycle costs approach.
- Shifting from analysis to communication at the country level, and reaching out beyond the sector to speak to politicians, banks, and finance, planning and health organisations.
- Moving the database to the web and enlarging it into an international benchmarking network.
- Developing a strategy to extend the life-cycle costs approach to new countries, giving equal weight to sanitation.
- Strengthening links with the Triple-S service delivery approach.



Jeske Verhoeven (right), WASHCost project officer and Vida Duti (left), Triple-S Ghana director presenting conceptual linkages between WASHCost and Triple-S at the 2011 RWSN symposium, Kampala, Uganda.

The mid-term review was well received. Andre Uandela, project director for WASHCost Mozambique, said, “We recognise the main points and the focus on embedding. Managing expectations is a problem; people are expecting results.” Patrick Moriarty, governance specialist for WASHCost Ghana, said that the work would continue after the WASHCost project was over:

We always knew that the project was too short for the changes it was supposed to deliver. However, these are our [IRC's] focus countries and we do not intend to leave. That is what we are doing with TripleS and with other projects too. Deep change processes take longer than the five-year project cycle. We need to ensure that the life-cycle costs approach is included in our vision of how to embed.

The mid-term review advice on monitoring and learning was to simplify efforts. The review team noted that the monitoring and learning framework and format needed “a further review to agree on a common strategic framework, coherent with project outcomes” while keeping all stakeholders informed (Cross, et al., 2010, p.33). The monitoring and learning efforts needed a simple way to track achievements.

Following the assessment, monitoring and learning activities focused more on capture and analysis of WASHCost successes and uptake, the third outcome. Surveys²⁴ and data logs²⁵ provided more information and evidence about the value and uptake of project outputs. Project participants sought to understand how sector actors and organisations were using cost data and life-cycle costing methods.

Project team and management team reports from the first three years were reviewed to see whether identified problems had been solved and the changes documented. This analysis was used to check progress and close the learning loop. One resulting change was that solutions were more carefully documented in reports during the last two years of the project.

End-of-project evaluation

In early 2013, another evaluation team led by Cross conducted the final study of WASHCost. The main conclusions were that the project had achieved “most impressive results” (Cross, et al., 2013, p.44):

- **Outcome A (terminology and concepts):** Uptake of the life-cycle costs approach and service delivery approach was called highly effective both globally and in the focus countries.
- **Outcome B (national learning alliances and embedding):** The project's record of working with established national learning alliances or creating learning alliances and embedding WASHCost concepts in national decision makers had been uneven.
- **Outcome C (global adoption):** After a slow start, global uptake was encouraging and, notwithstanding some limitations in the research, WASHCost had significantly influenced global-level understanding of costs and service levels.
- **Outcome D (project management):** The project was well managed. It had adapted well to internal changes and to country-level responses, completed its activities within budget with one no-cost time extension, used its resources judiciously and met project milestones.

Although the five-year impact in the research countries was assessed as “lower than expected” (Cross, et al., 2013, p.36), the prospects for the continuing model were promising.

The final evaluation called WASHCost “a remarkable project: a bold conception that has made a substantial contribution to transforming the global debate on WASH in rural and peri-urban areas” (Cross, et al., 2013, p.7). The project had made progress in promoting the life-cycle costs approach and linking it to a service delivery approach. Extensive field-based research presented new insights and revealed problems at a scale not done before in rural and peri-urban sectors. However, this good work

²⁴ WASHCost developed and gathered data using the following surveys in Survey Monkey: WASHCost Team Capacities and Individual Competencies Surveys, Training Evaluation Surveys for online and face-to-face training course participants, WASHCost Event Evaluation Survey.

²⁵ Data logs were used to capture and analyse data about WASHCost publications, citations, requests for information and reports on the life-cycle costs approach.

had not yet translated into large-scale impact on the ground in terms of new policies, changed budget processes, new investments, new financing strategies and institutional change.

In part, the review team attributed that shortcoming to missing elements in the theory of change. Mobilising political will, the evaluators said, should have been integral to the action research, since evidence alone does not create large-scale change. WASHCost had lacked a detailed analysis of the “dynamics of acceptance,” in particular by governments. The focus on costs had also been a limiting factor, since innovative financing strategies were also needed to use this critical information. Ultimately, the proposed approaches needed to be adopted by local government decision makers.

WASHCost could count amongst its achievements helping to shape the post-MDGs debate by quantifying life-cycle costs, focusing attention on sustainability, influencing the approaches of several major donors and some planned investments in focus countries, and making significant contributions to the policy dialogue on costs in the focus countries. The evaluation showed that WASHCost had achieved a high level of adoption for the life-cycle costs approach and service delivery approach but needed to be better linked to financial strategies. WASHCost had had an especially positive effect on NGOs, both national and international.

Adaptive management was found to be a success. “The story of WASHCost is a rich one, with many twists and turns, and the project delivered a huge volume of documentation... [k]ey to the project’s success was a dedicated project management willing to adapt” (Cross, et al., 2013, p.8). The management team kept the project on course and operated in a consultative and inclusive manner with collaborating agencies.

Of special interest for future action research was the conclusion that WASHCost had developed a nuanced model of learning or action research, with the following elements:

- Selecting a strategic area that triggers change.
- Establishing a strong country presence with trusted and supportive local agencies.
- Undertaking comparative research to address local problems and provide a basis for cross-country comparisons and global learning.
- Supporting a national learning alliance to share learning.
- Networking to bring new insights into the global domain.
- The final evaluation recommended that IRC build on the momentum and global learning developed in WASHCost and Triple-S to change fundamental behaviours that have prevented the sector from reaching international goals – namely, financing effective service levels and embedding an approach to sustainable financing in local government.

Alternative monitoring methods

Several innovative methods and tools for monitoring were tested but not adopted for WASHCost, although the project learnt something from each of them and they may see future use in other IRC learning initiatives.

Most significant change

The ‘most significant change’ method focuses on the human impact of an intervention (M&E News, 2008). Stories of change are collected from the field, then analysed by stakeholders or staff. The process of selecting the most significant change demonstrates where priorities lie and provides information that helps project managers. This method is suitable when predicting the outcome is not possible: outcomes vary across beneficiaries, stakeholders do not agree on the importance of outcomes or how to ascribe value to them, and interventions are highly participatory. Following a training course in Kumasi in 2011, the teams used this method to a limited extent, but going through the step-by-step selection process took more time than the communications and documentation officers – who favoured this approach – could spare.

Semantic analysis software (Infolution)

Infolution is an Internet search-and-retrieval semantic analysis software application that can be trained to recognise, filter and interpret content. The application trawls large amounts of digital information on the Internet to track the uptake and use of concepts and methods. WASHCost tested Infolution to examine WASH sector documents and web content to identify trends and found it potentially suitable. Semantic analysis was a new field, however, and considerable resources and time would have been needed to make the software operational. The project’s needs for monitoring were more urgent.

Social network analysis

Social network analysis is a means of visualising (mapping) and analysing the interactions and connections amongst institutions, organisations and individuals. Rick Davies, a specialist in this field, helped WASHCost adapt the methodology in 2010, generating network maps that reflected the project’s understanding of the sector in the four WASHCost countries and the international arena. The intent was to map the country teams’ and learning alliances’ connections and see how relationships evolved and informed efforts to foster uptake of the concepts and findings. Although social network analysis appeared to have potential for future use in other projects, it was not immediately practical for WASHCost: it would have required ongoing support from an external consultant, and would have taken more time and resources than the team could allocate. Moreover, it might not have captured the evolution of informal networks, which may be very important in the WASH sector.

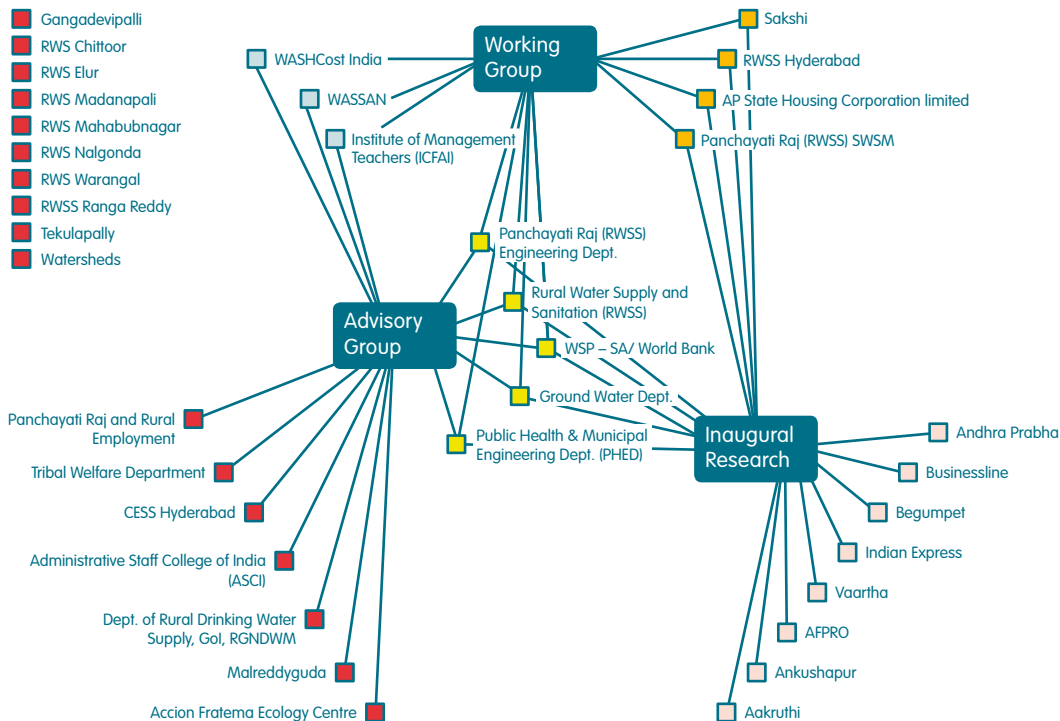


Figure 10.3 Social network map for India team’s learning alliance

Those three tools each held promise, but innovative methods involve a leap of faith and work best when a champion within the project can lead colleagues through the adoption process. It is hard to introduce new approaches once a project is up against time pressures; hence the preference in WASHCost for tried and tested approaches. Verkerk said that “some things simply need to be done in an orthodox manner, and perhaps project monitoring and learning is one of these functions.” However, the process of trying innovative tools for monitoring – and the reasons for not using them – could have been better documented.

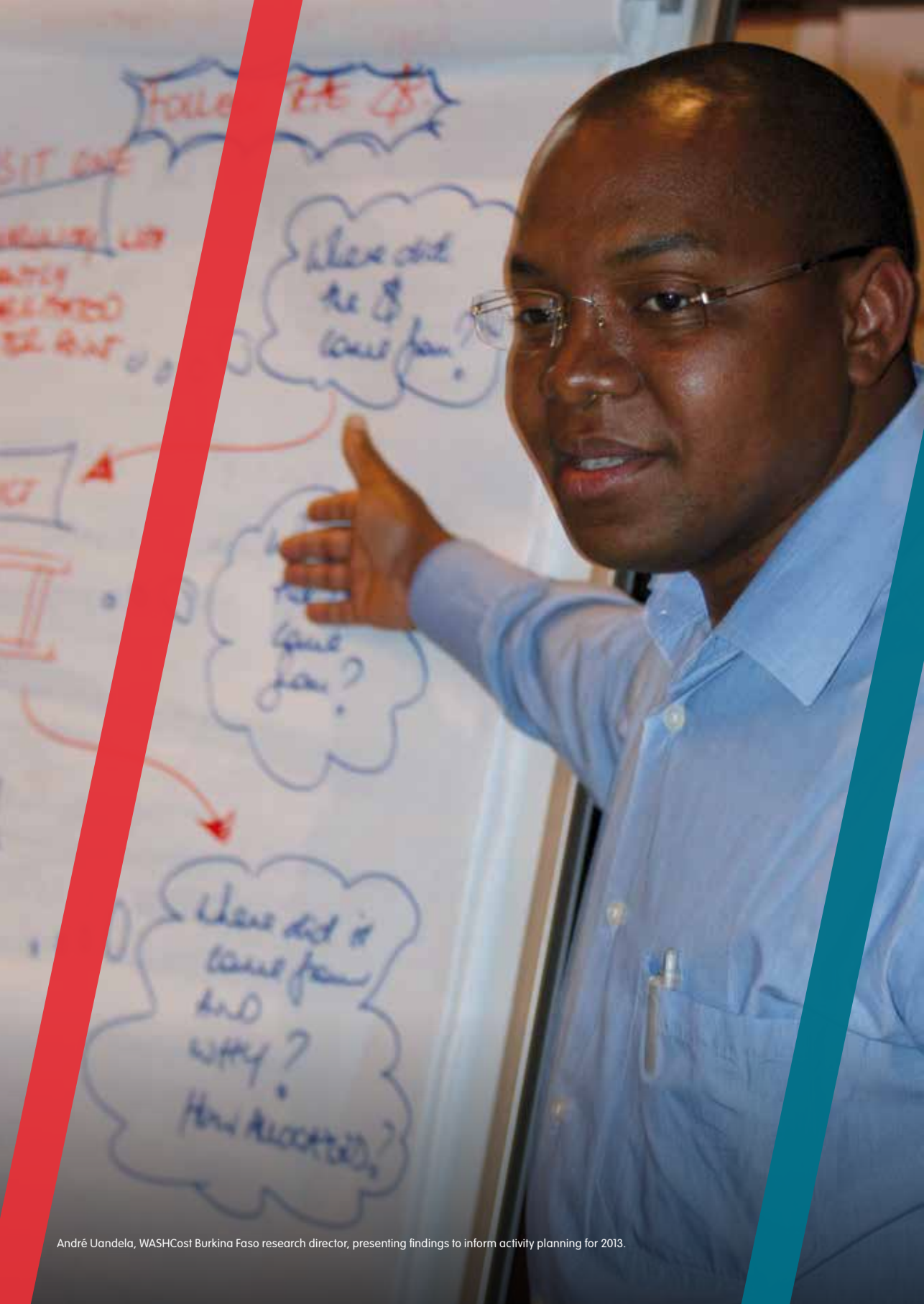
Lessons from the monitoring and learning experience

Looking back, it is easy to see where sub-optimal decisions were made in planning the monitoring and learning framework and where time could have been saved. A great deal of time was required to align the expectations of the monitoring and learning work with what the teams were willing and able to deliver. However, ultimately a working method evolved that was “fit for purpose.” The challenge was not simply for WASHCost or IRC, but for the sector and the monitoring field as a whole. Despite the need for a method to monitor outcomes for complex programmes, a gap remained between the academics who were developing exciting methodologies – comparable to cutting-edge computer software that has not been sufficiently beta-tested – and the action research practitioners in the field who wanted something practical that worked. Intellectually, it is exciting to be on the cutting edge, but practically it is sometimes necessary to stick with well-understood tools and technology, even if they deliver somewhat more limiting results. That said, the project borrowed some aspects of the new methods and approaches.

The monitoring team offered the following lessons:

- In an innovative project that is developing new concepts and methods, it may be a mistake to innovate in monitoring and evaluation as well.
- An inception phase provides dedicated time and resources to refine and validate the results chain and logic (theory of change) of the action research.
- The monitoring protocol should be developed through a time-bound, facilitated process involving project stakeholders.
- Basic monitoring captures what is happening and should be closely linked to process documentation. In WASHCost, monitoring and learning were separate from process documentation until midway through the project.
- Where possible, innovative components should be managed so that they do not overwhelm the development of a fit-for-purpose monitoring approach.
- Developing competency within the team, rather than outsourcing tasks to advisers, is likely to improve monitoring and learning knowledge, attitudes and skills.
- The experience of testing and evaluating innovative approaches to monitoring and learning could have been better documented to stimulate and share reflections about what worked (or not) and why.
- How best to monitor and evaluate the long-term changes brought about by complex action-research initiatives remains unknown.
- Monitoring short-term outputs and outcomes is worthwhile so that the project can adapt efforts towards the long-term outcomes.

Through its struggle to understand and develop a fit-for-purpose approach to monitoring and learning about changes in sector policies and practices, WASHCost helped raise standards and improve expertise within IRC. The true benefits of the advancements in the practice of monitoring and evaluation for WASH services delivery that arose from the WASHCost project were felt by later initiatives, such as Triple-S, BRAC WASH Programme and the IRC- Directorate General for International Cooperation Programme Monitoring and Learning Framework.



André Uandela, WASHCost Burkina Faso research director, presenting findings to inform activity planning for 2013.

Project management

IRC was founded in 1968 by the Dutch government as part of an agreement with the World Health Organization to establish an “international reference centre for community water supply and sanitation.” It was originally supported by a block grant through the Directorate-General for International Cooperation (*Directoraat Internationale Samenwerking*, DGIS) of The Netherlands Ministry of Foreign Affairs. When what was then called IRC International Water and Sanitation Centre became legally autonomous in 2007, about 70% of its funding still came through the DGIS grant. By the time the WASHCost project proposal was submitted to the Bill & Melinda Gates Foundation, IRC was moving away from being a sector think tank and knowledge broker to one that was later called a think-and-do tank, with emphasis on action research and working with long-term partners in developing countries. WASHCost was a multi-country, US\$ 14.5 million project managed by an organisation that was embarking on an action-based and programmatic approach to achieving change.

Rutger Verkerk, project coordinator for WASHCost, considered it vital for IRC to reassess its project philosophy:

The existing model in the sector was of a paternalist approach with a north-south divide and a donor-supplier relationship. Projects were remembered because of their donor – for example, the European Union project or the DFID [British aid] project – and not what the project stood for or tried to achieve. That is what we definitely did not want with WASHCost. We realised at IRC that if we wanted to do things differently, we had to first change ourselves.

Verkerk recalled that the IRC offices were arranged such that each section had its own, separate space. People often worked individually. “Projects were quite low profile,” he said. “You only got an update if you asked for one.” By contrast, WASHCost was going to have a high profile and, with a high-profile donor relatively new to the sector, was bound to attract attention. “WASHCost was out in the open, exposed, with everything on the table,” said Verkerk. “It had a self-proclaimed ambition – we were going to be the best and only have the best people. Instead of being behind the curtain, we were in the spotlight.”

Philanthropy was also changing. The existing pattern was bilateral (government-to-government) and multi-lateral (e.g., World Bank, UNICEF) aid offered through a call for proposals to which potential recipients responded. The new philanthropic money had a different dynamic, often focused on an innovative methodology, and encouraged public-private partnerships. The Bill & Melinda Gates Foundation had made a difference in health, agriculture and education, and in 2006 was exploring whether it could play a role in water and sanitation. The Gates foundation first came to IRC for a WASH sector landscaping study. That developed into a study on the costs of achieving the MDGs for water and sanitation, completed by Rachel Cardone, who became the grant manager for the donor, and Catarina Fonseca, who became the project and overall research director for WASHCost. The foundation's officers were willing to test and adopt new approaches, ready to work over longer timeframes and wanted to work as a partner rather than just disburse money and wait for the final project report. They were attracted to the idea of filling a gap in the WASH sector's knowledge base by answering the question: What are the real costs of providing water and sanitation? If the costs could be quantified, then it might be possible to intervene more widely in the sector to speed up progress towards achieving the MDGs.

The initial challenge in setting up WASHCost was developing relationships between IRC and the donor and between IRC and the research countries that would simultaneously allow for effective management and a high degree of autonomy. Verkerk and Fonseca introduced a project management approach with five components: conducive environment, project planning, problem-solving ability, reporting philosophy and programme planning. These components were intended to enable WASHCost to work in teams, with decentralised decision making, budget flexibility, activity-based planning and budgeting, and a flow of reports from which project teams could learn.

Conducive environment

In a conducive environment, the tools, equipment and organisational structure support a team of people to execute and implement a project. To Verkerk, project management meant juggling resources – time, money, people – for an activity, objective or outcome, and the conducive environment meant budget flexibility, working in teams and taking decisions at the lowest suitable level and developing teams' ability to plan and solve problems.

When the WASHCost research countries were selected in 2008, as described in chapter 1, IRC did not have permanent offices in the countries where it worked, and the decision was taken to work with hosting organisations that would be responsible for human resources and administration and also help embed and support the learning alliances in the research countries. The hosts all had to have credibility in their own countries, but four different kinds of organisation were chosen.

In Burkina Faso, the *Centre Régional pour l'Eau Potable et l'Assainissement* (CREPA) was a well-established resource centre and long-standing partner of IRC with satellite organisations across sub-Saharan Africa. In Ghana, the host was the Kwame Nkrumah University of Science and Technology (KNUST) in Kumasi, where Kwabena Nyarko, research director for WASHCost Ghana, was a lecturer; masters and PhD students would work on the project as part of their studies. In Andhra Pradesh, India, the host was the Centre for Economic and Social Studies (CESS), a research unit in Hyderabad. In Mozambique, where the project began a few months later than in the other research countries, the intention was for WASHCost to be hosted within the National Directorate of Water (*Direcção Nacional de Águas*, DNA). This proved to be contractually unfeasible, although part of the WASHCost team was physically located there. Ultimately, formal and legal hosting was established with the consultancy company, Prowater.²⁶

Making practical arrangements with the hosting organisations, setting budgets and ensuring that the WASHCost teams had the resources to function well were the first priorities. Verkerk recalled that the grant proposal did not specify a budget for setting up the country infrastructure:

One of the first things I had to do was the 'actualisation' of the budget – to take the budget proposal and to make it real. There was nothing in the grant proposal for renting offices, for the partner costs, for a vehicle, and no travel arrangement post-scoping. Working in the project at that stage were only six or seven IRC people. We started to pull the budget apart, to nuance it and validate the proposal. Creating the conducive environment was a kind of pre-condition for the project to run successfully.

The cover photo for the report of the kick-off strategy meeting in March 2008 shows just 14 people shivering in the cold outside the IRC office in Delft. Of these, three were supposed to be joining the advisory group (only one of whom stayed with the project), and only one, Nyarko, was permanently based in one of the research countries. The end of the inception phase meeting in Scheveningen seven months later was attended by 40 people, of whom 30 were part of the WASHCost team and 14 were permanently based in the research countries.

In the first 18 months of the project, the country teams and The Netherlands teams were to become five spokes radiating from a hub. Building the teams in the countries was completed in the early part of the inception phase in 2008, but the setup involved some logistical challenges. In Mozambique, some team members sat in the DNA offices and others at Prowater, a short drive away. In Ghana the research element was led from Kumasi by Nyarko, but the project was managed from Accra, where staff shared premises with other WASH sector projects. The decision to have two offices was motivated by the two components of WASHCost: the research would be done at the university, but the embedding component had to take place in the capital city.

In Burkina Faso, WASHCost put a burden on CREPA's financial administration and logistics. From the beginning of the project, WASHCost Burkina Faso sought to reduce the administrative load and increase flexibility.

²⁶ Until 2011 called Cowater Consultadores.



Participants during the Kick-Off Meeting in Delft, March 2008.



Participants during the End of Inception Phase Meeting in Scheveningen, October 2008 (Photos by Peter McIntyre).

In India, the plan was for the project to be located wholly within CESS, but following changes in CESS, Ratna Reddy, economist and who was also serving as research director for WASHCost India, left to set up his own consultancy. The resulting physical separation from Mekala Snehalatha, the project coordinator, and her team in CESS created some logistical problems. The NGO responsible for process documentation and collecting data about service levels was based in yet a third address. Traffic in Hyderabad discouraged meetings, and teams lost the “water cooler” benefit of daily informal communication.

WASHCost India, a more or less autonomous unit within CESS, may have been viewed by some CESS staff as an outside entity. Manoj Panda, who became director of CESS, acknowledged the difficulties:

Setting up the project team was a major challenge because it needed a different kind of people – those with a research interest but at the same time people with an interest in the action plan. Integrating them into the organisation was a major challenge. If similar work was to come again I would also like to persuade some of our own faculty members to get more involved in it. Now possibly some of them would see the merit of getting involved in such a project and I hope we would be able to do that more effectively. We succeeded partly in that in the final project year.

Snehalatha, who assumed the responsibility of coordinating the project as a young woman in a society where experience is esteemed and women in leadership roles must work hard to command respect, felt considerable pressure, especially when the CESS economist who had been working with the team had to leave because of ill health at a critical point in data analysis: replacing him was not easy. Even short-term posts had to be appointed within the CESS wage structure, which precluded recruiting bright young PhD students (an approach that proved useful in Ghana). The institutional constraints, Snehalatha said, resulted in less efficient way of functioning:

We advertised for a PhD position, but within CESS the PhD programme was not that attractive for an economist from the big universities. The stipend we were giving wasn't conducive to picking up highly capacitated staff. At the same time we couldn't find someone from within the organisation. Those two things have really affected the project, especially for the economist's positions. For the data analysis I think we did struggle.

She therefore added data analysis to her work as project manager. Looking back, Snehalatha wondered whether she had made a mistake in getting so involved in the content. However, as a social scientist, she had insights into community attitudes to water, sanitation and hygiene. Snehalatha's understanding of how and why people make their decisions contributed to the project results. "There was mounting pressure to do the task and someone had to take the role," she recalled. "It was a hectic schedule." She rapidly grew into the position and ultimately was invited by the Government of India to join influential planning committees.

The Netherlands also encountered problems in team building. A few IRC staff members were more or less full-time on WASHCost; others were part-time. By the end of the first quarter of 2009, accountability was becoming a problem; the report to the donor read, "There is also the tendency for some staff at IRC to go on their own direction and disconnect from the main objectives of the project." Some staff outputs "were not even planned or are not the most critical to report." At the same time, the country teams were being overwhelmed by requests from The Netherlands for information while they were completing the research testing phase and establishing the baseline for monitoring. Later, the number of IRC staff working on WASHCost was reduced, but members of the smaller team had their hours increased; the result was more efficiency and a sense of collective responsibility.



Rutger Verkerk, WASHCost project coordinator, at a planning meeting in 2009.

Project planning

The mid-term assessment of WASHCost noted that the project had been “brave” in starting in all the countries at once, instead of starting in just one country and learning from the experience. Verkerk believed that proceeding in four countries at once was manageable but that the pressure of doing so was unanticipated:

The original plan did not include time to set up and prepare teams. Not only did we start all countries at once but we also started all functions at once; research, monitoring and learning, communications and project management. Some were essential from the beginning but perhaps we should have done less of some or started them later. Perhaps we grew too quickly at the beginning. However, the project succeeded in establishing four country teams during the nine-month inception phase, answered some strategic questions and came up with a plan. I had the ambition that after 18 months into the project the countries were more or less autonomous, and I think we managed that.

The Project Management Committee included representatives from the countries, the WASH governance specialists, the IRC controller, and the WASHCost director and coordinator. Each country also had its own management team. The researchers held regular meetings both online and two or three times a year in a country venue to sort out methodological issues and discuss findings.

Each of the first three years saw three international project team meetings in addition to the functional meetings on impact assessment and process documentation. Verkerk remembered someone saying, “This is where the work is done, when we are all together.” In 2011 and 2012 there were semi-annual meetings to report on progress. “Clearly in the last two years or so,” Verkerk said, “the work happened between project meetings.”

Other international meetings were arranged for discussion or training on specific issues, such as monitoring and learning, process documentation and data processing. The end-of-inception meeting doubled as a meeting for country finance officers to devise financial guidelines and agree on a reporting format.

A Gantt chart was prepared that listed ten major objectives and 55 main activities, each with its start and finish dates, although the country teams might vary the timelines. It was updated every four months. Verkerk recalled being delighted when he visited one country to see the Gantt chart on the office wall, only to find on closer inspection that it was several months out of date: “Trying to run from a single project planning timeline was hard, and it did not initially drive our planning and the resource allocation.”

The Gantt charts were designed for reporting rather than for planning, and some of the country teams felt that the system was too mechanical, although it was well used in Mozambique. Verkerk believed that the charts served their purpose at the start of the project: “We were a bit insecure, perhaps, in how we translated this huge monster of a project into country activities. We tried to ensure that everyone followed the spine so we got a single project implemented in five countries and not five different WASHCost projects.” All the teams had to achieve certain critical milestones and activities at the same time so that the project could stay on track. Orange and red flags were included in assessments to show when teams were behind schedule. Later the management style focused more on “doing the right things, and doing things right,” with less dependence on the fixed timeline.

The WASHCost management structure was designed to encourage decision making at the lowest suitable level. Every four months, each country team held a management meeting, with time allotted for reflection.

Country teams required support in basic project management and administrative skills – running e-mail accounts, setting agendas, leading meetings, taking effective minutes and using new software. The project coordinator embarked on a tour to coach each team and learnt not to make assumptions about the level of skills, even amongst smart, talented people. It was sometimes difficult for people who were highly qualified and highly motivated to admit to weaknesses.

Problem-solving ability

WASHCost aimed to give country teams the responsibility to solve problems and work autonomously, based on an agreed activity plan and budget. The country coordinators were encouraged to make decisions rather than refer to The Hague or the hosting organisation. Their initial tendency to call in The Netherlands team to act as arbiter did change, although the ability to take decisions was affected by the cultural expectations within countries and within the hosting bodies.

Verkerk saw a direct correlation between the conducive environment and problem-solving ability:

Generally, the country teams were empowered and encouraged to make decisions related to problems and opportunities at country level. If you are not really a team and you are not making decisions at the project level, and you are not comfortable with budget flexibility, it will be very difficult to solve the problems in a multi-country, multi-annual and multi-million-dollar project that has both research and embedding components. Sometimes you empower people to make decisions that maybe they do not want to make. The more conducive the environment, the better and the more comfortable the countries were in solving their own problems. There were occasions when Catarina Fonseca and I would disagree with a country team's decision, but we often said to each other that these operational decisions had been delegated to the country.

The Ghana, India and Mozambique teams all faced some administrative problems from having staff in more than one location – and in the case of Ghana, in more than one city. Ghana managed to resolve its problems with meetings that included time for reflection and decisions recorded in minutes.

Solving project management issues in India took longer, but in the end, India scored highest in the final evaluation for the effectiveness of its project management. WASH governance specialists were one source of support for country coordinators; being less involved in the day-to-day management issues, they were able to defuse tensions and sometimes resolve issues. Snehalatha was able to call on Charles Batchelor (based in the United Kingdom but frequently working in India) for support. Batchelor thought that the WASH governance specialists probably became too influential: as experienced people, they were drawn in wherever skills were lacking. However, he saw the main problem as an inability to recruit talented people for critical roles:

We were unlucky compared with other projects I had worked on where we had been able to recruit young people, but they were not available at the rates that were being paid. Bright young people now tend to go to companies, and they make such a difference to team dynamics. The quality of the work and the overall collective energy within the group would have been so much better.

An inability to resolve problems caused a breakdown between IRC and the country host in Burkina Faso, where CREPA was undergoing a restructuring process (which saw it eventually emerge as Water and Sanitation for Africa). Progress was slow, particularly in analysing the data and building links with the government sector. In 2011 the agreement between IRC and CREPA ended. Only one member of the Burkina Faso country team continued to work with WASHCost: Richard Bassono, originally an intern, became the research officer in Ouagadougou and held the project together with the support of WASH governance specialist Christelle Pezon and IRC programme officer Amélie Dubé. Project hosting was taken over by the French NGO Eau Vive. The rupture spurred IRC to create an effective country team; Burkina Faso collected more data after the break than it had before, and the results were good. Speaking in April 2013, Pezon said, “WASHCost is over in Burkina but the approaches that deal with long-terms costs or the service delivery approach are very much alive and I would even say maybe more than they were throughout the project.”

Those experiences highlight the importance of taking time to build teams whose members work well together, being flexible about recruitment and encouraging regular, well-structured team meetings. A project must have a well-functioning central team and a method of enabling all the teams

to come together and share information and experiences. One of the lessons agreed at the final full-team meeting in July 2012 was to allow time to evaluate team dynamics so that internal problems could be solved quickly.

Reporting philosophy

Achieving a WASHCost reporting system based on the programme's theory of change took some time. Initial reporting was activity-based, linked to the planning milestones, with a focus on activity-based budgeting. In 2010, the reporting became outcome-based, with narrative descriptions of progress based on reports from country teams and functional groups.

Reporting within the project was driven to a large extent by the donor's requirement for quarterly reports plus an annual report. These reports were discussed with the donor and, when approved, triggered the next disbursement of project funds. The donor wanted to be a partner rather than just a disburser of funds and held monthly teleconferences with the project leaders to discuss progress and problems.

Although the donor was progressive in this respect, Fonseca and Verkerk felt that reporting should primarily be for the project team itself. Verkerk said, "If you are reporting for me or reporting for the donor, you will write down what I want to hear and not write down what I don't want to see. Reporting should foremost be an expression of progress with one's own interpretation, analysis and learning." He found the reporting from countries increasingly formal and to some extent defensive.

Matters came to a head in 2010 when the annual report for 2009 was rejected by the donor, who wanted more focus on what had been achieved and less detail. At a team meeting in Kumasi, Ghana, Verkerk reflected on why "our reporting sucks." The donor had reduced the reporting requirement to twice a year plus the annual report, but was holding the reports to a higher standard. "We have an unorthodox donor who is relatively young in this field and quite committed and likes to be a partner," he told the country teams. "The donor is really demanding more information and knowledge because it wants a place in the progress of the project." There were other good reasons to sharpen up the reporting: as a learning opportunity for the project and as a project management tool. "We have done none of these things adequately," said Verkerk. "We had to rewrite our report to the donor, everyone complains they are not learning from our reporting system and we are not using it effectively as a project management tool." Reports had become a record of activity unrelated to outcomes and were failing to reflect or communicate effectively what the project had achieved.

Fonseca felt chastened when the donor said that far more must have been achieved than was apparent from the report. "We started all over again," she said, "but this time asking, what has been innovative, what are we proud of this last year? This was done in an interactive way, with the country coordinators and within The Netherlands team, and the results were much better." The revised report was positively received.

The meeting in Kumasi was pivotal in changing the dynamics of project reporting. The country teams themselves agreed that the reports had not addressed outcomes and did not properly reflect the work or the richness of information. All the country teams had communications and documentation officers recording experiences, but this material was not finding its way into formal reports. The teams identified time as a problem: they were not reflecting before writing and were approaching writing as a chore rather than something to learn from.

From this point onwards, teams were encouraged to write reports that they could use to communicate with others, which would also be included in reports to the donor. The new template asked what had been achieved, what had changed, what was taking shape, what major insights and discoveries had taken place, what was still missing and what needed immediate attention. Team meetings generated discussions about progress and outcomes. The revised annual report for 2009 included 31 questions from the donor with answers from the project teams, reflecting a genuine dialogue.

In 2011, the Gates foundation expanded, and foundation programme officers had to manage many more grants. The reporting format also changed. Verkerk believes this had a retrograde effect:

In my opinion they changed from being an unorthodox but rather brave donor who also wanted to be a partner to a more orthodox donor that had adopted results-based aid and was not necessarily positioned as a partner any more. Earlier, all the constraints and success were discussed in teleconferences, as partners alike. They would ask, "What do you need from the foundation?" We were very frank about what was going wrong and they were helping to resolve it.

The adoption of results-based aid had an effect on our level of transparency. The monthly teleconferences became check-in calls, no longer managed by someone who knew us well and now conducted from New York rather than Seattle. Their new reporting format was just four pages and was so condensed that everything became a synopsis and a list of achieved or not-achieved milestones. We were suddenly careful about what we were going to say. We prepared for our check-in calls and made a presentation. That was one of the biggest changes in dynamics.

Transparent reporting demanded a high level of trust on both sides, Verkerk said, but the reporting became more focused on listing achievements: "At the end the mind-set was more on how many organisations had adopted the life-cycle costs approach. It became a bit more like bean counting."

In the early international team meetings, short videos featuring country representatives and project leaders were made, to be shown internally or posted online. Verkerk believed that similar video reports, disseminated once a quarter, could have been an accessible and valuable record of the project's progress. The reporting needed to focus on the project's real issues – both achievements and problems – and the reporting process could have been used to strengthen the team and spur creativity, rather than be a routine task undertaken by a lone manager.

Programme planning

WASHCost was designed as a catalyst for change, and it was expected that the end of the project would by no means be the end of the work within countries. According to Verkerk, "WASHCost was not the end, it was simply the beginning. The project design therefore included a clear motivation to plan for a post-project adoption and acceptance of the integration WASHCost-related activities into the existing IRC country programmes." This programme planning, as distinguished from project planning, involved integrating life-cycle costing into each country's sector.

The year 2012 was a bridge year: the teams were completing analysis and publication, and embedding the life-cycle costs approach in research countries while promoting the methodology in other countries. At the same time, IRC was changing into a decentralised international organisation with country programmes led by country nationals – an NGO whose work would extend beyond project horizons. Some measure of secure funding was needed.

In Ghana, where the Triple-S project worked alongside WASHCost, work continues. Vida Dutti, IRC country director and Triple-S country team leader, works with the Community Water and Sanitation Agency and the government to move rural water services to the service delivery approach, with a focus on financial and operational sustainability and professionalisation. They are assessing and financing direct support so that communities can manage their supplies and achieve financial security for water systems that face substantial repairs.

In Burkina Faso as well, the principles of the life-cycle costs approach are being integrated into the country programme. IRC country director Juste Herman Nansi is working with the West Africa Water Supply, Sanitation and Hygiene Initiative (WA-WASH), WASHTech and SaniFaso projects, which cover sanitation and water delivery as well as capacity building, management and knowledge sharing. In January 2013 the government established a Ministry of Water, Hydraulic Planning and Sanitation.

In Mozambique, a small-scale IRC programme is being nurtured, and certain principles of the life-cycle costs approach have been integrated into the National Water and Sanitation Directorate (*Direcção Nacional de Águas, DNA*) and some district plans.

Whether IRC can develop a national office and programme in India is, at the time of writing, still an open question. The scale of the sector in India is many times greater than that of the other countries, and change is more difficult. The Government of India is placing more emphasis on sustainability, but the funding system at the state level has not changed. By the time the WASHCost project ended, an IRC programme had not yet been launched in India.

Given the difficulty of effecting change in a country, Rutger Verkerk said the process of ensuring the long-term survival of the ideas could have started earlier:

We did discuss the continuing model and asked what it would contain, and we listed local ownership, technical advice, training ability, an alliance with an implementing programme and a couple of other things, including funding opportunities. If we had had those eight or ten components of a continuing model in the very first year, we could have worked on each of them more structurally and a bit longer.

Pezon confirmed the need for a long-term presence in the country:

We have learned many things and one of them is you cannot do this kind of thing in four or five years – you need more time. As long as it is a research project and you are collecting data and analysing data and producing knowledge and publications, you can do a lot in five years. But when it comes to supporting change in a sector in a country, this is not something you can do if you are not based in the country with a permanent local team.

The end-of-project evaluation conducted in 2013 assessed adaptive management in WASHCost and gave it high marks:

One key to the project's success was a dedicated project management willing to adapt. The project faced evolving objectives and rapid changes in IRC itself. Despite several low points and pressures from many parties who had a different interpretation of the project, WASHCost's management kept the project on course. More than that, it operated in a consultative and inclusive manner with collaborating agencies. It adapted the original concept and amended plans with the goal not only of producing high quality research results to change the global mind-set for costing in the rural and peri-urban sector, but also helping focus country's sector leadership to improve service delivery on the ground.

Overall country scorecards²⁷ gave project management, especially in India and The Netherlands, the highest scores. The India team's management scored above 4.5 out of 5, and both Ghana and Mozambique were described as well managed. Even in Burkina Faso, where the project hosting arrangements broke down, the score of 3.5 out of 5 for project management rates as better than satisfactory.

In its formal assessment of project management, the evaluation team concluded, "The project has been well managed; it has adapted well to internal changes and to country-level responses; completed the project within budget with one no-cost time extension; used its resources judiciously; and met project milestones."

Perhaps the final word on project management is a comment from a reflection session at the final WASHCost full-team meeting in Soesterberg, The Netherlands, in July 2012 (de Jesus, Grift and Verhoeven, 2013): "With such a massive project in terms of funding and geographic scale, and a huge will to implement change in the sector, staying brave is key – keep calling the shots! Be aware that there will be resistance to change – do not be afraid to keep pushing."

²⁷ Read WASHCost's End-of-Project Evaluation Report by Piers Cross with Jose Frade, A.J. James and Sophie Tremollet at: www.ircwash.org/resources/washcost-end-project-evaluation.



Safe and reliable water flowing from a source in Burkina Faso (Photo by Lokaalmondiaal).

Chapter 12

The WASHCost legacy

The WASHCost legacy comprises the changes it contributed during the project lifespan and its continuing influence on the sector afterwards. The most obvious outcomes are the publications and other deliverables; the more lasting outcome may be the new approaches to understanding the relationship between costs and service levels at both national and international levels. Some of the processes that began under WASHCost continue, such as ongoing work in Ghana to finance direct support and capital maintenance costs. Project findings continue to influence sector thinking, and WASHCost also succeeded in embedding concepts and approaches into structures within countries. However, as ripples from the project spread outwards and become part of the WASH water and “saniscape,” the influence from WASHCost merges with inputs from other programmes, projects and institutions. It would be absurd to attribute all positive changes in understanding the financing of the sector to WASHCost. Successful projects and programmes succeed in part because they catch the zeitgeist, and in focusing on the need to cost the life cycle of service delivery, WASHCost partners and others were working on parallel tracks. Nevertheless, some influences of WASHCost can be distinguished. Discussions on the post-MDGs are one example of the wider adoption of WASHCost learning: the United Nations, having recognised human rights to water and sanitation, includes as guiding principles for the post-2015 development agenda the need to reduce inequalities, increase service levels and ensure financial, operational, institutional and environmental sustainability over the long term; specific indicators that will be used to measure progress.

Box 12.1 WASHCost achievements in brief

WASHCost can count amongst its achievements helping to shape the post-MDG debate through attention to life-cycle costs; galvanizing attention on sustainability; influencing the approaches of several major donors and some planned investments in focus countries; making significant contributions to the policy dialogue on costs in the 4 focus countries, in particular in Ghana; developing a methodology for assessing costs which is now being applied in at least 8 other countries (Bangladesh, Colombia, El Salvador, Honduras, Nepal, Paraguay, Sierra Leone and Uganda); developing an off-line and on-line training facility which has already trained more than 1000 people from 91 countries in [the life-cycle costs and service delivery approaches]; establishing a WASHCost network of over 1200 people interested in costing in the WASH sector; establishing a dialogue with over 70 organisations/governments in at least 20 countries and including 34 organisations with global outreach; and so far produced an extraordinary array of 176 high quality publications.

Source: Cross, et al., 2013, p.8.

Influence at the international level

Catarina Fonseca, project and overall research director for WASHCost, believes that the WASHCost influence on sector language and thinking, especially at the international level, was its most significant achievement. Speaking as the project ended in 2013, Fonseca said:

Five years after the project began, there is an improvement in the sector language to plan and use costs for providing services that reach everyone forever. You can see and hear the WASHCost ideas and terminology as conference speakers talk increasingly about capital maintenance, about post-construction support. There have been a lot of changes in the language, and when people say these things, others understand what they mean. People also refer to the cost pie that we developed. I think this has been a major achievement.

There was an incredible ease, acceptance and confluence of ideas with other organisations for the international post-MDG developments, especially the service-

level indicators and the service ladders. This was first integrated into the human rights water and sanitation framework and then taken up very easily by the [UNICEF-WHO Joint Monitoring Programme] working group in the post-2015 MDGs discussions. The technical proposal for post 2015 has the service levels, indicators of service and progressive realisation and has a strong focus on financial sustainability. This is one of our top achievements, although it is difficult to know what will become of these proposals over the next two years.

Benchmarks for the costs of sustainability

The most tangible outputs from WASHCost were based on the data that emerged from the research.²⁸ However, because the cost data was associated with very low levels of service, it was difficult to draw conclusions about the level of expenditure required to provide basic adequate water, sanitation and hygiene services; data sets cannot be used to extrapolate “ideal” costs. Nevertheless, through analysis, WASHCost succeeded in providing broad benchmarks for sustainable services beyond which costs are too low to ensure service or too high to be affordable (WASHCost, 2012a, b, c; 2013a).

These benchmarks illustrate the challenges of sustaining services, and although figures vary between countries and will become dated, some constants hold between countries and over time. For example, the 20-year cost of sustaining basic service can be five to 20 times the cost of building a latrine in the first place – and is often neglected (WASHCost, 2012b, p.1):

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.

The water information sheet (WASHCost, 2012c, p.1) makes a parallel point:

Rural water services in WASHCost research countries are chronically underfunded, with insufficient resources to provide and sustain a basic level of service that meets national norms and standards. In communities researched by WASHCost, most people did not receive this basic minimum, although they were covered by an improved water source according to national and Joint Monitoring Programme data.

Fonseca observed:

It is an amazing achievement to come up with relevant cost benchmarks that apply in India and in Burkina Faso and in many other places in the world, as we find from more and more feedback on the benchmarks. We do get a lot of feedback saying the benchmarks are very broad, but it is better to have broad benchmarks than no data at all. [With more data] we will start to understand the percentage of populations that are at the extremes of the benchmarks, then we will start to get more accuracy within the benchmarks.

The working papers provide context and allow for some comparison between countries. Because researchers had noted the main source of drinking water for each household, Burr and Fonseca (2013) could compare expenditure per person (everyone within a service area) with costs per user (those using a particular service) to show the dramatic difference that can occur when a water service, for whatever reason, fails to engage a substantial proportion of its intended users.

²⁸ IRC's WASHCost research datasets are available at: www.ircwash.org/news/datasets-now-available-wash-expenditure-and-service-levels-four-countries-2009-2010.

It is not unusual, particularly in India and Burkina Faso, to find a mix of systems and management models in one service delivery area. In such circumstances, communities rely on multiple sources for multiple uses, in patterns that often differ from design expectations. Even when there is only one model, people may regard it as too expensive or simply prefer to make their own arrangements through self-supply or buying water. The cost per person may look reasonable but the cost per user may be unsustainable in the long run. One interesting research result was that many people in rural populations in Africa simply do not use the official services at all.

Christelle Pezon, governance specialist for WASHCost Burkina Faso, said this was a revelation to policy makers:

We have been working a lot on the supply side, arguing that water facilities should be well maintained so that people can use them, and this makes sense. But when you look at the demand side, the first thing you see is that even in the driest region in Burkina, the Sahel, half of the population never go to water points. The first provision of water in rural areas is self-supply from traditional sources and wells. This shows that we need also to work on support on the demand side so that either people go to formal water points or they do something to the water from traditional wells so that it is suitable to drink.

People in Burkina were amazed when they saw the numbers, and if we had only costed infrastructure, we would not have seen that. To discover this, we needed to know who was going to the water point, how much water they took, how they used it for the basic needs of drinking, cooking and washing themselves and where else they go to fetch water. WASHCost became a powerful project because it brought in service delivery and service levels. Without that, it would have been a quite boring technical project that would have gone nowhere. ... WASHCost has raised a question about the quality of what is being delivered. Is it worth it to plan and invest for such a low level of service?

The WASHCost outputs highlighted the high cost of providing low levels of service. Capital expenditure on boreholes with handpumps was US\$ 19–76 per person, and expenditure on piped networks was US\$ 21–193 per person. Underlining the lack of attention paid to keeping service levels up following construction, recurrent expenditure on handpump schemes was very low, US\$ 0.10–0.50 per user, and for most piped schemes, US\$ 2.70–6.60.

Burr and Fonseca (2013, p.14) concluded that a threshold of funds needed to be allocated each year as a condition for sustainability:

A relatively small amount of additional money is required in absolute terms per person to achieve and sustain a basic service level. The conundrum is that, because existing expenditure is so low, this “relatively small amount” for rural services based on boreholes and handpumps is 6–12 times current spending levels, requiring an increase from an observed recurrent expenditure of about US\$ 0.50 per person per year to some US\$ 3 to US\$ 6 per person per year.

For piped schemes, depending on the size of the scheme, recurrent expenditure needed to double (Burr and Fonseca, p.14):

While these amounts do not seem much for a year-round supply of good quality and reliable drinking water, for many countries they are too much for available budgets and the current level of economic development. An important message emerging from WASHCost is that without a clear commitment from governments, NGOs and donors to subsidise part of the recurrent costs over the long term, sustainable water services for the rural poor in developing countries will remain unachievable.

Box 12.2 Indicators that a basic level of water supply or sanitation service is being delivered

For **water supply services**, a basic level of service is achieved when all the following criteria have been realised by the majority of the population in the service area: People access a minimum of 20 litres per person per day, of acceptable quality (judged by user perception and country standards) from an improved source which functions at least 350 days a year without a serious breakdown, spending no more than 30 minutes per day per round trip (including waiting time).

For **sanitation service levels**, a basic level of service is achieved when all the following criteria have been realised by the majority of the population in the service area: At least some members of the household use a latrine with an impermeable slab at the house, in the compound or shared with neighbours. 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 the use of the latrine does not result in problematic environmental impact.

Source: WASHCost, 2012a, p.1.

Advocacy campaign to promote the benchmarks

The findings were promoted extensively on the WASHCost and IRC websites, not only in working papers but also through an online campaign of pithy, 140-character messages illustrated with photographs from the countries and linked to supporting documents. This proved an effective way to promote WASHCost findings: by the end of April 2013, more than 25,000 people had visited the WASHCost website,²⁹ making a total of 163,000 page views. The most popular download was the Infosheet on sanitation services.

The campaign is still available online.³⁰ Its goal was simplicity and clarity: all the complex data and number crunching had to be translated into something that policy makers and sector people could grasp in a sentence. Some messages promoted the life-cycle costs approach: “What you do not measure, you do not cost. What you do not cost, you cannot do;” others addressed costs: “The cost of maintaining a piped water system is between US\$ 3-15 per person per year;” and some presented more general findings about services: “Handpumps remain important when piped networks fail.”

The campaign focused on sanitation in October–November 2012, water in November–December 2012, and hygiene in June 2013. IRC communications coordinator Vera van der Grift, who organised and led the campaign, said, “It contributed to directing a lot of people to the life-cycle costs approach training site. It also prompted a number of discussions on the Sustainable Sanitation Alliance forum.”

Service ladders

Among the most significant WASHCost outputs were the service ladders for water (Moriarty, et al., 2011), sanitation (Potter, et al., 2011a) and hygiene effectiveness (Potter, et al., 2013; Dubé, et al., 2012; Dubé, Carrasco and Bassono, 2013). The working papers discussed in detail the options for choosing indicators of service delivery and the levels that were selected by WASHCost (see also Chapter 4). Although the idea of service ladders was not new, defining them and linking them to costs constituted pioneering work that has influenced dialogue over the future funding of WASH. The ladders have been further refined for use both in particular countries and internationally, with changes that reflect the experience of working with these tools. For example, one criterion for water service levels was the time it takes to collect water, but collecting data on this depended on users’ own estimates of time, which proved inaccurate; in most cases, distance has therefore been used as a proxy for accessibility.

²⁹ In an organisation-wide effort to bring together IRC-related information on one web-based platform, information found previously on the WASHCost project website has now moved to the new and rebranded IRC website. View the WASHCost page at: www.ircwash.org/washcost.

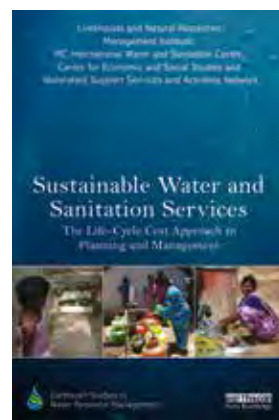
³⁰ As a time-bound web-based initiative, the campaign web page has since been made off line. For more information, contact IRC.

For a household to achieve the basic standard for sanitation and hygiene, the latrine must be used by all household members. A consequence was that a household's failure to persuade a single member to adapt his or her behaviour would downgrade the service; the ladder therefore defines the basic standard as "all or some household members use a latrine some or most of the time". A more academic approach would surely have set the higher hurdle for sanitation and hygiene, but WASHCost, an action research project, engaged with people in their daily lives and emphasised useful products tailored to each country. Thus the legacy is not just the ladders but the ongoing conversation about the indicators of service levels.

Country-level publications and maps

Overall, the WASHCost project produced 176 publications and 284 web articles, with a further 500 documents and photos; this book and several more journal papers were produced after the project ended. Publications that will continue to influence the sector in the years ahead include the following.

- WASHCost in Burkina Faso collaborated with Ryan Schweitzer, from the University of South Florida, on a paper about the link between poverty and water services, looking at who benefits from subsidies and how water collection diminishes as distance from the source increases (Schweitzer, et al., 2013). Christelle Pezon, governance specialist for WASHCost Burkina Faso said, "In rural areas people know that they can balance financial expenditure and the time they spend on collecting water, so there are very complex trade-offs between time and money that make it much more complex to develop a pro-poor policy."
- WASHCost Burkina Faso considered the costs of an intervention to address faecal containment and latrine use, handwashing with soap and domestic water management (Dubé, Carrasco and Bassono, 2013). The results, based on a survey of 1,093 households in Ladiana and Ouahabou, show a clear improvement in both villages in levels of handwashing after defecation and before eating, a positive change in faecal containment and latrine use in Ouahabou (but not Ladiana), and rather disappointing results in the management of domestic water.
- The WASHCost India team published documents targeting sector workers and policy makers at the state and national levels. In 2014, Routledge published *Sustainable Water and Sanitation Services* (LMRMI, et al., 2014),³¹ based on WASHCost's work. The book is the first systematic study of applying the life-cycle costs approach to assessing government allocations to the water and sanitation sector. The authors cover poverty analysis, cost drivers at village and household levels, and governance aspects, such as transparency, accountability and value for money, and show how the methodology can be applied in other contexts.
- The WASHCost Mozambique team produced regular updates on the costs of drilling boreholes and installing handpumps; reports that were used across the region as a guide for budgeting. In December, WASHCost Mozambique (2012) published in Portuguese and in English a short advocacy document, *10 key messages about WASH costs and service levels in Mozambique*, summarising the main findings on water and sanitation.



Front cover of WASHCost India's *Sustainable Water and Sanitation Services* book.

³¹ More information on this publication is available at: www.routledge.com/books/details/9780415828185/.

- WASHCost Ghana produced reports summarising local services in research communities, with maps of water and sanitation facilities as part of its commitment to share the results of research with householders and community leaders who provided data. The reports include sections on water (crowding at water points, accessibility, quality and use), sanitation, and costs and tariffs.³²

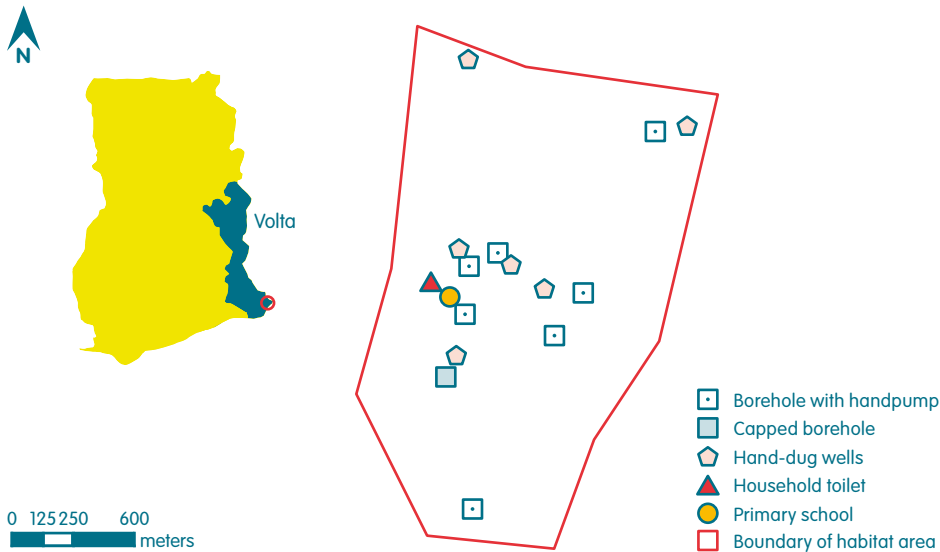
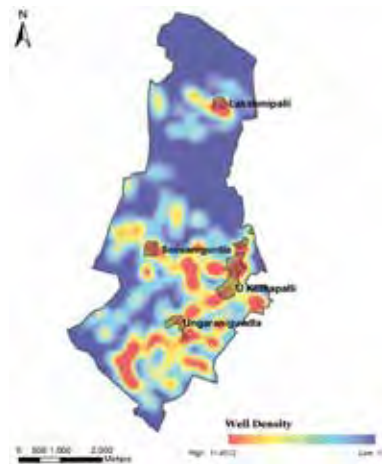


Figure 12.1 Volta region in Ghana with a focus on the Amedzikope community in the Ketu South district (from WASHCost Ghana, 2012, p.2).

- The GIS-based community maps produced in each research country have been used for analysis, and in India they were also used to identify inequalities, since they show relationships between caste, poverty and the siting of facilities. Charles Batchelor, governance specialist for the India team, noted that the richness of these maps' data caught the eye of the government planning commissioner in Delhi. Mapping water points, pioneered by WaterAid in Malawi in 2002 and Tanzania in 2004 (Welle, 2007), is becoming widely practised in the sector and has the potential to inform resource allocation and planning. James Batchelor, who was then taking up his masters in spatial analysis and catchment dynamics at Leeds University, documented and analysed the overexploitation of groundwater in Ungaranigundla, a four-village revenue unit in Andhra Pradesh, using GIS and a soil assessment tool.



Map image of well density in Ungaranigundla revenue area in Andhra Pradesh (by James Batchelor, 2013, p.15).

³² WASHCost Ghana briefing notes are compiled in the WASHCost project research outputs (2008-2013) page on the IRC website at: www.ircwash.org/resources/washcost-ghana-briefing-notes.

In demonstrating how GIS can identify problems of water scarcity, Batchelor (2013, p.27) wrote:

Time-series maps have shown the extraordinary increase in the number of borewells and their depth over the last decade or so. Heat maps have indicated where these increases have been concentrated and in what areas the concentration of failed borewells and deep borewells are highest. This is potentially useful information for managing groundwater use in the revenue village. For example, it could be used for designating groundwater sanctuary zones. GIS analysis could also form the basis for more effective community management of groundwater, through allowing different community members to easily perceive the overall situation and therefore grasp the critical need for action.

Training course and materials

One outcome of the WASHCost project was unplanned: the web-based training course³³ on costing sustainable services (see chapter 9: Going online). By mid-2013 more than 1,000 people from 91 countries had taken the life-cycle costs approach and the service delivery approach courses. The courses have continued as part of the core training of IRC. Jeske Verhoeven, who as WASHCost project officer was responsible for developing the online life-cycle costs course, believed it would be more significant even than the research results because it was about the future rather than a snapshot of costs in 2010–2011:

In the end the data has become the least important part of what came out of WASHCost. It is the methodology for others to use and the long-term thinking that counts. The idea of the life-cycle cost components and that there is more than capital expenditure and OpEx and the idea of service levels – that is what will contribute to improvement of the sector. That is what will have impact, not the data itself. The cost ranges will have impact because they validate that thinking and the methodology used. The rest of the data just backs up what we were saying.

Films

Dutch filmmakers Lokaalmondiaal were invited in 2012 to create a series of short films about costs, service levels and sustainability issues in the four research countries. They produced one film on each country plus a 20-minute video on WASH sustainability more generally.³⁴

Directed by Thomas Hurkxkens and filmed by Andre van der Stouwe, the video pulls together a common narrative as planners and community members in different countries describe broken services and express frustration at having to replace what should have been maintained. The film shows how in Mozambique, India, Ghana and Burkina Faso, life-cycle costs provide an important part of the picture. Emmanuel Gaze, director of technical services at the Community Water and Sanitation Agency (CWSA) in Ghana, is quoted as saying:

If you build a system in a community and in the next five years you come back to the government and say, 'Give me money, I want to build the same system in the same community', government obviously should ask you ... 'why do you want to build a system like that again?'

Lokaalmondiaal produced a four-minute WASHCost animation titled *Life-cycle costs approach: bringing us closer to WASH services that last*,³⁵ explaining the cost and service components with the punch line, *Water should be a given, not a gift*.³⁶

³³ Information about the training courses offered by IRC are available here: www.ircwash.org/node/268.

³⁴ The film can be viewed on YouTube or at: www.ircwash.org/news/washcost-film.

³⁵ Available at: www.ircwash.org/resources/animation-life-cycle-cost-approach-lcca-bringing-us-closer-wash-services-last-0.

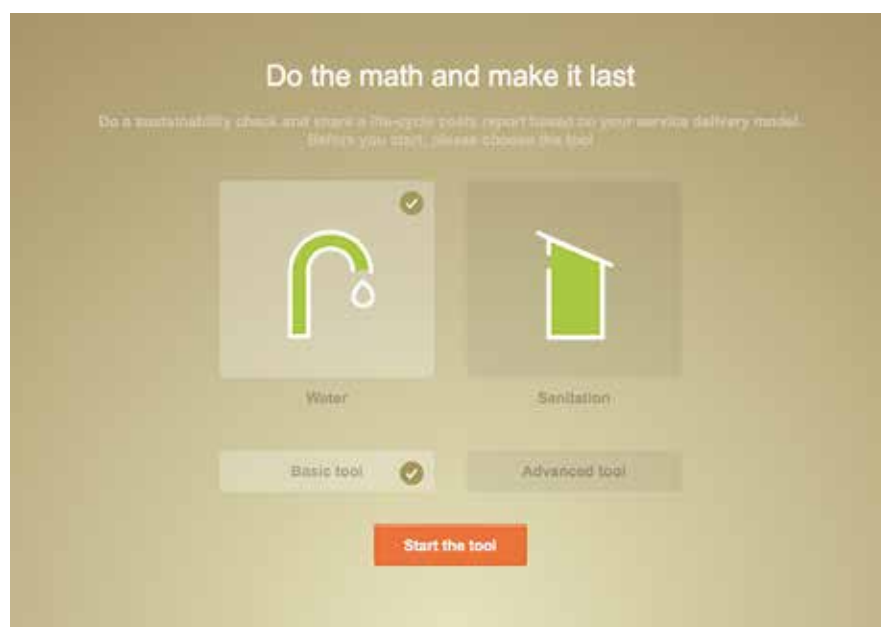
³⁶ Other WASHCost short films can be seen on YouTube at www.youtube.com/playlist?list=PL383F0AF09C68E3CC.

The WASHCost Share tool

WASHCost originally planned a web-based costs and services database that could be used for planning and resource allocation. An international workshop hosted by IRC in The Netherlands concluded that the tool was worth pursuing only if there was an agency willing to take over its management and keep it up-to-date when the project was over. The idea of a decision-support tool re-emerged in 2012 when the donor, the Bill & Melinda Gates Foundation, agreed to provide a separate grant to develop a WASHCost tool.

With design support from a UK-based company, Native, and marketing expertise from San Francisco-based Hattery, IRC developed a tool to help implementers and donors plan and evaluate sanitation and water services using life-cycle costs and service-level data. Users can enter their information and run a sustainability check on planned water and sanitation services even if they do not have expert knowledge about the life-cycle costs approach. A beta version of WASHCost Share was released at the Stockholm World Water Week in September 2013, and Version 1 was due to be released in late 2013 or early 2014.³⁷

Nick Dickinson, senior programme officer at IRC, described the tool as “an app that makes it really easy to access information about water and sanitation services and basically to do the math and figure out how sustainable it will be.” It was designed for sector professionals but can be used by anyone who wants to understand what a programme actually costs and whether services will be sustainable over the next ten years. Users can check financial sustainability over a system's life cycle, determine value for money and see what level of service is being provided; they can also compare costs with other programmes. Fonseca considered it useful for making rapid checks on whether programme costing is realistic: “WASHCost Share allows us to have a much quicker first idea of whether your project will be sustainable or not from a financial perspective.”



Contributing sector data will help to build a reliable costs database.

³⁷ WASHCost Share is available on the IRC website and a short explanatory video is posted at: www.youtube.com/watch?v=GXsDe_00f30.

Embedding change in sector thinking

The ultimate benefits of WASHCost, some of whose goals were set for ten years out, cannot yet be fully assessed, but approximately 70 governments, international organisations, NGOs and other sector bodies have taken up WASHCost ideas and put them into practice (WASHCost, 2013a; figure 12.3). IRC programmes in Ghana and Burkina Faso are continuing, and work is ongoing in India and Mozambique. Beyond the research countries, the methodology for assessing costs is also being applied in Bangladesh, Colombia, El Salvador, Honduras, Nepal, Paraguay, Sierra Leone and Uganda.

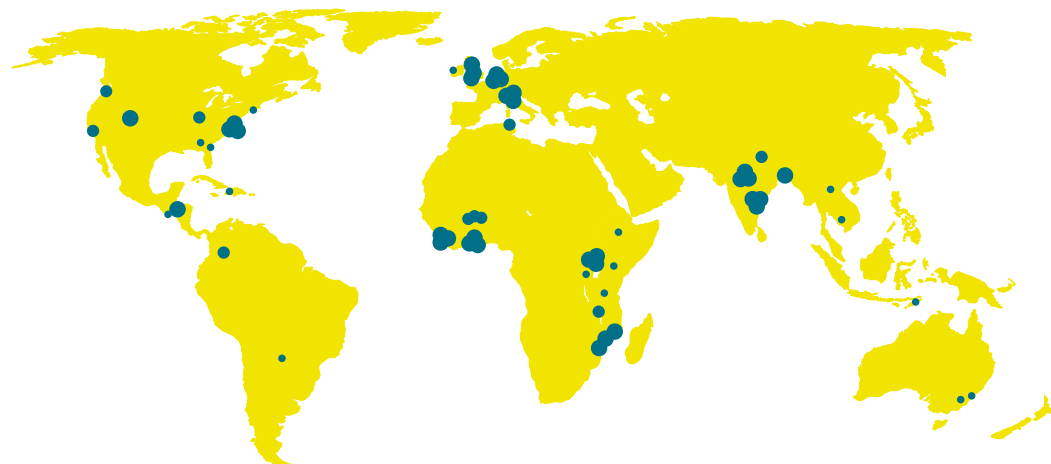


Figure 12.2 Life-cycle costs uptake, April 2013

Source: IRC, 2013, p.11.

N.B.: The size of the circles indicates the degree of uptake of components of a service delivery and life-cycle costs approach, based on four criteria: terminology use and referencing, structural change in internal practice, active funding of approach, and adoption of approach in programme implementation.

The extent to which WASHCost was able to work with national and local governments and learning alliances varied with country contexts. The learning alliances that worked best were facilitated and supported by IRC country programmes beyond the WASHCost project and included professionals who were accustomed to learning from one another and understood the need for professional development.

In Ghana, the national learning alliance, coordinated through the Resource Centre Network with support from IRC, WASHCost and later Triple-S, has promoted learning, adoption and ownership of the life-cycle costs concepts for government workers and other stakeholders. The learning alliance has become the primary learning platform for the sector; regional learning alliances are now being formed. WASHCost especially influenced planning for districts' direct support costs and for capital maintenance. Clement Bugase, CWSA chief executive, worked with both Triple-S and WASHCost and believed the two projects significantly improved the state of knowledge in the sector in Ghana:

WASHCost has provided a lot of information and insight, so from now on, when we design physical facilities, we are going to be mindful of the total cost of putting in place the facility and keeping it going. Therefore our budgets will change, our approach to costing of the facility will change, our approach to monitoring the functionality of the facilities will change. Information will be available for all stakeholders – the district assemblies, the national level and we ourselves at CWSA – and we think that with time that will further enhance our ability to work as a regulator.

Charlotte Engmann, water and sanitation systems coordinator for CWSA, worked with WASHCost as researchers gathered data in the districts and interviewed sector professionals about the cost of water programmes. She said the project had prompted the agency to look more critically at district costs: “We are trying to gather all the information we need ... to support WASH projects both during implementation and after commissioning. We look more critically at post-construction costs, especially for rural communities. We didn’t have data for handpump maintenance but now we are trying to assemble that data.”

The breakdown of costs was especially useful, she said. “Quantifying CWSA costs in supporting WASH projects is one very big legacy, because it has always been difficult to get governments to provide the real amount of money that we need for our operations.” Engmann hoped that NGOs in Ghana would be inspired by the project and the usefulness of the data to track and publish their own figures: “We are trying to let them know that they must document these costs and they must make it accessible to us.”

Kwabena Nyarko, research director for WASHCost Ghana, felt confident that the CWSA would continue to make progress after the end of the project. “Stakeholders have confirmed that indeed it was a relevant, timely and needed assignment. CWSA is keen to use it to improve the work they are doing. There is no doubt that there is consensus for improving service delivery – the challenge maybe is how long it takes for it to be operationalised. Budgeting needs to translate into funds so they can do their work. This is part of the challenge. We hope we get there, but when will be difficult to tell. However CWSA can take this forward.”

The WASHCost advisory committee in Andhra Pradesh did not link WASHCost issues to other learning approaches in the sector, and uptake of the findings was more limited. The team pursued other embedding strategies, such as participating in national-level platforms on guidelines for the sector.

Vikas Raj, secretary to the Rural Water Supply and Sanitation Department in Andhra Pradesh in 2012, called source sustainability and maintenance of systems the major challenges for his department. He valued the WASHCost reports about the realities of rural water and sanitation:

Based on that, when we are designing a system which is basically for maintenance... the money has to come in time, the material has to come in time, the day-to-day maintenance has to be done to a specific timetable... I found that based on the study and other studies that [WASHCost] might have done in other places, a lot of good practices can be adopted by us. So I am sure they will be able to add value to it.

Snehalatha believes that the data they collected in India was well accepted by the State rural water and sanitation department, despite WASHCost bringing in messages that were critical of some current practices. “That was the best part of the whole project. Despite the negative messages we presented, the department have confirmed the findings – that what we were telling them was true. That itself gives us the confidence that 90% of the data is true.”

In Mozambique, the team used an existing sector platform, *Grupo de Água e Saneamento* (GAS, Water and Sanitation Group), and worked to embed the life-cycle costs approach in planning and budgeting processes. Messias Macie, head of planning and control at the *Direcção Nacional de Águas* (DNA, National Directorate of Water), felt that the embedding of WASHCost concepts in his department has been less strong than the data collection and research; had it started earlier, he said, it could have been more effective: “At provincial level they are using the information collected and produced through the WASHCost project, but at district level we still feel that they are not aware of those tools and data.”

Nevertheless, Macie said, WASHCost had helped integrate into his department the methodology and information that regional staff needed for planning:

At the provincial level we are collecting information on the number of water points that have been constructed or rehabilitated, about sanitation facilities, and also information about contracts: how many contracts, the value, the performance in terms of financial performance and physical constructions... We use that information mainly for our

national reports. In 2010 we introduced an annual performance report for the sector. It helps us to do better planning. We have an annual planning meeting where DNA sits with the provinces and the regional authority and look at our plans, and the budgeting process is influenced by the results of the data collected last year.

Towards the close of the project, WASHCost Mozambique trained department staff so that they could then train district staff to collect cost data. The quality of staff was critical to the future of services in Mozambique, Macie said: “Many times we talk about money, but for me the first thing is skilled staff, because if you have skilled staff, they can attract money to the district. We can divide the resources into staff and funds; for me it is crucial.”

Julia Zita, data manager for WASHCost Mozambique and for the DNA (focused in improving the national information system for water and sanitation) was involved in training staff to collect data on water and sanitation services. She said that the embedding process had paid dividends.

The activities of WASHCost and DNA are related. WASHCost has been collecting information on borehole contracts, and it is only possible to get that information at planning meetings organised by DNA. I put this information in the database and worked to produce briefing notes on costs. These briefing notes are also important to DNA because we use [them] for planning... Over four years, I think WASHCost has answered some of the questions that were the aim of the project. This information helps us for planning purposes and also helps donors and other institutions working in the water and sanitation sector. It is possible to decide according to the data we have received where we have to improve on water or sanitation.



District-level staff discussing cost data collection and logging methods, Mozambique.



The final multi-team project meeting in July 2012: They have counted every leaf on the tree and now they hope that WASHCost ideas will continue to thrive.

Arjen Naafs, country coordinator for WASHCost Mozambique, concluded that they had been better at embedding the concepts in governmental structures, but less successful at embedding the methodology. However they had put issues firmly onto the agenda:

There are a number of main achievements. One of them is awareness raising in the sector about costs and how to look at them understand them and the fact that service levels are being discussed. WASHCost helped to bring that onto the agenda giving some data and for costing there is now a lot more clarity.

Their influence of WASHCost was increased by having part of the team housed within the National Directorate of Water, Naafs said:

The physical part of being here and available is very important. It is not just about walking in through the door with your agenda, having a meeting and walking out again. To be here means you cooperate much more on some of the things they themselves bring to the agenda. They might be working on an intervention and need a budget by tomorrow and ask 'where is that paper you had on costs'? Because we are here we are always welcome. We are part of the DNA team, a fly on the wall and sometimes an active participant.

By the end of the project, some of the data was not only being understood, it was also being used. Alana Potter, governance specialist for WASHCost Mozambique, recalled that the WASHCost closing meeting was attached to a government planning and budgeting meeting for the national, provincial and district water sector. She was very impressed when one of the officials from a districts where WASHCost had done pilot training, told the meeting: "Finally, I can say what I can deliver for the budget that I get. I can't do 20 boreholes, but I can do five and they will last." Potter said: "I found that very powerful."

In late 2012, the Burkina Faso learning alliance was restarted by the IRC country programme as a small group that could make decisions quickly and influence the sector. Pezon said that a successful learning alliance should support learning in the sector:

We should not forget the objective of the learning alliance... to integrate ongoing learning processes in the country and to contribute to the sector dialogue rather than set up a separate platform that just adds a new meeting for the same people. This is something we have learned through WASHCost.

Now we are part of different working groups, which are all government-led learning processes, and it works much better, not only for contributing to the debate but also for decision making. The kind of platform you need, and what we have in Burkina now, is a very much smaller group of people who can really make decisions.

The decision makers represent the Ministry of Water, the Water Department, the Sanitation Department and donors. "We are now tasked formally to support the Water Department and the Ministry of Water to develop a proper monitoring framework for rural water services," Pezon said.

Is the legacy of WASHCost secure?

Whether the concepts of WASHCost take hold over the next five years depends on the financial stability of the international bodies and national governments that plan for water, sanitation and hygiene services. At the international level, most agencies address at least some aspects of life-cycle costing. For the individual countries, the WASHCost project leaders had strived for an overall continuing model. In the final report to the donor (WASHCost, 2013a), Fonseca wrote:

WASHCost is nearly reaching a critical mass in-country, but there may still be a significant risk that the planned withdrawing of WASHCost project funding may trigger 'unfortunate and unintended slippage.' The original project proposal included a short-term vision (after five years) and a long-term vision (after ten years), with the latter half not funded. It is strongly felt that a transition (and funding) is needed to shift from understanding costing to understanding financing – to enable the sector to move from the short, to the long term vision.

For now, project participants have put their faith in the WASHCost training package, WASHCost Share and the ongoing work in countries to keep the life-cycle costs approach alive and, with it, the hopes for tools and approaches that support more sustainable water and sanitation services in rural communities.



Subramanyam Naidu of WASHCost India reflecting on lessons learnt from the research process.

Reflections on the WASHCost Project

This chapter goes beyond the WASHCost outcomes to offer reflections that may be relevant to other multi-country action research. The questions and comments quoted here (organised by topic) do not represent WASHCost, but distil some insights of some of those most centrally involved, and may help other researchers and contribute to the discussion in the sector about how to bring about lasting changes for the better.

Long-term change takes time

1. Innovation requires long-term work as well as inspiration or invention as Patrick Moriarty, director of IRC, has pointed out:

It takes ten seconds to have a bright idea and ten years to turn it into something practical. What we were doing was genuinely innovating. We didn't invent anything by saying you should look at the costs of projects in the water sector over their whole life cycle; the innovation was in working out how you do it, and doing it, and learning how to do it better.

2. Long-term change requires long-term funding. Five years is a long duration for a project but not long enough to bring about institutional change at a country's governmental level. The project proposal envisioned changes in ten years but was funded for only five years. Some mechanism is needed to ensure that the innovations are embedded and turned into action. Funding might continue at a lower level, for example, since once the flow of money is shut off at the project's end, support for change is diminished. Another possibility is some kind of tapering that would allow for "aftercare." Looking ahead beyond the end of a project when it is just beginning is difficult, but necessary. This should even be addressed at the project proposal stage.

3. Changes in practice require long-term programmes. Moriarty, having seen the benefits of projects diminish after they end, became convinced of the need for IRC country programmes to sustain promising developments:

I saw it with EMPOWERS,³⁸ I saw it with RiPPLE,³⁹ and I see it again and again. You get a team together, it takes four or five years to build a skill set and you then have a group of people who could really do some useful work – and then it's off to another country, another project and another team. I think we have a better foundation now in IRC because we are not planning to leave Ghana, and we are continuing to work in Burkina Faso and India.

4. The relationship with the donor is important. At first the Bill & Melinda Gates Foundation was an involved partner, and although this relationship became less close in the final year, Arjen Naafs, country coordinator for WASHCost Mozambique, felt that nevertheless the donor always sets the direction of the project: "Although we talk of national ownership, it is worth remembering that essentially WASHCost was still a donor-driven project, rather than the drive coming from national actors. Our reporting went to The Netherlands but not to the [directorate] in Mozambique where we were embedded."

³⁸ EMPOWERS (2003-2007) was part of the European Commission-funded Mediterranean Regional Programme for Local Water Management seeking to improve water governance, access and rights in Egypt, Jordan and the West Bank. CARE International led a partnership that included the Inter-Islamic Network on Water Resources Development and Management, and IRC.

³⁹ RiPPLE (2006-2011) was a research programme in Ethiopia and the Nile region to advance evidence-based learning on water supply and sanitation. The RiPPLE consortium funded by the UK Department for International Development, included IRC. Since 2012, RiPPLE has been a local NGO in Ethiopia.

5. Five years of action research goes fast. The first year, is spent setting the project up and testing ideas. Building country teams takes time. The last year is focused on finalising results and producing outputs. The time available for each element – data collection, analysis, embedding – is very limited. Amélie Dubé, research officer for WASHCost Burkina Faso and IRC programme officer, said:

I think four years was necessary just to collect the data and analyse it properly, let alone the embedding. I wish WASHCost would be another year long, as I am now starting to know what I am talking about. Whatever you plan to do, double the time you need to do it. If you are doing a five-year project, you really need ten years to do it!

Country-led initiatives versus multi-country comparisons

6. National and international priorities can conflict. The international audience needs to see convincing research findings, so action research must have enough academic rigour to withstand scrutiny. At the country level, the priority is working with those who will implement change, especially change agents in governmental positions.

Within WASHCost this led to questions about the concept of multi-country projects. Some believed that it would be better to develop single-country initiatives with a strong local team: the country is the natural unit for conducting this kind of research, the argument went, and what happens in other countries is of lesser interest. However, others believed that the comparisons of service levels and costs across countries were useful for the countries themselves, as well as for international audiences. Without data from more than one country, they argued, the results would be dismissed and the methodologies would be harder to share. Moreover, the teams were strengthened by inter-country contact.

7. Would the project have gone easier if it had started in one country a year in advance of the others? Its experience could then have been used to clarify concepts and address practical problems. The first country would have been a “test-bed.” Naafs would have supported this:

Country ownership meant that country resources were used to re-invent solutions to the same problems. If one country had been a year ahead in its research development, they could have shared an adaptable framework for data capture and analysis. This would have saved a lot of time. As it was, we had to think through our own questions and later on fit them together to see if they worked. Although this was kind of useful, it may not have justified the time spent on these activities.

There is no way to test retrospectively whether this would have worked in WASHCost, but it is worth noting that the original ‘common information framework’ proposed by the external advisory committee, was rejected by the country teams on the grounds that it had not sufficiently taken into account country contexts. Moreover, phasing the work in this manner raises questions about the relationship between the lead country and the others; does it imply a “leading” country and “followers”? How much autonomy would the “followers” have had?

8. Could the methodology have been settled in advance? A different kind of preparatory period would have been supported by Mekala Snehalatha, country coordinator for WASHCost India, to clarify the concepts before the research began:

The methodologies were not completely common across all the countries, so when you start comparing data, it becomes very difficult. I think some of these parameters should have been in place first, and then the countries should have been asked to collect the data on these parameters and see if they compared across countries. One lesson I have learnt is that your theoretical frameworks and theory of change should be very strong and formed at the beginning of the project. If these frameworks were really ready, these little areas of uncertainty may have been cleared up more quickly. We could have been much more confident. I think maybe one year of homework could

have been done after the sanctioning of the project. We could have put together a group of good researchers to develop these tools for the framework and then be able to upscale on the ground.

However, that approach would have excluded most team members and country learning alliance partners from discussions about methodology. Would countries have accepted a methodology that had been developed by and “imposed” from a central team of researchers in The Hague?

Christelle Pezon, governance specialist for WASHCost Burkina Faso, believed that a preliminary period could have been used in a different way to find out more about existing practice.

Before jumping directly into starting WASHCost Burkina Faso, we should have allowed six to twelve months to look at sector data, how people really plan, and the use of data available.

Charles Batchelor, governance specialist for WASHCost India, would have preferred more time later in the project to demonstrate that the life-cycle costs approach would work.

We did not do proper piloting where we worked alongside service delivery organisations and helped them use the life-cycle costs approach. We did not actually see whether life-cycle costs require more or less money and what support organisations need to apply life-cycle costs in the field. I think we would have learnt a lot from that and it is a shame there was not enough time to do it among the competing deliverables.

9. Should a multi-country project be centrally directed or driven by the countries? In WASHCost the methodologies were agreed centrally but the countries had considerable freedom in how they collected the data. WASHCost researcher, Peter Burr, who was deeply involved in international data analysis, found that differences in methodology meant that some data had to be discarded:

My experience makes the case for centralisation. It would have made my life easier if it had been more centralised and prescriptive. To really answer what the best approach is, I think you have to look at how useful learning alliances have found it. There are very strong arguments for decentralisation if we had people to do the embedding and training. But in terms of the concept of our research, I think they could be more centralised or at least more fixed. We are trying to create ideas that should hold true across countries.

Points 6–9 emerge from the experience of WASHCost, but there is no clear consensus among participants. During the course of the project, country teams sought greater autonomy rather than greater uniformity. During the project inception, attempts were made to agree on a common methodology (and to an extent this was achieved), but country teams, often backed by their learning alliance members, argued that variations were necessary to address local context. It is important to be aware of these arguments before the start of multi-country initiatives, and understand that compromises will be necessary.

Catarina Fonseca, project and overall research director, recalled that these issues were extensively discussed in research meetings and management team meetings:

For research there is a common spine and there are also areas where decisions are decentralised. This was a critical aspect for action research. There is a core that follows the agreed points, and at the margins, there is divergence. I realise many people do not really feel comfortable with this. However, what aspects of research should be centralised or prepared in advance? The questionnaires? The data analysis graphs? The indicators for measuring environmental protection? Does anyone really believe we would have developed the service ladders in a context where a couple of senior researchers would have set the whole methodology in a room somewhere?

Management style and team building

10. Project leadership can inspire a collective desire to work through difficulties. The management style of WASHCost was open and encouraged decision making at the country level, with coordination at the international level. Everyone who contributed was valued and encouraged to express their views. Jeske Verhoeven, who started as WASHCost project assistant and later became project officer, saw this close up. “We had inspirational leadership,” she said. “We all got a (metaphorical) slap once in a while, but we cared enough to come back. Every country [team] was committed because what we were doing was useful.” At the start of the project, one anticipated risk was that team members might get bored and drift away. That never happened in WASHCost. Catarina Fonseca said: “This was the first time I had managed a large team. It consolidated my previous belief that human relations are the most important, that dealing in a very personal way with your colleague provides motivation and engagement and the feeling that you are part of a team. That supported some of my beliefs in a style of management. Given that I did not have a role model or a coach, I picked the best in what I had seen from colleagues and it seemed to work!”
11. A multi-country project needs strong, interdisciplinary teams. In WASHCost, meetings provided opportunities for staff from each country to learn from one another, get to know each other and share ideas both informally and in formal sessions. Interaction was supported by regular e-mails, phone calls and Skype sessions. Kwabena Nyarko, research director in Ghana, particularly appreciated the international team meetings:

I felt the global meetings were good for us to reach a common understanding that we were on the same page and for us to have incremental jumps so we could finalise the methodology. There was a lot of interaction. It was frequent, relevant. And each meeting got us closer to where we are now. The meetings were good for the research and the embedding.

Verhoeven said that the quality of the staff in each country stood out:

The strength of the team has been the team. The quality is good because we kept challenging each other. This type of research is not as simple as, ‘You ask these questions in the field and you enter them in the Excel sheet.’ To make sense of what it says [research data], you need a group of brains. The strength has been that in the end, when you brought all these people together with all their experience, we were able to come up with a great methodology that was really useful. The research meetings were of extreme value. Once we got everyone in the room together, with all this experience of the data and others with a communications background, we were able to make sense of the data and come up with something useful.

Snehalatha too appreciated the mix of skills that came together at WASHCost meetings:

Inter-country meetings were really very good to see where we were and where we were going and how to get there. At times they were frustrating, but most of the time discussions were very useful. We have learnt a lot from each of the country experiences.

I felt that this particular group we had at country and global level was right. Some of us are purely academic researchers, some are purely implementers and some are a mixture of both. A combination of these things allowed us to come to the more practical approach that was required for the project. As a mixture, it attracted both implementers and policy makers. Having the research meetings also helped the WASHCost India team to complete things and keep everything together.

Skill sets and experience

12. Positive steps are needed to identify skill gaps. Different skills are needed at different stages in a project, and although one might wish that people would come to a project with the required skill sets and experience, then it would not be action research and no learning would take place. People's initial skills are probably lower than the "ideal," but these gaps may not be obvious to the self. People do not like to admit their vulnerabilities; problems emerge only when they are tested. WASHCost managers tried to identify training needs and introduced in-country training and impromptu sessions at international meetings to address the gaps (chapter 9).

A five-year project is about 12% to 15% of an individual's working lifetime, and during that period team members learn an immense amount, not only about the research topic but also about how to conduct the process. Looking back, it is easy to see mistakes and detours. Although experience can be gained only the long way, by living it, there is also a need to share what others have learnt. The fact that a team learns collectively underscores the need not to share this experience at the end of a project.

The team needs to be a supportive "family" in which each member has something to contribute and something to learn – there is no shame in not knowing. It is especially hard for people with academic or professional status to admit that they do not know how to lead a meeting, calculate statistical significance, or communicate effectively. More broadly, the idea of learning may offend senior staff in government and sector institutions by implying that they have to "go back to school." Trust has to be built and training must be sensitive to people's sense of self-worth.

13. Working with universities is a way to bring in bright young people and skills. In Ghana the link with KNUST University allowed masters' and doctoral students to work on WASHCost data, ensuring that the concepts were transferred to a new generation of water engineering students. In India, however, it proved impossible to attract rising stars to the project because they could earn more money elsewhere. Collaboration with Cranfield University, the University of South Florida-Tampa and the University of North Carolina, through research agreements, allowed for researchers conducting their PhD and/ or Masters to collate and further analyse data.



Officially marking the close of WASHCost in Soesterberg, July 2012... "WASHCost was never intended to be the end... [it] is merely the beginning" (Rutger Verkerk).

Monitoring, learning and communications

14. Monitoring and learning should be routine. Kristof Bostoen, IRC monitoring and learning specialist, said, “Monitoring should be second nature, just like report writing or anything else one just does in a project. On the other hand, because there is a danger of it disappearing, you need to mark it separately and ensure it has resources, as an integral part of the project.” Deirdre Casella, monitoring and learning coordinator for WASHCost and IRC training coordinator said that the process was sometimes “painful” but benefited related projects and IRC as a whole. Fonseca saw it differently: “What everyone calls pain, I call learning!”
15. Documenting the process is important for monitoring and learning, and good communication is needed to share emerging messages and information. The most important step is determining the audiences and messages for each phase of the work. The whole team needs communication skills. Peter McIntyre, communications and documentation specialist and IRC associate, believed it would have been better to start with some specific basic commitments for documentation and communication, with clear accountability for delivery: “Both monitoring and documentation need to be demystified so that documenting and monitoring are not seen as tasks only for specialists. They also need to be planned together so they complement each other.” Bostoen feared that those who were too involved in a project could find it difficult to document learning effectively: “If people are too used to the situation, they don’t see a noteworthy event, while an outsider might see it as interesting.”

Lessons from action research

16. Action research can uncover findings that alter the project focus. WASHCost began as a project to obtain information about costs, but later became equally about service levels and their relationship to costs. The research supplied missing information on how people collected and used water and how (and whether) they accessed sanitation. The broader issues that emerged from the research included the extent to which rural families in some countries did not use the official services – a core finding that needs to inform sector thinking. Another crucial finding was that provision of low-quality services was money down the drain. Batchelor said that the project had succeeded in drawing attention to the need for recurrent expenditure: “It made quite bright people look at old chestnuts from a different perspective – the perspective of expenditure. That is why a lot of people liked it. Lack of recurrent expenditure was related to poor services, poor value for money and all the problems of the WASH sector.”
17. WASH is about sanitation and hygiene as well as water. Alana Potter, governance specialist for WASHCost Mozambique who also led the development of the WASHCost sanitation service ladder and efforts to cost hygiene services, observed that almost half the WASHCost publications related to sanitation was limited. “We collected limited sanitation financial costs,” Potter said, “because that reflected the reality and coverage of the places where we collected the data. But we cut new ground in terms of sanitation service levels, thinking beyond technology and looking at costing... This is important for shaping IRC’s agenda going forward.”
18. Findings usually lead to new questions. WASHCost confirmed that in many countries, sanitation was almost always an individual household responsibility, but the extent to which this was also true for water was a surprise. In every country, families paid a lot to augment services, and forms of self-supply were more common than expected yet poorly supported. Even in India, where villages may have multiple services, people often had to fend for themselves. Rama Chandrudu, who led the communications and documentation team for WASHCost India, said, “I realised that families even have to make investments for drinking water, from their own resources. The research helped to get this message clear for me: each family is making investments to fill the service gaps.” And although some believe that self-supply deserves support, Batchelor said that

private expenditure could have a pernicious effect on service levels for poorer social groups, since resources in rural villages were captured by those who could pay.

Dubé said the finding was true for both water and sanitation in Burkina Faso: “For water, it is still very unclear who is responsible for what cost, how this is financed, by whom, and what is actually happening in the field. For sanitation, the most interesting finding for me is that households are dealing with everything.”

Individual responsibilities for service provision have not been sufficiently explored.

19. Good governance is required to secure beneficial change. Chandrudu was shocked that only three of 107 villages researched in Andhra Pradesh had good governance for WASH services. “Predictability of supply was very, very low in most of the villages,” he said, “because there is almost zero governance.” The three villages with good governance shared some common characteristics: they had at least one strong local institution (a woman’s group or Gram Panchayat body), they were able to mobilise funds from the villagers even though they were not rich, and they had some kind of charismatic leader.
20. The jury is still out on learning alliances. India worked with an advisory group that disbanded when the project ended. In Burkina Faso, since the project was relaunched, IRC has worked with existing liaison bodies led by government. In Mozambique, WASHCost worked with an existing sector body, which was good for sharing information and embedding concepts but not for embedding the methodology to make it happen. Only in Ghana was a sector learning alliance kept alive beyond the project.

What is certain is that some form of organisation to formalise interaction with country-level partners is necessary and this has to be dynamically led. Moriarty said:

These are change-focused messages aimed at a whole sector. Clearly, you are going to have to engage with the people who have to implement that change. Whether you call it a learning alliance, whether you call it a platform, whether you call it a steering committee, to lead that change you need someone with strong leadership skills who is able to manage different partners.

21. Identifying the local people who will champion new concepts is crucial. Naafs found that the level of local leadership was a critical factor in Mozambique:

One thing I really like about the way IRC has taken this on has been to work with champions and to identify key people who can be motivated in how and why one has to look at costs and services. There are certain people in the ministry who have clearly taken these ideas on board at an early stage and became champions. They will continue to do that and they might refer in five years’ time to this WASHCost project from which we learned this-and-that. That is the longer-term impact.

22. Being an agent of change means taking leadership. Moriarty said that the process of change was almost always harder than expected:

We underestimate the difficulty of some of the concepts that we bring in and we make far too many assumptions that people are empowered to get on with it. It is better to be open and honest about accepting a leadership role to start with, rather than saying we are just here to facilitate your learning. The IRC new business plan accepts our role as a change agent. We do say we have a vision for the sector, and we do say we are going to advocate change.

Working with data

23. Some arrangement has to be made to continue to mine data after a project is over. In the case of WASHCost, it was certainly not possible during the life span of the project to analyse all the data collected. Burr, who did much of the cross-country analysis, said that country studies would require additional analysis but that knowledge of the local context was needed to interpret the data:

The frustration I have felt is [in] the knowledge that there was a huge amount of rich data that you can't access, and interesting messages that could be got out of the data. It would have required focused work within each country reflecting on the data, and that should have happened through country studies. When I had to make the final cross-country meta-analysis, granularity was lost and there was a disconnect in the details.

24. Good concepts have longevity. WASHCost produced benchmarks for sustainable services,⁴⁰ but cost figures soon go out of date. The research methodology, which is now being shared internationally, may be more significant in the longer term. "What is important," Moriarty said, "is that in the countries, people are beginning to collect cost data a bit more systematically." Verhoeven, who set up the training modules for WASHCost agreed: "It is the methodology and the thinking that counts and will contribute most to the sector."

⁴⁰ View the WASHCost benchmarks for sustainable water and sanitation services in WASHCost Infosheet 1, available at: www.ircwash.org/resources/providing-basic-level-water-and-sanitation-services-last-cost-benchmarks.

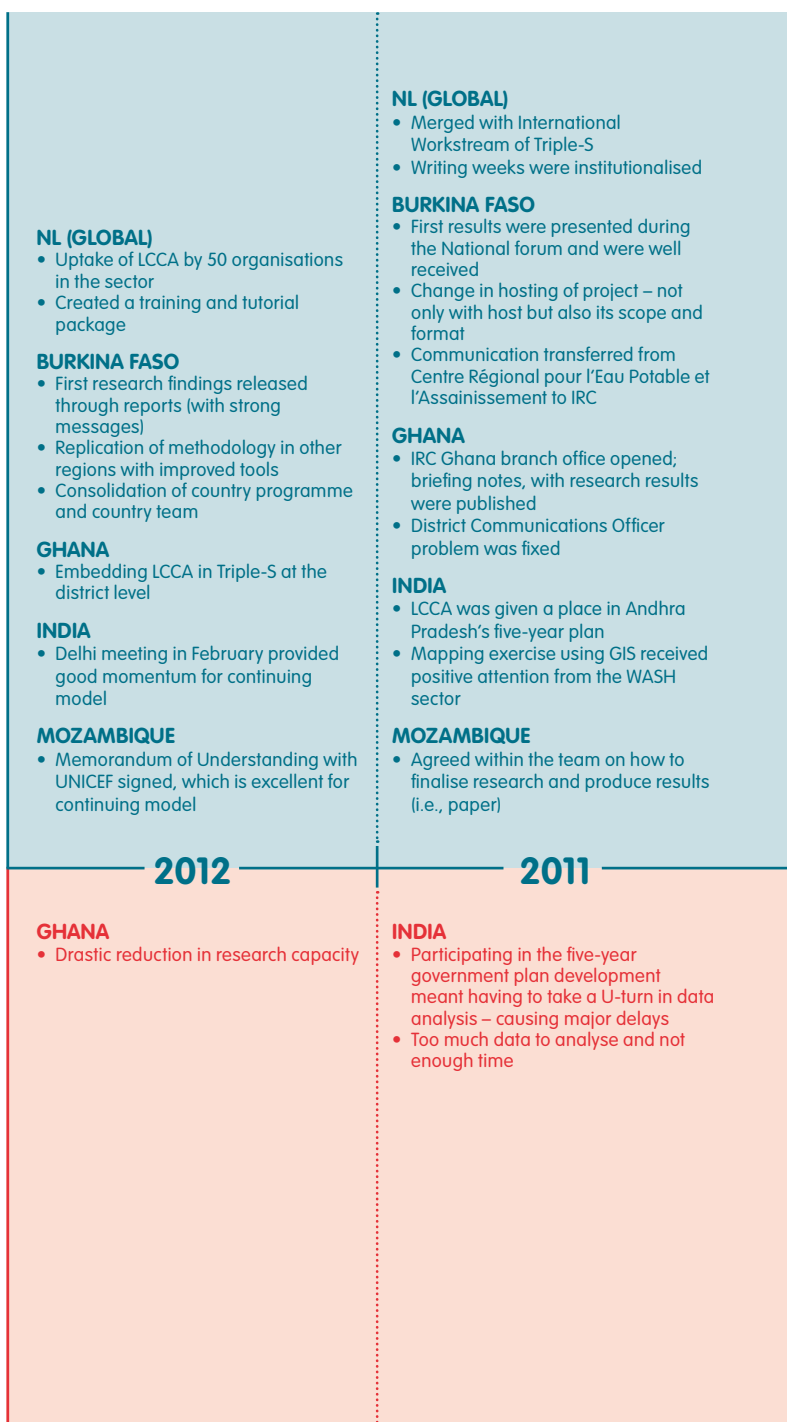


Gathering water from a reliable and safe source, within an acceptable walking distance makes the process less of a chore and more of a social gathering.

Looking back: a reverse time walk self-reflection exercise by the WASHCost project team in 2012

On the last day of the final project team meeting of WASHCost in 2012, IRC's Audrey van Soest and Deirdre Casella facilitated a reverse time walk for the meeting's participants to revisit key approaches and strategies taken in the last five years. Of these approaches and strategies, those that were considered to have made the greatest impact on the project – whether positive or negative – were highlighted and used to guide the concept development of this book.

Priceless! Uncovering the real costs of water and sanitation narrates WASHCost's story as told by the many individuals who came together to formulate, test, promote and embed a life-cycle costs approach to improve cost information and budgeting practice for water, sanitation and hygiene services.



			POSITIVE
2010	2009	2008	
<p>NL (GLOBAL)</p> <ul style="list-style-type: none"> • WASHCost gained representation in IRC's Management Team, which was important for the continuing model • Monitoring and learning framework with four outcomes was finalised – WASHCost team finally knew what could be measured realistically <p>GHANA</p> <ul style="list-style-type: none"> • Partnered with Triple-S to embed LCCA in the districts <p>INDIA</p> <ul style="list-style-type: none"> • Rural Water Supply Department gave WASHCost India a massive study to conduct • Accomplishing the study made WASHCost India popular thought the sector <p>MOZAMBIQUE</p> <ul style="list-style-type: none"> • Moved into the Rural Water Department – giving a more recognisable and physical presence for WASHCost Mozambique 	<p>NL (GLOBAL)</p> <ul style="list-style-type: none"> • Discovery of service levels • Formalised operational responsibility of county teams as independent units <p>BURKINA FASO</p> <ul style="list-style-type: none"> • Piloting and scaling up • Data management capacity was also strengthened <p>GHANA</p> <ul style="list-style-type: none"> • Start of major data collection <p>INDIA</p> <ul style="list-style-type: none"> • Service ladders were introduced, resulted in major data collection <p>MOZAMBIQUE</p> <ul style="list-style-type: none"> • Adapted Learning Alliance theory 	<p>NL (GLOBAL)</p> <ul style="list-style-type: none"> • For the first time ever at IRC, project management and project content management were separated – proving important for checks and balances, with clear roles/responsibilities mapped out <p>BURKINA FASO</p> <ul style="list-style-type: none"> • WASHCost project launched <p>GHANA</p> <ul style="list-style-type: none"> • Start of WASHCost Ghana • Institutional mapping was conducted <p>INDIA</p> <ul style="list-style-type: none"> • Formation of Learning Alliances <p>MOZAMBIQUE</p> <ul style="list-style-type: none"> • Messias, a government member, joined the WASHCost Mozambique team • Core team assembled 	NEGATIVE
<p>NL (GLOBAL)</p> <ul style="list-style-type: none"> • Even though methodology was not finished, roll-out of data began • Grant donor strategy also changed from water focus to sanitation <p>GHANA</p> <ul style="list-style-type: none"> • Process documentalist left • General problems with communications in the country <p>INDIA</p> <ul style="list-style-type: none"> • Could not decide whether or not to keep certain cost components, such as household expenditure <p>MOZAMBIQUE</p> <ul style="list-style-type: none"> • Data collection procedures were not clear to the team 	<p>NL (GLOBAL)</p> <ul style="list-style-type: none"> • Reviewed partnership with Burkinabè organisation • Lack of centralised database manager led to problems <p>INDIA</p> <ul style="list-style-type: none"> • Research director left Centre for Economic and Social Studies, resulting in a more complex management structure for WASHCost <p>MOZAMBIQUE</p> <ul style="list-style-type: none"> • No research institution available to link with • Limited number of WASHCost Mozambique staff 	<p>BURKINA FASO</p> <ul style="list-style-type: none"> • Department head of Water Ministry changed – leaving no owner for the WASHCost project <p>INDIA</p> <ul style="list-style-type: none"> • Late-night meetings on decision support tools • Research team did not accept the very long 'common information framework' 	

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IRC offers a diverse range of tailor-made life-cycle costs tools that aid in learning, collecting, sharing and comparing costs and the financial sustainability of water and sanitation services across different contexts.

Take the first step towards delivering sustainable services to reach Everyone, Forever. Uncover the actual expenditure required to expand the equitable delivery of services and make these affordable, appropriate and financially sustainable for the years to come.



1 Learn about life-cycle costs

Costing Sustainable Services (online training)

Offered as a free online training course, Costing Sustainable Services presents the basics of life-cycle costs data collection and analysis, and introduces categories of expenditure, service levels, and expenditure across different years and currencies.

WASHCost KnowledgePoint Q&A

An online question and answer support service, this Q&A forum is a space for sharing knowledge in humanitarian development. Here, IRC tool users dialogue with experts on life-cycle costs and service levels.

Akvopedia Finance Portal

Through this open source web-based portal, readers access background materials on the costs of water, sanitation and hygiene service delivery, financing mechanisms, and tools and methods for monitoring. This free reference information portal is a collaborative initiative between Akvo and IRC.

WASHCost Benchmarks

Based on WASHCost's research in Burkina Faso, Ghana, Mozambique and India (Andhra Pradesh), life-cycle costs benchmarks for household water and sanitation have been obtained. These minimum benchmarks, while only indicative, provide a good basis to help arrive at real contextual expenditure data.

2 Collect and analyse life-cycle costs

The collection and analysis of life-cycle costs against service level indicators are core components of the Costing Sustainable Service online training's module. Specific surveys and data sheets used to collect data in several countries are available at no cost, and may easily be replicated across different contexts.

With partners, IRC continues to seek ways to simplify data collection and analysis to make the application of a life-cycle costs approach more accessible and applicable in different types of groups/ communities, development interventions, and humanitarian or relief operations.

3 Share your life-cycle costs through WASHCost Share

WASHCost Share is an online open source tool, which enables users to view and create life-cycle costs reports, and helps harmonise formats and practice of collecting and analysing costs data.

Two types of reports are generated through WASHCost Share: a basic report for advocacy purposes; and an advanced report that provides an overview on the life-cycle costs of different service areas to inform programme design and implementation.

A one-time registration, at no cost, is required to access WASHCost Share.

WASHCost's life-cycle costs tools are accessible through the IRC website:

www.ircwash.org/resources/washcost-tools

Contact IRC to learn about the types of life-cycle costs approach packages available.

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Priceless!

Uncovering the real costs of water and sanitation

Many developing countries show enormous effort and commitment to ensure that their citizens gain access to the basic necessities of life – and nothing is more fundamental than clean water and hygienic sanitation. But their efforts are constrained by lack of basic information and the absence of systems to monitor the quality of the services.

WASHCost (2008-2013) set out to fill a glaring gap in information about the costs of water, sanitation and hygiene services in rural and peri-urban areas not served by utilities and about the spending needed to ensure that they survive over the long term. It was born in reaction to the poverty of data that threatened the United Nations' Millennium Development Goals for water and sanitation.

This book describes how this IRC initiative, with partners, worked in four countries to uncover the real costs of sustainable and acceptable services, and how it attempted to ensure that countries would never again have to work in ignorance of some of the basic facts of economic life. Together IRC and its partners developed a new vocabulary, new approaches and a means of embedding change in country structures.

This book presents the management and practical challenges of working in a sector that had a collective loss of memory about what had been spent and what had been missed. It shows how finance and economics are intimately connected with issues of quality and service. It reveals the tensions in trying to be intellectually rigorous and practical at the same time, the tensions of being accountable to country governments and a grant donor, and the complexity that is inherent in leading real change in rural water and sanitation. It is an essential reading for those who want to know how action research works, how it often turns out to be more complicated than expected, and why change does not happen more quickly and according to external expectations.

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