Key challenges for Sustainable Sanitation Services

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World-sanitation facts

The current sanitation crisis kills some 2,000 children every day and thwarts progress towards every Post Millennium Development Goals (Post MDGs), especially in Africa and Asia. The root of this unrelenting catastrophe lies in these plain and grim facts, namely:

- 2.5 billion people do not have access to adequate sanitation which is about one in three of the world's population. (WHO/UNICEF Joint Monitoring Programme, Report 2014 update)

- Diarrhoea is the third biggest killer of children under five years old in Sub-Saharan Africa and the second biggest killer of children under five years old worldwide. (Child Health Epidemiology Reference Group, 2012)

- Half the hospital beds in developing countries are filled with people suffering from diseases caused by poor water, sanitation and hygiene(UNDP Human Development Report, 2006)

- Lack of water, sanitation and hygiene costs Sub-Saharan African countries more in lost GDP than the entire continent gets in development aid. (Using percentage estimate from UNDPHuman Development Report, 2006)

Why the focus on sanitation?

There are today more people without access to adequate sanitation than in 2000, despite the commitment included in the MDGs to halve by 2015 the proportion of people without sustainable access to basic sanitation. This has many consequences for the well-being and potential of many people: sanitation related diseases account for about 800,000 children death per year; open defecation leads to increased risk of stunting and related intellectual development limitations; lack of access to sanitation impacts dignity, privacy and safety and affects more women than men; there are costs to the environment; and it is overall a direct cause and effect of the poverty vicious circle.

What are the key challenges to increase the number of people with access to sanitation, and to maintain the use of facilities in a safe and sustainable manner? What are the fundamental roots that have caused this sanitation crisis? Where have we collectively failed?

Three key challenges

(1) Lack of attention to the whole sanitation chain. Sanitation is more than building a toilet and includes changed hygienic behaviours, maintenance, emptying, treatment and disposal or reuse of accumulated faecal matter.

(2) Lack of leadership for change. Sanitation improvements are not the sole responsibility of an entity, being usually spread between a household responsibility, private service providers (latrine builders, emptying companies) and various line ministries (Min. of Health, Education, Infrastructure, Environment). Sanitation improvements are often led by different donors and NGOs and rarely linked up to government leadership and regulation..

(3) Compared with other basic services, sanitation receives very limited public finance for implementation efforts at scale.

Keeping up with urban growth

Providing access to safe sanitation to a fast-growing urban population is one of the most pressing issues of urbanisation; the sanitation problems that arise when a large number of people are living together in a dense urban environment are a major health risk.

In urban areas worldwide, the number of people lacking access to safe sanitation currently stand at 756 million, according to official UN data (WHO/UNICEF 2014)[1]. This number is likely to be an underestimation as many sanitary facilities which meet the criteria used by the JMP cannot be considered as "hygienically safe and sustainable sanitation" (Jenkins et al. 2014); moreover, this number is bound to be even higher if it were to include the cities lacking wastewater treatment (Baum et al. 2013).

The challenges on the whole sanitation chain and the whole system approach are even more critical in urban settings as the number of actors and the risks associated with sanitation are more concentrated.

Importance on focusing on the whole sanitation chain

Too often, sanitation issues are reduced to the provision of physical facilities – toilets or latrines – with the corollary that sanitation access is reduced to the number of people with latrines. But in order for these to provide a real sanitation service (as defined by the criteria below), we need to make sure that the full service chain is in place. It refers to: (1) demand creation, (2) access, (3) containment, (4) emptying, (5) transport, (6) treatment and (7) re-use or disposal. It is when all of these aspects are undertaken that we can speak of a truly complete "whole sanitation chain" that will provide sustainable sanitation services, as depicted in the figure1.

Figure 1: The sanitation chain for an off-site system (source: Duke University 2012)

The components of a sanitation chain are often approached separately, by different and un-connected actors, each with their own activities or functions and associated costs[2].

Current thinking in the water, sanitation and hygiene (WASH) sector points to the need to move away from only delivering hardware, namely only providing sanitary facilities to communities to a focus around a 'service delivery approach' which includes hardware but also software, namely the planning, management and governance systems to ensure that sanitation services will last over time. There is therefore a need to think about and work with this shift that tackles the *'whole system'* for the provision of sustainable sanitation[3].

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[1] The data gathered by the Joint Monitoring Programme of UNICEF and WHO focuses on access to 'improved' sanitary facilities (WHO/UNICEF 2014).

[2] IRC Washcost Working paper 3: Assessing sanitation service levels. IRC. Den Haag. Refer to: http://www.ircwash.org/resources/assessing-sanitation-service-levels

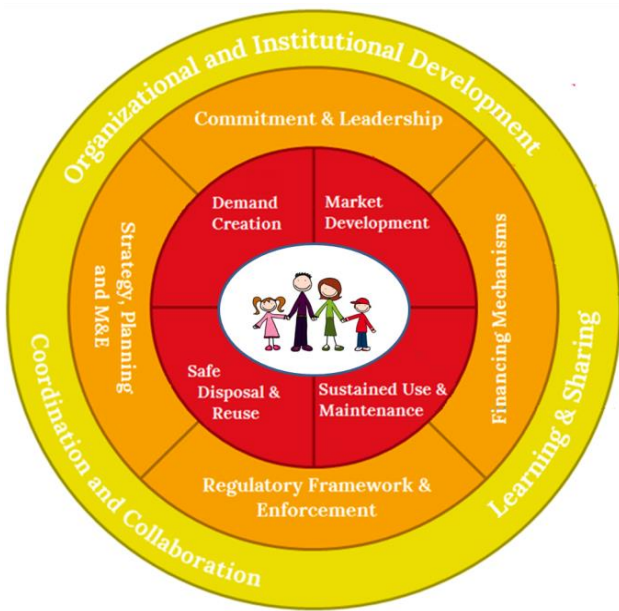[3] Moriarty, 2014. http://www.ircwash.org/news/changing-whole-system-2

Figure 2: Whole system approach for sustainable sanitation delivery (IRC)

A *whole system* approach for sanitation means that a sustainable service revolves around the coordination of various activities carried out by various actors, organisations and institutions. This includes developing and improving the capacities of these players to carry out their respective roles and responsibilities, as well as fostering communication, collaboration and better accountability between all parties involved. Each stakeholder fulfils a necessary role, and the importance of these roles is *mutually* acknowledged. Figure 2 provides a visual representation of the whole systems approach/framework to demonstrate how to achieve sustainable sanitation services for all. Each circle represents a different group of players within the sanitation sector and illustrates the roles to be carried out by each group.

A. The whole sanitation chain

Two main challenges related to the whole sanitation chain are:

1. **Linking up "*supply" and "demand"* approaches with the bigger picture**

The "supplying" of toilets takes the focus away from the "demand" of the intended beneficiaries.   This has resulted in poor use of facilities or limited maintenance and pit emptying of the facilities provided.

New approaches have helped shift the emphasis to build the demand from individuals and communities, either through calling on people's emotions and social pressure (e.g. such as in the Community Led Total Sanitation approach - CLTS) or using marketing techniques adapted to stimulate individuals and communities to invest in building a latrine. The new challenge is that promoters of these types of approaches have often become so convinced of their qualities that they become the new dogma and are therefore pushed for scaling up indiscriminately without looking at issues of affordability, quality of construction, long term durability and to second generation problems when the pits are full. Other organisations are focusing on strengthening aspects in the supply chain (such as sanitation marketing, contractor-driven supply projects, faecal sludge management).

The reality is that by focusing *either* on creating demand (e.g. CLTS) or on strengthening the supply chain is not enough for delivering a sanitation service. The efforts that go into these two processes need to fit within the wider sanitation improvement vision that includes the responsibilities for planning, regulation and accountability for service delivery to users as this will create sustainability in the long term.

Box 1: Techincal issues: dry versus non dry latrines

Technical issues such as dry verses non dry toilets are thoroughly discussed in numerous documents, one which more on the best being the practical SMART booklet entitled "Sanitation solutions"[1] which illustrates a selection of smart sanitation technologies. This booklet does provide a source of inspiration for those who are trying to improve sanitation conditions for a technical perspective. Whatever the technical choice make regarding the sanitation facilities, these can only be sustainable when people make their own choices and own contribution towards obtaining and maintaining them. People have to experience the toilet as an improvement in their daily life. As cited earlier, sanitation systems have to be embedded in the local institutional, financial/economic, social-cultural, legal-political, and environmental context to be truly sustainable.

2. **Second generation problems: from containment to what happens next**

The focus on the *"containment"* aspect of sanitation, where little attention is given to what will happen when the pit will reach its storage capacity, is a very critical element in urban and peri-urban environments, where density doesn't allow for the construction of a second latrine. Unsafe disposal or abandon of full pits is actually "postponed open defecation".

In the last decade, attention has been given to the "containment" component of the sanitation chain. These include research and experimentation with latrine pit emptying devices, including the challenge of access to those pits in dense peri-urban areas, thinking through the issues of the transport and transfer of the faecal sludge to (usually far away) places of treatment and transformation into re-usable products.

Technically feasible and environmentally sound solutions remain a challenge in faecal sludge management. Current research is focusing mainly on the end products, with the idea that if and when the faecal sludge will shift from being considered waste and becomes a resource, this will draw both private and public actors to invest further in this component of the sanitation chain. Current end-products for example include biogas, fertilisers in different forms (liquid, powder, granular, compost), soil conditioners, biochar and other briquette fuel for domestic or industrial use. None have yet been proven to be (i) financially sustainable without public finance subsidies or (ii) applicable at scale.

But there is another angle in the "containment" approaches which is being ignored: regulation to ensure that faecal sludge disposal or re-use is correctly monitored and preserves the safety of the people and the environment. In other words, there is the need for government to foster and regulate through contracts and by-laws formal and informal partnerships for sanitation service delivery between users, providers and local authorities.

Box 2: Whole Water cylce

Water scarcity is a complex problem - it is one of unsustainable use, sectoral thinking, mismanagement and a lacking and holistic water governance. Inevitably this is also related to the whole sanitation chain for the angle of water resource issues. It is the life of the urban poor *who* are most strongly affected by water related disease, by degraded and dangerous urban environments, by a lack of food and water for hygiene and proper sanitation. There is no single sector approaches such as *wastewater treatment* or *water management* as such as each have their limited actions. In order to save and recycle water, regain resources, to protect ecosystems and to provide mankind with a prosperous and healthy urban environment, the *whole water cycle is* needed to be taken into account in an integrated, holistic way linking up to sustainable urban water management.

B. Leadership for change

Lack of leadership has resulted in fragmentation in the sector. This means the lack of synergy of the different partners and systems in place, whether that takes place at the international or national level in terms of working in a harmonious manner towards creating sustainable sanitation services that last. To address this issue, leadership is required by governments. The challenge is to find and operationalise the needed synergies between national WASH actors/players from both the public and the private sector and also across the sanitation chain[4].

The sanitation sector requires coordination and alignment from many players as well as supporting and regulatory functions. The latter is typically the responsibility of national and local governments. However, in many countries, either there is not a unique institution with the overall responsibility for sanitation, or this designated institution is weak and is not able to lead the sector towards change.

The following are some lessons learnt (notably from the Thailand case study, see below) on how government leadership can drive sanitation improvements at scale, namely:

- Make sanitation a political priority and clearly define institutional responsibilities and accountability for progress.
- Allocate public funding to support development of underlying sector systems and processes: generating demand, supporting supply as part of the whole sanitation chain.

- Ensure careful sequencing and appropriate balance between investments in software and hardware elements in the sanitation value chain.

- Ensure equity by enabling subsidies at local level.

- Explore the potential of credit mechanisms to leverage household investment.

- Strengthen service providers and invest in rationalising the management of the sanitation chain.

- Create more effective and efficient monitoring and evaluation systems.
- Make donor commitments to aid effectiveness and at the same time the integration of donor-funded project into the recipient government public financial management systems requires adoption of international accepted standards of best practice in accounting and financial reporting, audit, procurement and fiscal transparency.

C. Public finance towards supporting sanitation

Currently, the level of knowledge and understanding of financial flows to sanitation is very limited, due to the lack of reliable data tracking systems, but from the data reported in GLAAS[5], the amount of domestic public finance that supports sanitation services is very limited.

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[4] There some interesting examples from the City Assembly of Blantyre , Kampala Capital City Authority and Soroti District, Uganda which can be found in Waterlines, Volume 33, Number 3 / July 2014 (*accessible at* http://practicalaction.metapress.com/content/q34551625hr1)

[5] GLAAS. 2014. UN-Water Global Analysis and Assessment of Sanitation and Drinking-Water. New York. http://www.who.int/water_sanitation_health/glaas/en/

We need public finance for three key elements of the sanitation chain, namely: (1) ensure that the poor have access to services, (2) ensure that regulation and monitoring is in place to track improvements in services; and (3) create a safe environment for private investors to innovate and support scale. Other components of universal service delivery which will require public finance (to some extend) include: school sanitation and hygiene programmes, public latrines in market places, and hygiene promotion programs. These are frequently recognized as "public goods" which almost by definition need financial support from public sources. The private sector will not invest the amounts required to generate demand if that demand is going to benefit the competition. On the other hand, local authorities lack human and financial capacities to properly plan, follow up, control, report and play their coordination role which is left mostly to random implementation programmes by external agencies.

Clearly, if existing funds to sanitation are not tracked, it remains difficult to compare the effectiveness of alternative public financing strategies for the sector. It will therefore be essential to identify ways in which public funds specifically for sanitation can be spent more effectively to maximise long-terms benefits to health, welfare and overall productivity.

Case study: a model of effective use of public funds in Thailand

Total coverage was achieved in Thailand by the late 1990s after 40 years of sustained public intervention, with a sharp reduction in mortality linked to diarrhoea. This success was the result of a comprehensive programme that provided sustained, long-term funding with careful sequencing of demand and supply side interventions and effective targeting of public subsidies to leverage private funding. Although not explicitly targeted at the poorest people, policies in Thailand have reached the most deprived people by providing hardware subsidies after demand for improved sanitation had been established.

Such subsidies were first provided through revolving funds and then through the provision of a 'Sanitation Activity Package', which consisted of mostly hardware funding for seven activities: water supply storage, excreta disposal, solid waste management, wastewater treatment, food sanitation, vector control and household sanitation. Villages had flexibility for allocating those funds to the interventions or the recipients who needed them most. Such policies succeeded in leveraging substantial household investments for sanitation: the study estimated that each baht of public funds leveraged THB 17.4 of private funds from households.

A focus on sanitation was established at the highest level of government (through the King of Thailand) and was reflected at all levels of government, from the central government to the village or district officials, with the presence of informed and competent officers. The Thai government was able to learn from previous results and to adapt the policy directions to changing circumstances, including a rapid coverage increase and rising prosperity. This Thai case study therefore stands out as a model of effective use of public funds to promote and support improvements in sanitation on a large scale (WaterAid, 2010).

Recommendations

The creation of a sustainable sanitation services are inevitably country specific, as they will be guided by national policies and legal frameworks, which set out detailed descriptions of standards, rights and responsibilities, and cut across different institutional levels. This briefing note provides three key recommendations:

(1)   Focusing on the whole sanitation chain will help resolve the challenges around small, unsustainable, isolated interventions. This entails thinking outside of each actors' activities, facilitating their interactions and coordination, and undertaking quality monitoring at all stages of the chain, so not just a focus on access to facilities but the environmental safety and actual use by communities. The monitoring needs to include also the performance of service providers and of the regulatory and enforcement system.

(2)   Resolving the fragmentation in the sector through government leadership. This means an integrated approach with reaching out to different networks and forming or strengthening partnerships within international, national and local institutions organizations active, for example, in WASH but also in Health, Education and Private sector. To coordinate this enhanced inter-sectoral cooperation at national level, clarified roles and responsibilities of the state actors is required, including the agreement on and the capacity (in terms of human and financial resources) of the lead Ministry or institution for sanitation service delivery.

(3)   At national level, the leadership for implementation of national policies and frameworks often rely too much on foreign aid and on the households themselves, and therefore are bound to fail because funding from only these sources will always be insufficient. Sustainable financing mechanisms are therefore needed to ensure steady financial flows between national and local levels. Such mechanisms can be ensured by taxes in addition to the existing transfer and tariffs systems.