WSUP
Water & Sanitation for the Urban Poor

DISCUSSION PAPER

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Financing water and sanitation for the poor: six key solutions

Water and sanitation services for the very poor remain grossly deficient over large areas of the globe, and financing water and sanitation improvements for these people remains a major challenge. This paper proposes six Key Solutions to overcome this challenge. We urge financing institutions, governments and service providers worldwide to put these Key Solutions into practice:

1) Use life-cycle costing approaches to ensure that all life-cycle costs of infrastructure and services are fully taken into account.

2) Maximise local small-scale private-sector involvement in water and sanitation service provision.

3) Introduce innovative water tariff systems that are ensure both financial sustainability and affordability for the poorest of the poor.

4) Use water revenues to cross-subsidise sanitation: including sanitation charges in water bills is a key approach for financing sanitation services.

5) Use output-based financing approaches: by making disbursement dependent on demonstrated delivery of infrastructure or services, international funders can ensure that funds are spent more efficiently.

6) Use progress-linked finance (PLF) approaches: under PLF, a financing institution commits to providing concessional finance at a specified time in the future, on condition that the service provider has by that time demonstrated capacity for commercially viable service delivery to low-income areas. Thus PLF uses the incentive of future disbursement to encourage local service providers to adopt policies and business models that are genuinely sustainable and pro-poor.

IRC

This Discussion Paper is co-published by IRC International Water and Sanitation Centre (IRC) and Water & Sanitation for the Urban Poor (WSUP), as a background document for World Water Forum 6 (WWF6, Marseille, 12-17 March 2012). Within WWF6, IRC and WSUP are leading and coordinating Target Group CS2.7, "Pro-poor finance solutions for water and sanitation"

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Introduction

This Discussion Paper is published as a background document for World Water Forum 6 (WWF6, Marseille, 12-17 March 2012). Within WWF6, IRC and WSUP are leading and coordinating Target Group CS2.7, "Pro-poor finance solutions for water and sanitation", within the CS2 area "Financing Water for All".

Identifying and implementing water and sanitation financing solutions that genuinely reach the poorest remains a key challenge in low-income countries worldwide, in both rural and urban contexts. Nonetheless, effective solutions certainly exist: some well-known and widely used, some more recent and innovative. This paper focuses on a group of solutions that we judge to be especially useful, in each case exploring real-world case studies that illustrate how practical difficulties have been overcome in order to achieve positive progress and genuinely improve water and sanitation services for the poor.

A key argument of this paper is that pro-poor financing approaches must necessarily be financing approaches that guarantee post-construction financial sustainability. This is particularly relevant in areas where institutions do not offer a service delivery approach, but rather focus on capital investment only (notably rural, peri-urban or urban slum areas outside normal utility areas of action): it is in areas of this type that the poorest suffer most, whether from simple non-access, or from declining service levels after infrastructure has been built. To give a simple example, reduced water tariffs for poor consumers may not actually benefit the poorest, because they are not connected to the network. Similarly, one-off subsidy financing of water pump construction is of no real value if there is no mechanism in place to generate funds for ongoing pump maintenance and eventual pump replacement.

The wider issue of sustainability of WASH investments is covered by another group within the CS2 area, namely Target 3: here we focus on sustainability in the particular context of pro-poor finance.

In line with the above, we have defined the following targets to guide this preparatory work towards the Forum and beyond:

- *By 2015, leading service providers, financing agencies and governments in at least 5 countries will be making use of financial and other incentives to provide sustainable water and sanitation services to low-income consumers.*
- *By 2015, leading service providers, financing agencies and governments in at least 5 countries will have mechanisms in place to ensure that capital maintenance and support costs are financed to provide sustainable water and sanitation services to low-income consumers.*

Leading towards these targets, this paper highlights 6 Key Solutions for achieving sustainable finance of water and sanitation in low-income communities. Our aim, as coordinators of Target Group 7, is to inspire key actors to adopt some or all of the financing solutions proposed here, with the aim of achieving *real change*.

An annex providing additional detail on all cases mentioned in this Discussion Paper is available online at www.wsup.com/sharing/DiscussionPaper3.htm and www.irc.nl/page/113.

2. Background and rationale

2.1. Who does not have access to WASH services?

According to the WHO 2010 Update on the Progress of Sanitation and Drinking Water (WHO/UNICEF 2010), 2.6 billion people, or one third of the world's population, still do not use improved sanitation facilities. Of these, 72% live in Asia and very few in the developed regions of the world. In developing regions about half of the population uses improved sanitation. Looking at progress since 1990, substantial increases in the proportion of people using improved sanitation have been made in Latin America, North Africa, South Asia, South-East Asia and East Asia; in West Asia and sub-Saharan Africa there have been only slight increases, and indeed Oceania has seen a decline.

Looking at access to drinking water, the WHO report presents a brighter picture: globally, 87% of the population now has access to improved sources of drinking water. The percentage is almost as high for developing regions, with 84% getting their drinking water from improved sources. However, 884 million people worldwide still lack access to improved sources of water, and almost all of them live in developing countries. Over a third of these people live in Sub-Saharan Africa, where only 60% of the population use an improved source of drinking water.

The economic disparities in access to WASH are large: in Sub-Saharan Africa, 77% of the richest quintile of the population have access to improved facilities and only 4% practice open defecation. In the poorest quintile, only 16% have improved facilities and 63% practice open defecation. The distribution of water sources is similar: while 35% of the richest quintile have in-plot piped water and 51% have access to other improved sources, in the poorest quintile only 36% use improved sources, and less than 1% have in-plot piped water.

The disparity in access between urban and rural areas is similarly striking. Globally, the proportion of the rural population using unimproved sanitation facilities is more than fourfold that in urban areas. In Latin America and the Caribbean, Southern Asia and Oceania, seven out of ten people without improved sanitation live in rural areas. Of the approximately 1.3 billion people who gained access to improved sanitation between 1990 and 2008, 64% live in urban areas. Despite this, urban population growth makes it a struggle to keep the percentage with access to improved sanitation from going down, and a growing number of people in urban areas defecate in the open. Similarly, since 1990, the number of people that use shared facilities has doubled in urban areas and increased by two thirds in rural areas.

Regarding access to improved drinking water, the disparity is smaller: 94% of the urban population in developing countries use improved sources as compared to 76% of the rural population. Of the nearly 1.8 billion people who gained access to improved drinking water between 1990 and 2008, 59% live in urban areas. The proportion of people using piped water from a household connection is more uneven: 73% of the urban population, but only 31% of people living in rural areas. In Sub-Saharan Africa, the corresponding figures are 35% for urban dwellers and 5% for the rural population. It is worth noting that, due to urban growth, there is an increase in the number of people without access to improved water facilities: sub-Saharan Africa is urbanising particularly fast, with 85% of population growth between now and 2050 projected to be urban.

2.2. Sustainability of WASH service delivery

Perhaps the biggest challenge in the WASH sector is the *sustainability* of service delivery. Currently the focus is very clearly on one-off investment: donors almost exclusively concern themselves with the capital expenditure costs of WASH. This capital investment may cover construction costs or "soft" expenditure in areas like capacity building: but national governments and communities are left to pay for management, recurrent costs (Operational Expenditure, OpEx) and rehabilitation of systems (Capital Maintenance Expenditure, CapManEx). Often donor-funded systems do not achieve sustainable cost recovery, and often governments and communities do not have the resources available (or have not budgeted for) recurrent costs: as a result, systems often fail and coverage rates stagnate.

This imbalance between fixed and recurrent expenditure is clearly demonstrated by recent data. The GLAAS 2010 report (WHO 2010) shows that while 64% of Overseas Development Aid (ODA) to the WASH sector goes to construction of new systems, only 13% goes to system maintenance. The post-construction costs are largely carried by users, and indeed are still to a large extent unknown and thus not included in financing decisions. Furthermore, the tools used to estimate operation and maintenance costs typically give very diverse estimates, often not in line with actual costs (Gibson, 2010).

Meanwhile, on average about 30% of rural handpumps in sub-Saharan Africa are not working, with the figure rising as high as 65% in some countries like DRC and Sierra Leone (data collated in 2007 by Peter Harvey of UNICEF, and reported in Danert et al. 2009). In Tanzania, Taylor (2009) found that about 46% of rural handpumps were dysfunctional: and most alarmingly, about 25% were dysfunctional within 2 years of construction. Likewise, many rural piped schemes are partly or fully out of service (Danert et al. 2009).

Importantly, the relative magnitude of recurrent costs increases as coverage levels go up and stocks of assets rise: so as more and more countries reach coverage levels of 60–80% (Lockwood & Smits 2011; own analysis of WSP - Country Sector Overviews), it becomes increasingly important to also invest in management, recurrent costs and rehabilitation of systems (Figure 1).

At the same time, the WASH sector is also struggling with a human resources gap. This gap will likely become bigger as coverage levels increase and there are more assets to manage (WHO, 2010; DFID-IWA, 2011; Lockwood and Smits, 2011). More human resources, and higher levels of management capacity, will also become increasingly necessary in view of the decentralisation of WASH service delivery that is happening in many countries. A new balance will therefore have to be found in the sector, between investing in new infrastructure and ensuring sustainability of existing assets.

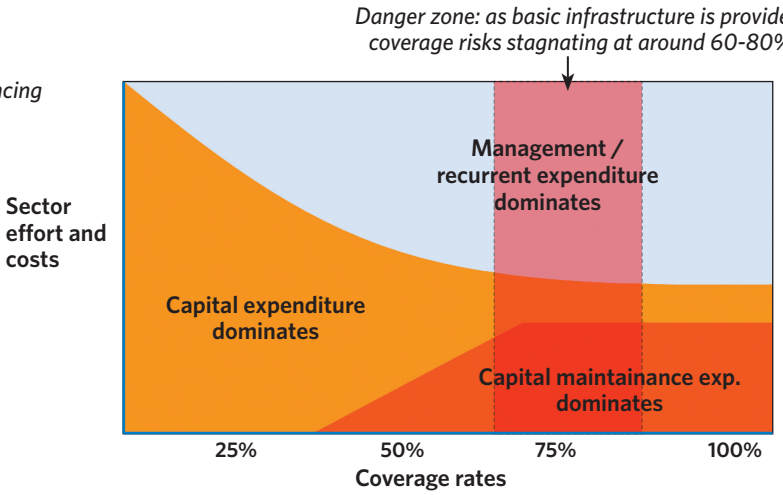


***Figure 1**: Level of effort and financing needed for sustained coverage.*

Source: Moriarty (2011)

> We are certainly *not* arguing that capital investment is unnecessary

So there is a clear need for both better methods of estimating the post-construction costs of WASH systems, and better methods of ensuring that these costs are financeable. Organisations in the sector need to start taking responsibility for thinking realistically about maintenance costs. A continuation of the situation that is commonly seen at present—facilities are built, and within a year or two are non-operational—borders on negligence. Without serious attention to finance for OpEx and CapManEx, there will be no change in the present picture of a WASH sector that can barely keep up with population growth, and in more and more areas we are likely to see a decrease in WASH coverage, because of both population growth and failure of services.

However, we are certainly *not* arguing that capital investment is unnecessary: indeed, massive investment is required over the coming decades from governments, donors and the private sector (Foster and Briceno, 2010). Rather, we are saying that this capital investment needs to be designed and implemented so that financial sustainability is ensured.

2.3. Money doesn't grow on trees!

Before we consider ways in which key actors can work towards genuinely sustainable pro-poor financing, it is important to briefly consider sources to finance recurrent costs: because money, as we all know, doesn't grow on trees!

Finance for the operation and maintenance of pro-poor WASH services can come from three basic sources, the "three Ts": *tariffs* (i.e. user payments), *taxes* (i.e. government revenues), and *transfers* (i.e. international aid).[1]

Within the 3Ts framework, examples of promising mechanisms include:

Tariffs - Innovative water tariff structures which maintain sustainable cost recovery through per-litre tariffs, but which reduce or even eliminate connection fees for low-income consumers (see Section 4.3). Conventional tariff-based systems may not help the poor if they don't have access to the services: so for example, if a sanitation surcharge is included in all water bills, but only spent on waterborne sewerage systems that do not serve poor communities, this means that poorer consumers are subsidising services to non-poor consumers. Alternatively, the sanitation surcharge might be spent on onsite sanitation services for poorer consumers: this sort of system, involving cross-subsidy of sanitation costs from water revenues, is discussed in Section 4.4. Another attractive option is a hybrid mix of transfer and tax mechanisms (see below).

Taxes - Domestic government financing (either national or local) is widely used in the developed world, particularly to finance the capital costs of water and sanitation infrastructures. Most lower-income countries do not collect enough tax at decentralised levels of governance to finance infrastructure construction: most taxes in lower-income countries are collected at national level and distributed to the different regions according to allocation formulae; and in general allocations for water and sanitation are very limited (WHO, 2010).

Transfers - As noted, aid will not usually be allocated to cover long-term recurrent costs directly: however, donor-supported capital investment programmes, if properly designed, can make enormous contributions to reaching the poor, and in ways that promote sustainability: notably by financing WASH service models that achieve sustainable cost recovery (i.e. market-driven models, see Section 4.2), and by using disbursement strategies that *incentivise* the development of financially sustainable pro-poor service delivery models (see Section 4.6).

[1] Note that in this section we are specifically referring to recurrent costs, for which the 3Ts are effectively the only source. Householders' own contributions and investments are conventionally included under tariffs. Note that the use of transfers for recurrent costs, though possible, is not common. If we consider capital costs, private sector investments become relevant, but they are not a fourth source since they recover their investments (return on equity, part of the cost of capital) and operating costs (through tariffs and/or subsidy from national or local authorities, i.e. taxes).

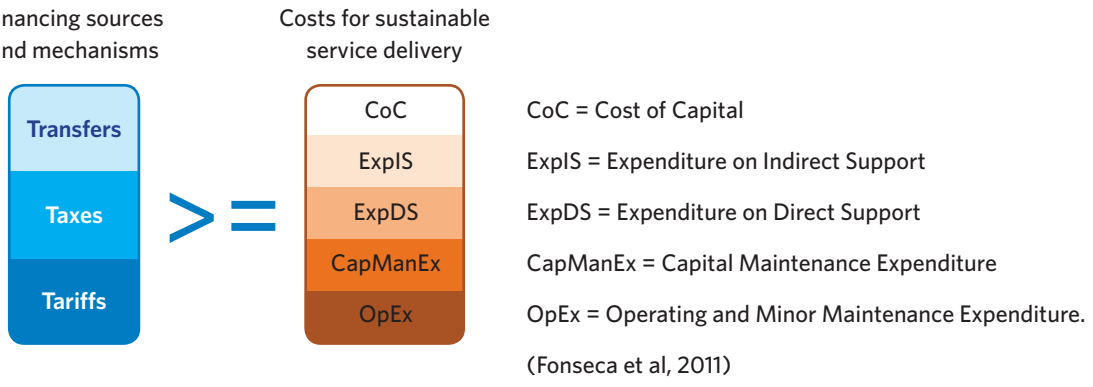


***Figure 2**: Financing sources and costs for sustainable service deliver. Note that the figure is not meant to represent relative magnitudes.*

> "Financial sustainability is not only about sustainable cost recovery, but also about catalysing market-driven systems at the local scale"

It is important to be clear that achieving sustainable pro-poor WASH financing is not just about public financing: financing from households (as service users or as taxpayers) and the private sector is also essential. So financing approaches that achieve sustainability and pro-poorness are likely to be approaches that not only encourage increased government spending, but also that incentivise effective investment from households and the private sector. Importantly, achieving pro-poor financial sustainability is not only about sustainable cost recovery by institutions and utilities, but also about catalysing self-sustaining market-driven systems at the local scale. [Though certainly, we would expect these to be *regulated* systems, enabling appropriate State control of the equality of service provision.]

2.4. The critical role of incentives

We suggest that a key cause of the difficulties faced in achieving sustainable pro-poor WASH finance is a *lack of incentivisation*. On paper, responsibilities are set, but in reality technical and financial capacities are weak, and there is little knowledge of what it actually costs to provide and maintain acceptable WASH services for the poor. On the one hand, key investment actors are not focusing sufficiently either on pro-poorness or on post-investment sustainability: they lack incentives to support sustainable pro-poor financing, and transparency and accountability are typically weak. On the other hand, the poor have little real voice, and little capacity to influence public decisions. There is therefore no strong top-down push towards sustainable water provision for all; and likewise no strong bottom-up "pull" from poor communities themselves.

Policy-makers play a fundamental role in the development of sustainable pro-poor financial systems. They need to set the right incentives for stakeholders, as well as put into place adequate supervision and proper regulation, in order to encourage innovation and competition. Table 1 tries to provide an overview on the incentives of different stakeholders to reach the poor and the challenges facing this process. Policy issues that may have to be addressed when creating an enabling environment for pro-poor financial services may include regulatory changes to remove interest rate ceilings and exaggerated requirements for investment collateral. Specifically, laws or regulations may impose limits on interest rates, so that potential credit providers may be unwilling to lend to water and sanitation enterprises; or laws or regulations may require that enterprises must put up very high collateral in order to access credit, even if credit providers would be prepared to offer loans with a lower collateral requirement (see Biesinger & Richter 2007, cited in Batz et al. 2010).

Table 1. *WASH stakeholders and their incentives to reach to the poor.*

Stakeholder	Principal financing-related roles	Nominal (theoretical) incentive to serve the poor	Current challenges to reaching the poor in ways that ensure maintenance and sustainability
International financing institutions (IFI) (development banks like the World Bank, bilateral agencies like USAID, DFID and JICA)	Provide grants or concessionary loans to governments, subsovereigns (e.g. municipal governments or utilities) and/or NGOs. *It is worth noting that bilateral agencies often (not always) have more procedural freedom and flexibility than the development banks.*	Incentives are reputational for the organisation: a programme which achieves good results in terms of pro-poorness and sustainability helps the organisation achieve internal goals and improve its wider reputation.	Funding may be allocated based on risk assessment, disadvantaging the poor. There may be a focus on short-term outputs, reflecting political demands for simple short-term progress figures: long-term cost-effectiveness may be under-emphasised. In some institutions, staff incentives are tied more to project approval/disbursement than to project outcomes. SEE FURTHER DISCUSSION AFTER THIS TABLE.
National governments	Very diverse, including a) raise tax revenues and spend them in an equitable and cost-efficient manner; b) coordinate and channel concessionary funding; c) create and maintain appropriate institutional structures and regulatory frameworks.	Ensure well-being of their populations (electoral base, re-election incentives); satisfy donor requirements (accountability), which can favour future concessional funding.	Issues of governance, roles and responsibilities; often there is a lack of pro-poor targets at the national level. Transfers from central government to decentralised levels often fail to materialise.
Water and sanitation utilities	Provide service	Better pro-poor service can increase revenues, and meet institutional mandates.	In some cases there is not a strong institutional mandate for pro-poor service delivery; where such a mandate exists, personal incentive structures within utilities may not map closely onto organisational targets for pro-poor service, and capacity for service provision to low-income communities may be weak.
Local governments	Where there is significant devolution, roles may be similar to national government (raising and spending tax revenues; coordinating concessionary funding; creating and maintaining appropriate institutional structures and regulatory frameworks). Local governments may also have a service provision role (for example, investing in treatment facilities for wastewater and faecal sludge).	As per national government: ensure wellbeing of population; re-election incentives; satisfy donor requirements.	Slow devolution/decentralisation processes (in terms of transfers, tax generation capacity, and technical capacity); weak capacity and weak incentivisation to perform investment and service delivery roles.
Private sector (local and international)	Provide services or specific sub-services.	Increase revenues in the short-term, develop markets in the longer term.	In many contexts we see an emerging local private sector, but private operators are often not incentivised to provide high-quality pro-poor services. There are challenges in regulating to ensure high-quality service provision without interfering with market dynamism.
National or local implementing NGOs	Provide service; support local communities, local government and service providers.	Spend funds according to donor requirements (accountability), support governments in their mission.	No coordination unless strong SWAP; too many overlaps between interventions; different timeframes. Often too investment-oriented. Activities financed by international donors or through fundraising, constraining intervention characteristics.
Community based organisation (including local Water Users Associations)	Provide services; lead and coordinate community initiatives (for example, keeping the streets clean).	Wellbeing of user group, stronger cohesion at community level; livelihoods and profit incentives.	Technical and management capacity may be weak, particularly if work is on a voluntary basis, and/or if there is a monopoly of local service provision. Community-led commercial ventures may be "hijacked" for personal profit.
Households	Invest in household-level infrastructure; pay for services; show good personal and environmental hygiene.	Improved health and wellbeing.	This incentivisation breaks down for various reasons: landlords and tenants are less motivated to invest than owner-occupiers; investment may in any case be unaffordable; environmental hygiene behaviours are not incentivised in an environment that is already very dirty.

> “Pro-poor components may be lost within a wider programme focused primarily on large-scale infrastructure”

The table on the previous page notes important challenges to pro-poor financing at various levels, including national and regional governments in low-income countries. Here, we consider it of interest to comment on various aspects of development-bank procedure which tend to mitigate *against* pro-poor service provision and against financial sustainability, as follows:

- There is very often a focus on short-term outputs:[2] so an investment will be judged in terms of number of toilets constructed, whereas in fact a more sensible measure would be number of toilets still functioning well in 5 years' time.
- Funding is often allocated on the basis of risk assessment (relatively stable countries with relatively competent institutions are preferred, and relatively wealthy districts may likewise be preferred, because of easier project implementation and easier leverage of household finance): these approaches tend to disadvantage the poorest of the poor.
- Similarly, bidding procedures often require selection of the cheapest bid, despite the fact that this may not be the most rational approach in terms of cost-effectiveness. Selection of the cheapest bid may be particularly disadvantageous for the poor.
- In some institutions, staff incentives are tied to project approval/disbursement, not to project outcomes.
- In line with this, there is often little direct involvement in project implementation, little follow-up after loan disbursement, and limited independent evaluation of project outcomes. Development banks may have little accountability post-disbursement.
- Programmes are typically very large, so that specifically pro-poor components may often be lost within a wider programme focused primarily on large-scale infrastructure construction: programmes are often led by engineers and economists working at a macro scale, with little consideration of issues relating to pro-poor service delivery, and there are no clear mechanisms to ensure management of pro-poor components of the programme.
- As well as being large, programmes tend to be slow-moving: so procedural requirements may require intervention districts and intervention modalities to be precisely identified at an early stage in project planning, whereas in fact it might often make more sense to permit a greater degree of flexibility.
- Financing arrangements that drive development of capacity to deliver sustainable pro-poor services (see Section 4.6) may be disfavoured, because of historical concerns about “conditionality”. [Loan agreements made conditional on particular institutional changes are associated in people's minds with the notoriously unpopular “structural adjustment” conditionalities imposed by the IMF in the 1980s and 1990s, typically neoliberal in character. In fact, there is no reason why conditions need be neoliberal: indeed, it would be perfectly possible to conceive conditions requiring (for example) increased government budget allocation to pro-poor sanitation.]

[As noted, we have here focused on things that development banks might do to improve pro-poor impact. Nonetheless, and as indicated in the table above, many of the barriers to pro-poor service are the responsibility of other stakeholders, including national government: we certainly are not suggesting that development banks are the only institutions that need to evolve.]

[2] This is seen equally in projects funded by bilateral institutions, which are often under national political pressure to demonstrate progress within electoral time-frames.

3. Solutions

Ensuring financial sustainability (and all the costs associated with maintaining services before and after large capital investments) is a necessary but not sufficient condition for pro-poor water and sanitation services provision.

In what follows, we outline 6 specific types of solution for sustainable and pro-poor WASH financing, backed up with case studies in which these solutions have been successfully applied in practice. We focus in particular on the practical difficulties encountered in the application of these solutions, and on the approaches used to overcome these difficulties and achieve real progress. More detailed information on these cases is available via the WWF6 website.

Note that urban and rural areas face very different types of challenge: financing urban and rural services will often involve different mechanisms and different types of organisations. In what follows, we consider cases from both contexts.

3.1. LCCA: the life-cycle costs approach for achieving sustainable financing

A key issue in identifying sustainable and pro-poor solutions for financing water and sanitation is to assess life-cycle costs. As noted by Pezon et al. (2010), sector actors advocate for low-income users to pay fully for maintenance without understanding the full life-cycle costs: *"Nobody knows the relative magnitude of the different life-cycle cost components of non networked supply types of WASH services, but at the same time [people] expect the contribution of users to cover operation and maintenance, regardless of the amounts involved or the service levels being provided"* (Moriarty et al. 2010; Potter et al. 2010). Often, poor communities and households in rural and peri-urban areas are asked to contribute much more than their non-poor co-citizens, while at the same time receiving a lower level of service (Franceys and Gerlach, 2008; WASHCost data analysis). Very limited knowledge exists on how much poor households pay each month for operation and maintenance services, and whether these amounts are adequate to meet costs of operation and maintenance, and at the same time affordable to users.

We suggest that detailed assessment of life-cycle costs is critical as a basis for pro-poor finance solutions. A major area for application of the Life-Cycle Costs Approach is to look at unit costs to serve the poorest of the poor within a given district or community, and to assess the differences between 'designed-for' and 'received' quality of service. This is a fundamental issue, as almost all existing data on costs refer to the service as designed, with no exploration of the real costs that people actually pay for real services received. From our experience, even in areas that are nominally covered, closer disaggregation at the level of households and individuals identifies pockets of reduced access to services that, when taken together, can represent a substantial part of the population nominally served. So key questions that need to be considered include the following:

- How much are poorer households paying compared with less poor households?
- What are the cost components of delivering services to the lowest income quintile?
- What proportion of a population can be allowed to experience a sub-standard quality of service before the entire service is seen as failing?

Useful case studies here include the Brazilian SISAR model and the Egyptian Community Development Association (CDA) model (see WWF6 website), as well as the Free Basic Services model from South Africa, described in somewhat more detail below (Case Study 1).

The SISAR system (*Sistema Integrado de Saneamento Rural*), which operates in north-eastern Brazil, combines an association of community-based service providers with support from a State-level utility. Local representatives participate on a voluntary basis, and SISAR operates on the principles of self-management and *sustainable* cost recovery through metered connections and close attention to collection of bills: this is a model example of a system which genuinely aims to achieve sustainable cost recovery.

In Egypt, CDAs manage the operation of complete low-cost sewerage systems in small towns and villages, including collection of tariffs from householders; however, operation and maintenance are contracted out to a private entrepreneur. The success of the approach is secured by intensive awareness raising and community mobilisation, and simple technology and management procedures that the CDAs can cope with. To foster sustainability, the partner organisation, Kafr El Sheikh Water and Sewerage Company (KWSC), is involved in capacity development of CDAs, while the financial aspects are audited and supervised by the Ministry of Social Solidarity.

CASE STUDY 1: Using the Life-Cycle Cost Approach to understand the real costs of rural water supply operation and maintenance (South Africa)

[Case study submitted by Jim Gibson, based on Gibson (2010)]

In South Africa, newly constructed water supply schemes sometimes suffer from poor reliability. Under the Free Basic Services policy of government in South Africa, sustainable coverage of costs is achieved mainly through taxes and transfers: full cost recovery from tariffs is not a requirement. The Government provides unconditional Equitable Share Grants to municipalities to support the provision of free basic services to poor households. The grant is based solely on number of poor households, independently of location, type of settlement, or the nature of the installed infrastructure.

In the Eastern Cape Province, Maluti GSM Consulting Engineers (MGSM) were contracted over a period of 9 years as a Support Service Agent to work with community-based organisations to provide water services in two areas. In the Alfred Nzo District Municipality, 144 villages with 27,000 households were served, and in Chris Hani District Municipality, 40,000 households in 285 villages were served. The Equitable Share Grant was found to be sufficient to cover the total cost of operations, without there being any need to make the support conditional on community-level cost recovery.

Water supply systems in these areas vary in technology and size from large systems covering many villages, with water supplied from dams and water treatment facilities, to small hand-pump installations; the majority are small group or stand-alone village schemes. The level of service is, almost universally, communal standpipe. While the national guidelines state that all people should have access to potable water within 200 m walking distance, many of the schemes in the area had only rudimentary reticulation and the walking distance exceeded 200 m.

The objective of the programme was to ensure that potable water was supplied reliably. The community-based organisations performed the daily operation and management tasks, with the support service agent supplying technical and logistical support when needed. Water quality and continuity of supply were monitored monthly and reported on by the support service agent. These performance indicators were used to direct the need for support interventions. In both areas, Maluti GSM used community-based organisations for provision of water services, while recognising that some degree of technical and management support would be required.

During the programme period, the majority of operational interruptions were due to failure of mechanical or electrical equipment. In the case of hand-pumps, the recurring theme was that of small failures resulting in dysfunctional schemes. Welding equipment is needed to repair the pumps: users either did not have such equipment, or were unable to use it. Thus, it is not the simplicity of the machinery, but the users' ability to repair it that is the crucial factor.

In the process of implementing this programme, details of quality, continuity, interventions and costs were recorded by Maluti GSM. Using these data, Gibson (2010) was able to calculate the real cost of support to these rural water supply schemes. Gibson found that the real cost of support varied considerably between areas, depending on factors such as distance, number of installations, and type of equipment installed (pumps and motors drove up costs). The support costs required to effectively manage and operate these rural water supplies constitutes a larger proportion of the total cost than was previously assumed. The main cost components were technical staff and travel costs.

Comparing the real cost with the estimates given by commonly used cost estimation tools developed by various government departments, Gibson found that there was wide variation between the estimates used, and major differences between estimated and real costs. Thus, cost estimation tools should be used with caution and by experienced personnel. Certainly, the real cost of carrying out long-term maintenance may be considerably higher than governments and financing institutions assume.

> Financing institutions and governments can leverage local private-sector finance *either* by channelling finance directly to private-sector operators *or* by investing in programmes that stimulate private-sector activity

3.2. Maximisation of local small-scale private-sector involvement

There is broad consensus that local small-scale private-sector entrepreneurs can make very important contributions to sustainable pro-poor services, particularly in urban communities: such entrepreneurs may include standpost operators, small local water network operators, sanitation products retailers and fitters, self-employed pit emptiers, and desludging tanker operators. These smaller independent operators may perform auxiliary roles that large-scale service providers (e.g. utilities) are unable to provide; or they may play a transitional role, performing functions that in 5 or 10 or 20 years' time may be taken over by the utility or municipality.

Small-scale private-sector involvement can improve service delivery through increased efficiency resulting from competition among service providers, and through a closer relationship with local communities (allowing more effective customer service and more efficient revenue collection): Franceys (1997) suggests that *"Private sector participation is considered to increase efficiency and introduce new sources of finance but above all to require a new emphasis on proactive, performance oriented, commercial management that aims to match the demand of its customers with their willingness to pay realistic charges and tariffs."*

Financing institutions and governments can catalyse these contributions and leverage local small-scale private-sector finance *either* by channelling finance directly to private-sector operators *or* by investing in programmes and systems that stimulate private-sector activity.[3]

In what follows, we present three brief case studies outlining ways in which financing institutions and governments can use limited investment resources to stimulate and support local private-sector contributions to water and sanitation for the poor:

a) through support of small-scale delegated management (Case Study 2)

b) through sanitation marketing initiatives (Case Study 3)

c) through microfinance programmes that offer lines of credit to the local community operators of water and sanitation services (Case Study 4)

[3] Here it is worth noting that, at the community level, the distinction between community operators, small private operators and individual households may often be blurred: for example, we might see a situation in which householders receive support to connect to the network, and then sell water to their neighbours. Likewise, a community association may operate a water standpoint on business principles; and conversely self-employed operators may form part of an association with social ends. So we here use "local private sector" to refer to any local service that is run basically on business principles.

CASE STUDY 2: small-scale delegated management of a local water network (Kenya)

[Case study drawn from WSUP (2011a)]

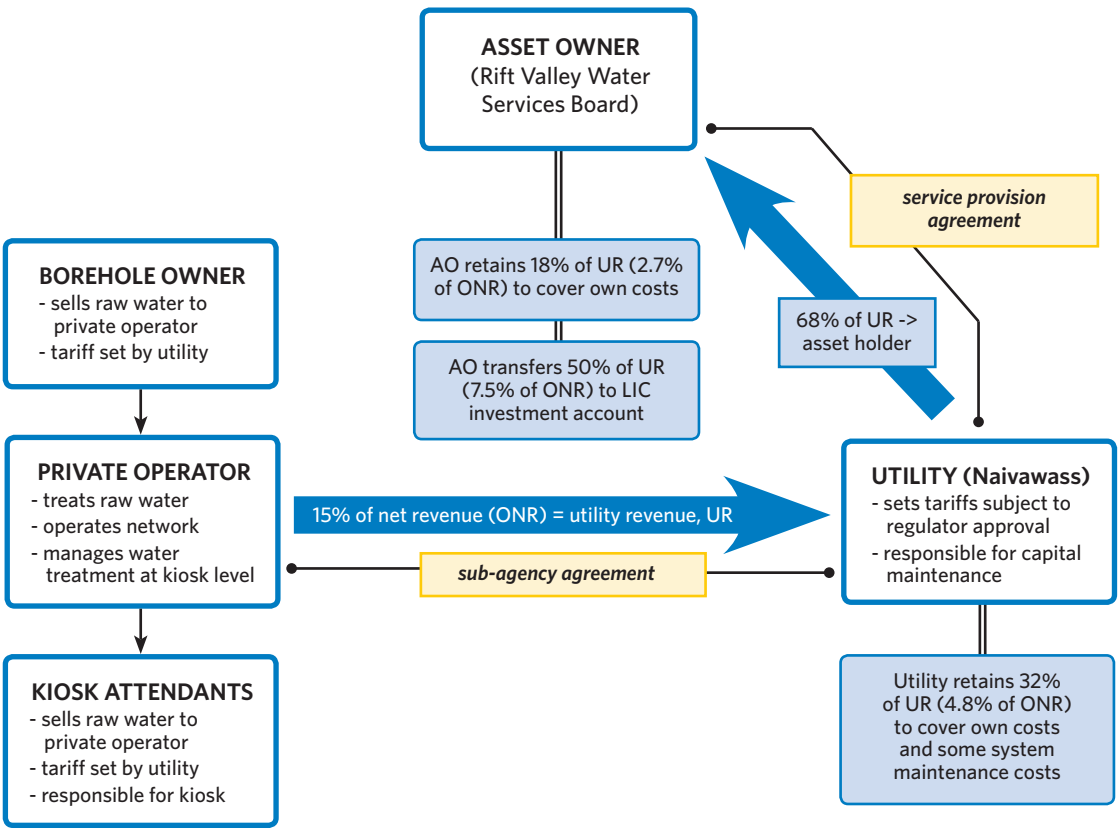
The people living in the informal settlements of Mirera and Karagita, near Lake Naivasha in Kenya, used to get their water from donkey cart vendors: this water was expensive, often microbiologically contaminated, and had dangerously high fluoride content. The settlements lie outside the range of the town service provider, Naivawass, and the challenge was to find ways of financing improved water services to these poor settlements whilst at the same time setting up a service delivery system that incentivised the maintenance and expansion of services to the poor.

To solve the problem, the Rift Valley Services Board, Naivasha Water Company and private borehole owners signed a tri-partite service delivery agreement covering water service delivery for the informal settlements. The agreement, developed and supported by Water & Sanitation for the Urban Poor (WSUP), defines roles and responsibilities for ownership, operations, maintenance and capital replacement.

The process of developing the financial arrangements included the establishment of a project steering committee, extensive consultation and discussion with all interested parties. Financial modelling was used to help ensure sustainable cost recovery and capital maintenance, and for service expansion as the settlement grows.

In January 2011, the system served 6,000 people via 8 kiosks which provide both defluoridated water for drinking/cooking, and cheaper untreated water for washing and laundry. The cost of water for low-income consumers had been reduced by about 90%, and the proportion of defluoridated water sold has increased by about 20%. However, the model has not yet achieved full cost recovery.

***Figure 3**. Schematic summary of the Naivasha delegated management model. AO = asset owner; ONR = operator net revenue; UR = utility revenue; LIC = low-income community.*



CASE STUDY 3: Developing rural sanitation marketing (Vietnam)

[Case study drawn from Sijbesma et al. (2010)]

Over the period 2003—2006, the NGO International Development Enterprises (IDE) ran a pilot-scale sanitation marketing scheme in Vietnam (Sijbesma et al. 2010). This formed part of the wider Vietnamese National Target Programmes (NTPs) 1999—2010, which aimed for 70% of rural households to have sanitary toilets by 2010; under the NTPs, households were basically expected to finance their own toilets, although a 25% investment subsidy was available for very poor households, and low-interest government-backed loans were widely available. Thus although the wider NTP was not a sanitation marketing programme, the lack of direct subsidy meant that this was a favourable environment for sanitation marketing approaches: where there has been recent widespread subsidy, people will often be less willing to invest their own money, preferring to wait for the next round of subsidy.

The IDE pilot was carried out in 30 communes of six districts in two poor rural provinces (Thanh Hoa and Quang Nam), with a total population of about 270,000 people (54,000 households). At the outset, 16% of households had sanitary toilets, 24% unsanitary toilets and 60% no toilet.

The programme implemented by IDE comprised a) assessment and analysis of the rural toilet market; b) design assistance to allow toilet suppliers (shops and masons) to offer a wider range of toilet options at lower cost; c) training of local toilet suppliers; and d) training local community-level sanitation and hygiene promoters. There were no subsidies to individual households. There was a particular focus on targeting women, by using women leaders and health workers.

By the end of the programme (2006), approximately 16,000 toilets had been built, corresponding to about 30% of the population. The annual rate of toilet construction was about 2.5 times faster than that seen under the NTP. In the subset of 8 communes evaluated by Sijbesma et al. (2010) in their sustainability study, coverage increased over the IDE programme period from 18% in 2003 to 44% in 2006 (6.4% per year); and after IDE's support had ended, coverage in this sample continued to increase at an even higher rate, reaching 59% at the end of 2008 (see figure above) By contrast, coverage in the two control communes selected by Sijbesma et al. (2010) stayed practically constant over this period.

This thus seems to have been a successful programme. Sijbesma et al. (2010) note a number of aspects that need to be taken into account in future programmes of this type in Vietnam and elsewhere.

- First, long-term sustainability of the programme will require ongoing institutional capacity building, so that inputs of the type supplied by IDE can be provided locally.
- Second, there are difficulties in accurately assessing the extent to which this programme actually served the poorest of the poor. Government data for the programme as a whole suggest that pro-poor targeting was acceptable,[4] but detailed data is not available on a) the number of poor households that constructed a new toilet or b) the number of households-without-existing-sanitary-toilet that constructed a new toilet; it seems likely that some new toilets were constructed by non-poor households who already had a sanitary toilet. The authors highlight the need for poverty-specific monitoring of toilet access in programmes of this type.
- Third, a financing strategy for the poor is missing. Many of the householders who constructed new toilets used credit from government-backed microfinance institutions or from other sources; but in order to reach the poorest of the poor, Sijbesma et al. (2010) note a need for "a more refined and comprehensive strategy", comprising either a marketing programme specifically targeted at the very poor, and/or highly targeted subsidies within a wider sanitation marketing programme.

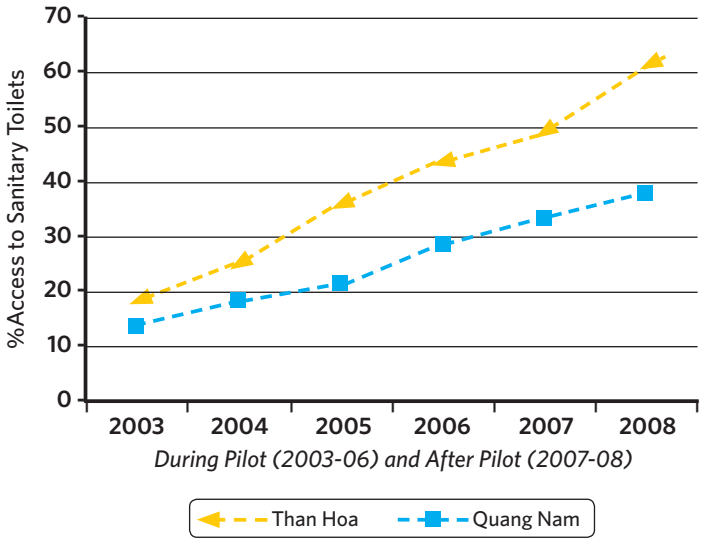


Figure 4. *Sanitation access data in the 8 communes evaluated. Reproduced from Sijbesma et al. (2010)*

[4] According to programme access data, poor households comprised 19% of the total population, but only 16% of those who constructed toilets: this suggests that poor people were somewhat less well-served than non-poor people, although the imbalance is relatively minor.

CASE STUDY 4: Using microfinance channels to encourage solutions led by communities and local enterprise

[Case study supplied by Arto Suominen, Ramboll Finland Oy/Ministry of Water and Energy of Ethiopia]

Ethiopia's Community Managed Projects (CMP) are based on a proven set-up (known as Community Development Funds, CDFs) for routing small grants to communities via a financial intermediary (a microfinance organisation). The grants are for construction of community-managed water points. The innovative financing model is coupled with supporting elements including capacity development of *woredas* (districts) to plan and support communities rather than building schemes themselves; local private sector development; and locally adapted procurement procedures.

CMP grants are disbursed through the microfinance institution on demand from communities, who are supported by the Water Resource Development Team of their *woreda*. This is a triangular partnership resulting in a win-win situation. CMP has been widely recognised in Ethiopia as the best approach for community engagement in WASH: the Ministry of Water and Energy has made it the focus of a new WASH strategy (called WASH Implementation Framework), and a specific programme (Community-Led Accelerated WASH, COWASH) to scale up CMP beyond the 2 pilot regions is now underway with Finnish support. As at November 2011, the CMP approach is being implemented in 63 *woredas* in four regions, with support from the Government of Finland, UNICEF and regional governments.

It is important to note that in this particular case the microfinance institutions are not actually *providing* the capital: rather, they are acting as a channel for capital supplied by other actors.

The CMP projects have been found to be more efficient in utilisation of funds than projects financed by funding routed through *woredas*, because procurement is much faster by the WASH committees at each site. This simplified procurement system has been put in place through training and continuous supervision. As a result of the CMP, the efficiency of the *woreda* level Water Office has also increased considerably, because the actual project implementation does not entirely depend on the capacity of this office: the role of the *woreda* has changed from implementer to facilitator. This has improved communities' capacity to implement their projects, but it has also improved their ability to work on influencing the supply of material and equipment by the private sector. These changes have resulted in an increased number of water points constructed in one budget year, and in a reduced time for project completion (1.5 to 2 months per water point). A recent evaluation also reported higher levels of sustainability under the CMP model (94% of water points operational, compared to an average of 75% in the Amhara region).

Communities maintain two accounts: one for the investment grant, and one for operation and maintenance (for which the initial community contribution is allocated). It has been found that O&M accounts are well maintained and substantial savings have been made by the communities for future operation and maintenance.

The microfinance institutions maintain large networks of offices at local level and have proven to be interested in water supply. Although the programme has worked with 100% grants to date, with the microfinance institutions charging a fee to cover their costs, there is interest in piloting mixed grant/loans: for example a loan element for community projects that includes small-scale irrigation as well as domestic water supply, or full loans to fund family wells. The financing approach is also being investigated for use in other sectors such as agriculture.

> The solution is simple: ensure that tariffs are high enough to achieve financial sustainability, and reduce connection fees for low-income consumers

Notwithstanding promising results obtained in the above cases and elsewhere, small-scale private-sector involvement should certainly not be seen as a "magic bullet". Some authors have criticised private-sector involvement in water and sanitation as an abdication of public responsibility: particularly in urban areas, non-poor households often benefit from networked water and sanitation services, and these are typically subsidised by the state; when poor households are served by small-scale private operators, they may in fact receive a lower-quality service at higher cost than that being paid by non-poor households (Hall & Lobina 2007, Mader 2011). But this is complicated: for example, a private operator who supplies water in a low-income district via a local network will often charge higher tariffs than the city's main water utility, but poor consumers will nevertheless be receiving a *much* better service at *much* lower cost than previously received from mobile water vendors (as in Case Study 2 from Naivasha). The challenge must be to ensure that service improvement models based on encouraging the involvement of local small-scale entrepreneurs lead to substantial improvements in WASH service quality for the poor, in ways that are compatible with gradual adoption of full responsibility for pro-poor service delivery by the main service providers.

3.3. Innovative tariff systems

In many cities in sub-Saharan Africa and Asia, water tariff systems often simultaneously fail to achieve both financial sustainability and pro-poorness: a common situation is for per-litre tariffs to be too low to achieve genuine financial sustainability, while connection charges are too high for poor consumers. Such situations may reflect a history of populist political interference in water tariffs, which are heavily subsidised for the middle classes and civil servants, while slum dwellers are not reached by piped networks and must pay inflated prices to informal suppliers. This commonly leads to a vicious circle situation of spiralling mistrust, with slum dwellers making illegal connections to the network, while water utilities are unwilling to invest in slum communities because they fear that revenue generation will be very low.

Innovative tariff systems aim to *break* these vicious circles, and to create relationships of mutual trust that favour genuine financial sustainability. The most common solution is technically simple, though it may be politically difficult: ensure that per-litre tariffs are high enough to achieve city-wide financial sustainability, and reduce connection fees for low-income consumers. An example of implementation of this type of approach is Case Study 5 from Mozambique, where national institutions are strongly committed to rationalising water tariff structures and achieving high rates of connection in urban areas.

In addition to Case Study 5, the reader is also encouraged to consult another very interesting example available in the online Annex: this details an approach followed by the Government of the Flemish Community (Belgium), where a legal framework has been developed to ensure that water bills are affordable to all, while respecting the high standards imposed by law in terms of quality, supply and sustainability. The approach consists primarily of two policy measures: first, a fixed allocation of a certain volume of water at no charge to the consumer, and second, the granting of exemptions from sanitation charges for low-income households. Of course, this model is not directly transferable from Belgium to very different contexts in Africa or Asia: however, we consider that it offers very interesting lessons for lower-income contexts.

CASE STUDY 5: Reaching the pro-poor through innovative connection charges (Mozambique)

[Case study supplied by Baghi Baghirathan (WSUP); see also WSUP (2011c)]

In Mozambique, FIPAG (the water-sector asset owner and investment agency) and CRA (the water-sector regulator) are strongly committed to development of financing mechanisms that aim at improving services to the poor whilst at the same time driving greater service provider efficiency in Maputo and 13 other towns and cities. This initiative has been supported by WSUP, who in 2008 and 2009 supported an exploratory community marketing programme in two low-income districts of Maputo (WSUP 2011c), and who are currently assisting FIPAG with financial analysis to assist in the development of plans to finance the reduced fee.

In 2010, FIPAG reduced the connection fee by 50% and now allows fee payment over a period of 12 months: this has led to a sharp increase in the connection rate among low-income householders, most of whom previously paid much higher per-litre prices for lower-quality water from informal suppliers (on average about 40% more). Although in the longer term this may make good business sense, in the short term it implies a cost to FIPAG of about $75 per connection, which is being met a) by streamlining connection processes and thus reducing per-connection cost, b) by levying a new surcharge on water supply to the country's ports, and c) by setting up a revolving fund to finance the remaining balance. In terms of accounting, the short-term cost of this connections policy is being considered as part of the capital expenditure budget rather than the operating budget. The 5-year target is to expand from 100,000 to 300,000 utility-connected customers in Maputo alone.

At the same time as marketing to encourage connection by low-income households (associated with the reduced connection fee and payment facilities), the utility [*Aguas de Moçambique*] is also censusing and rationalising connections, aiming to identify illegal connections. As noted, the current cost to FIPAG of a new connection is $75, while the estimated annual loss from an illegal connection is around $210: in fact it is hoped that the additional revenue and reduced water losses arising from conversion of illegal to legal connections will finance the reduced-connection-fee scheme, even without the additional revenue from ship sales and efficiency savings.

A key lesson to be drawn from this programme is that there needs to be strong political interest in achieving city-wide service coverage, including serving the poor. Without political support, it would be difficult to achieve the required fundamental reforms. If the political commitment is there, technical support from development partners can be of great value, bringing expertise in financial analysis and building pro-poor community relations in ways that can significantly contribute to success.

> An approach that offers enormous potential is using water revenues to support the costs of providing sanitation services

3.4. Water-to-sanitation cross-subsidy

Financing and implementing improved water services for the poor is challenging: but financing and implementing improved sanitation services is *very* challenging.[5] An approach that offers enormous potential for meeting this challenge is cross-subsidy from water: in other words, using water revenues to support the investment costs (CapEx) and recurrent costs (Operational Expenditure, Capital Maintenance Expenditure and Expenditure on Direct Support as the most important) of providing sanitation services. In other words, this approach recognises that the fixed and recurrent costs of pro-poor sanitation improvement will often *not* be recoverable from user fees and tariffs, so that cross-subsidy will be required. Subsidy from general tax-derived national or local government budgets is notoriously unreliable in low-income countries; by contrast, surcharges on the water bill can be closely tied to sanitation services.

In many high-income countries, water supply and sewerage are operated by the same utility, and sewerage services are charged as a percentage of the water bill (i.e. if your water bill is $100, and the sewerage charge is 90%, then you will pay a total of $190).

In low-income urban contexts, the situation will be different: people will often be paying a water bill (or paying for water from a kiosk operator who in turn pays a water bill to the utility), but generally they will depend on some sort of non-networked sanitation, not sewerage. This is relevant, because at present water utilities (or water and sewerage utilities) rarely take responsibility for non-networked sanitation: so a cross-subsidy model may imply a requirement to "bundle" responsibility for water services and onsite sanitation services under a single operator. However, this is certainly not an essential requirement: in both Senegal and Madagascar, for example, sanitation services are charged via the water bill but passed on to a sanitation service provider.[6]

Locations in which water revenues are used to cross-subsidise onsite sanitation include Ouagadougou in Burkina Faso (Kolsky & Savina 2004), Manila in the Philippines (WSP-EAP 2003) and, as noted, Dakar in Senegal (Guène et al. 2010). In Case Study 6 we briefly outline the positive experience in Manila, where water consumers connected to sewerage pay a 50% surcharge on their water bill and all water consumers pay a 10% "environmental surcharge", which is used for provision of desludging services in all parts of the city, including low-income neighbourhoods. Readers are also directed to a recent WSUP Practice Note (WSUP 2011b), which details an example from Antananarivo (Madagascar), where community groups are using revenues from community-operated water kiosks to finance drainage canal clearance, which is critical for maintaining a faeces-free local environment.

[5] This is essentially because people everywhere are much more willing to pay for clean water for their own use, than to pay for systems which keep their neighbourhoods shit-free: in other words, people tend to place a higher monetary value on water.

[6] In fact, in Madagascar this is the nominal situation, not the reality: a sanitation surcharge is collected by the water utility, but reportedly not passed on to sanitation service providers.

CASE STUDY 6: Cross-subsidising sanitation from water revenues (Philippines)

[Case study drawn from WSP-EAP (2003)]

Sanitation in Manila is of poor quality with a mix of sewerage, shared septic tanks, on-site septic tanks and latrines. Only 8% of households in Manila have networked sewerage, while 10% use shared septic tanks and 75% of households have septic tanks/latrines. The 2020 objective is to have 55% of the city networked, with 100% emptying services for the remaining latrines and septic tanks.

Key factors for accomplishing this goal are a) that the utility Manila Water is responsible for both water and sanitation, and b) that Manila Water charge for sanitation services in the water bill. If sanitation service had to be charged independently, Manila Water doubts that they would collect much revenue.

The concession area of Manila Water is divided into 8 sub-areas, each divided in turn into supply zones and within these, district metering zones (DMZ), each of which supplies about 1000 households. The metering allows measurement of water both in and out of the DMZ, which has helped identify losses. The customers are attended by Manila Water supply zone managers, business managers and district officers: all in all about 700 staff serving 5 million users. The communities are relatively well organised into structures known as "Barangay", with elected officials (Barangay leaders) who are the key contacts for the MW district officers. A key ingredient in improvements for the poor has been the strong working relationship between the district officers and these community representatives.

Users are invited to receive networked water, but not obliged to. Most have accepted, because of lower price and better service, and have appreciated being counted as customers. As a result of the programme most of the independent suppliers have ceased operating.

The normal residential tariff is US$ 0.29/m^3 plus a 50% charge for sewer-connected customers. The social tariff for low-income consumers is US$ 0.18/m^3 plus a 10% "environmental tax" covering the cost of emptying latrines and septic tanks, plus septage treatment and disposal. This tariff gives a water and sanitation cost which is typically about 2-3% of household income. The industrial tariff is over three times higher. Tariffs have been kept at a realistic level, and rate rises have met with little resistance because of Manila Water's achievements in delivering consistently improving services.

Manila Water has also started a specific programme to incorporate all users to the network, irrespective of income level. Banks of meters are installed at the entrance of low-income communities. Initially, each meter is shared by 4-5 families, who manage the onward distribution and revenue collection themselves. Users have requested more individual connections over time.

Connections are financed through charges, the charge for an individual connection being 6,000 pesos (about US$ 140), payable over 12 months through the water bill. Payment centres have been established to facilitate payment of bills: consistent failure to pay leads to disconnection. In 20% of the urban area, water is currently delivered in bulk to the boundary of the community, for onward distribution by community members themselves. As more consumers request individual connections, this percentage is decreasing, and Manila Water is now concentrating on assisting users with improvements further down the line, after the shared meters.

Serving the poor is part of the corporate culture of Manila Water, thus the programme is well aligned to overall corporate goals. Manila Water also has a Livelihoods Programme, where communities and individuals are given micro-finance by Manila Water to start manufacturing water network components (steel brackets, piping, signage etc.), and to become suppliers to Manila Water, thereby increasing income and employment: this clearly helps strengthen common interests.

> "OBA is increasingly being adopted by other major financing institutions and by national governments"

3.5. Output-Based Aid (OBA)

An increasingly well-known solution for pro-poor concessional finance is Output-Based Aid (OBA). Under a typical OBA agreement between a financing institution (e.g. a development bank) and an implementing agency (e.g. a water-sector asset holder), disbursement of grant funds for infrastructure construction is withheld until verification of infrastructure construction and operationality. This approach has been promoted by the Global Partnership on Output-Based Aid (GPOBA), a multi-donor trust fund managed by the World Bank: application in the water and sanitation sector has been relatively limited by comparison with other sectors, but Mumssen et al. (2010) report a total of 32 documented OBA water and sanitation projects, of which 31 are GPOBA projects. Most of this experience has been in water, but —as noted by Trémolet & Evans (2010)— OBA is increasingly being implemented in sanitation. In addition, and although OBA was initially promoted by the World Bank and GPOBA, it is increasingly being adopted by other major financing institutions and by national governments (see Trémolet 2011).

Below we summarise a successful case of OBA implementation to support sewerage provision to low-income communities in cities in Morocco (Case Study 7). Readers are also directed to an interesting application of OBA in Jakarta (Indonesia) available in the online Annex. This centred around a partnership between the service provider PALYJA (a Suez Environnement subsidiary) and the World Bank. The aim of the programme was to connect low-income households that could not otherwise afford to connect to the water network. The two parties agreed that disbursement should be in proportion to the number of households with a new connection, with effective service delivery over a period of at least 3 months. Outputs are checked by an independent technical auditor. To date, this project has assisted PALYA to serve 6 areas, and a total of 5042 connections have been set up since 2005.

CASE STUDY 7: Application of OBA principles in a water and sanitation programme (Morocco)

[Case study submitted by Xavier Chauvot de Beauchêne]

In Morocco, almost all urban dwellers have potable water (with individual connections and continuous service for 83 percent of households). However, infrastructure is lagging for water supply in poor urban and peri-urban areas, and for wastewater management (70% of urban households are connected to a collection system, but only 5% of discharges are treated). Currently, about 2 million Moroccans remain without access to water supply and sanitation services in peri-urban areas of Morocco's main cities. In the Casablanca metropolitan area alone, an estimated 145,000 households (or 900,000 inhabitants) do not receive adequate water supply and sanitation services. These residents get water from contaminated shallow wells, water providers who charge a relatively high unit price, or standpipes which often require women or children to queue for several hours. Access to basic sanitation is even more deficient: a majority of households use cesspits and poorly designed septic tanks, which risk increasing contamination of shallow groundwater. Many of the poorest people remain without any form of sanitation.

In 2007, Morocco's Urban OBA Pilot Project was launched in the cities of Casablanca, Tangiers and Meknès. OBA is part of a global national policy for reducing poverty launched by the king: the INDH. While the details of the schemes vary, the common objective was to expand access to water and sanitation among the poor living in recently legalised informal settlements in peri-urban areas. The project aims to connect 11,300 households to piped water and sanitation services in poor peri-urban neighbourhoods of these three cities. The pilot project is funded through a US$ 7 million grant from GPOBA and implemented by the incumbent service providers in each city (international private concessionaires in Tangiers and Casablanca, and a public utility in Meknès).

The participating utilities promote the connection programme to households in the selected 'quartiers', receive applications from individual households, make connections and are reimbursed a pre-agreed amount upon evidence of a functional and used connection. The pilot project makes payments to the service providers out of a common "OBA fund" that forms the basis for a later scale-up into a national OBA programme. The subsidy is operator- and service-specific and paid in two steps: 60% upon verification of a working water and sewerage connection to an eligible household and 40% upon verification of at least six months' sustained service. The Government of Morocco plays an oversight and monitoring role. Although the pilots experienced a slow start, with only about 2,000 connections in the first year, there was a significant increase in uptake after works started. Collection rates are equal or superior to the average in each operator's service area. As of March 2011, the project had resulted in 11,147 new household water connections and access to improved sanitation for 45,825 people in urban areas.

Participation is strictly demand-driven, which creates an incentive for the operators to carefully assess demand from targeted beneficiaries during preparation and to work with local authorities and partners during implementation to raise awareness and promote the programme. The demand-driven approach is helping to refocus service provision on households, which has increased accountability, strengthened partnerships between local authorities and operators, and made monitoring of service delivery a priority. There are quarterly inspections by an independent third party. This has helped to improve the operators' progress reporting requirements and implementation methods.

The OBA approach is seen as helping to improve processes, overcome financing blockages, and mobilize stakeholders. All parties acknowledge that conventional financing would have resulted in fewer connections than OBA in the same circumstances. OBA is seen as strategically relevant to Morocco, given the lack of targeted subsidy mechanisms for poor households, especially in informal urban settings. The Government of Morocco has expressed interest in replicating the OBA approach on a citywide or nationwide scale. As part of the GPOBA-supported supervision of the pilots, the World Bank is working with the government to plan a scale-up programme that would address the needs of several large municipalities. Such a programme would also aim to strengthen coordination between institutions in charge of the different aspects of peri-urban utility service.

A key advantage of OBA is that the efficiency of investment is, at least in theory, guaranteed: the implementing agency assumes the risk of non-achievement of goals, so it has a powerful incentive to perform. Another advantage of OBA is that it enables pro-poor targeting by incorporating pro-poorness conditions for disbursement within the project design. Regarding sustainability, IDA (2006) concludes that although actual sustainability can only be measured in the future, sustainability should be addressed in the design of all OBA projects; and certainly it is possible to use monitoring indicators that *predict* future sustainability. Trémolet (2011) discusses various ways in which OBA and other results-based financing mechanisms can be designed to encourage sustainability.

The potential of OBA for driving pro-poor service delivery is clear, but it is equally clear that this may not be a viable approach in some contexts, for two main reasons.

Firstly, the implementer has to provide the upfront finance and assume the risk of non-disbursement if performance is worse than expected; so this means that less confident utilities may not be willing to enter into agreements of this type, either because they are unable to access the pre-finance required for an OBA programme, and/or because they do not currently have the capacity to be confident that they can achieve the requirements for disbursement. Most OBA programmes to date have involved a private-sector multinational in implementation.

Secondly, the focus on post-construction disbursement may mean that less attention is paid to longer-term financial sustainability; indeed, there it might be argued that the focus on immediate outputs might influence *against* sustainability. Mumssen et al. (2010) note that a portion of the disbursement may be withheld until after several months of service delivery to enhance sustainability: but this is only a few months, which may ensure more rigorous verification of construction effectiveness, but does not ensure good verification of long-term financial sustainability. However, we should note the possibility of bonus payments for demonstrated sustainability in subsequent years, on top of output-based disbursement.

In view of these difficulties, WSUP has recently proposed a financing model, termed Progress-Linked Finance (PLF), which is designed to incentivise longer-term capacity for provision of financially sustainable pro-poor services. This model, outlined in the next section, should not be seen as a "competitor" to OBA, but rather as an additional approach that may be more appropriate in some types of context.

3.6. Progress-Linked Finance

Progress-Linked Finance (PLF) is designed as a targeted use of public finance that can incentivise pro-poor service provision, in the long term also leveraging both household finance (by extending improved services to more paying customers) and market finance (by increasing the financial viability of the service provider and thus their ability to access and repay credit).

Under the PLF model, international financing institutions (IFIs) enter into financing agreements with WASH service providers. The financing institution makes a commitment to provide concessional finance at a specified time in the future, on condition that the service provider has by that time demonstrated commercially viable service delivery to low-income areas, and has built capacity to a level of readiness for scale-up of services. PLF can be summarised as an agreement of the following type: *"If the service provider can demonstrate 3 years from now that they have met conditions A, B and C in relation to financial viability and pro-poor commitment and capacity, the financing institution will provide a grant or loan of amount X for WASH scale-up"*. [In very simple terms, OBA pays you a grant once you have built a functional system; PLF promises a grant or low-interest loan if you can demonstrate readiness to build a functional system.] In reality, agreements would likely be more complex, for example entailing a series of agreements involving a number of financing institutions. Central to the model is positive incentivisation coupled with rigorous verification that conditions have been met over a significant period of time.

In practise, PLF is likely to involve an iterative process of progress verification and reward, i.e. access to finance. Thus, the service provider does not have to implement a full-scale programme in order to get access to finance: it suffices to show the ability and willingness to do so. Figure 5 below illustrates the PLF process.

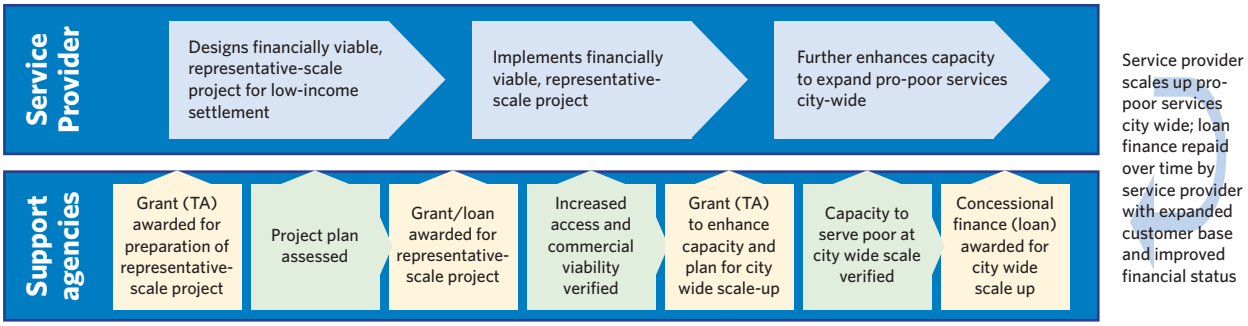


***Figure 5**. Basic features of a typical PLF process. Source: WSUP/ODI (2011) Progress-Linked Finance: A study of the feasibility and practicality of a proposed WASH financing approach.*

The PLF approach provides a means of bringing together key features of the five approaches to WASH financing presented above, to create an integrated solution that is both pro-poor and sustainable. It links to the sustainability aspects of the LCCA and small-scale private-sector approaches by requiring the service provider to demonstrate that the proposed solution is commercially viable. It targets poor urban areas and requires that solutions are demonstrated to be feasible in these areas: innovative water tariff structures and water-to-sanitation cross-subsidy are key means that can be used to achieve this, and could indeed be included among the conditions of a PLF agreement. Finally, like OBA, PLF uses disbursement to incentivise progress, and aims to ensure that this progress is pro-poor by developing institutional readiness and technical capacity. The lack of major pre-financing requirement makes it accessible even to service providers (public or private) that do not have access to substantial concessional funding.

> "The PLF approach has not yet been tested at scale. However, broadly similar approaches are often applied in development bank programmes"

The PLF approach has been recently developed by WSUP and has not yet been tested at scale. However, broadly similar approaches are often applied in development bank programmes (where they may be termed "milestone agreements" or similar), or may be integrated into intra-national water and sanitation programmes.

In the Philippines, for example, the 'Graduation' concept has been developed to incentivise operational and financial improvement among Water Service Providers (WSPs). In place since 2004, the approach makes different financing options available to WSPs based on their step-wise progression towards credit-worthiness (four categories are defined: *non-creditworthy, pre-creditworthy, semi-creditworthy* and *creditworthy*). WSPs are also incentivised to progress through their 'graduation plan' by gaining increasing levels of operational autonomy. The process is supervised by an inter-agency oversight committee, led by the Department of Finance and including various other government departments and the Local Water Utilities Administration, which is required to develop guidelines and monitor the progress of WSPs. The Graduation concept is thus embedded in existing national structures: a possibility in the context of the Philippines where capacity is already reasonably high.

In Kenya, the Water Services Trust Fund (WSTF), a State Corporation established in 2002, is mandated to provide financing assistance to unserved areas. Most budgetary allocations come from the Government of Kenya, complemented by various bilateral and multilateral financing institutions. The model is demand-led, requiring eligible entities to apply for funding for three main activities: urban and rural water services, and development of Water Resource Users Associations. In the case of the urban window (the Urban Projects Concept), water service providers are encouraged to apply to the WSTF for project funding to enhance water supply and sanitation services in low-income districts within their service areas. Proposals are prepared in collaboration with the asset holders, the Water Services Boards, and are assessed against data regarding the baseline and intended impact for pro-poor services. The Urban Projects Concept shares some characteristics of PLF, including its pro-poor focus, but does not require demonstration of a commercially viable pro-poor service model. It is, however, an interesting example of a dedicated pro-poor trust fund established at the national level: Zambia's Devolution Trust Fund (DTF) is a further example.

As detailed in Case Study 8 below, embryonic elements of the PLF model are applied by WSUP in Professional Service Agreements with local partners.

CASE STUDY 8: Application of PLF principles in Madagascar

[Case study supplied by Baghi Baghirathan (WSUP)]

As noted, PLF has not yet been applied at scale. However, WSUP has been using PLF-type elements in specific partnership arrangements called Professional Services Agreements (PSAs). In Antananarivo (Madagascar), for example, WSUP works closely with the national water utility JIRAMA to improve water supply services to low-income urban communities. The process followed in Antananarivo, characteristic of WSUP's modus operandi, is to first sign a broad Memorandum of Understanding with the local service provider (here JIRAMA), expressing a general commitment to achieving financial viability and pro-poor service provision. Subsequently, specific aspects of the programme are then defined under PSAs.

For example, a PSA has recently been signed to govern a non-revenue water reduction (NRW) programme. A first-phase agreement, under which WSUP supported JIRAMA to develop NRW reduction capacity in two pilot districts of Antananarivo, was fully financed by WSUP (with funding from the Bill and Melinda Gates Foundation). Recognising the value of this pilot NRW programme, JIRAMA subsequently sought WSUP's support to extend the NRW programme on a partnership basis, and agreed to commit their own resources and funds to complement the WSUP input. This second-phase agreement, extending into other areas of Antananarivo, is being undertaken via a PSA under which JIRAMA will provide 30% of financing, and under which WSUP commits to providing ongoing investment support and capacity development. The PSA obligates JIRAMA to meet specific performance targets relating to pro-poor services provision, and the WSUP support is conditional on achieving this. Specifically, JIRAMA has formally committed to performance targets relating to the following citywide goals:

- increased number of poor people served as a result of increased allocation of water resources
- increased investment in network expansion to unserved areas
- increased hours per day of service to poor consumers
- reduced distance to water kiosk for kiosk-dependent consumers

In line with this commitment, and incentivised by the ongoing progress-linked funding relationship, JIRAMA has recently set up a dedicated NRW reduction unit for Antananarivo, and is developing a nationwide urban NRW reduction strategy with WSUP support.

As at late 2011 there are grounds for cautious optimism about this progress-linked financing process: despite serious resource constraints, JIRAMA is strongly committed to pro-poor service provision. In part this is thanks to the strong working relationship between WSUP and JIRAMA: by supporting NRW reduction and other aspects of business management, WSUP has been able to influence policy much more effectively than by simply offering to "help serve the poor". This highlights a key defining feature of the PLF model: by incentivising service providers, and by offering them support to *increase their revenues*, funders can hope to have a much more powerful and sustainable impact on service delivery than by simply demanding pro-poor service delivery from utilities and other service providers that currently lack to capacity to serve poor areas in a financially sustainable way.

Over coming years, WSUP will be testing and developing the PLF concept in several African cities.[7]

[7] More information available in the WSUP/ODI (2011) Discussion Paper *Progress-Linked Finance: A study of the feasibility and practicality of a proposed WASH financing approach*.

The PLF model and national basket-fund models like the Kenyan WSTF and the Zambian DTF are relevant to situations in which national utilities and other large-scale service providers are developing capacity and taking increasing responsibility for service delivery to low-income districts, perhaps with technical support from an agency like WSP or WSUP. However, we should not rule out the possibility of Private-Public Partnership (PPP) models in which a major multinational is enlisted to directly develop and manage service delivery improvements. One such multinational, Suez Environnement, has developed a three-phase contract progression model, based particularly on this company's experience in Haiti and Argentina, and aiming to overcome some of the issues arising in those PPP agreements (Jansenns et al. 2012). This model remains an untested early concept at this stage, but is of interest as an indication of the way in which operators like Suez are thinking about moving forward. The three phases proposed are as follows:

- **Phase 1**: Technical Assistance Contract (duration 2 - 3 years) - During this period, the operator takes charge of the day-to-day operation of services, and at the same time adopting a technical consultant role advising the relevant public authorities on key aspects of the reform process. This phase will involve detailed diagnostic studies of the existing situation, and initiation of a performance monitoring system, under which the contract could be terminated at any stage if performance indicators fall below minimum thresholds).
- **Phase 2**: Performance-Based Management Contract (duration 3 - 5 years) - The second phase is structured by a performance-based agreement, now workable given that baseline diagnostics have been carried out, performance indicators set up, and institutional reforms implemented.
- **Phase 3**: Subsidised Concession (duration 10 - 15 years): During the third phase, the operator will typically work under an "enhanced affermage" agreement or subsidised concession, probably involving public financing inputs to support pro-poor service delivery, and aiming at this stage for increasing financial sustainability and autonomy.

Critiques of this model include a) that expecting substantial sector reform in the 3 years of Phase 1 may be over-optimistic (i.e. Phase 1 might be expected to take longer); and b) that the model is predicated on long-term management of services by a multinational operator, with no defined process for handover to national operators. However, it is presumably the case that a formal process and roadmap for handover could be pre-agreed where this was judged desirable.

> “The widespread focus on short-term outcomes may often create perverse incentives”

4. Conclusion

CS2 Target 7 is *Pro-poor finance solutions for water and sanitation*. Financing solutions that are both pro-poor and sustainable do exist, and we urge key actors —including international financing institutions, national and local governments, and water and sanitation utilities— to introduce real change in their policies and procedures, so that these solutions can be widely adopted.

In line with this paper's Sections 4.1—4.6, Key Messages for Target 7 are as follows:

1) **Use life-cycle costing/financing for sustainable service delivery**: Services will only be sustainable where sources of finance cover all expected expenditures: so it is essential to ensure that life-cycle costs have been estimated and sources of financing identified that are equal to or greater than projected life-cycle costs at both sector and system scale.

2) **Maximise local small-scale private-sector involvement**: Local private enterprise is likely to play a central role in any programme to improve water and sanitation services for the poor, and there are several effective ways in which financing institutions and governments can encourage this role.

3) **Introduce innovative tariff systems for the water sector**: Water tariffs should be sufficient to ensure real financial sustainability and affordability by the poorest of the poor. If connection fees for low-income households are reduced, water supply to low-income districts can be both good for the poor and good for business: a win-win situation.

4) **Use water revenues to cross-subsidise sanitation**: Including sanitation charges in water bills is a very obvious way of financing sanitation services, and it is surprising that this approach remains uncommon in low-income countries. It is important that revenues be used to genuinely improve sanitation in low-income communities.

5) **Use output-based financing approaches**: By making disbursement dependent on demonstrated delivery, international funders can ensure that funds are spent efficiently. And by including requirements for sustainability (i.e. demonstrated service delivery and revenue collection over a period ideally of at least one year), approaches of this type can help ensure sustainability.

6) **Use progress-linked finance approaches**: PLF is a way of bringing all of the above together, and using the incentive of future disbursement to encourage local institutions and local service providers to adopt and encourage water and sanitation policies that are genuinely sustainable and pro-poor.

Finally, this paper has highlighted various constraints inherent within the procedures of international financing institutions (IFIs), which mitigate against the development of sustainable pro-poor services (see Section 3.4). Certainly, constraints within other institutions are also very important, and we consider that national governments in particular need to carefully consider ways in which they can genuinely improve service delivery to the poor. But here we choose to target this final message at IFIs, as key responsible actors in this area. One example of an IFI procedural constraint is the widespread focus on short-term outcomes, which may often create perverse incentives: if a donor requires an implementing agency to construct 500 toilets (serving say 5,000 people) in 2 years, that's easy enough, but there is no time to negotiate local Operational Expenditure, Capital Maintenance Expenditure and Direct Support streams, and little guarantee that the toilets meet community preferences and will be financially sustainable. On the other hand, if the donor requires the implementing agency to identify and support financially sustainable sanitation solutions for those 5,000 people, over a 5-year period, we will almost certainly see better outcomes.

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Online annex of cases:
www.wsup.com/sharing/DiscussionPaper3.htm
or
www.irc.nl/page/113

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