

Sanitation financing models for the urban poor



Christine Sijbesma

Sijbesma, C., 2011. *o* (Thematic Overview Paper 25) [online]
The Hague: IRC International Water and Sanitation Centre (Published November 2011). Available at: <<http://www.irc.nl/top25>>

Reviewed by: Christelle Pezon and Joep Verhagen

Cover Photo: *Left:* Female toilet mason assistants in low-income areas trained by Vietnam Women's Union and the Department of Health
(PHOTO Aidan Dockery/SNV)

Right: The international WASHCost project investigates the the life-cycle costs of delivering water and sanitation services in Mozambique
(PHOTO IRC)



Copyright © 2011 IRC International Water and Sanitation Centre
This work is licensed under the Creative Commons license: Attribution-NonCommercial-ShareAlike
View copyright terms here: <http://creativecommons.org/licenses/by-nc-sa/3.0/nl/deed.en>

IRC International Water and Sanitation Centre is an independent knowledge centre in the field of water supply, sanitation, hygiene and integrated water resources management in relation to development cooperation. IRC conducts research, provides training and advisory services, and information products and services. IRC works for both the public and the private sector, for Dutch and international organisations, including UN institutions, development banks, non-governmental organisations and private charities.

Sanitation financing models for the urban poor

Thematic Overview Paper 25

Author: Christine Sijbesma

Reviewed by: Christelle Pezon and Joep Verhagen

November 2011

IRC International Water and Sanitation Centre

Contents

Acknowledgements.....	6
Abbreviations.....	7
Thematic Overview Papers (TOPs)	8
1 Introduction.....	9
1.1 Most people now live in cities.....	9
1.2 Urban sanitation: a major challenge	9
1.3 Urban sanitation: a major challenge	9
1.4 Good potential for progress	10
1.5 Contents and structure of this TOP	10
2 The life-cycle services approach to urban sanitation.....	12
2.1 Contents and structure of this TOP	12
2.2 Financing full-chain sanitation services.....	13
2.3 The urban poor already pay	13
2.4 Criteria for financing (selected) mechanisms: a review	15
3 Financing services for human excreta containment	18
3.1 Financing of individual household toilets.....	18
3.2 Financing of communal toilets	43
3.3 Financing recurrent costs of individual households (use of own/ family income)	46
3.4 Financing recurrent costs of sanitation blocks.....	47
4 Financing transport, treatment and end disposal	54
4.1 Peepoo bags (end-disposal)	54
4.2 Financing full-cycle toilets	55
4.3 Public and private vacuum trucks: toilet emptying, transport and disposal.....	57
4.4 Facilitating financing for the urban poor (conventional sewerage).....	64
4.5 Shared financing of lower cost services	67
4.6 Financing the recurrent costs of sewerage services	72
5 Promoting latrine ownership by the poor	75
5.1 City sanitation campaigns.....	75
5.2 Campaigns for Urban Community-Led Total Sanitation (UCLTS)	77
5.3 Urban sanitation marketing	80
6 Moving forward	87
6.1 City actions	88

6.2	Actions by national governments.....	89
6.3	Roles of bilateral donors and development banks.....	90
6.4	Learning and sharing/knowledge management.....	90
6.5	Specific sanitation statistics of the urban poor	91
	References	92
	Glossary.....	101
	Resources	104
	General literature and materials available.....	104
	Specific studies	106
	Relevant websites.....	111
	Relevant short videos and documentaries.....	116
	Relevant Contacts.....	119

Tables

Table 1	WASHCost Sanitation Service Functional Areas - The Delivery Chain.....	12
Table 2	A framework for the life-cycle costs approach to urban sanitation.....	16
Table 3	Toilet matrix based on local poverty criteria in a poor urban community in Tegal, Indonesia.....	40
Table 4	Comparison of costs and financing of different ways of transport and disposal of human excreta in Dar-es-Salaam, Tanzania	59

Figure

Figure 1	The Human Excreta Management Cycle	13
----------	--	----

Boxes

Box 1	The poor and the ultra-poor: how are they defined and identified?	10
Box 2	Sales tax makes toilets more expensive	19
Box 3	Lesotho Bank gives households loan for ventilated improved pit (VIP)	22
Box 4	Vietnam Women runs donor-supported scheme for toilet savings and loan groups	23
Box 5	UNICEF-financed revolving fund for toilet savings and loan clubs	23
Box 6	Ugandan landlords take loans to build toilets for renters	24
Box 7	Pakistani bank manages government toilet loans	26

Box 8	Bangladeshi women use income from micro-credit to finance household toilets.....	27
Box 9	Adjustments to user realities improves repayment of toilet loans in Botswana	27
Box 10	Group guarantees for loan repayment: The Grameen Bank	28
Box 11	Honduras housing cooperative gives toilet loans with technical advice to improve results.	29
Box 12	Bulk buying of materials lowers cost of loans for eco-toilets in Malawi	31
Box 13	Senegal: Output-Based Aid (OBA) for household toilets.....	36
Box 14	Government-established producers sell toilet materials with subsidies adjusted to locations' poverty	37
Box 15	Kerala state allocates local development funds to municipalities: 10% must be spent on sanitation	38
Box 16	ArborLoo and sanplat toilet: lowest cost full-cycle toilets	41
Box 17	Scaling up construction and operation of sanitation blocks through fund pooling.....	44
Box 18	NGO funds association of urban poor to give loans to CBOs for sanitation blocks	45
Box 19	Serving the urban poor: how long will it take?	46
Box 20	Contracting out public toilets leads to toilet wars in Kumasi, Ghana	47
Box 21	Indication of partial use of sanitation blocks in case of payments per visit	49
Box 22	Sanitation block operated voluntarily through a roster with gender equity in Surakarta, Indonesia.....	50
Box 23	An example of a combined service: sanitation block with biogas service in Denpasar, Bali	51
Box 24	Trial participants in Bangladesh currently not willing to pay actual cost of peepoo bags	54
Box 25	Savings fund in Malawi gives loans for materials and training to the urban poor for eco-toilets.....	56
Box 26	Cost of manual pit emptying in a slum in Nairobi.....	58
Box 27	Honey suckers sell untreated faecal sludge to farmers around the city of Bangalore, South India.....	60
Box 28	Mini-vacuum truck service pilots: good potential but not yet financially self-sustainable ..	61
Box 29	Improved manual pit emptying reduces poverty and increases gender equity in Durban, South Africa.....	62
Box 30	Tailoring to their conditions makes sewerage affordable for the urban poor in Surakarta, Indonesia	65
Box 31	Bulk connection through a rapid action learning project in Surakarta, Indonesia	65
Box 32	Action research on a co-financed shallow sewerage service and user choice of amenities in Cali, Colombia	67
Box 33	Participatory approach brings down capital costs of sewerage services by 60%.....	68
Box 34	Primary sewers linked to the municipal sewerage network in Orangi (Karachi, Pakistan) ...	69

Box 35	Cross-subsidies from the better off to the poor are politically unsustainable in Quetta, Pakistan.....	71
Box 36	Mini-sewerage benefits the poor, but with how much equity and accountability?	73
Box 37	Financing toilet promotion through a surcharge on urban water bills in Burkina Faso	77
Box 38	Post-triggering in urban CLTS needs sharing of community technical know-how for more equitable results	80
Box 39	Private sector responds to market for low-cost toilets in Bangladesh.....	81
Box 40	A safe toilet for the price of two beers per month in Gitenga, Burundi.....	82
Box 41	Urban sanitation marketing in Kampala: plastic products promoted and sold with credit options.....	83
Box 42	One standard credit arrangement does not serve all: cases in Kumasi, Ghana and Santiago de Chile, Chile	84
Box 43	Informal private sector finances commercial sanitation blocks in Ghana.....	85
Box 44	Entrepreneurs in two Kampala slums can get two types of loans for establishing pay-and-use (eco) toilets.....	85

Acknowledgements

While writing this TOP, I was helped by a number of colleagues. Joep Verhagen suggested converting an earlier conference paper into a fully-fledged Thematic Overview Paper. Christelle Pezon and Joep Verhagen reviewed the first version and proposed major improvements. Mariela Garcia Vargas contributed a lost case report from Colombia. Riangustin Mozar was an inspiration during hands-on work in an urban sanitation programme in Indonesia. Other colleagues also contributed valuable case studies that they presented in several workshops organised by IRC and partners in Africa and South Asia. Bettie Westerhof was a great help in tracing the more elusive grey materials from IRC's on-line data base. The Publications team and the Programme Assistant team of IRC also played important roles in bringing the Thematic Overview Paper up to publication standards. They also supported in getting the report finished before the end of the year festivities - this has been quite an achievement. Minnie Hildebrand did a great editorial job within a very tight time frame.

To all of you, my sincere thanks. Any mistakes left remain my own.

Christine Sijbesma

Abbreviations

BDT	Bangladeshi Taka (currency, Bangladesh)
CBO	Community-based Organisations
CDR	Committee for the Defence of the Revolution (Ghana)
IDR	Indonesian Rupiah (currency, Indonesia)
INR	Indian Rupee (currency, India)
ISSDP	Indonesia Sanitation Sector Development Program (Indonesia)
JMP	Joint Monitoring Programme
MDG	Millennium Development Goals
MFI	Micro-Finance Institution
MOU	Memorandum of Understanding
NGO	Non-Governmental Organisation
OBA	Output-Based Aid
OPP	Orangi Pilot Project (Pakistan)
TOP	Thematic Overview Paper
SanPlat	Sanitary Platform
UCLTS	Urban Community-Led Total Sanitation
UGX	Ugandan Shilling (currency, Uganda)
UNDP	United Nations Development Programme
UNICEF	United Nation's Children Fund
USIT	Urban Sanitation Improvement Team (Lesotho)
VIP	Ventilated Improved Pit Toilet
TZS	Tanzanian Shilling (currency, Tanzania)

Thematic Overview Papers (TOPs)

An effective way to TOP up your knowledge

The TOP series is a web-based initiative from IRC International Water and Sanitation Centre. The series is a digest of recent experiences, expert opinions and foreseeable trends on a specific theme, and provides a grounding in the topic concerned. Each TOP links up its readers to the most current and informative publications, articles, materials, websites and other research information.

Reviewed by a wide spectrum of professionals working in the water, sanitation, and hygiene (WASH) sector, the TOP series is an excellent starting point that introduces its readers to the most up-to-date thinking and knowledge on a theme/topic impacting upon the sector.

Available for free in PDF format, all TOPs may be downloaded from the IRC website:
<http://www.irc.nl/page/3271>¹

Contents of each TOP

Each TOP comprises the following:

- An Overview Paper
- An introduction to case studies of best practice
- A list of resources that may include:
 - Links to books, papers, articles
 - Links to websites with additional information
 - Links to websites (and contact details) of resource centres, organisations and information networks

The website contains the most up-to-date version of the TOPs in PDF and MSWord, so that readers can download and print the information to peruse and share with colleagues.

IRC wants to hear from you!

Your insights and input are highly valued by the organisation. Contact Christine Sijbesma, author of this TOP, at sijbesma@irc.nl and/or general@irc.nl for information on the organisation and other materials produced by IRC International Water and Sanitation Centre.

¹Opportunities to provide feedback on TOPs are also available on the IRC website.

1 Introduction

1.1 Most people now live in cities

Today, the world is undergoing the largest wave of urban growth ever. In 2008, for the first time in history, more than half of the world's population lived in towns and cities. By 2030, the urban population will be almost five billion, with urban growth concentrated in Africa and Asia. Contrary to common perception, most of the growth occurs in smaller cities and towns. In principle, urban areas offer a more favourable setting for the resolution of social and environmental problems than rural areas. Urban development generates jobs and income, and presents opportunities for social mobilisation and emancipation of disadvantaged groups. With good governance, more densely settled areas can deliver basic services more efficiently than sparsely populated areas simply because of their advantages of scale and proximity. However, in today's world, the idea of growth is based on the perception of a Western model of growth that cannot be universally applied. Smaller cities and towns have fewer resources to respond to the magnitude of the change in terms of people, money and knowledge (UNFPA, 2011).

1.2 Urban sanitation: a major challenge

The provision of sanitation services in low-income urban areas is one of the greatest challenges in development. Population growth in developing countries currently outpaces sanitation growth, especially in urban areas (WHO/UNICEF, 2010). Consequently, in urban areas where poor people reside, and where 'formal' sanitation services are not available to them, they experience the compounded effect of serious economic disadvantages such as high risk to public health; a dirty and contaminated environment; no basic human dignity and safety risk for a large part of the world's population, especially for adolescent girls and women (Hutton, Haller and Bartram, 2007).

1.3 Urban sanitation: a major challenge

The urban poor are detrimentally affected by the lack of access to proper sanitation facilities. However, this lack of access remains hidden, as urban sanitation statistics generally do not differentiate between access for the upper, middle, and lower or lowest socio-economic strata.

Poverty is currently growing faster in urban areas than in rural areas. Urban areas are typically overcrowded, polluted, dangerous, and lack basic services such as water and sanitation. Aggregate statistics also underestimate the scale and depth of urban poverty hiding the deep inequalities between the poor and the ultra-poor, and the middle and upper income groups. The United Nations Population Fund states that officially, up to or over half of the urban population ranges between poor to ultra-poor in most developing countries.

Box 1 The poor and the ultra-poor: how are they defined and identified?

National governments and international development banks have their own definitions and criteria for when a person or a household is to be called poor or non-poor. There are three implications to having multiple definitions for the poor and ultra-poor. First, there may be more poor people accounted for if the criteria included expenditures for basic services other than food, for instance water, hygiene and health. Second, official below-the-poverty line data may not represent real life situations because it includes households that should not be on the list and omits those who should. Third, the large category of 'the poor' covers a very wide range of poor people, from those just below the poverty line to those forming the bottom 10%, and all the groups in-between.

Multiple definitions for the poor and ultra-poor is the reason why this TOP does not give a complete definition of these terms. However, to provide context, this TOP defines the ultra-poor as the 5% to 10% of the urban poor who face the greatest problems in getting a decent form of human excreta disposal.

1.4 Good potential for progress

Urbanisation can play a positive role in social and economic development. Cities often offer greater potential for reducing poverty than rural areas. Cities are generally financial hubs and account for a high share of economic growth. UN-Habitat (2006, p.16) states: "Countries that are highly urbanised tend to have higher incomes, more stable economies, stronger institutions and are better able to withstand the volatility of the global economy".

One area for assisting urban development and economic growth is to enable poor people and the local private sector to improve urban sanitation conditions and services. The key to advancing urban development and economic growth is realistic, sustainable and pro-poor approaches and mechanisms to finance such services and products.

1.5 Contents and structure of this TOP

Many urban poor pay the price of losing time, energy, dignity, health, income and development opportunities by not having adequate sanitation facilities and services. Improving the situation for the urban poor requires a combination of sustained financing mechanisms that are equally effective and technologically innovative. There is also a need to establish more creative financing systems for the whole excreta disposal chain. The fundamental question that this TOP addresses is whether the urban sanitation sector offers services and financing mechanisms to all citizens, including the ultra-poor that address all components of the cycle either in sequence or through more self-contained excreta recycling facilities.

This TOP offers innovative ways to finance safe human excreta disposal services that covers the full disposal and management chain of human faeces of the urban poor. Although financing mechanisms include matched funding from national governments, the focus is on financing at and below city level. The contents give an overview of ways that the urban poor and others (e.g. national and local government, NGOs, external donors) have (co-)financed improved sanitation, and the advantages and limitations of each option.

The overview is subdivided by service level and builds on the work of IRC's WASHCost project on sanitation service levels. Following the Introduction of this paper, the sections in this TOP are structured as follows:

- Chapter 2** Explains the service delivery concept and the framework for examining urban sanitation services. The concept and framework provide the basis for this TOP in exploring the financing of urban sanitation services that go beyond the construction of toilets and other sanitation infrastructure. The concept and framework cover the following aspects: demand creation; information sharing and marketing sanitation products and services; local production and construction; materials and supplies; operation and use; maintenance, repairs and upgrading; safe emptying; treatment and end-disposal or use of the faeces; and financial services for both consumers and providers.
- Chapter 3** Covers the financing aspect of the first component of a sanitation service delivery cycle: the improved place where human excreta are contained. Usually, the container takes the form of a toilet, but it can also take the form of alternative, low-cost receptacles, such as the Peepoo degradable stool bags.
- Chapter 4** Addresses the financing models for the next steps of the full sanitation services chain: the collection and transport of human excreta to their end location and/or the safe practice of making productive use of human excreta, with or without treatment.
- Chapter 5** Provides an overview of the financing mechanisms for support services that promote the construction, use and hygiene of sanitary toilets, as well as safe emptying, end-disposal and/ or productive use.
- Chapter 6** Concludes that increased investments for urban sanitation for the poor are both necessary and beneficial. Working with a mix of financing mechanisms, implementing and delivering a full-chain sanitation service to the poor and very poor urban households can help the water, sanitation and hygiene (WASH) sector move forward in its development agenda. The chapter ends with a short list of actions for cities, national governments, donors and development banks. It makes a plea for structured learning and sharing to ensure that lessons on the effectiveness of creative financing mechanisms are shared and used widely. Finally, in order to score real progress in sanitation conditions in cities and countries, UN agencies and national governments must develop and improve access to urban sanitation statistics that are poor-specific and take cognisance of the full-cycle of sanitation.

This main text is followed by:

- An annotated bibliography of selected TOP books, articles and papers
- Selected TOP websites
- Selected TOP videos
- Selected TOP contacts

2 The life-cycle services approach to urban sanitation

2.1 Contents and structure of this TOP

The idea of different levels in sanitation improvement is not new. Potter, et al. (2011) discusses two types of sanitation ladders, namely, the Lao Sanitation Ladder and the JMP Sanitation Ladder. The first type of ladder covers six forms of safe containment of human faeces—ranging from level one, the cat method (burial) to level six, the septic tank toilet. In contrast, the Joint Monitoring Program only recognises five levels of sanitary toilets: the pit toilet with a cement slab; the ventilated improved pit (VIP) latrine; the flush or pour-flush toilet connected to a soak pit; septic tank or piped sewer system; and the composting toilet. Because neither ladder says anything about what happens to the excreta after containment, the WASHCost project introduced a functional sanitation ladder to redress this gap (Potter, et al., 2010; 2011). This adds quality of use and environmental protection functions through treatment and reuse as criteria for improving sanitation conditions. The sanitation services ladder developed by WASHCost is based on a sanitation services concept. The concept refers to the full human excreta management cycle from the disposal of human excreta in a safe, accessible toilet used hygienically by all family members to the end disposal and (re)use of the sludge at the end of the sanitation chain (Table 1).

Table 1 WASHCost Sanitation Service Functional Areas - The Delivery Chain

	Containment	Collection	Treatment	Disposal	Re-use
Improved service	X	X	X	X	X
Basic service	X	X			
Limited service	X				
No or unacceptable service					

Source: Potter et al., 2011, p.18.

Figure 1 (on the next page) shows the various steps covered by a full human excreta management cycle. A sanitation service can involve the use of high-grade technology, such as septic tanks or flush toilets connected to a sewerage system. However, Figure 1 also reveals that excreta disposal in the environment – in the form of raw sludge – breaks away from the cycle and therefore may not be considered an improved service as defined in Table 1. On the other hand, a double vault VIP composting household toilet used by all family members, which fully composts contents, is indicative of a highly improved service based on WASHCost sanitation services standards.

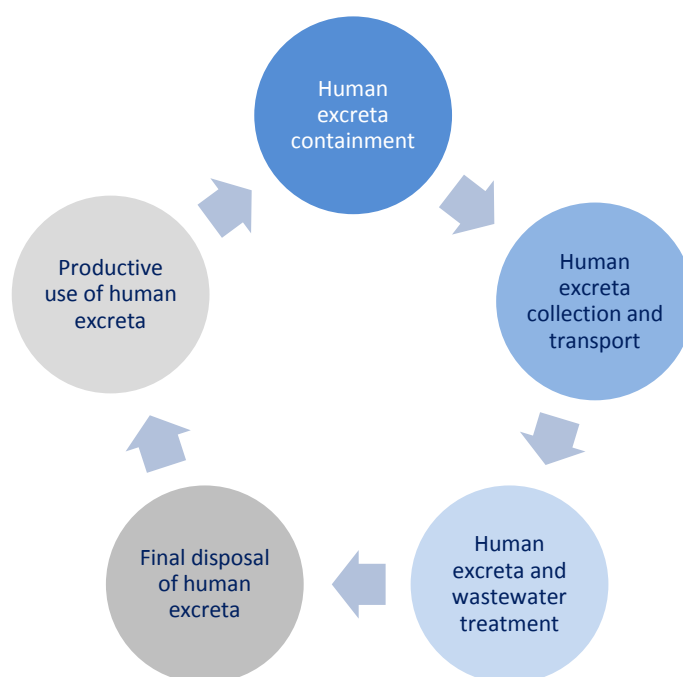


Figure 1 The Human Excreta Management Cycle
Source: Own illustration, 2011.

2.2 Financing full-chain sanitation services

The absence of implementing a full sanitation service chain severely affects poor people. Therefore financing the full life-cycle costs of sanitation services should go beyond installing toilets to financing several other components of the service delivery chain, which include:

- Creating a demand for sanitation;
- Providing information and marketing services for sanitary products and goods;
- Ensuring sustainable financing mechanisms for local production and the supply of sanitation materials and products;
- Financing services for construction, repair and upgrade;
- Promoting efficient operation and use; and
- Ensuring use of safe services for emptying, treatment and end-disposal or use of the sludge or compost.

2.3 The urban poor already pay

The Joint Monitoring Programme reports that in 2008, over 2.6 billion people (or 39% of the world's population), had no access to safe sanitation facilities (WHO/UNICEF, 2010). The limited access to sanitation facilities is most pronounced in urban areas due to high urban growth rates and low levels of sanitation coverage, notwithstanding the fact that specific statistics for this group are lacking. A conservative estimate suggests that an investment of US\$ 18 billion per year is needed for half of

those without basic sanitation to gain access to a sanitary toilet, at the least, by 2015 (Prüss-Üstün, Bos, Gore and Bartram, 2008). Poor families in urban areas, however, already pay the price for the unsafe and ill-conceived disposal of their excreta; albeit in forms other than money. The health, safety, and education of women and adolescent girls are affected the most by the lack of safe sanitation and disposal facilities. In many cultures women and girls can only go out for excreta disposal after nightfall and before dawn, with great risks to their safety, health, and education. Women and adolescent girls are often forced to divert their time and energy from other potentially productive tasks into finding places with enough privacy to relieve themselves. Health risks to women and adolescent girls include kidney stones, due to reduced intake of fluids during the day as a coping mechanism for not being able to go to the toilet. There are also health risks associated with living in dense environments, such as increased incidences of faecal-oral diseases. The absence of toilets in schools and separate toilets for girls going through puberty are also factors that influence parents' decisions to forbid their daughters from attending school and completing an education.

Poor people living in low-lying areas and on riverbanks also pay a different price. Some poor families are constantly exposed to the runoff and floodwater contaminated by open defecation and sludge from neighbourhoods located on higher ground. The same rivers are also places where poor families without sanitary facilities bathe, wash their clothes and dishes, and obtain their drinking water. Their sources of shallow groundwater are also frequently polluted by spill-over and leakages from toilet soak pits and septic tanks.

The financial losses from poor sanitation are high: households lose income and time that could be used for productive purposes². Communities in these areas frequently deal with illness or death that are directly related to their impoverished living conditions and the challenges that extra expenditure for health care and burials place on the financial health of households.

In 2006, the estimated total loss from poor sanitation facilities in Indonesia was US\$ 6.3 billion, which is equivalent to 2.3% of its gross domestic product (Napitupulu and Hutton, 2008). Conversely, savings from improved sanitation ranges between US\$ 7 to US\$ 9 for every dollar invested (Prüss-Üstün, Bos, Gore and Bartram, 2008; Hutton, Haller and Bartram, 2007). Greater investments in sanitation are undoubtedly sound but the ways that poor people can finance their part of these costs remains a problem

Investments in urban water supply and sanitation come mostly from a combination of the countries' governments and user households. Only 5% of all Official Development Assistance (ODA) goes to the water sector. Within this sector, the issue of sanitation is often unaddressed (GLAAS report, 2010). Both national governments and the formal private sector are disillusioned with large-scale private sector concessions (Marin, 2009). International non-governmental organisations (NGOs) and philanthropic organisations are turning towards sanitation, but their contribution tends to be fragmented and not well reported. User fees, including those financing the informal private sector, remain the main source of finance (Trémolet, Cardone, da Silva-Wells and Fonseca, 2007).

² Evans et al. (2004) give an estimated annual savings of US\$ 225 billion if all households would have sanitary toilets from the value of time savings alone. Case studies from Bobo-Dioulasso in Burkina Faso and Faisalabad in Pakistan give average cost savings equivalent to US\$ 15 per year and US\$ 2 per month against investments of US\$ 8/month and US\$ 40 (once) (Borghi, Guinness, Ouedraogo and Curtis, 2002 and Haider, 2008).

Another problem that compounds low sanitation investments is that investments often disproportionately benefit those people already served – that is, people belonging to the middle and upper income level brackets. Prüss-Üstün, Bos, Gore and Bartram (2008) show that out of the total spending to meet the Millennium Development Goal (MDG) target for improved sanitation, 59% has gone to urban sanitation. Out of the 59% of financing for urban sanitation, 43% was spent on investments and the remainder covered the recurring costs of those already served. Where 60% of total investment went to locations that were already covered, only 40% was for allocated for new and unserved populations. Achieving the targets of the MDGs demand more thought out financing mechanisms that better serve the unserved population and account for effective financing through poverty-disaggregated statistics in urban populations.

2.4 Criteria for financing (selected) mechanisms: a review

In addition to improved, better-targeted, and accounted for sanitation interventions, financing mechanisms that are better tailored to meet the financial capabilities of the poor must also be put in place. However, not all financing options will be equally suitable for all situations. Each option may have its advantages and disadvantages based on the following criteria:

- Applicability** Is there evidence that the financing mechanisms work? Are these effective?
- Simplicity** Is the chosen financing mechanism easy to use for those involved?
- Sustainability** Is the chosen financing mechanism self-sustainable (in the long-term), or will it require continued external support and/or matched funding?
- Scalability** Can the financing mechanism be scaled up and used by large numbers of poor households?
- Pro-poor** Does the chosen financing mechanism reach the urban poor and is it suitable in terms of affordability and cultural belief systems?
- Equity** Do the financing mechanisms facilitate equal advantages for disadvantaged groups, such as ultra-poor women and men, people belonging to caste systems and ethnic minorities, and people with disabilities, or do they relatively pay more and/or benefit less?

As illustrated in Figure 1, financing mechanisms will need to cover costs of services for each step of the human excreta management cycle. In an attempt to examine the financing options for each stage of the human excreta management cycle, this paper employs the life-cycle costs approach as a framework for analysis. The life-cycle costs approach is explained in detail in Table 2 (on next page)

Table 2 A framework for the life-cycle costs approach to urban sanitation

Containment				
Service level	Financing investment costs for installation	TOP 25 Section	Financing recurrent costs	TOP 25 Section
Individual household toilets	Use of free materials and labour	3.1.1	By own/family income	3.3
	Use of own/family income	3.1.2		
	Lowering of government tax	3.1.3		
	Private savings	3.1.4		
	Loans and micro-credit	3.1.5		
	Micro-credit plus	3.1.6		
	Pooling with other households	3.1.7		
	Building a shared household toilet	3.1.8		
	Toilet subsidy (in various forms)	3.1.9		
	Using income from excreta	3.1.10		
Communal toilets	Public investment	3.2.1	Public financing	3.4.1
	Public- NGO cost-sharing	3.2.2	Charging per visit	3.4.2
	Company and private donations	3.2.3	Charging subscriptions	3.4.3
	Public-NGO-CBO cost sharing	3.2.4	Contributions in kind	3.4.4
	NGO loans to community groups	3.2.5	Link to other enterprise	3.4.5
	Construction by private entrepreneurs	3.2.6	Cross-subsidies	3.4.6
	Scaling up with quality	3.2.7		

Collection, transport, treatment, end disposal or recycling and productive use				
Service level	Financing investment costs for installation	TOP 25 Section	Financing recurrent costs	TOP 25 Section
Individual household toilets	Peepoo bags (production)	4.1	Weighed tariffs	4.6.1
	Financing full-cycle toilets	4.2		
	Public and private vacuum trucks	4.3		
	Vacuum truck services	4.3.1		
	Mini-vacuum truck/chart services	4.3.2	Social tariffs	4.6.2
	Gulper services	4.3.3		
	City-financed improved manual service	4.3.4		
	City finances vacuum trucks			
Conventional sewerage	Facilitating financing for urban poor	4.4	Linkage with commercial services	4.6.3
	Loans for connection costs	4.4.1		
	Tailoring repayment arrangements	4.4.2		
	Use of local taxes	4.4.3		
	Negotiating connection in bulk	4.4.4		
	Municipal package for urban poor	4.4.5		

Innovative sewerage services	Shared financing of lower cost services	4.5		
	Shallow sewerage	4.5.1		
	Condominium sewerage	4.5.2		
	Primary line services with communities	4.5.3		
	City-managed decentralised sewerage	4.5.4		

Chapter 3 and 4 review how each cost of the service chain is financed. The cost catalogue helps identify ways for improving urban sanitation service delivery for the poor. Research indicates that municipalities, utilities, external financing agencies and NGOs can be more creative financially, when addressing challenges associated with safe excreta disposal in poor city areas. For example, some service providers now offer poor households differentiated/specific options to finance sanitation improvements across the entire sanitation life-cycle that consider current living conditions and opportunities of poor households. This differs from conventional financing methods which consider the upper and middle class communities as the standard for living conditions and opportunities.

Chapters 5 and 6 present a preliminary, yet incomplete, set of options on how poor people in developing cities can co-/ finance human excreta disposal provisions and services. The set is incomplete because most experiences are still at the initial stages of the cycle (the containment) and, do not reach the other parts of the cycle. Transport of the human excreta and safe end-disposal and use remain underdeveloped.

Each presented option reviews the associated advantages and disadvantages, based on the six criteria mentioned above: applicability, simplicity, sustainability, scalability, equity, and pro-poor. Where available, lessons are included, and presented as mini-case studies in boxes. These boxes offer lessons that may inform development initiatives seeking to improve sanitation conditions for the urban poor.

The following chapter explores different ways of excreta containment by the urban poor and how these services are financed.

3 Financing services for human excreta containment

3.1 Financing of individual household toilets

3.1.1 Use of free materials and labour

Where no sanitation services are offered, poor urban people practice open defecation, use ‘flying toilets’³, or build their own basic toilets using their own labour and available free materials. The simplest way of facilitating the construction process of toilets by poor communities consists of providing them with information on how to build sanitary toilets with minimal costs, using natural and/or solid waste materials. This allows poor households to cover all direct costs for safe, initial excreta containment themselves. The service providers can finance the process of organising communities, facilitating information sharing, and building the capacity of communities in planning, monitoring, and mobilising local action for sustained sanitation. Promoting self-built toilets and the self-management of services is the urban variant of a Community Led Total Sanitation approach (CLTS). Details on how this option can be financed are provided in Chapter 5: Financing urban sanitation promotion for the poor.

3.1.2 Use of own or family income

Following self-construction with free materials, which is the most common form of financing toilets, the next option is for families to purchase their construction materials in the local market using their own income and savings. Toilets are then built using their own labour, or with some help from a local mason. The latter is not necessarily a skilled toilet mason; a ‘mason’ may simply be a local person with some construction skills who carries out simple masonry work for a negotiated fee. Higher level toilet models, such as pour-flush single and double pit toilets, ventilated improved pit toilets, septic-tank toilets and water-flushed toilets connected to a sewer, are mostly built by a more skilled builder, though not necessarily with training in toilet construction. To get a sufficiently large market, Sijbesma, Truong and Devine (2010) report that local providers in Vietnam adjusted their financing services based on when and how their customers can pay. The following options were offered to their customers:

- Payment for a deposit and complete payment on toilet completion;
- Payment in instalments;
- Price reductions when purchasing more materials;
- Discount for bulk orders of goods or services, that is several families combine their order;
- Sales; and
- Loans.

Other mechanisms may exist, but as far as it is known, no systematic study and/ or inventory had been undertaken that illustrate how small urban providers facilitate poor urban households to build a toilet, and which mechanism works best under which conditions, and why.

³ Excreta deposited in plastic bags and thrown away as solid waste.

3.1.3 Lowering of government tax (sales tax on sanitation-related goods)

Sanitation is traditionally a private good. The oldest way of financing urban sanitation, including in poor households, is that every household finances its own provisions from its own resources. This is still the most common way of financing improved toilets. All over the world poor families scrape together what little money they have to buy materials. And if they can or must use expert labour, they hire a plumber or mason and construct the type of toilets they want and can afford, with or without provisions for a shower, wash, and/or laundry facilities. The challenge for cities is to move from sanitation as a private good to a public responsibility without introducing a toilet subsidy programme for reasons explained below.

One way of stimulating 100% private financing of capital and recurrent costs for construction, maintenance and the upgrade of private toilets is for the government to reduce or abolish taxes on items needed for basic sanitation improvements, such as sanitary pans (Box 2) and traps, toilet slabs, soak pit rings and plain tiles.

Box 2 Sales tax makes toilets more expensive

In India polypropylene toilet pans may cost only INR 60 (US\$ 1.25). However, governments often make toilets much more expensive by charging sales tax on components and construction. The State Government of Kerala, for example, charges a Value Added Tax (VAT) of 4% on plastic pans. For the more durable ceramic pans (which cost INR 150), the Central Government of India charges 12.5% VAT (US\$ 3.10).

Source: Mathew, K, Mathew S. and Joseph, R., 2008.

Advantages

Applicability	Implementation only requires an adjustment and announcement of change in rules.
Sustainability	Vis-à-vis finances, the measure is financially more sustainable than providing subsidies for household toilets.
Scalability	Same as above (Sustainability)
Pro-poor	Tax reductions can make the most basic materials for proper toilets and hygienic use more affordable and accessible for the poor.
Equity	Same as above (Pro-poor)

3.1.4 Private saving (and savings clubs)

An important problem of poor households is not so much the cost or their willingness to pay, but the need for a sizable upfront lump sum investment, even for the simplest and most preliminary models. This is further compounded by the difficulty in reserving savings for capital investments.

Common problems faced by poor people to save money for such payments are:

- The length of time it takes to save;
- Conflicting demands on limited resources; and
- High inflation rates, which decrease the value of the savings.

One way to facilitate saving money for toilet-related costs is to form a savings club. This is often done by women. At the start, each member agrees to save an agreed amount of cash or a hand-full of rice at an agreed interval. Some clubs also organise that some members work as day labourers to finance investments, while other members look after their children and undertake domestic tasks. When enough has been saved to install a toilet, the women draw lots and the member who draws the lucky ticket receives the money to buy the materials and install or upgrade one's toilet. This process then continues (rotational) until all members of the savings club have been served. At times, women also give the saved fund to a trusted outsider in the community for safekeeping, preventing them from drawing on the fund for other needs or under pressure from relatives with power over them.

Advantages

- Applicability** There is high participation of women in savings and loan clubs. These clubs are often promoted and facilitated by NGOs, such as Water Aid India and in the urban sanitation programme of the UN Habitat.
- Simplicity** The system is easy to understand, implement and replicate.
- Sustainability** Savings and loan clubs are sustained by the members themselves and so, depend on the perseverance of their members. Basic accounting and accountability are a must, but can be taught through horizontal learning.
- Scalability** The system is easy to understand, implement and replicate.
- Pro-poor** The clubs are especially popular among lower-income women, and match their pattern of small income and expenditure by day.
- Equity** In principle, all members have equal rights, but variations do exist (see limitations below).

Limitations

- Applicability** Challenges to the effectiveness of savings and loan clubs are described by the following: saving may take long; inflation over time increases the amounts that must be saved for each member; members must withstand pressures to use the money for other purposes in times of crisis; and the club may disintegrate before all members have benefited equally, causing tension and conflict.
- Sustainability** Learning and sharing across the city requires support from a municipal service, a programme, or an NGO.
- Scalability** Gaps in knowledge exist on the city-wide spread and success of the mechanism.
- Pro-poor** Ultra-poor women or women from minority groups are sometimes excluded as the organisers tend to invite women like themselves. Membership tends to be based on equal contributions and benefits. Hence, women who are unable to make the same level of contributions opt not to join.
- Equity** Male family members may not contribute even if they share in the ultimate benefits of women's participation (also see Pro-poor).

3.1.5 *Loans and micro-credit*⁴

Giving loans at no, low or regular commercial interest rate is another way in which low income households can install, upgrade or repair a toilet. Small loans to fund the new installations and upgrades can be sourced from relatives, social development banks, commercial banks, housing cooperatives, savings and credit unions, microfinance institutions, NGOs, government programmes, and utilities. In small and tight-knit communities, the local private sector also gives loans to consumers for sales and services.

Customer loans by local businesses

The local private sector, such as small sanitary hardware shops and masons, sometimes also give credit when they supply sanitary goods or services to customers. A study on sanitation marketing in Vietnam showed that in smaller communities, suppliers implemented various forms of credit for approximately one third of their customers. Because credit was based on personal knowledge and trust, no collateral was required, and no agreement on schedule of repayment was made (Sijbesma, Truong and Devine, 2010). The scope, conditions, payment terms, and completion of repayment of this type of credit in more urban areas are however, not known.

Revolving loan funds

In a revolving loan fund, a housing cooperative, a utility, a bank, a women's union, or another organisation that wants to facilitate household investments in sanitation, establishes the funds starting capital. Individual households can then in turn take loans from this capital. Through paying back their loan with interest the organisation keeps the capital intact. Growth, allowing for further provision of loans, can be seen if the repayments are on schedule, and if the interest charged covers the cost of administration, inflation and other reasons for cost increases. Loans usually have a ceiling and households may have to meet a number of requirements before they can take out a loan. In this way, in principle the fund can revolve perpetually.

One of the first successful sanitation programmes for low-income urban households – the Lesotho Low-Cost Sanitation Programme – used loans from the parastatal Lesotho Bank. Mara (2009) reports that users had to repay the loan in 20 instalments, over 24 months, at the normal rate of interest. Those interested received detailed guidance (see Box 3 on next page). Loan repayments were high and defaulting households were mostly the less disadvantaged who thought they could escape payments. The proportion of ultra-poor households that did not benefit was roughly 10%. Mara (2009) however does not state to what extent the interest charged covered the administrative costs and inflation, thus ensuring the sustainability of the loan scheme.

⁴ See for example, http://en.wikipedia.org/wiki/Micro_credit_for_water_supply_and_sanitation

Box 3 Lesotho Bank gives households loan for ventilated improved pit (VIP)⁵

HOW TO GET CREDIT FOR YOUR VIP IN TEN EASY STEPS:

If you do not have the funds to build a VIP now, then you can apply to the Urban Sanitation Improvement Team (USIT) for a loan from Lesotho Bank. This is what you have to do:

- 1 Go to your nearest USIT office and ask for a full explanation of the Loan Scheme and the various options available.
- 2 With USIT assistance, complete the Loan Application Form. You can choose to repay your loan over any period of up to 20 months. Interest will be charged at the normal Lesotho Bank rates on the loan. In exceptional circumstances, repayment of the loan could be negotiated for a longer period.
- 3 You will then be called for an interview by the Loan Approval Committee. They need to check that you are over 18, that you can produce a site ownership certificate, and that you are likely to meet your monthly repayments.
- 4 Before you can receive the loan you will have to collect 120 blocks and sand for the substructure. You must also dig your own pit.
- 5 When you have collected the materials, you will have to sign an 'Acknowledgement of Debt' agreement and commit your collateral against the loan amount.
- 6 You must then pay the LSL 10.00⁶ registration fee. This fee covers the cost of paperwork, fly screen, roof screws and a few small items. You will then be given a 'loan number'.
- 7 USIT will help you find a trained builder and give you a purchase order for the remaining materials and the builder's fee.
- 8 After you collect the materials yourself from the suppliers, the builder can start building. A USIT Technical Officer will check that it is built correctly. When it is finished, you will have to sign a completion certificate, stating that you are satisfied with the VIP – before the builder is paid.
- 9 When the invoices have all been paid, USIT will set up the loan with Lesotho Bank. You will be given a Loan Repayment Card to take with you to the Bank. The repayment should be made on or before the first day of every month.
- 10 If you have any financial problems and cannot make a repayment, talk to USIT community staff about it and USIT will try to help you. Remember, if you repay in less than 20 months, you will pay less money in interest.

Source: Mara, 2009.

Two-step loan schemes for CBOs

Another innovation is a revolving loan system that reaches individual households through local savings and credit groups, but is managed by a larger association. One reportedly successful case was implemented in Vietnam where the Vietnam Women's Union – a national movement that has women's groups in every community – runs a special toilet loan fund for local Vietnam Women's Union groups. The scheme can also be considered a success in that it uses a social interest rate, presumably financed by the donors (Box 4).

⁵ For more information, read: The National Sanitation Programme in Lesotho: How political leadership achieved long-term results, at : http://www.sulabhenvi.in/admin/upload/pdf_upload/af_bg_lesotho.pdf

⁶ LSL 10 (Maloti) is equivalent to approximately US\$ 3.50.

Box 4 Vietnam Women runs donor-supported scheme for toilet savings and loan groups

In Vietnam, the World Bank, the Danish International Development Agency (DANIDA) and the Finnish International Development Agency (FINNIDA) gave the equivalent of US\$ 3 million to the Vietnam Women Union to set up a Sanitation Revolving Fund for women's savings and loan groups. Low-income and poor households can access small loans equivalent to US\$ 145 per household (and with a subsidised interest rate) to pay about 65% of the cost of a septic tank, or to install a urine diverting / composting toilet or install a sewer connection. A requirement for access to the loan was the formation of a Savings and Credit group of approximately 12 to 20 households living in close proximity to one another thus ensuring peer control. Standard repayment terms of two years were implemented. Between 2001 and 2004, the initial capital had revolved twice and some 200,000 urban households built sanitation facilities over a period of seven years. The pilot approach has since been scaled up to other World Bank projects and the Vietnam Bank for Social Policy.

Source: Evans and Trémolet, 2009.

Box 5 illustrates an example of a similar fund organised by the United Nation's Children Fund (UNICEF) in Lesotho where monies were lent to local savings and loan groups to start their own toilet loan funds.

Box 5 UNICEF-financed revolving fund for toilet savings and loan clubs

Savings and credit unions are a well-known phenomenon in Lesotho. UNICEF provided a revolving fund of LSL 5,000 to each local cooperative credit group. The fund was meant only as a loan to allow members to install a toilet. It was operated under the following rules:

- 1 Each cooperative/ credit union had to be established under local legislation which among other things defines the service area for each co-operative union as being within a ten-mile radius.
- 2 To be eligible for a toilet loan, a borrower had to be a shareholder or depositor in the credit union and the amount that s/he borrows may not be more than half of the amount s/he has deposited in the credit union.
- 3 Five to seven members could borrow from the credit union at an interest rate of 1% per month on the loan balance that is outstanding.
- 4 Borrowing households could get short term loans only (12-18 months).
- 5 Borrowers had to give a security; the most common method is through co-signing.

Source: Larbi, 1990.

In Kampala, Uganda, the Sustainable Sanitation and Water Renewal Systems – a local NGO supported by Water Aid and the French embassy – provides the core money for a revolving toilet fund to groups who want to take loans to build toilets. The loan system is part of an urban sanitation marketing project implemented in three slums. Interestingly, those forming savings and credit groups were mainly landlords (Box 6).

Box 6 Ugandan landlords take loans to build toilets for renters

The Sustainable Sanitation and Water Renewal Systems gave seed money worth UGX 50,000 to each group to start the fund. Any member of the group could borrow top-up funds for his/her toilet and pay back in instalments based on terms agreed by the members such that others could also access the funds. Landlords were mobilised to form groups which were formerly registered with the local authorities to be legally binding. Each group consists of ten to thirty people. The members choose a committee consisting of a chairperson, secretary, treasurer, and two signatories to head the groups. They also open a bank account where the money is banked as a supplement for the funds in their account. In case one of the group members needs funds to build or complete a toilet, s/he can apply to the group for the amount wanted and upon approval, a memorandum of understanding on terms of repayment is signed.

Source: Kamara, 2011.

A new national water law in Kenya in 2002 made it possible for municipal, local government and utilities to take out bank loans and enter into contracts for water and sanitation services with CBOs and small service providers. Since the implementation of this change, the above mentioned K-Rep bank began providing low-interest water and sanitation loans to consumers, providers and entrepreneurs. It was argued that these customers – many of whom are already clients – will continue to use K-Rep for other commercial banking services once they start reaping the increased income and expenditure savings from improvements in water and sanitation (Cardone and Fonseca, 2006).

In the case of India, not all microfinance institutions operate equally effectively. The Housing and Urban Development Corporation of India financed 50% of toilet loans to housing boards, slum clearance boards, improvement trusts, municipal authorities and other state-authorized agencies. Recipients of the loan used the funds to convert toilets served by scavengers into pour-flush toilets and/or install new toilets. Over a number of years, house owners are expected to repay these loans to their board or corporation. A study on toilet maintenance, use and repayment showed, however, that 37% of the toilets were not used and the average loan repayment for this type of financing scheme was only 10%. These may be partially explained by the following limiting factors (Wegelin, 1997):

Applicability Users and local authorities were not involved in planning and decision-making on the toilets. The Housing on Urban Development Corporation in India limited its selection to only one type of toilet. As a result, toilet conversion and new construction were not based on the needs and preferences of the users. Households accepted the loans and the toilets simply because they had no other choice, not because the product met their conditions and needs.

Sustainability Loan repayments were not collected, although in theory local governments were made responsible for loan repayments and collection. Often, user households were even unaware of having received a loan and/or that a repayment scheme was part of the terms.

Pro-poor Payment conditions were not adjusted to the situation of the urban poor.

Revolving funds have several advantages and limitations, as follows:

Advantages

- Applicability** Revolving loan funds are widely practised financing mechanisms, but with mixed degrees of success (Akanji, 2002; Cull, Demirgüç-Kunt and Morduch, 2008; Murray and Rosenberg, 2006)⁷.
- Simplicity** This depends on the rules and regulations of the scheme and the legal freedom facilitating lending to individuals. In some instances women are not allowed to take out loans, and/or high collaterals are asked.
- Sustainability** Revolving funds are in principle self-sustaining when loan funds are well informed by the target groups' conditions, when they are managed well, when interest rates are flexible to market dynamics, and when there are no economic crises.
- Scalability** In principle, revolving funds for sanitation are possible for every organisation with the capital and management expertise.
- Pro-poor** This depends very much on the terms of borrowing and repayment.
- Equity** Same as above (see Pro-poor).

Limitations

- Application** The poor need more than just loans to build a sanitary toilet. From the perspective of a full sanitation life cycle, the costs for upgrade, maintenance, repairs and sanitary emptying must also be understood.
- Sustainability** Interest rates must be commercially viable for the loan scheme to be sustainable. However, this will reduce accessibility to the poor. Conversely, subsidised rates make the revolving fund more pro-poor, but can result in difficulties with regard to the realisation and accountability for allocation of subsidised loans only to poor and not to those households who can afford to pay commercial rates. Subsidised loans also require new capital injections. Public money is often spent on subsidising the banks themselves.
- Equity** If commercial rates are charged (including from the poor), the collected interest rates contribute to the banks' profits. These profits are not always reallocated to the sanitation sector. Furthermore, poor households often fear to take out private loans because they foresee or fear problems with repayment. Individual households also often do not have the required collateral.

⁷ See also http://en.wikipedia.org/wiki/Microfinance#cite_note-31

Government toilet loan schemes managed by banks

Sometimes, local or national banks provide household toilet loans on behalf of a government programme, for increased access to sanitation. The loan takers make repayments directly to the bank, or more innovatively, as a surcharge on their water tariff (Box 7).

In Vietnam, the National Social Development Bank administers a government loan scheme for the national government where households can take out a loan for a sanitary toilet and/or a water supply connection. Each household can take a loan of up to VND 3 million for a toilet, and the same amount for a water supply provision or connection. Together, the sanitation and water loans constitute about 7% of the total loans portfolio of the bank. However, research shows that a number of challenges (limitations) must still be overcome (Folkard, 2009; Tran, n.d.):

Applicability In practice, all households tend to take the maximum loan for the maximum duration. As a result, less people are served as initially conceived.

Sustainability The funds are not fully sustained and cannot serve the same numbers of households each year, nor can they be expanded to serve new clients without extra capital injections. Monthly interest and other related schemes (between 0.5% and 2%) and speed of loan repayment are low and slow respectively, making both incapable of covering the costs of administration and inflation. Institutions also encounter problems in managing the loans.

Pro-Poor Poor households also want to build higher quality toilets and bathrooms than is possible with the maximum loan amount. Hence, the tendency is to take out added loans from relatives or moneylenders, or save money. The latter is however difficult owing to high inflation (up to 10% per year). Poor households are also scared to take out a loan for non-productive use for fear of not being able to pay back in time.

Micro-credit

Micro-credit is a very small loan extended by a bank or other financial organisations that provide services to poor households (Saywell and Fonseca, 2006). A MFI usually gives loans to households for starting up or improving income-generating activities, not for building toilets. The households may however use (part of) the generated income to finance their household sanitation as in the case of Bangladesh (Box 8).

Box 7 Pakistani bank manages government toilet loans

In a project in Pakistan, a local bank provided the financing services for a governmental sanitation project. The bank provided the toilet loans from government funds and issued passbooks to the customers in which a page was reserved for each payment. The payees made their monthly repayments, the bank stamped and signed the passbook and forwards the total sum to the sanitation agency. In this way, illiterate payees and the sanitation agency can track incoming payments defaulters. Collection and monitoring are easy and administrative costs for debt recovery are reduced. Banking costs are high, being 14% of the totals collected. This does not include time and travel costs for the payees.

Source: Larbi, 1990.

Box 8 Bangladeshi women use income from micro-credit to finance household toilets

The Grameen bank in Bangladesh has incorporated “...strong social elements into its program, the most well-known being... that clients adhere to the Sixteen Principles which attempt to change such social behaviours as usage of latrines and abolishment of the dowry system” (Waterfield and Duval, 1996, p. 92). Investing in a toilet is not only a good health and social investment, but also makes good business sense. By having a toilet, women no longer need to leave their enterprise to relieve themselves, nor absent themselves from work during menstruation. Prior to the implementation of the credit scheme, Kabir and Huo (2011) reported that 76% of all households with a toilet were unsanitary. Following the credit scheme, all households had upgraded these to sanitary toilets.

Source: Cardone and Fonseca, 2006.

Only a few institutions that give microfinance recognise urban sanitation as a commercial niche that can serve the very substantial ‘bottom of the sanitation pyramid’ to meet their high demand for sanitary improvements. Two banks that give out loans for toilets are the K-Rep Bank in Kenya and the Self-employed Women's Association (SEWA) Bank in Gujarat.

K-Rep Bank is an NGO that finds its beginnings in the providing banking services as part of its demand-based services. The strategy is based on the observation that 90% of the population does not have access to financial services. In four years, its savings and loans clientele grew from 15,000 to 90,000 persons.

SEWA is a labour union of poor urban and rural women that started in Gujarat and is now represented in other states in India. Like the Kenya case, SEWA established a separate bank to provide financial services to the poor, catering especially to poor women. Services include loans for house and toilet construction and upgrading, but also other financial services.

In some cases, adjustments to the arrangement of micro-credit are required (Box 9). To date however, tailoring credit for toilets based on the needs of the urban poor has yet to be widely practiced

Box 9 Adjustments to user realities improves repayment of toilet loans in Botswana

In a toilet loan programme in Botswana, the loan system was adjusted to the preferences and capacities of the households who, for the main part, wanted to build simple improved pit toilets using their own labour. Loan scheme participants paid a deposit of 50% of the toilet costs, then borrowed 50% of the money to buy the materials, dig the pit and install the slab and (temporary or permanent) outhouses and on completion, paid back the loan.

Source: Larbi, 1990.

3.1.6 Micro-credit plus (extra services)

Reportedly, microfinance for productive use and by entrepreneurs financing a home toilet from their profits has been reported to be more successful than microfinance for the purchase of goods and assets⁸. One reason is that poor people are most vulnerable to natural and socio-economic

⁸ See news item in Volkskrant, 12 September 2008.

disasters. In this case, MFI's may also consider providing complementary micro-financing services to low-income households. Examples include micro-guarantees, micro-insurance services and technical advisory services.

Micro-guarantee

Micro-guarantee refers to an agreement in which one person or organisation takes the responsibility for paying or fulfilling another's debts or obligations in the event that an individual is unable to pay back a loan in time, or fails completely to repay.

A lack of collateral and fears of indebtedness among poor households are some of the reasons why many micro-credit programmes now introduce group loans (Box 10). Within such schemes the entire group bears the responsibility for timely repayment of instalments, in the interest of all of its members. There is considerable debate about whether such groups do so sustainably by ensuring that even poor borrowers will pay back their loans (Deininger and Liu, 2009). Large-scale studies in Bangladesh and India indicate that repayment is good, if the services are tailored to make long-term association profitable for the poor, and the poor get some freedom in the process of group formation (Sharma and Zeller, 1997). Regular monitoring and audits, high repayment frequency, credit in kind, such as rice, and depositing group savings with the lender to prevent that savers "dip" too quickly into the savings fund when they need cash also increase significantly repayment rates (Deininger and Liu, 2009).

Micro-insurance services

Poor households are often reluctant to take out loans to invest in home or toilets if risks of destruction by floods, fire, etc. are high, or if they fear that they cannot pay back the loans for reasons of illness or other household crises. Micro-insurance protects low-income people against financial problems due to illness, natural disasters, socio-economic crises, etc. Insurance is given in exchange for regular premium payments that are proportional to the subscribers' income and the cost of the risk involved (Churchill, 2006; Evans and Tremolet, 2009).

Micro-insurance takes away people's fear for not being able to pay back loans in case of crises. It allows the poor to invest in a healthier living environment, although the effects on improved urban sanitation have yet to be thoroughly investigated. The SEWA Bank in Gujarat and the Malawi Homeless Peoples Federation are examples of micro-finance institutions that also provide micro-insurance on health and housing for their clientele.

Loans combined with technical toilet advice

Poor households need more than only financial services. For building hygienic and durable toilets, they also need access to technical information and good services (as discussed in Chapter 5). In Honduras for example, a housing fund that combines toilet loans with technical advice on toilet

Box 10 Group guarantees for loan repayment: The Grameen Bank

In the micro-credit schemes of the Grameen Bank in Bangladesh the group to which the loan takers belong are the ones who agree to be responsible for repayment rather than the financing institution.. These groups exert peer pressure and provide mutual help, which facilitates for members to meet their individual obligations, or search for a solution amongst themselves. In this case, failure rates remain low.

Source: Besley and Coate, 1995

options and costs is available (Box 11). However, it is unlikely that cost information for this type of financing arrangement covers also the later (life-cycle) costs of maintenance, repairs and emptying. Similarly, the Malawi Homeless Peoples Federation gives training ranging from principles of bookkeeping, business management, loan management to computation of interest and outstanding loans, and imparts skills for the group to build eco-toilets and earn income from its products (Khataza, 2008).

Box 11 Honduras housing cooperative gives toilet loans with technical advice to improve results

The Co-operative Housing Foundation (CHF) programme is a national strategy to provide loans for housing improvements in Tegucigalpa, the capital of Honduras. As of 1993, the programme had disbursed around US\$ 4 million dollars to Honduran NGOs for on-lending to benefit approximately 4,000 households. Sanitation was identified as a niche in this market and a UNICEF grant of US\$ 350,000 was provided to establish a revolving fund for sanitation improvements. The goal was to build NGO capacity to develop their own credit lines from other government departments and eventually the private banking sector. This meant that they first had to establish a track record of making and recovering loans successfully. Households made direct loan agreements with the NGO. No collateral was required although their backgrounds were closely investigated. Co-signatories were used to guarantee payments. Typically, the loan would have a duration of three years, and must be paid off in monthly instalments. The average rate of annual interest was 15%, which was low compared to alternative sources of informal finance through moneylenders or retail credit. The NGOs achieved a high recovery rate of 95%. Some even developed alternative credit lines as planned. The prospects for integration with the formal sector seem very encouraging.

The success of this scheme can be related to:

- 1 **The wide range of models:** Borrowers could tailor their lending package to their individual needs and hence the initiative avoided a 'one-size-fits-all' approach. It was discovered that households were often prepared to choose the high cost option if the incremental increase in property value was considered to be high.
- 2 **The flexibility of the loan terms:** This meant that borrowers and lenders could access the loan system at lower risk to each party. Smaller and shorter-term loans for sanitation were sometimes paid off early, only to be replaced by larger longer-term agreements for more substantial housing improvements;
- 3 **The quality of the support:** Provision of reliable technical advice and support in negotiating construction contracts were key factors in attracting borrowers. Low-income households often did not have the information necessary to make an informed choice about the type of provision. A prime function of the loan officer was to monitor construction quality for the customer and use this ability to refuse disbursement to keep contractors in line.
- 4 **Arrangement for sustainability:** Some subsidy is built into the loan programme, for instance the technical support is provided by the CHF. There is also provision in the financial planning for CHF to get sufficiently close-to-market interest rates from NGOs to preserve the value of the fund's asset base. When the NGOs take over the CHF function, it is expected that the cost of expert staff will be much lower, increasing the potential for sustainability.

Source: Co-operative Housing Foundation, 1993; Sijbesma et al., 2008.

In general, MFIs understand the potential benefits of expanding access to improved sanitation in terms of improving livelihoods, developing the economy, and increasing demands for their products and services. However, MFIs require more technical assistance to understand the urban sanitation sector and the scope for developing new products, such as toilet loans for households, and providing loans for larger, neighbourhood-owned and/or -managed solutions. In particular, banks and MFIs need to understand the different requirements of their clientele. The better the saving, loan and repayment conditions are adjusted to the specific situations of the different types of customers – individual households as well as neighbourhoods and small service providers – the more positive the experiences. People's banks such as the Grameen bank charge commercial interest rates, but have a very high repayment because they:

- Are prepared to give very small loans to individuals, including to poor urban women (many other banks will not lend money to females).
- Do not ask for collaterals other than a guarantee from a relative or the group to which the person belongs.
- Allow repayment at intervals suited to the different types of borrowers (those with small daily incomes for example often prefer to repay per week or even per day).
- Have local branches or representatives close to where their borrowers live, so that physical and psychological distances for lending and repayment are minute, also allowing people to save time and cost from travelling long distances.

3.1.7 Pooling with other households (material acquisition and construction)

Pooling is a collective undertaking by a group of households towards the purchase of materials and building toilets. Group members can decide to buy materials together and jointly arrange for transportation and the employment of a mason.

Pooling has several advantages: buying and transporting materials in bulk may reduce costs significantly; or at the least, pooling provides opportunities for negotiating price reductions from shops, transporters and masons. Pooling also increases the bargaining power of households toward a supplier, for example in case of problems with quality of materials and work, especially when combined with payment in instalments and meeting quality norms. Organisations that assist the poor in toilet programmes, such as housing corporations, trade unions, local governments and NGOs, can help poor households to get together and organise the pooling of material acquisition, transport, and toilet construction (see Box 11 above, and Box 12 on next page).

Technical assistance provided by a facilitating agency helps the cooperating households to reduce toilet investment costs in several ways:

- Households or their representatives, such as their Sanitation Committee or Implementation Team learn to negotiate lower prices and good quality goods and services with the private sector when acquiring materials and construction in bulk.
- They learn to draw up contracts that specify rules and regulations of both parties and ensure that households pay the last tranche only after the agreed delivery time and standards of materials, design and construction have been met and the toilets function as agreed.
- Participating teams and households, including women, learn how to control the quality of materials and workmanship upon delivery and prevent common ways of cheating.

Box 12 Bulk buying of materials lowers cost of loans for eco-toilets in Malawi

In Malawi, the Centre for Community Organisation and Development, a Malawi NGO and the Malawi Homeless Peoples Federation run a joint group loan fund for eco-toilets that provide loans in the form of material with a value equivalent to the amount applied for. The fund has a procurement team that oversees the procurement and delivery of the materials to the individual groups. A delivery note outlining all the loan items is countersigned by a representative of the delivery team and the borrower. This system of credit delivery cuts on costs through bulk buying of project materials and reduced leakage of resources to unintended activities.

Source: Khataza, 2008.

The Socio-Economic Unit Foundation in Kerala, India, developed a series of 13 steps⁹ to assist local governments to prepare and implement sanitation plans. These steps made it possible for the local governments to assist poor households to install sanitary toilets in bulk. Quality protection and prevention against corruption from bureaucrats and the private sector were built into the steps to protect the poor from abuse. The programme also trained poor women to become fully-fledged toilet masons and run joint businesses. The high quality toilets (double-vault, pour-flush composting toilets) cost the equivalent of US\$ 71 and were a third to half of the price of comparable constructions under other sanitation programmes (Kurup, et al., 1996).

The community-managed toilet programme became so popular that neighbouring Panchayats and districts asked for expansion to their locations. Finally, the approach was incorporated into the state sanitation programme called Clean Kerala (Mathew, Mathew and Joseph, 2008). The World Bank Institute in Washington D.C. now has a training programme on the approach (Sijbesma, Mathew and Kurup, 2007). The impact of the programme, its financing, and its results met after the approach was scaled up to state level have all yet to be studied.

3.1.8 Building a shared household toilet (with several households)

Lack of space in low-income urban areas often makes it impossible to construct individual household toilets. Physical, environmental and administrative conditions allowing, the simplest solution is for two or more households to build a single, shared toilet attached to one house or situated in the nearest open space.

⁹ Watch *Building the Balance* (Raghavan, 2000) video at: <http://www.irc.nl/page/43643>

Another alternative is for municipalities and NGOs to fund rows or blocks of lockable toilets in an open space in or near the settlement being served. In this case, a small number of households share the toilet and are provided with a key each. These households are then collectively responsible for maintaining a high standard of hygiene that also includes ensuring pit emptying and safe sludge disposal. Ideally, the toilets should be connected to a biological treatment system or should have double pits from which compost can be generated. Shared toilets are less costly than individual household toilets. In Calcutta in the 1980s, sanitation blocks were constructed with a separate cubicle for each user household and a communal on-site leach pit. Each cubicle had its own door and shared two (of the four) walls of the communal toilet.

Advantages

- Applicability** Pooling resources to build shared toilets is quite common, especially in areas where married children live in the same location as the parents. The JMP (WHO/UNICEF, 2010) now recognises toilets shared by two households as an acceptable service level.
- Simplicity** Pooling resources is done most easily among relatives. Amongst neighbours it is less common. Sharing a wall or building a double or quadruple toilet block with a shared pit or tank across plot borders is a better option for the latter.
- Sustainability** Allowing sharing households to compose their own sharing groups and adoption of hygienic and culturally accepted sharing norms can make shared toilets more sustainable.
- Pro-poor** Cost-sharing or wall-sharing makes shared toilets more affordable (but see limitations under applicability below).
- Equity** Same as above (See Pro-poor)

Limitations

- Applicability** Financing shared use toilets is more difficult because toilet hygiene requires a higher construction quality, with cement or tiled floors and ideally, a ceramic pour-flush pan or platform. Also, both the male and the female heads of all potential sharing households must have a voice in forming sub-groups where they can and want to share the financing and use of a toilet.
- Simplicity** Shared financing and use between households is more complex.
- Sustainability** Shared financing and use by more than one household requires extra inputs for consultations and training. The practice also brings extra risks of abandonment through inter-households conflicts, soiling during use, etc.
- Pro-poor** Same as above (See Applicability)
- Equity** Sharing financing across the full excreta cycle is not automatic. The families sharing a toilet will need to work out equitable systems of sharing the costs of investment, operations and maintenance, and the burdens of keeping a shared toilet clean (i.e.

always having water to flush, always having soap available to wash hands, and s
haring the compost or costs for emptying the pit and safe-end disposal).

3.1.9 Toilet subsidy (in various forms)

To increase toilet coverage many programmes of national governments, municipalities and NGOs offer subsidies for household toilets. The subsidies may go to all households or only to households below the (national) poverty line. While such programmes may be large-scale and aim at high rates of coverage for poor households, there are serious limitations:

- Applicability** Many sanitation programmes with household subsidies are construction- and output driven. Many also fail when the goal is not toilet construction, but an end to open defecation and preservation of hygiene by all.
- Simplicity** Simplicity depends on the criteria of application. Construction by contractors is quick and easy, but when it is done without user participation in decision making, toilets are most likely left unused or are not used as frequently (Burra, Patel and Kerr, 2003; Lüthi, McConville and Kvarnström, 2010). Handing out cash subsidies or materials at the onset may result in the use of the subsidy or materials for other purposes. On the other hand, output based aid, which gives subsidies upon evidence of construction (and ideally also use) requires for households to invest upfront, adding costs for assessing performance to the subsidy costs.
- Sustainability** Subsidisation is rarely sustainable over long periods of time, and most subsidy schemes are limited in size and duration. Thus, only part of the households may get served, while urban population growth continues to add new unserved households. Consultation and choices for users, quality of construction, and promotion of toilet maintenance and use are often left out, which reduces also the sustainability of the completed toilets. Thus, both scheme and toilets often suffer from low sustainability.
- Scalability** For the same reason (costs), scaling up toilet subsidies to all poor and future poor households is seldom possible. Subsidy schemes typically serve limited numbers of poor urban households; a country-wide scheme such as the Housing and Urban Development Corporation in India does not extend to all poor households in all cities (Mohanty, 2003).
- Pro-poor** Many subsidised sanitation services benefit the better-off or less poor more than the poor and the ultra-poor. International and national poverty criteria are often inequitable, such as the common international poverty line of roughly US\$ 1 per person per day which the World Bank raised to US\$ 1.25 in 2008. Incomes are hard to measure, purchasing power varies within location, and expenditures in the calculation may not cover all livelihood requirements. Transparency and accountability of subsidies are often low.
- Equity** Same as above (See Pro-poor)

Many below-poverty-line subsidies for toilets also do not go to those most in need owing to the following factors described below:

- Poverty lists may be misrepresentative in the sense that undeserving households may have bribed their way onto them, therefore ensuring their eligibility to access many more benefits than the standard toilet subsidy alone.
- The available budget is often not enough to serve all poor households, especially when the total amount is bound to a maximum within a programme and/or over time.
- Eligible households are not always aware of all available subsidies and/or the required procedures for application and allocation. This goes especially for the poorest households with limited access to public information and communication channels, such as households headed by single mothers or with elderly or disabled people. Often, by the time they apply, the funds had already been completely exhausted.
- The size of the subsidy may be too low, disabling the ultra-poor households to participate, because they do not have enough money to finance the remaining costs, or because they do not have access to, or fear the risks of a toilet loan.
- Construction programmes typically aim for large numbers and high speed. This also works against the ultra-poor, who need more time and effort to be reached, to be informed and to make decisions.

To overcome these limitations, toilet subsidies have been targeted only at households that are really poor, based on local indicators, participatory procedures and evidence. If there are too many poor households, subsidies are targeted at the poorer or ultra-poor households within this category. Such subsidies are sometimes called ‘smart’, because they allocate funding only to households that have the least capacity to make and finance a proper toilet – the ultra-poor, the handicapped, the elderly, and households headed by single mothers with young children. Allocation procedures for smart subsidies also have high demands for public accountability.

Subsidies can be flat or weighed, and be given using several models:

- Directly in cash
- Materials upfront
- After evidence of construction
- Indirectly at point of sale
- Through vouchers, which allow households to choose materials and hire construction support from the local private sector

Flat-rate or weighed subsidy

Giving flat-rate subsidies (referring to the same amount or percentage for all who qualify) and using the same country-wide indicators for (urban) poverty is marred by several problems:

- They may support households that without the availability of a subsidy would have built a toilet with their own finances.
- They make other households wait for a subsidy that may never come, so the rate of progress is slowed.

-
- The subsidy is usually not sufficient to ensure the construction of a complete toilet and many, especially the ultra-poor, do not have the required funds to cover the cost gap.
 - Agencies that provide free materials that cannot be bought locally or that construct free toilets (including highly subsidised toilets by external contractors) limit the development of a local private sector which can continue to provide services and helps the community to develop.
 - They also delimit progress in sustained use and access when toilets break down and households do not have local possibilities for repair.
 - Problems persist in lack of transparency, accountability and corruption perpetrated by local officials susceptible to bribes from contractors who want a contract, and from households who want the subsidy.

Weighted subsidies involve giving greater amount of support to those least able to make a basic sanitary toilet and less to those who can afford to pay more. This approach can help to address the first three problems, but it places greater demands on fairness in allocation, transparency, accountability, and local participation.

Direct subsidy in cash or materials upfront

With cheaper toilet models, smarter ways of financing and solidarity from other community members exist. There still remain, however, poor households that are unable to build a basic sanitary toilet. For ultra-poor households, central governments, such as Bangladesh and some states in India, continue to give subsidies for toilets through the local government.

Common practice is to give household toilet subsidies upfront, in cash or in kind (i.e. in the form of construction materials) to facilitate construction. Some subsidies also have a built-in education component to build the capacity of the community to make informed choices, and/or teach self-construction to subsidy beneficiaries. Unfortunately, it is not always the case for households to use the money or materials for building the toilets.

Another system employed by UNICEF and the governments of India and Bangladesh is the subsidisation of the sale of basic toilet parts such as slabs, rings and pans through special outlets -- what is now referred to as sanitary marts. These shops are established with funding from outsiders, such as a national ministry, UNICEF, or an NGO. Another limitation is that the products of these shops are limited. Few have therefore managed to become self-sustainable (UNICEF, 2002; WSSCC, 2005).

Subsidy through vouchers

An alternative to direct household subsidies in cash or kind is to give vouchers to poor households, which allows them to build the toilet of their choice through the local private sector. The subsidy management organisation then pays the value of the vouchers back to the entrepreneurs concerned. This system stimulated the development of a local sanitation market and can be combined with financing systems, such as differential (weighed) subsidies and community-managed allocation. Vouchers may also be considered a special form of output-based aid (see next section).

Output-based aid

Providing financial support after construction is also known as output-based aid (Trémolet, Evans and Schaub-Jones, 2010). As explained earlier, providing subsidies based on evidence may also be a disincentive owing to the inability of the poor to pre-invest in order to access funds for building a toilet.

The alternative is to give a first tranche of payment to a local implementing organisation such as the local government, a community based organisation (CBO), or a local sanitation committee. The disbursement of subsequent tranches is then organised based on evidence of use to assist the (ultra-) poor in actual construction.

So far, large OBA programmes in sanitation are still rare (Trémolet, Evans and Schaub-Jones, 2010). One example from Senegal is for the urban sector which is explained in Box 13 below.

Box 13 Senegal: Output-Based Aid (OBA) for household toilets

Output-Based Aid is providing subsidies for constructing household toilets in poor urban and peri-urban areas of Dakar, the capital city. This happens under the Senegal Long Term Water Project. In 2002-2008, a similar earlier programme, Autonomous Sanitation Programme in the Peri-urban Neighbourhoods of Dakar (*Programme d'Assainissement Autonome des Quartiers Périurbains*) led to the construction of 63,500 toilets in a demand-driven manner, benefiting more than 400,000 people. The new target is 15,100 toilets, each meant to serve approximately nine persons per household. After 1.5 years of implementation, only 7% of the target had been achieved.

In part, this is explained by the economic crisis, which significantly affected Senegalese households -- now faced with difficulties to pay for improved sanitation on top of other priorities, such as food, school and other essential household expenses. Additionally, beneficiary households are expected to pay the full amount of their upfront contribution (about 25% of the total cost) before the construction starts. The latter has been a major obstacle for most potential participants.

Some of the adjustments proposed to address these issues include:

- 1 A strong involvement of the main microfinance institution in Senegal to address the difficulties faced by households to finance their up-front contributions; and
- 2 A revised Information-Education-Communication (IEC) methodology with an upfront effort in terms of mass communication, an increased IEC budget and increased involvement of local governments.

The project has been extended up to the end of 2011.

Source: Trémolet, Evans and Schaub-Jones, 2010.

Weighted toilet subsidies at point of sale

A special form of Output-Based Aid has been in practice in Mozambique since the early 1980s. As was the case in the government programme in Bangladesh, the toilet subsidy is included in the selling price of one standard product, the sanitary platform (SanPlat) toilet. SanPlat toilets are domed concrete slabs placed over a shallow pit accompanied by (if needed) concrete blocks for lining the dug pit. Households buy the slabs at the programme's production and sales centres. The innovative element of this form of OBA is that the level of subsidy that the sales centres give depends on the level of poverty of the community in which a buyer lives. Thus, all households in the location receive

the same weighted subsidy at the point of sales, which is highest when the location is classified as ultra-poor (Box 14). Through this programme, almost two million people classified as poor to ultra-poor in the capital and other towns, obtained basic sanitation (Trémolet, Evans and Schaub-Jonees, 2010).

The programme has also leveraged some private funding, that is, public funds expenditure has generated private investments. But the rate is below that of the sanitation marketing project in Vietnam, where every dollar invested by the programme generated three dollars invested by the households (Sijbesma, Truong and Devine, 2010).

Box 14 Government-established producers sell toilet materials with subsidies adjusted to locations' poverty

Initiated in the early 1980s during times of ongoing civil war, strife and extreme poverty, the Improved Toilets Programme (PLM - *Programa de Latrinas Melhoradas*) in Mozambique was initially funded by the United Nations Development Programme (UNDP) and other donors later transferred to the Government of Mozambique. Still in existence, the programme helped establish the production of units of SanPlat toilets. For some time, provisions for the payment of promoters to pitch the sales of improved toilets at a subsidised price were also organised. Workshop establishment, training and slab subsidies comes from a combination of government and donor financing. By 2007, almost two million low-income people had been served in all ten provincial capitals and some district towns. The average hardware cost of a completed toilet is an estimated US\$ 70. Users pay about only half of the total costs, because the shops are allowed to sell the slabs at reduced prices, getting the rest of the costs paid for by the programme.

The PLM workshops and the sanitation enterprises, which serve the urban poor, are neither exclusively public nor private. The programme initially provided training and subsidies to set them up. In many cases, the government provided the land on which the workshops operate. In 1992, the government started providing production subsidies to the workshops based on their sales, which can be seen as an early form of output-based subsidies. The subsidies were intended to cover 40% to 60% of production costs, depending on the location, reflecting differences in input costs and poverty levels, and to reduce the sale price to households. In the beginning of 1994, the government and the donors also financed the costs of 'community animators' to carry out social marketing and sanitation promotion campaigns. It was not possible to estimate the value of such software support, since this marketing system was abolished following the decentralisation of development activities.

Source: Trémolet, Evans and Schaub-Jones, 2010 ; Trémolet, Perez and Kolsky, 2010.

Advantages

- Simplicity** Allocating subsidies at points of sale has advantages of simplicity because all households receive the same subsidy for the same basic service level -- a flat or concave concrete toilet slab with a squatting hole and one or two rings to reinforce the toilet pit.
- Sustainability** The programme has led to rapid and sustained increase in coverage with the help of donor funding for market development.
- Scalability** Same as above (See Sustainability).

Pro-poor The mechanism for ensuring equitable access is simple. Households in locations with the highest poverty levels receive a higher subsidy on the price of materials, while those in locations with a lower poverty level buy materials at less subsidised prices. To ascertain equitable distribution a certain level of uniformity in poverty must exist per location. This implies that it becomes difficult to ensure equity in mixed neighbourhoods where ultra-poor households live amongst less poor households.

Equity Same as above (See Pro-poor)

Limitations

Applicability After the public promotion programme stopped and subsidy levels had dropped, providers have not been able to market their SanPlat toilets as effectively.

Sustainability Expansion of the programme is unlikely as continued public funding is required to maintain subsidies for existing cities.

Scalability Same as above (See Sustainability)

Pro-poor Reduction of subsidy levels at the end of project implementation impacts upon long-term sustainability, affecting usually the poorest. This is also explained by the fact that more often than not the poor are among the later adopters of a toilet programme. Those who participate earlier on (and who are less poor) usually benefit from higher subsidies.

Equity Same as above (See Pro-poor)

State funds for toilet subsidies decentralised to local level

Subsidies for household toilets may also be organised at decentralised levels through local (municipal) governments that obtain funds from central government to top up their local finances for their own sanitation programmes (including locally-specific toilet subsidies). This has, for example, been done successfully in the state of Kerala in India (Box 15).

Box 15 Kerala state allocates local development funds to municipalities: 10% must be spent on sanitation

In 1997, the state government of Kerala in South India allocated 35% of their non-planned funds — funds that are not earmarked in the state budget — over to the municipal and rural local governments to fund local development projects on the condition that 10% of all funds were to be directed towards improving access to sanitation.

Each year, local governments set aside part of this budget towards subsidising toilets for the ultra-poor. Each ward¹⁰ in a municipality is given the option to choose households without toilets that meet the mix of local

¹⁰ Wards are considered the lowest local government level in Kerala. A ward is a neighbourhood that comprises of 500 households. The households choose a ward member as their representative in the Panchayat Council from the local candidates of the different political parties. Many women who have been active on the wards' water and sanitation committees are often selected as the local ward member. Many wards and Panchayats have adopted and realised targets of 100% coverage of household toilets as a token of development and progress. The degree of fund devolution is

poverty criteria for a toilet subsidy and propose them for a municipal subsidy. Depending on the local costs of the basic toilet and the amount set aside for toilet subsidies, many poor households are served each year. A list of those chosen is displayed for two weeks to invite feedback on allocation errors. The local toilet subsidy allocation system — local selection of the poorest households in need of a subsidy, using locally specific criteria, basing the amount on a minimum-level ("basic") toilet built with local materials and labour, and publicly accounting for the allocation — is a finer-tuned and more transparent approach than the universal flat subsidy with its lack of transparency and public accountability. It could be used much more widely and could make use of proven participatory rapid appraisal (PRA) methods of local welfare classification and social mapping for allocation of subsidies, transparency and monitoring of construction progress.

Source: Sijbesma, 2008.

Subsidy allocation with local participation and transparency

One way to allocate toilet subsidies to the ultra-poor that ensures transparency and accountability is through the use of participatory rapid appraisal methods. In cities in Central Java, Indonesia, for instance, low-income urban neighbourhoods assessed the sanitation conditions of houses, planned improvements, and better targeted local support to the ultra-poor. The exercise started off with a process of building a typology of households in the community, followed by an examination of sanitation conditions, and concluded by indicating the number of households with access to sanitary toilets. Methodologically, the exercise entailed visualising the typology of poor and less poor households and sanitation conditions in a community meeting where the participants drew up a list of indicators typical of the conditions of the local ultra-poor, poor and non-poor households in the community.

The meetings then drew a sanitation map of all houses in their neighbourhood— using a collectively agreed coding system (a square, a circle and a triangle) to denote the houses of the best-off, worst-off, and in-between households. The symbols were made green to indicating the presence of a sanitary toilet (toilet type and disposal) or red to show the presence of unsanitary conditions (toilet and/or disposal). No colour meant no toilet, and use of the open defecation areas indicated also in the map.

Building a typology of households that classified subgroups by local poverty and sanitation service level criteria revealed that under the existing approach the *kaya* (locally best-off) and *sedang* (intermediate level) had the best service, whereas the *miskin* (locally poorest) were reached the least (See Table 3). Based on participants' observations, these workshops are invariably very revealing, with some claiming that had they known of this technique earlier on, they would have done a better job on subsidy allocation.

politically determined. After elections, a new party reduced the percentage of the state funds that go to local government and re-instituted the state donation that each member can use in his or her ward for developments of his or her own preference.

Table 3 Toilet matrix based on local poverty criteria in a poor urban community in Tegal, Indonesia

Houses (not households, as some households share a house and toilet)	Total	RED toilet With unsanitary toilet (end disposal in river)	GREEN Toilet (initial disposal in septic tank)	OPEN defecation
Kaya (better-off)	4	4	0	0
Sedang (intermediate)	19	12	7	0
Miskin (poor)	39	0	0	39
Total	62	16	7	39

Source: Adapted from findings of a group exercise, Department of Health, City of Tegal, 20 April 2009.

3.1.10 Using income from excreta

A final form of financing the investment costs of household toilets is found in generating income through the use and/or sale of fertilisers from composting toilets. Except for the single-pit arbour loo with flat or concave shiftable slab discussed below, these toilets require two vaults. This makes them relatively expensive, although with off-set pits the second pit can also be added later when the first pit gets full.

The two most common types of toilets used in cities are *not* composting toilets, but toilets with a single pit located directly under a slab — with either a squatting hole (the lowest cost version) or a water-sealed pan (a slightly costlier version) — and a (pour) flush toilet with a septic tank. However, pits and tanks only serve as temporary solutions for excreta containment, as both eventually fill up. In effect, households that use pits and tanks will need to bear the added responsibility of emptying pits, either through employing services for emptying or end-disposal, or conducting these themselves.

For cities, the negative consequences of these toilets are magnified because most of the emptied excreta end up untreated in wasteland and in water courses, ravines, and the sea. Both pit and septic tank toilets can therefore be classified as only temporary solutions, which can only lead to ‘concentrated open defecation at scale’. Neither households nor municipalities take into consideration the longer-term consequences of installing and using these types of toilets under urban conditions.

It is therefore highly significant for the WASH sector to develop longer-term visions and financing mechanisms for environmentally more sustainable excreta disposal solutions. This may involve developing more financially viable arrangements of sanitary collection and treatment of human excreta away from the site of temporary containment, or promoting for households to install a type of composting toilets to reduce excreta collection, transport and depositing of untreated human excreta and faecal sludge; issues that need to be urgently taken up.

Two types of toilets that eliminate costs for financing the transport of raw sludge are the shiftable full-cycle toilets known as ArborLoo, and the various types of composting toilets. The first type is often financed by low-income households; the second may require access to flat or weighed loans, or ‘smart’ subsidies to cover the costs of the double vault, especially for those types where both vaults need to be constructed at the same time.

Shiftable full-cycle toilets

Cities and towns are economic growth nodes with both permanent and temporary settlements. Inhabitants of temporary and unauthorised settlements, as well as the municipal administrations involved are generally both reluctant to invest in sanitation in such areas. Yet, both appreciate the opportunities of low-cost labour for urban development and recognise the problems associated with open defecation vis-à-vis the lack of safety, human dignity and hazards of open defecation for public health and the environment.

The arborloo and the (shiftable) sanplat toilet offer viable low-cost and temporary solutions. They require only half a bag of cement, some reinforcement material (such as chicken-wire or metal wire rolled into a series of concentric circles), some hands-on training, and for the SanPlat, a casting mould. Screens fashioned from poles and plastic, bamboo, woven mats or hessian provide privacy and some protection, until the pit is full and slab and screens are shifted over a new



Two types of shiftable platforms; Low-cost full-cycle toilets (Photos by Jo Smet, IRC).

shallow pit (Box 16). Both options lend themselves therefore for self-financed construction or OBA in informal settlements and peri-urban areas with sufficient space for shiftable shallow pit latrines with reused concrete platforms.

Box 16 ArborLoo and sanplat toilet: lowest cost full-cycle toilets

An arborloo consists of a simple concrete squatting platform constructed by the household or a plastic platform bought from a shop. This is placed over a shallow pit of about 1 metre deep. The diameter of the pit is also small enough to ensure that the platform being placed on top completely covers the surrounding soil. The pit is usually dug by hand. Depending on the stability of the soil, the platform is placed directly over the pit, or an elevated ring and beams are placed before the slab is laid on top. In very unstable soil, some lining for the pit may be needed, for which often free local materials can be used. The toilet is completed by placing four bamboo or other low-cost poles at the four corners, stretching pieces of plastic, hessian or other free or cheap material around three of them and fashioning the material into a curtain at the entrance. The temporary type of outhouse is needed to give privacy and to be able to remove the outhouse temporarily when the pit gets full and the toilet must be shifted.

To use the toilet, the user squats on the slab and deposits the excreta into the pit and covers them with soil or ashes after each use. This keeps bad smells and flies away and helps the compost in the pit. Wood ash and leaves speed up the composting process. When the pit is nearly full, after about 6-9 months for one family, the family removes the slab and superstructure, and then fills the pit with additional soil. They then dig a new shallow pit and transfer the toilet slab and superstructure over it, and the process is repeated. After several months they plant a fruit or timber wood tree on the site of the filled pit to ensure that the created compost is used productively. The same procedure is followed for sanplat toilets.

The sanplat (sanitation platform) toilet originates from the *bairros de caniço*, or 'reed neighbourhoods' in Maputo, the capital of Mozambique. Their population works mainly in the informal sector as daily labour and

vendors of water, food, fuel, clothes, etc. Reed is the main material for house construction in these communities, in contrast to the city proper, which is known as 'cement city'. In 1976, the Ministry of Health began a sanitation campaign in these settlements. Because of the lack of hygiene and durability of traditional latrines, the Sanplat was introduced. It consists of a round and concave squatting platform with a keyhole-shaped opening and two footrests made of plain or reinforced concrete with the help of a mould. When not in use, the hole is sealed against flies by a wooden cover, a piece of pottery (foot-shifted), etc. The material and shape make this a durable and easy-to-clean toilet cover placed over a dug pit. Depending on soil conditions and available materials, the pit is unlined or lined with variable types of lining material, such as from green bamboo, sun-dried bricks, recycled drums and concrete rings. The superstructure of temporary toilets may consist of no more than four poles from local material, such as bamboo, surrounded with pieces of plastic, cloth, beaten tin, mud walls or other locally obtainable very low cost or free material. A makeshift curtain or modesty screen provides privacy to the users. When the pit is full, the same procedure is followed for the arborloo.

Source: NWP, 2006.

Permanent full-cycle toilets

(Peri-) urban households that have enough space and money, or access to financing mechanism, can also build wet or dry double vault composting toilets.

In wet composting toilets, urine, flushing and cleansing water and excreta all go via a water-sealed pan into the first soak pit. When the pit is full, the household shifts to using the connecting pipe to the second pit. When this pit is full, the content of the first pit has become safe and odourless fertiliser, which can be manually removed and either used or sold for productive purposes. A variation is the double vault Ventilated Improved Pit (VIP) toilet, which does not have a water seal pan, but a vent pipe to eradicate bad smells.

The dry composting toilet functions the same as the wet models, but urine and water are diverted to be used as liquid fertiliser. Only the (dry) excreta go to the first closed chamber. When this is full, the household shifts to using the second chamber until this is filled. By that time, the first chamber is filled with safe and odourless fertiliser for manual removal and productive use or sale.

Dry composting toilets convert faster than wet toilets, and so return comes quicker, but having a double slab with urine separator they are more expensive to install and more difficult to use than wet ones. They are however safe in high water table and flood-prone areas, because the storage vault is closed. Wet composting toilets can pollute the groundwater through their soak pits in high water table areas (SEUF, 1991).

Both toilet types are more expensive than single vault toilets, but can earn back their investment over time through the productive use or sales of the fertiliser and from the savings on expenditure for removal and transport of faecal sludge. Loans and subsidies together with economic cost-benefit analysis to help decisions on investments facilitate financing.

3.2 Financing of communal toilets

Many poor and ultra-poor urban areas lack space to build individual household toilets. The alternative is then to build communal toilets or sanitation blocks. Sanitation blocks may offer only toilet services or also services to wash hands, shower and/or do laundry. They are financed in several ways.

3.2.1 *(Direct) public investment*

The simplest way to finance the investment costs of communal toilets is through a 100% grant from public funds. For example, public funds can come from the municipality, the local government, bilateral agencies, or international agencies

There is much to say for using public funds for the investment costs of public toilets when households in other parts of the city do not or hardly pay for the capital cost of their sewerage service. Only when such households pay a substantial connection fee is it defensible for the municipality to ask for a contribution from poor urban communities to the investment costs of a sanitation block. The contribution can come from the community's own funds and/or the participating households.

3.2.2 *Public-NGO cost sharing*

A variation on the public investments scenario is that the municipality itself does not pay for the construction of communal toilets, but gives the funds to local or national NGOs working in ultra-poor city areas to construct sanitation blocks. Thereafter the NGOs run the block service with their own resources and/or income from user payments on a no profit-no loss basis.

In Pune, India, for example, a municipal Commissioner, Ratnakar Gaikwad, decided to invite local NGOs to construct and operate sanitation blocks for the next 30 years. In 2000, Pune had a population of 3 million people, of which about half live in approximately 500 slums and poor settlements, located across the entire city and varying in size from fewer than 50 to several thousand dwellings. Toilet to person ratios in these slums can be as low as 1:2,500. Existing blocks were old, dilapidated, dirty and malodorous and had waiting lines and heavily polluted environments.

The Municipal Corporation provided the NGOs with the investment funds and coordinated the progress. The NGOs arranged for the construction and thereafter O&M (for details, see below under Financing of recurrent costs). This turned out to be 50% cheaper than when contractors built the blocks. One important reason was that under the NGOs contractors, engineers and councillors no longer received a cut from each project, financed through the inflation of cost estimates. This was why many councillors opposed the scheme. However, some were supporters from the outset while many others became supporters when they saw the results and the popularity of the community toilets (Burra, Patel and Kerr, 2003).

A well-known case is Sulabh International also in India, which has built around 6,000 blocks in 625 towns with an estimated outreach of 3 million people (Bhatia, 2004). Black and Fawcett (2008) give a figure of 6,000 Sulabh blocks in 1,080 Indian towns. Land and construction funds may come from the municipality, but also from private sector donors (see Section 3.2.3 below).

Sulabh blocks are often located in public places, e.g. near markets and stations, although no statistics on the division across the types of locations could be found. Such public locations may imply that many blocks may not cater to people who cannot walk far or feel safe to go there at night, even though women and children have free access. Women, particularly when they are pregnant, adolescent girls, young children, the elderly and the disabled are typically groups who have more problems using blocks that are not located in or next to slums. An early study on the use of some Sulabh blocks in New Delhi showed that poor users were mainly self-employed men working in these public places as porters and rickshaw drivers (Vijayendra, 1980 cited in Sijbesma, 1981). No later studies were found that analysed locations and use.

3.2.3 Company private donations

Sulabh International also departed from the traditional practice that construction of sanitation blocks for public services are financed with public funds. Several business houses, multinational corporations, and public undertakings such as Tata industries, Proctor and Gamble, Crompton Greaves, the Port Trust Authority, the State Road Transport Corporation, Cantonment Boards and the Indian Railways have financed the construction of Sulabh toilet facilities, especially in metropolitan cities. More recently, some Non-Resident Indians living in other countries have also sponsored the construction of Sulabh blocks.

3.2.4 Public-NGO-CBO (from poor communities) cost sharing

The Pune model (detailed in Box 17) could be scaled up when one NGO decided to pool their municipal funds for construction with funds from the communities themselves.

Box 17 Scaling up construction and operation of sanitation blocks through fund pooling

To expand the number of communal toilets built for the poor, one NGO—the Society for the Promotion of Area Resource Centres (SPARC), decided to pool their sanitation funds from the Pune municipality with the resources of the fund dwellers themselves. The National Slum Dwellers Federation (NSDF) which have members in slums across India teamed up with SPARC, Mahila Milan and a network of women savings and credit groups to build sanitation blocks with 2,000 toilets for adults, and 500 toilets for children in Pune. The three organisations also built 320 toilets for children/adults in Mumbai. The women leaders handled the contracts. On the suggestion of the women, each block was built with an attached free room to house the caretaker and her family. Assisted by another local NGO, Shelter Associates, some communities decided to employ adolescent boys from the community as caretakers. This meant that the room was no longer needed for the caretaker and could be used for other purposes wanted by the community. Other purposes included: a boys' centre, a crèche and a rental space for social events. The different uses for the room generated income for maintaining the blocks.

Source: Hobson, 2000; Burra, Patel and Kerr, 2003; Bhatia, 2004.

3.2.5 *NGO loans to community groups*

Another model emerged in Accra, Ghana. Here a local NGO has provided a fund to an association of poor urban communities, the Ghana Federation of the Urban Poor (GHAHUP). GHAHUP uses the fund to give out loans to households for building private toilets and to groups to build and run communal toilets (Box 18). The city authorities do not invest, but have shifted their policy of forced evictions to one of dialogue and agreements and have given permission for the construction of the toilets and sanitation blocks.

Box 18 NGO funds association of urban poor to give loans to CBOs for sanitation blocks

The Ghana Federation of the Urban Poor (GHAFUP) is a registered and government-recognised network of community-based organisations (CBOs) in Accra, Ghana. GHAFUP negotiates with the city authorities to obtain security of tenure for informal settlements. It also runs a saving scheme for housing development and settlement improvements. GHAFUP provides loans to federation CBOs to build communal toilet-and hygiene facilities and to individual federation members to build pit latrines. Loans are provided on a commercial basis to ensure effective delivery and cost recovery. A local NGO, People's Dialogue Ghana, supplements the amount of money required. Financial discipline in the operation and management of the communal facilities increases the groups' ability to recover the cost of investment. The Federation's loan portfolios have recorded a default rate of less than 5% since 2004. This achievement is partly the result of a free hand given to federation members to design their own credit administration systems which take into account individual circumstances.

Source: Osumanu et al., 2010.

3.2.6 *Construction by private entrepreneurs*

Cases of private entrepreneurs who buy land near or in a slum and build sanitation blocks for operation as a commercial enterprise occur (Osumanu et al., 2010), but are uncommon (Scott and Sansom, 2006). This is not surprising, since experiences reported below show that it is hard to make sanitation blocks financially viable enterprises. This might change if the new models, which combine a sanitation block with other business, such as a cafeteria which cooks on biogas generated from the excreta in the sanitation block (Kuria, 2006), turn out to be profitable.

3.2.7 *Scaling up with quality*

Scaling up the number of well-sustained sanitation blocks with a good quality of design and construction, is the challenge of every success case (read experience in Denpasar, Bali in Box 19).

In Pune, India, it happened despite bureaucratic constraints, thanks to the initiator's drive and an agreement for sanitation provisions in slums with an agreed duration of 30 years. This time horizon is very important for sanitation investments since the illegal status of poor urban settlement is a key constraint to all improvements. Other influential factors were the employment of skilled people from within the settlements and the involvement of the future users, both women and men, in decision-making about locations and designs; in checking deliveries; safeguarding materials; and concluding local maintenance and management arrangements (Hobson, 2000). Calculations by Bhatia (2004)

show however that none of the larger construction models could as yet be scaled up sufficiently to provide basic sanitation services in those areas where sanitation blocks are the only option.

Box 19 Serving the urban poor: how long will it take?

The case of Denpasar, the capital of the island Bali in Indonesia, illustrates the importance that cities support solutions that poor neighbourhoods can sustain, and that the city's own service financing policies and strategies must be sustainable. In 2004, the Denpasar municipality allocated 0,3% of its revenue, IDR234,030 million, to improved sanitation. The budget included co-financing one improved sanitation block in one poor neighbourhood. It co-financed an anaerobic baffled reactor, being an improved septic tank because of the series of baffles under which the wastewater is forced to flow.¹¹ The installed improved sanitation blocks had a unit cost of IDR2 million per household and a range of between 117 and 187 users. The total number of poor households in the city was not known, but if the number of households with a cooking oil subsidy is used as poverty indicator, the city had 3,479 poor households. Assuming that they all needed to be served, that the improved technology was the preferred solution, and that the current financing policy (85% -98% subsidy) and allocation (one improved sanitation block per year) remain the same, it will take already 19 years to serve them all, without taking into account the growth of the urban poor and assuming unchanged construction costs.

Source: ISSDP, 2007

3.3 Financing recurrent costs of individual households (use of own/ family income)

The day-to-day costs of individual toilets are not small. There are other elements that need to be paid for. They include, but are not limited to:

- Water or paper for personal cleansing
- Water, a brush and cleaning fluid for toilet hygiene
- Water and soap, or a soap substitute for washing hands
- Paint and whitewash for doors and walls

A hand washing project in the city of Bobo-Dioulasso in Burkina Faso found, on average, women in the project spent the equivalent of US\$ 7.3 per year per household on hygiene products. Money was spent mostly for hand washing soap (Borghi, Guinness, Ouedraogo and Curtis, 2002). People in Mozambique spend on average US\$ 12.62 per capita per month on soap for various purposes. This amount of money is more than the government and others spend per capita on four recent hygiene education interventions between 2005 and 2010 (Reep, 2010).

According to WASHCost research findings, these costs are substantial. As soon as investments costs are annualised, operating expenses are equal to or even more than the investments costs. For example, in Burkina Faso, only 50% of the total expenditure on traditional pit latrines in peri-urban areas was on investments. For VIP latrines, investments constitute 65% of the total median expenditure of US\$ 7 per year. In Mozambique capital expenditure on traditional pit latrines in peri-urban areas is only 30% if the total costs for sanitation are annualized. "In sanitation

¹¹ For details of this technology see <http://www.training.gpa.unep.org/content.html?id=218&ln=6>

interventions, if capital expenditure is the only cost factor used for planning and implementation, we are ignoring half the costs” (WASHCost, 2011).

These recurrent costs are all financed by the households themselves. Problems in financing such costs also reflect gender relations. While in many cultures women must pay for water, soap, toilet brushes, and other operational costs for good sanitation, they have no say in how the household income is spent. Women depend on husbands for money for daily expenditures. Meanwhile most hygiene programmes do not address male roles and responsibilities for building and using toilets and preserving toilet hygiene.

3.4 Financing recurrent costs of sanitation blocks

Which recurrent costs of sanitation blocks need to be financed depends on the particular design and management arrangements. Generally, there will be human resources costs to pay to people who operate, clean and manage the blocks (unless this is all done by volunteers). Typical costs are:

- Water supply and energy costs (including for stand-by supplies of water and light)
- Cleaning materials and equipment
- Soap (powder/liquid) for washing hands after defecation
- Salaries for operators and cleaners
- Maintenance and repair work
- Safe sludge/ compost removal
- Transport and end disposal, and
- The cost of expansion and replacement in the long term

There are different ways of managing sanitation blocks:

- The municipality, the local government, or one or more NGOs run them directly through paid staff.
- The municipality or local government has a partnership with NGOs and/ or CBOs to manage the blocks as a (partially self-financed) community service, with the day-to-day management generally done by a user committee or a local voluntary organisation such as a women’s group.
- The municipality contracts them out as a commercial enterprise to an entrepreneur or CBOs (see e.g.Box 20).

Box 20 Contracting out public toilets leads to toilet wars in Kumasi, Ghana

Public toilets, upon which the majority of the population in Kumasi, Ghana depend on, continue to be an important element of overall sanitation provision. This is still the case, although the country’s privatisation policies have turned public toilets into revenue earners for the city governments and their political patronage networks and clients. Public pit toilets were originally provided free by city governments throughout Ghana. In the mid 1980s, the toilets came under the control of local revolutionary committees, the Committees for the Defence of the Revolution (CDR) and communities hoped that this would improve the management and maintenance of the communal toilets, even though they were expected to pay user fees to the CDRs who were

expected to maintain the facilities. With the formation of the elected Metropolitan Assemblies in 1989, management of the communal toilets was decentralised to elected Unit Committees. However, because the toilets were an income source, control over the funds became a source of conflict between CDRs and elected Assembly Members. Members complained about inefficient toilet management by the CDRs and refused to pay monthly levies to the local assemblies. To address these problems, toilet management and maintenance was formally privatised in 1994. The new law prescribed that the municipality could only give contracts for installing and running public toilets which included a revenue-sharing agreement to registered local companies with the required capacity. This reform did not, however, take public toilets out of the political arena, as CDR leaders and assembly members formed companies to take on the contracts. 'Toilet wars' became commonplace and the conclusion was that this public-private partnerships did not work.

Source: Osumanu, 2011; Ayee and Crook, 2003.

The 'toilet wars' were attributed to the politics of patronage at the urban level, the relationship between city government and community level groups, and the failure of regulation. Ayee and Crook (2003) give several requirements to provide reasonable sanitation services:

- Public provision of basic infrastructure
- Transparent, rigorous and independent regulation of any contracts for service provision given to non-state agencies
- Law enforcement forbidding conflicts of interests for elected local representatives

In all cases the recurrent costs are financed in four ways:

- Directly by the municipal or local government¹²
- From user payments per visit (pay-and-use) at prices that usually differ according to the type of use (toilet, shower and laundry), as a cost-covering, not-for-profit service, and as a purely commercial enterprise, or a mixture (social service that generates some extra income for the managing group)
- Through household subscriptions for unrestricted use, or an agreed number of visits over an agreed period of time, per adult user or for the whole family. Household subscriptions are usually set up as a social or mixed service; by combining sanitation functions with wider commercial enterprise
- Through combinations of the above

3.4.1 Public financing

For the municipal or local government to finance all recurrent costs for a sufficient number of facilities, good operations and maintenance and convenient opening hours requires a political will that is seldom present. Without paid caretakers the blocks seldom remain in adequate condition and for a good service the blocks would need to be open for some 18 hours per day.

Many municipalities therefore now go for partnerships with NGOs, the commercial private sector, and (associations of) CBOs. The partnership is often a combination of some or all these actors. The municipality may however still provide support, such as free electricity and water supply delivery to each site and block in Pune (Hobson, 2000).

¹² No cases were found on full financing of recurrent costs by an NGO or local company (social service).

3.4.2 Charging per visit (per use)

The most common financing system for recurrent costs is to charge per visit, with different charges for using the toilet, the shower and doing laundry. This charging system impedes the abolishment of open defecation, since few households can afford to pay every time one of its members needs to defecate, even when children get free use. A study by WaterAid Bangladesh showed that the per-person, per-use charge inhibited use by local area residents. A large percentage of cost recovery seemed to be based on commercial sales to passers-by (Hanchett, Khan and Akhter, 2001). The same was found for Sulabh blocks in New Delhi (Vijayendra, 1980).

3.4.3 Charging (households) for subscriptions

SPARC, an NGO that supports poor urban neighbourhoods to build and run sanitation blocks, prefers payment through household passes, which costed INR 20 (US\$ 0.4) per month in 2004 (Bhatia, 2004; see also Box 17).

In Trichy in Tamil Nadu, India, women self-help groups run most municipal sanitation blocks with the help from WaterAid India and their own federation. They use both payments per visit and monthly subscriptions for adult users, with locally set fees. Typical single user fees are INR 0.50 (US\$ 0.01) for defecation and INR 2 to INR 3 (US\$ 0.04 to US\$ 0.06) for bathing and doing laundry. Subscribers pay INR 16 to 32 (US\$ 0.32 to US\$ 0.64) per month. Use is free for children, the elderly and single women (WaterAid, 2008). The reported monthly expenditure indicates that households who pay per visit do not use the sanitation block every day (Box 21). The reasons are not clear, but it is likely that under-capacity and queuing for toilets at peak times motivate users to go back to open defecation.

Box 21 Indication of partial use of sanitation blocks in case of payments per visit

Assuming that in the case of Trichy an average of two adults per household use the block daily for defecation and bathing. Defecating and bathing on a daily basis would cost them INR 150 per month or 10% of the average income range of INR 1,500 to 3,000. A monthly subscription for two would cost between INR 32 and INR 64. In practice, many families do not visit every day, since the reported monthly expenditure is between INR 15 and INR 30 per household. There may still be a substantial degree of open defecation in these communities. An in-depth study of these patterns of use has not yet been done.

Source: Water Aid, 2008.

As mentioned above, recurrent costs that must be covered are the payments to local operators and cleaners, the costs of water and power supply, cleaning and hand washing materials, as well as maintaining and repairing the equipment and the buildings.

In the Tchemulane sanitation block project in Maputo in Mozambique, user groups set their own monthly household tariffs, but many are not cost-covering, especially when groups are smaller than 25 households. In the future, tariffs should perhaps be set by the municipality, taking into account affordability and revenue requirements (Chirruete, Norman and Parker, 2011).

In the DFID-supported Advancing Sustainable Environmental Health (ASEH) programme of Water Aid, Bangladesh and its partners, the user groups, also pay for the repayment of the construction loan through a graded household tariff (Ahsan, Ryan and Islam, 2008).

3.4.4 Contributions in kind (voluntary caretakers)

Voluntary (and rotational) care giving services by adult males and females is an example of financing recurrent costs ‘in kind’. A case is given in Box 22. Acts of ‘free’ service that do not entail ‘money out’ allow for considerable cost reductions. Contributions in kind however also keep individuals from engaging in other productive work, resulting in income loss.

In contrast, sanitation blocks in Trichy, a city in South India, give a living to five staff women: two women caretakers (paid daily), two women cleaners, and one watchwoman (paid monthly). All are paid minimum wages (Box 21). In order to keep costs low, Black and Fawcett (2008) report that Sulabh International employs dalits (caste-less individuals) and former scavengers to clean toilets. The authors move on to explain that of the 35,000 workers employed, managers often belong in higher level castes.

3.4.5 Linkages with other (commercial) enterprise

Another form of financing the recurrent costs of sanitation blocks is to combine its sanitary functions with other commercial functions, helping generate funds to cover the operation and maintenance costs of buildings and services. Taking the case of Sulabh International, wall space used for infrastructure is leased to companies for billboard advertisements. Provided that the infrastructure is centrally located and has a low exposure risk to vandals, this strategy can be very helpful in generating the resources needed for sustained maintenance and service. Generating energy for biogas supply to households discussed in Box 23, or setting up a local cafeteria or restaurant is another example. Bhatia (2004) estimates that in New Delhi this is a financially viable option, however insight into real cost and revenues is needed. Finally, in Nakuru, Kenya, commercial enterprises range from shoe shiners’ booths, community telephone bureaus, provision for water vending, newspaper vendors, and an internet café (Kuria, 2006).

Box 22 Sanitation block operated voluntarily through a roster with gender equity in Surakarta,

A MCK-type sanitation block in Keluharan Semanggi, in the city of Surakarta in Indonesia, consists of four old toilets and two newer ones, a bathing cubicle, a tiny operator’s office, a septic tank, a water storage tank, a water supply connection, and a stand-by borehole with an electric pump. The block is operated by user households on a voluntary basis using an agreed schedule – men at night and women during the day. Their motivation is to be of service to their community. The block is accessible from two sides and is fully cemented. Observations showed that the toilets are worn but clean, do not smell, and all water seals are intact and filled with water. There is a liquid soap container for hand washing under the operator bench, which looks used, but there is no hand washing facility and in the period of our visit none of the toilet users washed hands afterwards. The community contributed to the construction of the block through voluntary community labour known as gotong royong. Fees are per visit and amount to: toilet IDR 100, bath IDR 500, a bucket of water IDR 100, and larger containers IDR 200 and IDR 300. Those who cannot afford to pay usually say that they will pay later. Since operators know who really cannot pay, they do not claim such payments from the locally ultra-poor.

Source: ISSDP, 2007.

Box 23 An example of a combined service: sanitation block with biogas service in Denpasar, Bali

A visit to one of the improved MCKs (with treatment and a biogas tank under the facility) in Denpasar, on the island of Bali, showed that this was also well kept by a paid operator. Users pay IPR 500 for using the toilets, between IPR 500 to IPR 1,000 or IPR 2,000 for laundry (depending on the amount of laundry), and IPR 500 for a shower. The MCK's monthly income from visits and biogas connections is IPR 600,000 and running costs amount to IPR 400,000 per month. The remainder goes to the local NGO, BaliFokus, to cover the (unspecified) remaining recurrent costs. The service is NGO rather than community-managed. BaliFokus employs the operator and does the financial management.

Source: ISSDP, 2009.

3.4.6 Cross-subsidies (for financing running sanitation blocks)

Experiences with the sustainability of community-managed sanitation blocks vary. For the sanitation blocks run by Sulabh International, Bhatia (2004) calculated that 50% of the capacity must be used by paid male users year-round (women and children do not have to pay) to cover only the running costs. In Sulabh International one third of the blocks make a profit. Sulabh uses this profit to cross-subsidise the recurrent costs of other blocks (Personal communication, Bindeshwar Pathak, director Shulabh International, 23 March 2006). How sustainable the services can be without continuing external support is not clear.

Monthly subscriptions of blocks established under SPARC are also insufficient to cover the recurrent costs, and statistics on incomes and expenditures are missing (Bhatia, 2004). In contrast, observations reported by Morgan (1999) in a case study on sanitation blocks in Kampala showed a profit for local committee members, but also a lack of transparency and accountability for financial management to the user community.

Sustainability is also related to scale. An analysis of the recurrent costs of sanitation blocks in the capital of Mozambique showed that at the current tariffs, groups of 25 households and below could not cover the O&M costs of their sanitation block (Chirruete, Norman and Parker, 2011). However, with blocks serving large areas, the risk is that certain users will not always walk the longer distances. More insight is needed in the best mix between coverage, running costs, distance and opening hours.

Water Aid's evaluation in Trichy in Tamil Nadu, India, showed a similar picture. Half of the sanitation blocks managed by the local women groups had incomes over and above their operational costs. Blocks with less than 200 users per day could not cover these costs, however, and blocks with less than 500 users per day now break even, but are likely to have more problems when the provisions become older and need more maintenance and repairs.

A calculation of the operational income and expenditures of a sanitation block managed by a women's group in Ajengo, Kerala, India, showed a profit of 37% (Kurian, n.d.).

In the last two cases, transparency and accountability of financial management were other important contributing factors for financial sustainability:

- Operators give numbered receipts for payments
- Operators (often women) keep a simple accounts book with payments and expenditures

- Management committees have a separate bank account for the block's finances
- They have two signatories for bank account withdrawals
- The books are audited independently and on schedule
- The committees account for financial management and service delivery to the users
- Committees must justify tariff changes and get a quorum for approval

Although the evidence is very limited and more and better statistics are needed, the situation is probably similar in other cities with sanitation blocks for the poor. A strong case can be made for the development and use of urban subsidy policies for the recurrent costs of sanitation blocks. For instance municipalities can give free water and electricity as done for sanitation blocks in Pune, India (Hobson, 2000) and free sanitary pit emptying services, given the (hidden) subsidies for sanitation and water tariffs given to urban households in middle and upper-class areas.

The above experiences suggest the following lessons on financing shared household toilets and sanitation blocks:

Applicability Both household heads, female and male, should be empowered to make informed decisions that concern costs and financing, as well as the number and the design of the toilets, their location, and the formation of the individual user groups whose members will share the toilet's use and upkeep of hygiene and maintenance;

Local women and men must jointly agree on the share of the neighbourhood or community in the financing of the investment costs, the fair way of sharing the local contribution among user households, taking into account such aspects as capacity to pay and degree of benefits, the possible forms and preferred ways and frequencies of payment, and the management of and accountability for the user contributions to construction and services;

Both male and female heads of households must be empowered to make a well-informed choice on which local body, with which women and men members and functionaries, will organise the local share in construction, account for payments and use of funds, supervise construction, upkeep and use and mediate in conflicts;

Shared toilets must be located close to the user households and be easy and safe to use, also at night, and locations and models must be adjusted to the needs of women and children, the elderly, disabled people, and be suitable for use during menstruation;

The sanitation blocks must have a reliable water supply for cleaning, hand washing and (hand) flushing. A reliable water supply often requires additional infrastructure such as a water storage tank or back-up supply, conditions which increase construction costs;

The female and male members of the user groups agree on their rules for use, cleaning, upkeep and financing, and put them down in a set of regulations before they begin to use the toilets.

Sustainability	Many sanitation blocks need subsidies to be financially sustainable, which is only fair since sewerage services, which are a much higher service level, are often subsidised. However, many blocks could become more sustainable with more transparent management and more user participation in decisions on the types of financing mechanisms and the tariffs.
Simplicity	Bookkeeping systems and management accounting should be simple to understand and use. Everybody involved in service delivery requires a basic knowledge of financing and accountability.
Scalability	There are some examples of sanitation blocks at city scale in Pune and Trichy, India.
Pro-poor	Municipalities, local government bodies, NGOs and CBOs can ask user households to share in the construction costs to enhance their sense of ownership and increase interest in joint decisions and good management. It is however quite logical for the municipality to finance the bulk of the investment costs, either directly or through grants to the lowest level of local government, because the capital costs of piped sewerage in the better parts of the cities are for the larger part also paid from public coffers rather than by the user households. Within communities, flat household contributions or fees can be inequitable in case of mixed poverty levels.
Equity	Same as above (see Pro-Poor)

4 Financing transport, treatment and end disposal

Containment of human excreta in a toilet is not indicative of the end of the sanitation cycle. To avoid pits and septic tanks from overflowing, excreta must either be composted or removed for productive use ('closing the nutrients loop') and/or be treated and removed as sludge, transported mechanically (or through water-borne sewerage systems) for final safe end disposal. Often, financing the costs of excreta transport and final end disposal are not given sufficient attention in planning and budgeting. In the MDGs, the UN's definition of safe sanitation does also not include transport and safe end disposal.

With the abundance of urban toilet pits and septic tanks, the shortage of comprehensive studies and programmes is astonishing. Most documentation pertaining to emptying services is in the form of case studies of traditional services, starting with Feachem's study of night soil collectors in Kabul in Etherton (1980). Muller (1997) edited a collection of case studies from Tanzania, India, Ghana and China. Collignon and Vezina (2000) dedicated a chapter to the independent service providers who empty toilet pits in African cities, while in Dhaka there is an on-going pit-emptying pilot project (Rashid and Ryan, 2007; Parkinson and Quader, 2008). Building Partnerships for Development (BDP) conducted case studies in the African cities of Dar-es-Salaam, Durban, Maputo, and Nairobi (Bereziat and Schaub-Jones, 2009; Eales, 2005; Schaub-Jones, 2006a; 2006b, 2010).

The costs and financing options for the safe removal and end disposal of waste water and faecal sludge from different sanitation options are seldom taken into account when deciding about the mix of urban sanitation services. Both factors are nevertheless crucial in considering the viability, sustainability and equity of the full cycle of excreta management.

4.1 Peepoo bags (end-disposal)

The peepoo bag is an innovative improvement of the widely used system of 'flying toilets', the practice of defecating in a plastic bag and throwing the bag out with the solid waste into the environment. The peepoo bags are bio-degradable, with speed depending on the amounts of UV light, moisture, and oxygen available¹³. The approach has been tested in two urban slums since 2008: Silanga Village in Kibera, Nairobi, Kenya with 278 participants over 28 days and in Mymensingh, Bangladesh with 100 participants over ten days (Box 24).

Box 24 Trial participants in Bangladesh currently not willing to pay actual cost of peepoo bags

During the trial, participants received the bags free of charge and received a small, unspecified fee for testing. When asked in the post survey about an appropriate price for the Toilet Bag, the average was BDT 0.65; most frequently mentioned as BDT 0.5. Asked if they would purchase the Toilet Bag at a cost of BDT 1 per bag, only 19% responded 'yes'. The cost of purchasing one bag per day for an average family size of five at this price represents 4% of an average monthly income of BDT 4,000. For female-headed households, it represents 6% of their average monthly income. This willingness to pay is far below the actual cost of the bags which, when mass

¹³ For further reading, see: <http://www.scribd.com/doc/60554371/The-Use-of-Poo-Bags-for-Safe-Excreta-Disposal-in-Emergency-Settings>

produced, cost BDT 3.7 or € 0.04. Whether this price also includes the cost of distribution to the shops has not been specified. Consistent use at this price, without profit for the selling enterprises, would cost an average family 14% of their monthly income for regular households and 22% for female-headed households. At present, 89% of the participants did not pay for excreta disposal other than installing a toilet. In the sample 36% had a permanent pit latrine. It is not clear if they were also asked about practices and costs of dislodging.

Source: Wheaton, Jachnow and Münch 2009.

4.2 Financing full-cycle toilets

The significant advantage of composting toilets is the eradication of the necessity for removal and transport of raw sludge – an unpleasant and potentially harmful task until manual emptying can be replaced by very low cost mechanical devices which can manage the narrow paths and lanes in low-income urban settlements.



Compost from a dry toilet in peri-urban Kathmandu, Nepal (Photo: Christine Sijbesma, IRC)

If composting toilets are operated well, excreta is successfully processed into rich compost. Composting toilets are compatible with double-vault pour-flush model; the double vault ventilated improved pit (VIP) toilet or the dry pit or urine diversion model.

The arborloo, previously discussed in Box 16, has no double vault and is therefore the cheapest option of a full-cycle composting toilet. However, this technology is only suitable in locations with adequate space to dig a new pit, and shift the outhouse across once the original pit is filled up. Hence, arborloos are only suitable for more sparsely settled peri-urban areas with a demand for low-cost, but productive, toilet models.

Double vault composting toilets are permanent and environmentally sustainable solutions provided that the

leakage from soak pits of wet models does not contaminate the groundwater. However, when double vaults or pits are used, the models require a high upfront investment when compared to single pit latrines. Supporting men and women in communities to compare the full life-cycle costs of non-composting toilets against the full life-cycle costs of composting models is therefore very important. Secondly, financing strategies are needed to reduce the problem of a hefty upfront investment. So is it wise to develop various types of financing modalities such as: savings, loans, revolving funds and micro-credit as described in the case of three peri-urban areas in Malawi (Box 25).

Box 25 Savings fund in Malawi gives loans for materials and training to the urban poor for eco-toilets

Malawi has a high rate of urbanisation (a growth of circa 6.4%/year). Almost 90% of urban residents in the traditional housing areas are ultra-poor. The Centre for Community Organisation and Development (CCODE), a Malawian NGO through the Malawi Homeless Peoples Federation (MHPF) mobilises and supports the residents of low income urban areas. MHPF is a network of poor people formed in 2003 to empower the poor. MHPF is member of Shack/Slum Dwellers International (SDI) and Homeless International (HI) which are present in over twenty countries in Africa, Asia and Latin America. The network members make monthly savings of at least K 20.00 (US\$ 0.14) towards the Mchenga pool fund. Members can take out loans for any priority need. CCODE gives training ranging from the principles of book keeping and business management to loan management and computation of interests and outstanding loans. CCODE and MHPF run an eco sanitation loan scheme in three peri-urban locations. The aims of the scheme are cutting down on the problems of toilet space, providing an alternative to the exorbitantly priced chemical fertilisers, and providing income generation alternatives. Users use the weed-free nitrogen-rich manure directly used in their fields or nurseries or offer it for sale to agro-companies. So far, 195 toilet loans have been given, 95% to women, with a maximum duration of 2 years. Loan takers have completed 158 eco toilets, serving 790 users, at an average investment equivalent to US\$ 140. SODE has trained 13 toilet builders and 20 women produce soil stabilised blocks. A team of men and women collects monthly contributions towards loan repayment. Those whose repayment record is not good are motivated to improve, as their repayment is the only sure way to reach out to the borrower-in-waiting. The cost of the collection and monitoring in terms of recording materials (and sometimes transport) is financed by the support NGO. Otherwise, the members of various teams (vetting, procurement, monitoring) are from within the community and are themselves federation members who work to strengthen their system. The major form of payment is for delivering peer training and the incomes derived from the work which they now do after training as brick makers, masons, carpenters, etc.

Source: Khataza, 2008.

Furthermore, for the urban market it is important to offer attractive models which have a modern feel and may be situated inside a bath/shower room. Compare the attractiveness and ease of access and cleaning of the two models in the photos below.



Dry toilet in back of garden in Central Vietnam (Photo: ADCOM)



Dry toilet in bathroom in Durban (Photo: Richard Holden, South Africa)

A study of the Urine Diversion Dry Toilet in an urban settlement in the Philippines showed an annual cost of over US\$ 80, three times higher than that of a wet pit latrine. The annual return on investment was highest (100%) for the septic tank, meaning that it recoups its value in less than a year. The lesser benefits of dry toilets over septic tanks are mainly due to more time-intensive operation, and the omission of the cost of pollution from septic tanks (Hutton, Galing, Rodriguez and Weitz, 2011). A study in Nepal however gave a considerably lower cost over its full life-cycle for an eco-toilet than a septic tank toilet when low-cost design is used (Rajbhandari, 2008)

4.3 Public and private vacuum trucks: toilet emptying, transport and disposal

Important costs for households with non-composting on-site toilets are the costs of emptying full pits and septic tanks. Using formal or informal emptying services are the main way of addressing the problems of filled pits and tanks in cities in developing countries. For example, in Dar es Salaam, Tanzania, where 93% of the urban population has mostly single toilet pits, 72% of the households planned to dislodge pits when full, 23% planned to build a new pit toilet and 5% did not know what to do (Natty, 2011).

The lowest level service for emptying pits and reservoirs is by hand, either by the households themselves or by a hired pit emptier from the informal private sector. Manual emptying, transport and dumping of human excreta and sludge are widespread. In India alone, an estimated 1.3 million poor women and men generate their income from manually emptying and carrying away toilet contents. This is also known as scavenging (Black and Fawcett, 2008), and is also common in cities across Africa (Collignon and Vezina, 2000; Eales, 2005; Mikhael and Scott, 2011).



*Woman scavenger emptying a toilet manually
(Photo: Therese Mahon, WaterAid)*

Manual excavation is often the only option to empty toilets in dense urban slums with no access to vehicles. Because of the dirty nature and stigma of the work, excavation is usually done at night. Providers work in teams of two (one digger, one carrier) and have been reported to pour kerosene or ammonia into the pits to reduce the stench, and with picks, shovels, ropes and buckets clean up and carry away the solid mass at the bottom of the toilet pits (Eales, 2005 and Box 26; Mikhael and Scott, 2011). In African cities, the manual emptying of a toilet pit cost between US\$ 8 and US\$ 25 per pit in 2000 (Collignon and Vezina, 2000).

In Freetown, Sierra Leone this cost had increased to an average of US\$ 50 in 2010, 5.6% of the per capita GDP (Mikhael and Scott, 2011). And in Maputo, users of sanitation blocks should set aside the equivalent of US\$ 60 per year to pay for the de-sludging, 73% of the needed reservations for the operation and maintenance costs (Chirruete, Norman and

Parker, 2011). Because of these high costs, poor people often prefer to have only the top layer removed to spread the financing over time.

Box 26 Cost of manual pit emptying in a slum in Nairobi

In Kibera, Nairobi, Kenya, ‘frogmen’ (so called because of their resemblance to frogs in the ‘mud’) manually empty toilets charge the equivalent of US\$ 2.60 per foot (or about 30 cm) of excreta. Eales (2005, p. 3) notes: “(t)he men are paid in cash at the end of their work, and their income is shared between them. Expenses that must be deducted include the cost of a permit for manual dislodging, hire of shovels, drums and a hand-cart, a small fee for dumping the sludge into the sewer system, and the cost of a shower (KES5) at a public sanitation facility where the men can also wash their clothes and shoes. They are often charged double at the showers because they are so filthy.” Earnings range between US\$ 1 to US\$ 4 per person, per night. During dry seasons, the earning capacity is lower because of a lower demand for the service.

In the more accessible parts of cities, the private sector can use vehicles to collect, transport and dispose of faecal sludge. In less accessible parts, smaller devices must be used or sludge must be manually removed. There are five possible services for emptying, transport and end-disposal, three using mechanical devices, and two carried out manually. These are:

Vacuum trucks

Vacuum trucks are fitted with tanks that can hold between 3m² to 12 m² of sludge and waste water. For instance, in Dar es Salaam, the capital of Tanzania with a population of four million inhabitants in 2010 and an annual growth rate of 4.3%, 93% of the households use pit latrines. In 2010, the city had 82 private truck drivers, six municipal emptiers, and five trucks owned by large institutions, such as the national bank and the harbour organisation. In principle, vacuum truck owners are expected to empty their loads in wastewater treatment plants or oxidation ponds. However, more often than not the loads are emptied in ravines, rivers or the sea, or are sold to farmers to fertilise crops (Box 27).

Vacu-tugs

A vacu-tug (formerly known as a MAPET, Manual Pit Emptying Technology) is a mini-emptier consisting of a vacuum pump mounted on a small pushcart or on a trailer behind a vehicle. There is only one group of service providers with this system left in Dar es Salaam and it does not operate regularly. The others failed because of lack of availability of spare parts. All systems were donor funded and donors provided backup spare parts and subsidies only during the project phase.

Gulper

Using a type of suction technology to empty pits, the gulper is attached to a motorcycle or pushcart and is fitted with a 200 litre container. In principle, the gulper transports waste to the waste stabilisation ponds and is mainly used in informal settlements and areas with rough terrain.

Vomiting Method

The pit emptiers manually dig a hole adjacent to the pit allowing the sludge from the pit toilet to flow into the new pit. Thereafter the disposal pit is covered with soil. This however is only possible in areas where there is enough space for a new pit and as long as the sludge is fluid.

Flushing sludge out to water courses

Households also connect pits by pipes to a nearby water course or empty pits into rainwater drains or run-offs during the rainy season.

Financing of periodic emptying and of removal by sewerage services

Evacuation of excreta by water-borne sewerage, which traditionally serves people with sufficient income, is highly subsidised. In contrast, the above-listed forms of emptying are 100% privately-financed. Ironically, the poorest people in the worst environments (very densely populated settlements and slums) may pay the highest price per cubic metre of removed sludge as illustrated by the case of Dar-es-Salam in Tanzania in Table 2 below.

Table 4 Comparison of costs and financing of different ways of transport and disposal of human excreta in Dar-es-Salaam, Tanzania

Type of service	Range of costs	Unit cost	Financing
Piped waterborne sewerage	For every m ³ of clean water used, the consumer is charged Tshs 22. It is assumed that 80% of water received is charged as waste water.	Tshs 181.60* (equivalent to US\$ 0.12 per m ³), irrespective of the distance to the disposal site * Tshs 227 x 0.8	By connecting consumers (7% of the total city population) to the Dar es Salaam Water and Sewerage Company (DAWASCO)
Vacuum truck services	Tshs 30,000 (c. US\$ 20) to a maximum of Tshs 150,000 (c. US\$ 100) per trip, depending on the volume of the emptier and distance to the disposal site (average radius of 15 km)	Tshs 1700 or US\$ 1.12 per m ² per kilometre. For 15 km the unit cost is US\$ 16.80 per m ²	Fifteen years ago the service was a monopolised by the Dar-es-Salaam Sewerage and Sanitation Department (DSSD), with a subsidised price. With the advent of free market competition, truckers now pay Tshs 200 to DAWASCO for dumping fee
Vacu-tug service	No data as service is no longer operational		
Gulper service	Tshs 15,000 (about US\$ 10) for a tank of 200 litres	About Tshs 37,500 (US\$ 25) per m ² per km. This is about 22 times more than a vacuum truck service and 206 times more than sewerage connected clients pay	Prices depend on the job to be done and the bargaining made (or not) on the cost per cubic metre. In some cases, homeowners pay directly for the service, while in others, where they live with tenants, the cost is shared between owners and tenants. Gulpers pay Tshs3,000 to DAWASCO as dumping fee
Manual pit emptying by the vomiting method	This costs Tshs 100, 000 (US\$ 66) to Tshs 150,000 (US\$ 100) per toilet depending on the size of the latrine, soil texture and	Tshs 33,000 (about US\$ 22) to Tshs 50,000 (US\$ 33) per m ² , making it the most expensive of all methods of sludge disposal	As above

Type of service	Range of costs	Unit cost	Financing
	bargaining power		
Flushing sludge out during rains	No data		No data on whether only done by households or also as a paid informal service

Source: Natty, 2011.

4.3.1 Vacuum truck services

Although pit emptying by vacuum trucks may be cheaper per m² than manual removal, the service is still expensive when the consumers must pay the full commercial costs. Households in African cities spend, on average, between US\$ 17 and US\$ 40 for emptying services: US\$ 20 to US\$ 60 every one to two years to have the liquid sludge removed by vacuum truck and US\$ 15 to US\$ 20 every second year for a team of manual operators who remove the collected solids.

In comparison, public services with vacuum trucks may be highly subsidised. In Durban, South Africa, for example, private businesses charged the equivalent of US\$ 123 per pit. The municipality charged only US\$ 13 for emptying by a suction truck, a subsidy of almost 90%. The real cost range of such mechanical emptying was US\$ 73 to US\$ 246, with an average of US\$ 90 (Eales, 2005).

Both commercial and public emptying services with vacuum trucks tend only to be available to better-off households in easily accessible locations. The trucks seldom service low-income neighbourhoods and slums, because of the narrow lanes, high costs of service and the lack of recognition of these areas. They also often deposit the sludge loads in the environment so that toilets still end in open defecation, or sell the contents to farmers (Box 27).

Box 27 Honey suckers sell untreated faecal sludge to farmers around the city of Bangalore, South India

In the city of Bangalore, India, at least half of all households depend on private sector services to empty toilet pits and tanks. Some 350,000 or more urban homes and apartments, store wastewater and sludge from bathrooms, kitchens and toilets in outside soak pits. The usual dimension of the pits is a diameter of 5 feet and a depth of 20 feet. Around 300 entrepreneurs, known as honey suckers, are registered in the city and provide commercial pit and septic tank emptying services by tankers, each with a capacity of between 3,500 litres to 6,000 litres. The city only keeps the registration of the vehicles and checks their roadworthiness. No-one follows or controls the end disposal of the sludge. A very significant number of tanker operators sell their sludge to farmers, who then use it to fertilise their crops. A very first estimate indicates that around 4 million litres of faecal sludge is thus being re-used on a daily basis. This re-use system is based on old existing practices and has emerged without any external financial or technical support. Moreover, it leads to significant cost savings by farmers. A major drawback is the safety of these practices for farm labourers and consumers. There is a need to start piloting low-cost treatment methods and to carry out additional case studies to broaden our knowledge and understanding (Kvaestrom and Vishwanath, IRC, forthcoming).

Source: Thizy and Vishwanath, 2011.

4.3.2 Mini-vacuum truck/chart services

As a mechanical alternative to manual emptying, Manus Kofi, an Irish engineer, developed the MAPET or Manual Pit Emptying Technology which later evolved into the vacu-tug. It consists of a 200 (later 500) litre tank with a vacuum pump and a PVC hose mounted on a small petrol-engine driven handcart, with 2 or 3 operators (Muller and Kirango, 1996). The service was piloted in Nairobi, Dar es Salaam and Dhaka (Box 28). By 2005, no MAPET team remained operational in Dar-es-Salaam, due partially to a lack of institutional support (the responsible municipal agency has since been dissolved) and to reliance on a foreign spare part to make the MAPET operational, which was neither replaced nor substituted with locally available parts (Schaub-Jones, 2006a).

In Dhaka, desludging of a pit toilet costs US\$ 6, and between US\$ 24 and US\$ 32 for a septic tank. To ensure a shallow pit toilet's upkeep and proper functioning, its contents will need to be dislodged once every three months, at a cost of US\$ 2 per month. This amount is equivalent to half of the average monthly income of a slum household. In comparison to pit toilets, desludging of septic tanks takes place less frequently (Parkinson and Quader, 2008).

Box 28 Mini-vacuum truck service pilots: good potential but not yet financially self-sustainable

In Dar-es-Salaam, the capital of Tanzania, the charge for this mechanised and sanitised manual service was equivalent to US\$ 12.50 per pit, about the same as the lowest charge for emptying by hand. However, serviced households only paid for the labour costs while the donor paid all other costs. Even so, emptying a pit by the MAPET was much more expensive for individual households than pit emptying by the municipal vacuum trucks, which served areas with wider access roads. In these areas, households paid a heavily subsidised fee equivalent to US\$ 6 per pit. Because of the higher costs for the vacu-tug, only 25% of the households had the whole pit emptied; the others asked them to take out between two and seven drum loads. In Dhaka, DSK, a local NGO and Water Aid are piloting a cross-subsidised pit emptying service with two more recent vacu-tug models. They have been mounted behind a Land Rover to serve customers on a wider scale (including those in better-off areas). The service that DSK offers is approximately 3–4 times cheaper than manual emptying. The NGO gives local sweepers, who empty toilets with manual equipment, a commission for every order they bring in, so as to compensate them for their loss of work. The standard fee for a single full load is US\$ 16. Most septic tanks require between one and two full loads, costing between US\$ 24 and US\$ 32 depending on the location of the septic tank. The owners of septic tanks living outside slums are charged the full rate. Emptying an average 5-ring pit toilet costs US\$ 6, but has to be done every three months. Originally DFID provided the vehicle and then covered the recurrent transport cost. After ending this support, the NGO purchased its own vehicle with a 30% grant from Water Aid. Initially the NGO ran the service at a 30% annual loss, but the loss is declining through better exposure, resulting in a greater demand. Problems with servicing pits over 3 meters deep, at greater distances and with end-disposal, limit the technical, financial and social viability. Better marketing would give higher demand which the NGO cannot meet at the present tariffs. Both donor agencies reject a real cost covering tariff, because, even with the cross-subsidy, it excludes the poorest. Despite the necessity of these facilities, neither organisation wishes to go on subsidising the service.

Source: Muller and Rijnsburger, 1992; Rashid and Ryan, 2007; Parkinson and Quader, 2008.

Because of the low cost-recovery, the long-term sustainability of the system proved to be problematic. There were problems with the low productivity, the limited circle in which the entrepreneurs could operate as there are no paths to reach more isolated houses, making the larger

repairs, which were beyond the capacity of the local private sector, the lack of cost-recovery potential beyond the direct labour costs, and the unwillingness of donors to support a market-based model at scale (Muller and Rijnsburger, 1992; Parkinson and Quader, 2008). However, compared with the costs of the large vacuum truck services, enterprises with low-cost mechanical options could well be more viable at a sufficient economy of scale, while also serving the upper income quintiles of the low income populations.

4.3.4 City-financed improved manual service

The municipality of eThekweni (Durban), South Africa, decided to implement an improved manual pit emptying and disposal model after carrying out various alternative options. The municipality applies a gender perspective when awarding contracts to small-scale independent providers, who, under a legal system of labour protection, employ teams of wage labourers for pit emptying (Box 29). The system is reported to work well. The main concerns faced include: the quality of the sludge, suitability for treatment, the need for adequate protection from worm infestations by means of face masks (analysis of the masks showed high loads of roundworm, whipworm, tapeworm and other worm eggs and larvae) and the presence of many direct single pit toilets increasing the unit cost of pit emptying (Buckley and Bhagwan, 2005).

Box 29 Improved manual pit emptying reduces poverty and increases gender equity in Durban, South Africa

In Durban, South Africa, legally contracted pit emptying teams work in daylight, wear face masks and use long-handled shovels, heavy gloves and gumboots when transferring excreta to drum containers, and eventually, to specially modified waste skips. In this process, solid waste is sifted out and the remainder is transferred to wastewater disposal plants for safe end disposal. To generate employment opportunities for poor women, the municipality of Durban implements an affirmative action policy which favours sub-contracts with female teams who work in their respective local areas. Within this arrangement, women are provided with a daily compensation of ZAR 60 (US\$ 10), based on a nine-hour work day. Free services are provided to households that meet a certain criteria of qualification. Volunteers of a Local Project Liaison Committee visit households to conduct this type of assessment. All pit emptiers undergo a comprehensive medical examination; are inoculated; and receive a full set of clothes (overalls, gloves, mask, hat, and steel-tipped gum boots) and equipment and can use bathing and clothes washing facilities. They also only empty lined pits to avoid the risks of pit collapse and get a medical examination after completing the pit-emptying campaign in their community. Each household toilet pit generally needs to be emptied every five years. A typical community campaign to empty all pits usually last for three months. This is conducted by a team of five, with the task to empty three to five pits per day. While the estimated cost of emptying is US\$ 120, the real average cost per emptied pit totals to US\$ 132, including an 8% charge to cover management costs.

Source: Eales, 2005; Chris Buckley, personal communication, 24 September 2008.

In conclusion, it can be said that at the time of writing, there remains no single service that can fully meet the criteria used in this TOP in the search for viable solutions to financing sanitation for the urban poor.

Applicability None of the reviewed financing systems for removing excreta, whether manually, with the use of water or mechanical devices, can effectively serve the dynamic growth of urban population. Further, it is observed that specific attention needs to be paid to the treatment, safe end disposal and productive use of excreta. At this

point in time, what seems most effective is working with double-vault composting toilets, of which the pour-flush composting toilets have been most widely applied (as illustrated in the case of India). However, prudence must be observed in promoting this type of technology as it has not been evaluated at scale across the full excreta disposal cycle. Missing is data of how pits are emptied and compost is used at scale when the composting pits fill up.

Simplicity A scheduled and demand-based service, which can empty all full pits and regularly serve neighbourhoods at a fixed affordable price, is now being piloted in Durban. Preliminary success in the use of the gulper method has also been reported.

Scalability No financing system for desludging has been put to test on a large scale. Often, desludging is organised in isolated ways and is not city-wide.

Sustainability Clear evidence (beyond a single case) on the sustainability of financing options in the long term is lacking.

Equity Many forms of financing transport and end-disposal are inequitable, mostly benefitting more privileged groups in society. While there are a few examples of weighed tariffs and special loans that make the service accessible for poor households, their sustainability in the long term has yet to be understood.

Pro-poor There are some cases of pro-poor programmes for double-vault composting toilets implemented at scale (e.g. Clean Kerala programme, Government of Kerala, 1997), however safe emptying and end-disposal/reuse remain under-researched topics. For instance SEUF (1991) reports



*Daily life in Mathare valley, a Nairobi slum, by Kenyan artists Joseph Nzomo and Salim Busuru.
<http://www.irc.nl/page/45011>*

that there is some evidence of contamination from wet double vault composting pits to water tables and shallow wells. High costs of emptying pit latrines reduce the demand of poor households for sanitation. The costs contribute to the continued practice of open defecation, ‘flying toilets’ and emptying the contents of toilet pits and septic tanks in the environment.

4.4 Facilitating financing for the urban poor (conventional sewerage)

Over and above the costs of a toilet and the costs of replacing a concrete or tiled floor in order to connect the toilet to the sewerage system, most utilities are also asking households to cover substantial connection fees. Poor people often have problems financing these costs as a lump sum. As described in a study dedicated to the access to water and electricity services (Komives and Prokopy, 2000), providing free access –100% subsidy of connection costs – rather than block or social tariffs, would be the most pro-poor policy, as social tariffs only help those who already have access to basic services. There are, however, a number of ways to make conventional sewerage services more affordable for poor consumers. For instance, loans to pay connection costs, payment arrangements adjusted to the location and income patterns of the poor, lower-cost designs such as shallow sewers and condominium systems, use of local taxes for cross-subsidization of connection costs, cooperation with NGOs, and creation of ‘full packages’ to help the urban poor get access to centrally managed sewerage services have been helpful in increasing the accessibility of the service to the urban poor.

4.4.1 Loans for connection costs

Large lump sum upfront payments to facilitate connections to sewerage systems and other infrastructural requirements are a major constraint for low-income households within reach of sewerage networks. However, more feasible payment arrangements have been developed and introduced. For instance, Cardone and Fonseca (2006) point out that payments become more affordable when the required first down payment is small, with households provided with the option to pay off remaining cost in the form of a loan, if possible on concessional terms. Under this system, the initial period when no repayment needs to be made is extended for the very poor and once they start repaying it is at lower interest rates over a longer period. Using three different loan systems based on the degree of poverty helped for example achieve 100% access to sewerage in sewered areas of Santiago de Chile (See Section 4.4.5 below).

4.4.2 Tailoring (of loan) repayment arrangements

Upfront investment is not the only constraint faced by the poor in accessing sanitation services. Distance travelled to reach a bank, municipality officers or utilities for loan repayments also pose a major challenge. In Surakarta, Java, Indonesia, for example, the costs of transport doubled the monthly amount that users in a low-income neighbourhood had to pay. Payment frequency was also a problem, as many families are vendors, small shop keepers and day labourers working in the informal sector. Many said that they could not pay back a monthly sum of IDR 30,000 (US\$ 3) because it was too large to pay in one go. However, they would have no problem in paying IDR 1,000

each day, as it was easier for them to generate a smaller amount each day than the same amount as a single payment once a month (Box 30 and Box 31).

Box 30 Tailoring to their conditions makes sewerage affordable for the urban poor in Surakarta, Indonesia

In Darakan Barat, a low-income community in the city of Yogyakarta, Indonesia, where most families had a permanent job with the local silverwork workshop, those with a connection repaid the loan through a combination of a daily and a monthly fee. The connection cost between IDR 800,000 and IDR 1,000,000 (US\$ 78-98) depending on the distance and households paid IDR 300 (US\$ 0.3) per day to a community collection (*jimpitan*) and IDR 10,000 (US\$ 0.98) as monthly dues (*harisan*).

Source: Own experience, 2009.

4.4.3 Use of local taxes

An alternative way of financing sewerage investment is through the use of local taxes. For example, the community committee that formed to build a local network linked to the urban network in Barranquilla, Colombia, used the income from the local house sales tax to reduce the amount that connecting households had to pay (Rodrigues, Rodrigues and Morr, 1989). In the capital of Gujarat, India, the Ahmedabad Municipal Corporation used tax levied on trucks entering the cities, and local property tax to finance the expansion and improvement of its water supply and sewerage services. According to Cardone and Fonseca (2006, p. 24):

“The AMC updated the (property) tax rates to reflect current market prices, worked with the police to identify and catch defaulters, developed a wireless network for all (traffic) check posts, and organised several teams of inspectors to conduct spot checks of vehicles. Strict accountability measures were implemented to limit corruption. These activities increased revenues by 60%.”

4.4.4 Negotiating connection in bulk

The utility in Surakarta mentioned above also used a community approach to negotiate for bulk connections, with special conditions to facilitate financing (Box 31).

Box 31 Bulk connection through a rapid action learning project in Surakarta, Indonesia

In Indonesia, the city of Surakarta implemented a rapid action learning project to see how to reach its target of increasing the private connections to its central sewerage system from 10% to 20%. Instead of connecting households as per their individual demand, they piloted a neighbourhood approach to connecting. The pilot neighbourhood had a low connection rate and was within the catchment area. The utility agreed to give its households a special connection rate if a large number of them would connect at the same time to reflect time and transport cost reductions for the technicians. The households can pay off the rate in their tariffs, at intervals tailored to their economic conditions and at a location within their neighbourhood, to avoid time and costs for travel. Traditional self-help labour (*gotong royong*) for unskilled work and sharing of connections by two households can further reduce investment costs.

Source: Own experience, 2009

4.4.5 Municipal package (for sewerage) for the urban poor

A financing model introduced by the Municipal Works Company of Santiago (EMOS) in Chile serves as an interesting example of a full package that facilitates the urban poor's access to the city's sewerage system. Together with the municipal government and other city services, EMOS' manager, Engineer Raquel Alfaro, developed a four-pronged package to achieve and maintain 100% access to the city sewerage service. Under her guidance, the municipality developed a strategy for increased urban water supply and

sewerage coverage in poor neighbourhoods, which also introduced income generation opportunities to poor women. The four-pronged package covered the following:

Connection loans

Poor households can apply for cheap loans to finance the connection costs to the network, lasting 12, 24, 36 or 60 months. Eligibility and duration are based on the city's social services department's classification of each household. Households are expected to repay loans, in addition to meeting their respective monthly tariff dues. The ultra-poor pay between US\$ 5 and US\$ 10, in ten instalments, to inculcate the habit of payments.

Female entrepreneurs for connections

In addition, EMOS invited women in poor neighbourhoods with few connections for training on making connections, installing and repairing meters, and marketing connections. Upon successful completion of the training, the women got a tool kit and a license as an independent entrepreneur to install authorised connections on behalf of the utility. Once trained and equipped, these female entrepreneurs actively promoted connections to other women in their neighbourhoods.

School campaign

EMOS also carried out a promotion campaign to promote private connections through the local schools. The children visited the city water supply and sewerage works where they learned about the benefits, costs and financing of water and sewerage connections. After having their picture taken with the campaign mascot, they were supplied with branded information material which could be taken home.

Mobile van for consumer payments

Finally, EMOS sent mobile vans to the poor city sections on pre-determined days to make it easier to register for a connection, learn about the loan and connection services, and pay the monthly bills.



*Women in an urban poor neighbourhood in Santiago de Chile are trained to become licensed plumbers for water supply and sanitation connections
(Photo: EMOS)*

The vans made payment easier and cheaper (no time and costs of travel, especially beneficial for the local women).

The four-pronged approach resulted in 100% coverage of the city with private water supply and 97% with sewerage connections (Alfaro, 1997).

4.5 Shared financing of lower cost services

Another way of making sewerage connections more affordable for the poor is to make use of lower-cost designs for the network. This can be done by offering low-income urban neighbourhoods the possibility to finance lower-cost sewerage lines through the combination of free labour (trench-digging), cash down payments (flat or weighed), household connection loans, community loans, and financing mechanisms for in-house facilities. Technically, the options may range from shallow conventional sewers to primary community sewers or condominium sewers.

4.5.1 Shallow sewerage

The use of costly conventional sewerage prohibited expansion to poor neighbourhoods in the city of Cali, Colombia. The utility therefore started a learning project with the water and sanitation knowledge centre CINARA to lower the cost through a combination of shallow sewerage and community participation with a gender focus. When this was successful (Box 32), the approach was scaled up to other communities in the city.

Box 32 Action research on a co-financed shallow sewerage service and user choice of amenities in Cali, Colombia

This demonstration project was carried out by Altos de Menga, a poor community in the city of Cali, Colombia, the utility of the city, EMCALI and CINARA, the Institute for Investigation and Development of Water Supply, Environmental Sanitation and Water Resources Conservation at the Universidad del Valle. The municipality gave permission to install shallow, small-bore sewer pipes to reduce the investment costs to which the user community had to contribute. Self-help labour from households who connected also helped bring investment costs down. Staff from EMCALI and CINARA who wanted to develop expertise on doing projects with the urban poor, informed the households on design, costs, management and financing options and benefits. They explained that the more households joined, the lower the cost per household, and helped form community committees. They also visited each household, where they showed the male and female heads the different in-house options, such as a stand-alone toilet, a laundry basin, a toilet, washbasin and shower in a fully-equipped bathroom, or a separate toilet, bathroom and laundry basin, and their respective costs. They also explained that families can install the toilet and other amenity connections first and add amenities later when they have the funds. In this way, families could make and carry out a two, three, five or ten year household sanitation 'master plan'.

Source: *Marín de Jaramillo, 2006.*

4.5.2 Condominium sewerage

An even lower cost design is the condominium sewerage system. Invented by José Carlos Melo, a Brazilian sanitary engineer, it was used for the first time in 1982. The system uses a shorter grid than a conventional sewer network, and has narrower and shallower feeder sewers running through the backyards of the adjacent houses. At each connection to a house a simple inspection chamber is constructed. Each household agrees that the pipes run through their plot (and in steep locations run along the walls of the houses built above each other), and that they are responsible for unblocking their section of the pipes if a blockage occurs. At the end of each housing block, the sewers are connected to a sewer main, a communal septic tank or discharge system straight into waste ponds (IRC, 1996).

The condominium system is now the standard model for urban sewerage in all cities in Brazil (Lenton, 2005) and is applied widely in Latin America, but also in low-income urban neighbourhoods in Pakistan. Because of their simpler network, with pipes passing directly through the properties, the total pipe length and depth can be reduced. This lowers the investments costs considerably, and low income neighbourhoods, where a normal network would be physically and economically impossible to install, can be served. Home connection costs are further reduced by lower material costs due to the shorter distance of the toilet and water pipe to the sewer pipe. Each house has a manhole in the yard, allowing access to the pipes should any blockages occur. In most cases the whole neighbourhood takes part in the decisions on installing a condominium sewer through a condominium association, and accepts their responsibility to maintain the pipe in their yards. Giving households the choice to do all local construction work themselves under the supervision of the utility and paying only for the materials has increased the affordability of the service for the urban poor (Melo, 2005 and Box 33).

Box 33 Participatory approach brings down capital costs of sewerage services by 60%

In the city of Recife in Brazil the use of condominium sewerage planned, financed and operated with the local neighbourhoods brought the cost of installation down to 10-30% of the costs of a conventional sewerage service. Instead of the equivalent of US\$ 1,500, households paid between US\$ 150 and US\$ 500 to get a sewerage connection, depending on the distances covered. Overall, investment costs on sewerage were cut by 60%.

Source: IRC, 1996.

Large utilities have used the condominium approach to expand sanitation services to the urban poor. For instance, the local subsidiary of Suez-Lyonnais des Eaux was awarded a concession of 25 years to provide water and sanitation services in La Paz, Bolivia, on the condition that sewerage access in the poorest part of metropolitan area, with 1.4 million inhabitants, would go from the initial 35% to a final 90%, with progress to 83% in La Paz and 41% in El Alto in five years. To ensure targets were met, the utility implemented the condominium sanitation service model. The pace of construction of this type of service has been quicker, and costs have been lower than for conventional sewerage, and as such the local consumers have reported improved levels of satisfaction, hygiene and health. The use of community labour further reduced the construction costs by 40-50%. To finance their in-house toilet or bathroom, 75% of the poor households used savings or loans from relatives, while the

remaining 25% made use of the available credit facilities (Mathys, 2009). Remaining challenges are the too low tariffs and connection charges imposed on the operator by the regulator, for political reasons, for cost recovery (Colin and Lockwood, 2002).

Because of the lower capital required and recurrent costs of the condominium system, utilities are able to take bank loans for extending their sewerage services to larger portions of the cities, and pay the loans back through relatively modest sewerage surcharges on household water bills (Mara, 2009). To make the service more affordable and equitable, and to reflect the relatively lower waste water production of poor households, these surcharges can have an in-built cross-subsidy from better-off to poor households.

4.5.3 Primary line services with communities

The high cost of piped sewers and the problems with laying networks in dense urban areas with narrow streets, have led to new designs and financing of sewerage in such locations. One option that is now applied in most cities in Pakistan with poor urban neighbourhoods is the financing and installation of primary sewerage lines through collective action. Lane sewers are small pipelines that run under the paths (lanes) between the houses and to which the toilets are connected. They run to the end of the neighbourhoods where they are connected to collection sewers, the larger pipelines which run along the settlements. The trunk sewers are the large-diameter sewers which serve to collect the wastewater from entire sections of the city and which are too large and costly to install with community resources.

The system of community-built lane sewers that join the larger municipal network was first developed in Orangi, a poor part of Karachi, Pakistan, summarised in Box 34. It has since been expanded to 279 other neighbourhoods in Karachi and to 13 other cities in Pakistan.

Box 34 Primary sewers linked to the municipal sewerage network in Orangi (Karachi, Pakistan)

The first project was in Orangi, a low-income, informal area with 1.2 million residents in Karachi, Pakistan's largest city. In 1980, the Orangi Pilot Project (OPP) sought to develop new models for providing affordable sanitation services for the urban poor. The pilot project – a collaboration between the NGO, the local government and participating households – introduced community-managed sewers and drains in informal areas. Through the concept of 'component sharing', OPP envisaged for each street in Orangi to take responsibility over planning, installing, financing, and managing their respective lane sewers, this including mobilising household contributions to the required investment for installing household toilets and primary pipelines (for the disposal of the black and grey water). Local government contribution covered costs to extend the sewer lines and link them up with the city's network (unless a natural drain was available locally). The 'internal/external' system hinges on the ability of the neighbourhoods and local government to plan and manage infrastructure investments in poor areas that are affordable and sustainable, with help from an NGO as short-term facilitator, consultant and trainer. The success of the initial pilot attracted Water Aid, an international NGO, to help scale up the model from the mid 1990's by providing technical and managerial support, funding training sessions on topics such as community mobilisation, surveying, planning, cost estimation and construction of sewers, and on documentation of the work, and reporting, accounting and management. Since the first pilot, 13 efforts have been made by NGOs and CBOs to replicate the programme outside of Karachi. Of these, three have been very successful, four have failed, and the rest show some signs of success.

Several success factors can be gleaned from Orangi's experience to date:

- 1 The decentralisation of power and the devolution of funds in the National Devolution Plan of 2001 gave local governments the autonomy to plan and implement physical and social development projects, and empowered them to raise their own funds. This strengthened the enabling environment for communities to work with local government.
- 2 Neighbourhoods and local governments were supported by a skilled, locally based NGO/CBO with the ability to implement social mobilisation and technical aspects such as planning, costing, implementation and building community management capacities. In 12 of the 13 efforts, either OPP or Water Aid funded the local NGO/CBO's overhead costs. All the success stories involved early engagement of the local NGO/CBO with relevant local government agencies to promote component sharing.
- 3 Collaboration with local government results in tangible benefits: local government officials were empowered and provided with incentives to act, and voters were given support for community-led and managed schemes, while local government no longer needed to find external funding for sanitation.
- 4 The sewers were built based on full coverage of their investment costs by the joint user households, but care was taken that the charges necessary to cover these costs were low and affordable to the households.
- 5 Importantly, the OPP's focus on strengthening management and 'soft' skills within communities was perhaps more important than the finance mechanism itself.

The approach resulted in the installation of good quality sewers at a lower unit cost than solutions previously imposed by external agents, while household savings from reduced expenditure treating sicknesses have been estimated to exceed the investment cost. Key lessons are:

- 1 Local educated youth are effective participants and implementers of community mobilisation, surveying and drawing activities;
- 2 Small towns are better equipped in adopting the approach as they are less likely to have vested interests and assume supply-driven approaches; and
- 3 Planning must be transparent and creative, using visual representation that maps out connections and who is served, clearly articulates costs, and delineates agreed systems of cost-sharing.

Source: Trémolet, Cardone, da Silva and Fonseca, 2007; Welle and Wicken, 2009.

Application of the same partnership approach in the city of Faisalabad, Pakistan, gave a total investment cost for toilet, primary (lane) sewer and collector sewer equivalent to US\$ 40 per household, 60% lower than in similar, but conventional municipal sewerage projects. There was no household subsidy for hardware, but poor households could participate through an interest-free revolving fund financed by Water Aid. The lane committees stood guarantee for repayment and collected the loan payments; virtually all households have now paid off their loan (Haider, 2008). However, local politicians have been reluctant to give up sanitation subsidies (Box 35). These subsidies slow down financing of the overall network, but for the politicians the subsidies from public funds are one way to get more votes.

In 2006, the sewerage partnership approach was included in the national sanitation policy. Households, neighbourhoods, housing societies and investors from the private sector are expected to build and finance toilets, lane sewers and collection sewers in settlements with over 1000 people. Local and central government will build and finance the trunk sewers and sewage treatment plants.

Box 35 Cross-subsidies from the better off to the poor are politically unsustainable in Quetta, Pakistan

In the city of Quetta, Pakistan, the investment cost for a pour-flush toilet and lane sewer (without a collector sewer) for participating households was between US\$ 28-56 per household. The Dutch bilateral donor DGIS financed half the costs of the lane sewers. Households paid their agreed share of 50% based on the size of their land area/plot (in the front). Households whose members could not afford to make any payments (or could only make partial payments) benefitted from a cross-subsidy arrangement which obligated households with larger plots to pay higher rates for water use. Overall, 8% of all families benefitted from this internal cross-subsidy. However, the local politicians did not want to abolish the subsidy and have even planned to increase the sanitation subsidy to 75%. From their side, the lane inhabitants resented the fact that the municipality did not ask for any payment or labour from residents who live near the connector lines and whom the contractors have connected without payments, not even the 25% own contribution stipulated under the government subsidy programme.

Source: Qutub, Naseema, Khalid and Daanish, 2008.

4.5.4 City-managed decentralised sewerage

A further option is that poor neighbourhoods co-finance a decentralised on-site sewerage system, and then manage and finance local service delivery. The technology consists of a series of interconnected septic tanks or baffle reactors. The latter treat the water to a level which allows it to be discharged into drains or to be used for irrigation of non-food crops (Gutterer, Sasse, Panzerbieter and Reckerzugel, 2009). The collectors can be installed under the pavement of a local street which makes them suitable for use in congested urban settlements. Member households install a piped connection to the reactors with a grease trap at the point where the pipe leaves the house. The traps catch the solid materials and cooking fat that people often throw down their toilet or sink. These traps are then emptied by the households as needed. The connected households pay a small percentage (in Indonesia around 2%) of the investment costs and in principle all of the running cost.

The tariffs for both centralised and decentralised sewerage services can be flat, weighted by payment capacity and benefits and/or exempt the most disadvantaged. However, flat fees can be notably inequitable, if neighbourhoods have a mixed population of rich and poor as in the two photos below which were taken in the same neighbourhood. Both types of households pay the same flat, low connection fee and monthly tariff.



Flat connection fees and tariffs in a mixed neighbourhood in Denpasar, Indonesia, disproportionately benefit better-off households with high water discharge (Photo: Christine Sijbesma, IRC).

4.6 Financing the recurrent costs of sewerage services

4.6.1 *Weighted tariffs*

Because poor households generally produce less wastewater than those from wealthier areas, flat connection payments and tariffs are inequitable. Some utilities and CBOs therefore levy weighted charges, for instance as a percentage surcharge on a metered water consumption bill or use a fee that increases with the increasing size of the plot, the volume or building materials of the house, or the number of taps and toilets (and so amount of discharge).

4.6.2 *Social tariffs*

A common way to assist households that cannot pay the full tariff of the sewerage service is to charge a 'social tariff' for the poor. This means that the poor pay a lower fee than other consumers because of their lower production of wastewater (higher socio-economic strata generally use more water and dispose of more wastewater) and their lower payment capacity. The difference between the paid price and real price is then either financed through cross-subsidies from the higher tariff(s) or from public funds, or both.

In Chile, for example, poor families that cannot pay are eligible by law for a state-paid discount of 50% to 85% on their piped water supply and sewerage bill. The condition is that they have a 'social card' from the Municipality. About 10% of the utility's clients received the discount in 1994, which was valued at 2.5% of the total amount billed (Alfaro, 1997).

A variation on the social tariff is a 'social block tariff'. Under such a tariff, households which fall in the highest volume ranges, or blocks, of wastewater discharge, cross-subsidise the tariff of the households with the lowest block of waste water discharge. Adjustment of payment frequency and locations to facilitate tariff payments are the same as for the facilitation of the investment costs described above. The social block tariff system encourages less wastage of water than the social tariff, because it makes the polluters pay based on metered water delivery (and so waste water discharge). At the same time, the block tariff places extra burdens on poor families that are very large and/or use more water for their livelihoods, e.g. rickshaw and taxi drivers who wash their vehicles, small restaurant owners, and those who process and hawk food.

Neighbourhoods that run their own local sewerage network can use the same system of weighted tariffs. If the connections are not metered, they can base the higher tariff blocks on agreed indicators of higher consumption, such as a higher socio-economic status, a larger house, more taps and outlets per house, and/or more than one family per house.

Equitable tariffs are crucial for the sustainability of locally managed services and must be based on proper budgets and accepted by a quorum of household heads (preferably couples, with males and females each having their own vote). Equally important are transparent criteria and regular accountability to the user households (couples) for proper tariff collection, use, financial management and service delivery (Box 36).

Box 36 Mini-sewerage benefits the poor, but with how much equity and accountability?

Kusuma Banysa is a low-income, peri-urban community in northern Denpasar, on the island of Bali, Indonesia. It has a rough access road and vast open land where a number of large houses are under construction. Many families share their house with one to two immigrant families, usually on a monthly rental basis. In this region there is often no piped water supply, only private shallow wells. The families can participate in the annual development planning of the local municipality through a general assembly. These meetings are usually attended by the male heads of households. Women go only when their husband cannot go, or if there is no male head. One sanitation project chosen for development was a mini-sewerage service with baffle reactors.

The assembly selected its location and an all-male service management committee. Construction started in November 2004 with the system reaching operational capacity in February 2005. Sixty-seven houses are connected, serving 211 households. Of these, the community rated 5% as being well-off (according to local poverty criteria), 90% as moderately well-off and 5% as poor. Monthly incomes were IDR 1.55 million (about US\$ 167), IDR 500,000-1 million (US\$ 55-111) and IDR 400,000 (US\$ 44) respectively.

For service operation, the committee originally employed two operators at IDR 350,000 per month. Due to higher financial demands from the operators, the set up was scaled down to one operator. He is paid IDR 500,000 per month to maintain the system and collect the solid waste. His main maintenance work is to empty the grease filter and clean the pipes once a week. Each connected household pays IDR 5,000/month (IDR 2,000 for the sewerage and IDR 3,000 for solid waste collection). These payments have been enough to cover the budgeted monthly cost, the operator salary, electricity charges, minor repairs and monthly reservations for dislodging once every two years. According to the treasurer, social pressure ensures that everyone pays the agreed maximum, though at times the payments are up to three months overdue. The money is kept in a separate bank account and an accounts book is kept.

According to the information collected from these records, the monthly income is some IDR 1 million, given an average number of 200 user households. Expenditure has been IDR 500,000 per month, as so far there had been no other costs apart from the operator's fee. The system was emptied once, at the start of 2006, but the costs (IDR 500,000 for two truckloads) was paid by the NGO that helped establish the system, and not, as agreed, by the committee. Nevertheless, the account held only IDR 2 million, according to the treasurer.

Accountability for financial management was low. The committee simply states the amounts received and expended in a routine oral report to the community assembly that meets each month on all community affairs, and which some 80% of the male household heads attend. There is no annual budget and accounting for financial management, and the books are not audited by a user committee or any other third party. A housing estate is now planned in the community with 100 houses. The developer of the estate has approached the committee for connections, but no decision has been reached. The capacity of the system is sufficient for 300 households. The system is working well and has been shown to be technically, financially, environmentally and institutionally sustainable, but indications are that equity on gender and for the poor, and service management and accountability can be strengthened further for long-term sustainability and social justice.

Source: ISSDP, 2009.

4.6.3 *Linkage with commercial services*

Owners and exploiters of community sanitation blocks and simplified sewerage plants have also used other ways to generate cash for recurrent cost coverage, and sometimes, profit. Examples are:

- The hiring out of the walls for advertisements, and
- The attachment of a cafeteria to the facility which uses bio-gas from the toilets for cooking (SuSaNa, 2010).

In Yogyakarta, Indonesia, a low-income urban neighbourhood partly finances their simplified sewerage system by renting out the space over the underground baffle reactors, chairs and a small kitchen with system-fed bio-gas cookers for local events, such as parties (*personal observation*).

Data on the longer-term sustainability of neighbourhood sewerage systems – either separate or as part of larger city sewerage – are still quite scarce. The case of Quetta reported in Section 4.2 is an exception in that a study was carried out four years after completion. The service itself was still working well and its impacts were excellent, but part of the local infrastructure was slipping: only 56% of the manhole covers were still in place and only 72% of the lane sewers had fully functional grit interceptors to trap the solids that might otherwise block the sewers. With less demands on local management and no capacity building for post-construction management, institutional results had not been sustained either. Ninety-six percent of the female headed lane organisations had become dormant and 96% of the bank accounts created for the investment costs had been closed (Qutub, Naseema, Khalid and Daanish, 2008). A study of nine community-managed decentralised sewerage services using DEWATS technology showed insufficient technical and financial sustainability. The latter was related also to a too low economy of scale (Kerstens, Legowo and Hendra Gupta, 2011). No details on financing and recurrent cost coverage of condominium systems could be traced other than Bhatia (2004), who reported that the tariffs were too low to cover the costs of the pilot service in Brazil.

5 Promoting latrine ownership by the poor

5.1 City sanitation campaigns

Households with self-reliant toilet construction get their materials and skilled construction from the local private market. Like the households, these small entrepreneurs are not supported by anyone. They generally do not specifically promote sanitation and offer the materials, designs and building skills for a few common, and not always particularly low-cost, models. Usually, there are no market studies, no training, no adaptations to meet varying demands, no promotion and marketing of the different materials and models and no access to finance other than by direct cash payments. Those who can hardly spend anything use free and lowest-cost local materials, such as sticks, clay, bamboo, plastic and pieces of metal. Construction work is performed by them. Those who can spend more use more advanced designs and/or combine toilets with bathing, washing and laundry).

A first option for taking public responsibility is that city authorities raise demand for self-financed toilets through public media campaigns. An example comes from Indonesia where such campaigns are part of the national and city sanitation strategies. The national campaign uses a gender strategy of making the installation of a toilet with a sanitary platform the responsibility of the male head of the household, because they decide on investments, but have a lower interest in sanitation than their wives.

This option, promoting excreta containment through 100% self-financing of on-site sanitation, has a number of advantages:

- Applicability** Indonesia is an example of a country that uses a national campaign to promote self-financed urban household sanitation through the public media. Participating cities developed their own city campaigns using local media.
- Simplicity** The approach is relatively simple if the cities make the political decision to promote excreta containment and have adequate and available human and financial resources in their communication departments. A local media study is part of the city sanitation strategy development process.
- Pro-poor** Although the campaign promotes low-cost sanitation, it can not give all information and not all national and city media reach and convince poor women and men equally well. Hence, the media campaign is complemented by an interpersonal community-based approach in priority neighbourhoods (high risk communities) in poor parts of



Campaign poster in Indonesia promoting male responsibility over buying a sanitary toilet for his family (Photo: Christine Sijbesma)

the cities. Under the national urban decentralisation policy, these communities can formulate community improvement projects of which the costs would be shared between households, communities and municipality.

There are also, however, important disadvantages (limitations) of public promotion campaigns for private action:

- Sustainability** Entrepreneurs and customers may both go for choices that are in the longer run environmentally unsustainable, such as soak-pit toilets and septic tanks in areas without affordable and safe emptying and end-disposal services, or double-vault pour-flush composting toilets in high water table areas.
- Scale** While outreach via public media can be high, increase in toilet coverage may still be low, for instance if the campaigns do not reflect the sanitation triggers of the poor and do not adequately explain to men and women any cheaper, yet attractive options available to them. There are also problems if the local private sector does not provide the materials and services for these cheaper models. The private sector often does not cater for poor households because they are not aware that the size of the sanitation market of poor household compensates for the lower profit margins. Small businesses which already serve households in poor urban neighbourhoods e.g. by selling building materials, may also not be aware of the sanitation demand and do not have access to the required knowledge, skills and financing services to start a toilet line.
- Equity** Access is lower for the poor if both the campaign and the private supply sector do not target poor women and men and include information on lower-cost options by using gender-and class specific channels and materials for poor women and men.
- Pro-Poor** While campaigns may create demand amongst poor households and influence materials from entrepreneurs, lack of construction skills may still result in poor quality toilets. Businesses that cater for the poor may further cheat unknowledgeable customers with second-rate materials and construction, unless precautions are built in (Sijbesma, Mathew and Kurup, 2007).

Some countries, such as Burkina Faso, Ivory Coast and Indonesia, already have an urban sanitation strategy that includes campaigns for toilet promotion financed from national and municipal budgets. The costs of promotion are borne either from public finances or through a surcharge on the water, or water and sewerage tariff of the large (and so presumably more affluent) consumers (see e.g.Box 37 below) . So far there are no data on the costs of preparation and implementation, however. The strategies further promote the containment of human excreta, but do not yet address issues, costs and financing of emptying and end disposal.

Box 37 Financing toilet promotion through a surcharge on urban water bills in Burkina Faso

In 1994, ONEA, the National Water and Sanitation Office (Office National de L'Eau et de L' Assainissement) for urban water supply and sanitation in Burkina Faso created a separate sanitation fund. It was filled by surcharges on consumer bills. ONEA also developed a sanitation strategy for on-site sanitation and school latrines. It was first applied in the capital, Ouagadougou. Only the city centre has a network. Under the sanitation strategy, households finance their own toilets, while ONEA used the surcharge to pay for all the associated costs, such as training masons on how to build on-site toilets, provide supplies of suitable construction material to ensure quality standards, and carry out a sanitation promotion campaign and social mobilisation to generate demand. The scheme failed however, because the income from the charges disappeared in the utility's general income.

Ten years later the fund was revived and the money ring fenced. As before, the money is now used to stimulate toilet demand and encourage households to meet this demand with their own resources. However, if necessary, the poorest households can access a small capital subsidy to help them cover their costs of building a toilet or for connection to the network. The objective remains to minimise government funding of capital costs and to leverage household finance. The money is also used to finance all costs of hygiene education in schools and to construct school latrines, while parents pay for the maintenance. Where necessary, the poorest households can access a small capital subsidy to help them cover their costs of building a toilet or for connection to the network, but the objective is to minimise government funding of capital costs and to leverage household finance.

- 1 The surcharge is put on the water supply or the water supply and sewerage bills and is based on a few core principles.
- 2 The surcharge should not pose a burden to poor houses, nor prohibit access to water supply.
- 3 Drainage and solid waste management are not covered by the surcharge.
- 4 The level of the surcharge is linked to the amount of consumption of water.
- 5 Payment is assured because of ONEA's ability to suspend service for non-payment of bills.

To avoid burdening the poor, a two-tier billing system is in place, charging more from users who have sewer connections than those with lower-level alternatives, such as on-site sanitation.

In 2004, the bulk of the surcharge fund (81.5%) was generated from consumers with direct connections to the water distribution network. Hotels, industry and national government provided a combined 56% of the total fund. Some factors in ONEA's success appear to be that the surcharge is part of the consumers' water bills and ONEA has the capacity to manage the fund. By ring fencing the fund and ensuring autonomous management, ONEA was further able to ensure freedom from political interference and avoid 'mixing' these funds with its general accounts. According to a 2004 study, the recovery rate on the surcharge averaged 87% and ONEA spent 83% of its sanitation budget.

Source: Trémolet, Cardone, da Silva and Fonseca, 2007.

5.2 Campaigns for Urban Community-Led Total Sanitation (UCLTS)

A new approach spreading widely, with various adjustments, is to finance campaigns that focus not on toilet construction (outputs), but on an end to open defecation (outcome). Characteristic for the original design of the approach, no financing is allocated to subsidies for household toilets. The availability of subsidies, e.g. in the neighbouring area, actually has a distorting effect. Public finances go instead to the preparation and implementation of the campaign (training and fieldwork of the promoters) and to follow-up on achievement and sustainability of freedom from open defecation.

The promoters mobilise the communities with the help of visualised participatory techniques. The techniques stimulate every household to stop open defecation and promote that families build and use any type of human faeces containment that they can finance themselves, building toilets with whatever free and paid materials they can get.

Motivating forces to become open defecation free (ODF) are the raised awareness of the wide-spread practice of open defecation, disgust over bad smells, walking in excreta, disgust over faeces ending up in 'house and mouth' via the feet of people and animals, flies and the hands of people, shame about having to relieve oneself in public, and the lack of privacy and safety for daughters and wives.

Where urban CLTS campaigns have been waged, they show a very rapid expansion of sanitation in urban slum areas. In Kenya, Plan International in conjunction with IRC and other partners piloted UCLTS in Mathare 10, an urban slum in the city of Nairobi, Kenya. One year after its start, the improvement has been remarkable. Former open defecation areas are now market areas and vegetable gardens, households have built private toilets and Community Cleaning Services (a Community-based Organisation) operates a pay-and-use public eco-san sanitation facilities¹⁴. In India, where urban CLTS was piloted in 15 out of 52 slums in Kalyani, supported by local politician and leadership, it showed a much faster sanitation coverage and better use than under the traditional subsidy approach, especially in slums where no-one had built toilets. The approach was then scaled up to include all slums (Kar, 2006).

In Sumatra, Indonesia, the City Health Department of Payakumbuh waged a campaign with a poor peri-urban community, in which the female staff members from the local primary health centre were the initial facilitators. Within a short time local women took over as informal leaders. They visited all households to promote building their own toilets and within three months, all open defecation had stopped and almost all households had installed some type of toilet¹⁵. However, technical results varied, also because there was no sharing of expertise between households after the triggerering period (Box 38). In the UCLTS campaign in a low-income urban community in Zambia it was necessary to develop legal regulation to force landlords to build toilets when renting out housing (Giveson, 2010).

A variation of UCLTS is the training of community leaders to carry out a baseline study with home-observed risks from open defecation and unsanitary toilets. The training and monitoring carried out resulted in community leaders and householders becoming spontaneously involved in improving their own conditions. In less than six months, the results were encouraging: in a sample of those having poor sanitation facilities at the beginning of the monitoring activity, 79% had built a new latrine, upgraded an existing one, or significantly improved the cleanliness of the toilet, halving the overall proportion of unsafe toilets from 29% to 14% (Hawkins and Muximpua, n.d.). No statistics were found on the sustaining of ODF achievements and toilet hygiene in urban areas.

Urban CLTS has a number of advantages:

¹⁴ For more information, see: <http://www.communityledtotalsanitation.org/resource/piloting-clts-urban-setting-diary-progress-mathare-10-nairobi-kenya>

¹⁵ Read ISSDP Factsheet 7 at: <http://www.irc.nl/page/48754>

Applicability	The approach has been used in urban slums and very poor urban settlements that have space, or the socio-environmental conditions for shared toilets, willing political and local leadership, official or unofficial security of tenure, application of regulations for landlords not to rent out dwellings without toilets, and people are not kept from making their own investments by the promise of subsidies.
Simplicity	It is relatively simple if facilitation is done well and people are allowed to build their own types of latrines.
Sustainable	Building community capacity is more sustainable than giving individual household subsidies. The latter are often project or programme-bound and can never benefit all poor people. However, community capacities will also not be sustained if not periodically refreshed. Additionally, toilets built by households using their own resources ensure the sustained use of toilets because demand and need were felt by household members themselves.
Pro-poor	Municipal investments in training and support visits empower poor communities to clean their own environments and make them independent.

A number of challenges must also be addressed, however:

Applicability	There are no agreed minimum (environmental, sustainability and health) standards on what constitutes a sanitary toilet. The lowest cost models with low durability are more difficult to clean, along with all the gender implications for the work of women and the concurrent health hazards.
Sustainability	<p>(Financial and technical) Single pit models with a direct discharge (that is, with the slab and squatting hole directly over the pit with a lid or water seal closing off the excreta), demand less space and are cheaper than single and double pit off-set models (that is, where the pits are located behind the toilet pan and connected to it by a pipe). The direct models are more problematic with higher recurrent costs for pit-emptying later on¹⁶. Durability and overflow problems can lead to a return to open defecation.</p> <p>(Long-term/environmental) Authorities, households and the private sector are not always aware of long-term environmental and health risks and costs associated with pit/tank emptying and disposal. The cost of emptying can be high as shown in Chapter 4.</p>
Scalability	Evidence-based sustained application at scale over time is missing. Validation of outcomes and their sustainability over time on large numbers of urban communities remaining ODF are missing for urban locations.
Pro-poor	When comparing the financing of sewerage systems with the financing of on-site toilets, the latter cannot be called pro-poor as long as household with sewerage costs

¹⁶ For sample drawings of direct and off-set latrines, single pit and twin pit models, see <http://www.akvo.org/wiki/index.php/Portal:Sanitation>

have to finance a far lower proportion of the costs than households that participate in a UCLTS programme.

Equity Although some households can afford costlier options, a significant number of households is physically and/or financially unable to build sanitation facilities that meet a minimum standard (Kar, 2006). Learning and sharing/private sector services for low-cost toilets are needed to protect the poor from exposure to poor toilet infrastructure (e.g. cave-ins), to diseases linked to the transmission of faeces, and to contaminated (ground) water and soil. Often, there exists no structural approach towards mobilising community support for households with financial or physical constraints, including the elderly, the physically challenged and single mothers. While sporadic local support and solidarity may occur, they are not always institutionalised in planning and decision-making processes and in CLTS training.

Box 38 Post-triggering in urban CLTS needs sharing of community technical know-how for more equitable results

One limitation of the urban CLTS campaigning in Payakumbuh, in Sumatra, Indonesia was that after triggering, toilet building became the private responsibility of individual households. There were no measures to ensure sharing of technical know-how and skills between households. Hence some families built a durable toilet of adequate quality with a good off-set pit, a sanitary platform and longer-term plan to upgrade the temporary superstructure to a more permanent one, while others built temporary and unhygienic toilets that would wash away at the start of the monsoon.

Source: Own observation.

Under UCLTS and similar approaches, households and communities finance the capital and recurrent costs of containing excreta themselves, while the cost of building and sustaining community capacities for triggering and local management are financed from public funds.

So far there is a dire lack of data on the costs for such training, field facilitation and post-construction monitoring and support. Also lacking is how the municipalities and NGOs finance these costs at the start and in the long term. The only data found was from the (rural) NGO programme of VERC in Bangladesh. Here, the total overall support cost was GBP 8 or US\$ 16 per programme household in the year 2000, while the actual cost of the toilet infrastructure could be as little as US\$ 1.27 (Allan, 2003). VERC is co-financed by the Bangladesh country office of Water Aid, a British-based NGO. However, the data did not state if and to what extent Water Aid also financed the institutional costs of the UCLTS work. There is an urgent need for more insight into short and long term costs of UCLTS as well as its long-term financing and cost at scale.

5.3 Urban sanitation marketing

Public or NGO financed campaigns raise the private demand for toilets. The targeted groups are then expected to use their private resources to meet their demands. For this they may use freely available materials and their own skills, or call at cost on the local private sector. Sanitation marketing

approaches not only raise the demand¹⁷, but also strengthen the local private sector to meet the demand of particularly poor households by expanding services to include cheaper, but minimum standard technologies and designs, materials and construction. As with UCLTS, this is a different way of subsidisation, since public or NGO funds now go to the providers rather than the consumers.

There is an ongoing debate about whether it is better to subsidise demand (consumers) or supply (providers). Both strategies have their limitations: in broad terms, subsidising supply relates to adverse selection, that is, everyone can benefit from it, whether poor or not. Subsidising demand (households) entails high transaction costs. Also, ensuring that only the poor benefit requires good administrative processes to separate and serve the poor(est) households with fairness, transparency and public accountability. Moreover, there must be a system to monitor changes in poverty levels to allocate subsidies equitably over time.

To serve the poor equitably, subsidisation of *supply* involves improving especially low-cost technologies and designs, widening the range of choices and improving marketing and financing services so that the poorest households can afford simple but adequate toilets. Businesses also need to experience that it pays off to continue to improve their technical and financial services to poor households, and use different triggers and communication channels to reach and convince poor women and men. The case of Bangladesh is an example of how the private sector responded to a raised toilet demand of poor households country-wide (see Box 39).

Private sector supply has also been successful in villages and small towns in Cambodia and Vietnam, but with more sophisticated toilet models in response to the local demand for higher toilet standards also from poorer households (Rosenboom, et al., 2011, Sijbesma, Truong and Devine, 2010).

Box 39 Private sector responds to market for low-cost toilets in Bangladesh

In Bangladesh, self-financed toilet construction rose when external agencies supported the promotion, production and sale of affordable models. From the 1980s, the Department of Public Health Engineering (DPHE) and UNICEF Bangladesh financed a large number of sanitation shops and local production centres. At these outlets people bought low-cost and subsidised parts for self-construction. When the small private contractor saw that a market existed for low-cost sanitation, they began to produce stock and sell the parts as well, but at a lower cost. Thanks to lower prices and shorter transport distances, the private market enterprises became at least as popular as the subsidised outlets. Currently, there are some 3,000 government-sponsored centres and an estimated 44,000 private production centres and outlets plus a number of NGO sponsored centres. In reaction, the Public Health Engineering Department (PHED) and UNICEF now start new subsidised production and sales centres only in areas that lack a well-developed private sector. In some locations local enterprises can get support to promote and market their wares through signposts at their shops.

Source: Sijbesma, 2008.

These sector models were later replicated in rural areas in India (Government or NGO-supported production centres and shops) and in Cambodia and Vietnam (capacity building of the local private

¹⁷ The supporting organisations and/or supply sector organisations investigate the market, adjust or develop new products and services that the market wants and promotes their sale.

sector for marketing sanitation to the poor). The latter pilot projects have become an instant success, causing a rapid increase in households building and using their own toilets or bathrooms. However, the share of poor households in the Vietnam study area (9%) was lower than their overall share of 19% of the population. In addition the target areas were communities and small towns in rural areas and not the low-income communities of large cities (Sijbesma, Truong and Devine, 2010). Urban sanitation marketing pilot projects are being implemented in Africa: Kumasi (Ghana), Gitega (Burundi), Kampala (Uganda) and Dar es Salaam (Tanzania). The programme in Gitega, for example, has four components and includes loan schemes for households and small entrepreneurs (Box 40). The biggest hurdles to the programme are found in sustainably financing systems for micro- and meso-credit and strengthening of the skills of local service providers. Another issue was to overcome the expectation of toilet subsidies by the individual households (Obika, et al., 2002; Obika, 2004; Geyer, et al., 2011; Tumwebaze, 2011).

Box 40 A safe toilet for the price of two beers per month in Gitega, Burundi

In Gitega, the second largest city of Burundi, one part of a city-wide sanitation project is an urban sanitation marketing project for household latrines. This has four components:

- 1 Sensitisation and advocacy campaigns to enhance demand for improved sanitation and hygiene in collaboration with the Ministry of Health, neighbourhood committees and community leaders.
- 2 Promotion of the sanitation on offer through a sanitation park which doubles as the public toilets of the town hall with several hundred daily visitors. The showroom presents a broad range of technologies with different price levels for rich and poor including lowest cost techniques to upgrade existing pit latrines. 'Ecological' toilets are included in the options proposing the valorisation of sludge as manure to provide additional resource for agriculture and improved farm revenues.
- 3 Ancillary training of 50 professional masons in improved sanitary techniques including a contest for the best innovative approach to improve existing pit toilets (engineers are not eligible).
- 4 Implementation of a revolving micro-credit scheme for suppliers of construction materials and masons which is managed by a branch of a well-established national MFI targeting the needy.

A new toilet slab costs about US\$ 30. Second-hand slabs cost between US\$ 15 and US\$ 20 and the market price for a traditional 12 meter deep pit toilet is between US\$ 100 and US\$ 150. The slogan devised by local high school students to promote sanitary toilet slabs to the married male population is 'Two beers for a safe latrine'. This is equal to US\$ 2 and is also the amount of the monthly loan repayment for a sanitary toilet.

Source: Geyer et al., 2011

While promising, urban sanitation marketing requires expertise including know-how regarding developing and marketing solutions tailored to the demands of the target group. In the Autonomous Sanitation Programme for Peri-Urban Areas (*Programme d'Assainissement Autonome des Quartiers Péri-Urbains*) in Dakar, Senegal, the hardware cost per household served average US\$ 568 per household, unaffordable for the peri-urban and urban poor. The programme therefore offered a 50% subsidy for households in poor locations. However, in spite of a willingness-to-pay survey, promotion campaigns and a catalogue of options, household demand was so low that the programme raised the household sanitation subsidy to 75%. Besides a limited effectiveness, the high dependency on donor funding also makes the approach unsustainable in the long term and unsuitable to be scaled up to other parts of the city.

Equity is also questionable: firstly, the high costs combined with temporarily provided external funds have prevented equal access for all poor households. Secondly, the same households can get a subsidy for more than one toilet – the average was 1.6 subsidised facilities per household. In fact, it is doubtful if this programme can truly be called urban sanitation marketing, since it seems not to have included a full-fledged market assessment and development component (Trémolet, Perez and Kolsky, 2010).

An urban sanitation marketing project in Kampala, Uganda combines marketing of modular products (and therefore presumably much lower cost) for household sanitation and pay-and-use toilets. The project offers two types of financing (Box 41):

- Micro-credit schemes by the local institutions of the Foundation for International Community Assistance (FINCA) in Uganda and the Centenary Bank; and
- Revolving loan funds seeded by the German bilateral development agency GIZ and managed by the two NGOs that manage the supplies of materials and toilets.

Box 41 Urban sanitation marketing in Kampala: plastic products promoted and sold with credit options

In Kampala, Uganda, over 45% of the urban population lives in slums, which are also growing rapidly. GIZ, the Ministry of Water and Environment and Kampala City Council have implemented an urban sanitation marketing project in two slums together with two NGOs and two private producers. Crestanks and Poly Fibre produce a range of modular sanitation and hygiene products: basic squat and pedestal VIPs, Urine Diversion Dry Toilet UDDT slabs, complete panel/modular toilets, pit liners, septic tanks, domestic water tanks and hand washing units. The key design parameters included space economy, potential to relocate and reuse toilet slabs and structures (hence the name ‘mobile toilets/mobilets’) to meet the slum dweller life styles, incomes and needs.

Demand raising is done through public promotion campaigns with landlords and women entrepreneurs as special target groups, house-to-house marketing by community members and municipal enforcement of by-laws. People who want to buy improved household sanitation or build a public toilet to earn money, can take a loan through the micro credit schemes of the Ugandan branch of the Foundation for International Community Assistance (FINCA) and Centenary Bank or make a down payment to the NGOs selling the plastic products and pay off the remainder in three to six months. To start off, GIZ provided the NGOs with the first stock free of charge. Local grocery and household good shops have also started to stock and sell the producers’ products for an agreed commission. In addition to having a public toilet component, the project also trained local masons who have now expanded their services to non-modular toilets and to other locations.

The scaling up of the urban sanitation marketing model firstly takes place through integration in the new Improved Sanitation and Hygiene Strategy of the Ministry and secondly, an MoU of Crestanks for a sanitation product marketing campaign with the umbrella organisation of 16 private water operators in 80 Ugandan towns. Crestanks also used the knowledge gained to roll out its products marketing to the neighbouring country of Rwanda. The approach will be subjected to an independent study as part of the SPLASH research project.

Source: Nuwagaba, 2010.

5.3.1 *Poorest consumers need specially tailored marketing*

A limitation of sanitation marketing is that it caters first and foremost for those who have the money to install a toilet or can afford the risk of taking a loan. Focus group discussions with poor female and male heads of households during a study in Vietnam showed that the same marketing approach in terms of information on options, costs and financing, cannot serve all. The groups stressed that they did not want 'shit' toilets, but had problems financing the desired technology and design levels. They wanted, therefore, much more detailed information than the promoters and providers now gave. They wanted more information on ways to reduce and spread costs without jeopardising the quality and immediate accessibility of the toilets, as well as more detailed information about the different financing options and their advantages and disadvantages (Sijbesma, Truong and Devine, 2010). These wishes are now taken up in the training for the promoters and providers.

Any adoption of the innovations process is typically bell-shaped. At first demand is low and comes from a few pioneers and early adopters. If their experiences are positive, adoption increases sharply until it has absorbed the larger part of the market. Demand may then tail off, leaving those not willing or able to pay unserved (Box 42). At this stage, information and service strategies can be tailored more closely to the needs of those adopting less easily.

Box 42 One standard credit arrangement does not serve all: cases in Kumasi, Ghana and Santiago de Chile, Chile

The city of Kumasi, Ghana, has an urban strategy of encouraging households to build private Kumasi Ventilated Improved Pit (KVIP) toilets and to no longer rely on communal toilets. Interested households paid 50% of the total cost of construction, which was provided as credit, to be paid over a period of two years at an interest rate of 10%, whilst the assembly absorbed the remaining 50%. Between 1985 and 1995, when the project came to an end, over 200,000 household KVIPs had been constructed countrywide, increasing the urban sanitation coverage from 16% to 54%. More than 500,000 KVIPs were made available under Phase 2 but demand for the facility dropped considerably as most households could not afford the 50% contribution to the construction cost. In contrast, households in Santiago de Chile, the capital of Chile, can get a three, five or eight-year sanitation loan all with monthly repayments. Which loan they get depends on their degree of poverty and is based on the data of the city's social service.

Source: Osumanu, et al. 2010; Alfaro, 1997.

5.3.2 *Meso-credit to sanitation entrepreneurs*

An important element of urban sanitation marketing is the availability of credit opportunities for the providers. Here, this is called meso-credit to distinguish it from the micro-credit for consumers. MFIs can help the small sanitation service providers to finance their business and business improvements. Clients may be shops that sell sanitary wares along with construction materials or household goods, masons, small toilet construction enterprises, entrepreneurs and CBOs that build and run community sanitation blocks or toilet pit and septic tank emptying businesses, etc. Providing credit for sanitation services is not common, but GTI will finance a revolving fund for credit to sanitation entrepreneurs in Gitega, Burundi (Geyer, et al., 2011).

A special case of meso-credit is to individuals and groups who want to set up pay-and-use toilets in low-income neighbourhoods where individual or shared household toilets are not feasible. In Ghana, the authorities can contract such entrepreneurs but they must provide their own financing (Box 43).

Box 43 Informal private sector finances commercial sanitation blocks in Ghana

Although the government in Ghana now promotes household toilets, communal toilets continue to provide an important service to poor people in Ghanaian cities. Because of their needs for privacy and security, these paid toilets are mainly used by women, while men practice open defecation. Under a change in the law, municipalities can now give contracts to entrepreneurs to run paid communal toilets. Those who start such toilets get land either through an informal allowance or by buying land from private owners. They also get a piped water connection or buy water from water tankers. They raise the money to start their businesses through savings from activities such as farming, driving, food vending, etc., and in a few instances, through interest free loans from relatives and friends. However, unlike water vendors who occasionally benefit from micro-credit, no toilet operator has ever tried accessing credit.

Source: Osumanu, et al., 2010.

In Uganda, on the other hand, such entrepreneurs can get loans from two MFIs, a bank and a foundation. And after making a down payment, they can buy the materials from the suppliers with a three to six month, and presumably interest-free, loan (Box 44).

Box 44 Entrepreneurs in two Kampala slums can get two types of loans for establishing pay-and-use (eco) toilets

In Kampala, Uganda's capital, the local authorities, donors and NGOs have tried to improve the sanitation situation in slums through construction of highly subsidised public toilets. Most of these have been closed down due to lack of ownership and collective responsibility, with many people still practicing open defecation and the infamous 'flying toilets' in the night. Environmental conditions in these areas have remained appalling with occasional outbreaks of cholera and diarrhoea. As part of an urban sanitation marketing pilot project in two slums, those interested can now take loans from a bank, a private foundation or the providers to build a pay and use toilet and become an entrepreneur. Plastic modular parts are locally produced and include a urine diversion slab. In less than two years some of the new local sanitation entrepreneurs have already fully recovered their investment from revenues of between UGX 100 and UGX 200 (US\$ 0.04 to US\$ 0.08) per toilet visit as compared to UGX 300 (US\$ 0.10) charged before. The local entrepreneurs have continued to expand their business by adding showers and laundry services. One provider invested US\$ 1,000 in a toilet block of three toilets and one shower. He reports an average of 200 visitors per day that translates into a 350 Euro monthly income after offsetting the monthly operational cost of US\$ 130. This successful businessman has now acquired another piece of land for construction of additional toilets in an adjacent congested settlement. He is currently in negotiation with local roadside florists to supply them with urine from his toilets for fertiliser on commercial terms.

Source: Nuwagaba, 2010.

The advantages and limitations of providing meso-credit to city sanitation entrepreneurs are not yet well-known and seem to be case specific.

Applicability Since this is a new mechanism, there is little information on whether it works and if small entrepreneurs in the formal and informal sector can easily access and use credit for their sanitation business. It has not yet been applied at scale in urban areas and its sustainability and the conditions, therefore, are still unknown. Furthermore,

giving loans for communal toilet enterprises may be profitable from a business perspective (although this is not yet proven, see the cases of Sulabh and Trichy in section 3.4.6). However, these businesses have, in their current set up, not necessarily been effective in freeing the environment from contamination by open defecation (also applies to simplicity, scalability and sustainability criteria).

- Pro-poor** Sanitation block businesses are not pro-poor in the longer run, since over time poor people without toilets spend much more money on sanitation blocks than if they had installed a household toilet. Nor are such businesses equitable on gender, as poor women and girls are socio-culturally more obliged than poor men to use paid toilet services. Meso-credit may, however, make it easier for women's groups to start their own sanitation block business as was the case in Trichy, India (Box 21). Since women have the greatest demands for toilets, it will be valuable to give women in small family shops the possibility to open a line of sanitation goods.
- Equity** Same as above (See pro-poor).

6 Moving forward

The gains from improved urban sanitation for the poor are beyond doubt. While quantification of benefits is quite recent when compared to water supply, the work of Evans, Hutton and Haller (2004), Hutton, Haller and Bartram (2007), and Prüss-Üstün, Bos, Gore and Bartram (2008) show that much can be gained. The global shift from rural to urban settlement that has taken place at the turn of this century makes these gains vital. More funds must be spent on improving sanitation in cities and changes in purposes of spending made. However, much depends on what is financed and how.

This paper has given an overview of the many possibilities for more creative financing of urban sanitation for the poor. Currently, most financing is still being allocated to areas with already established services and to conventional technological and administrative systems. This approach will not allow meeting the sanitation target of the MDGs, nor moving beyond the target to serving the other half *and* adopting a full service cycle approach. To revise the current trend of an ever-growing sanitation backlog and ongoing open defecation at all points of the excreta management cycle, not only need all parties increase investments and re-evaluate how the funds are invested, but financing must become much more creative and cover the whole sanitation services cycle. This paper has given an overview of various options and analysed them for effectiveness, simplicity, scalability, sustainability, pro-poor nature and equity.

Self-financing has been, and still is the most common way for the poor to finance improved sanitation. Often the inherent (and greatest) drawback to this system is not the total amount required, but the initial one-off payment required. Micro-credit and loans are designed to ease this burden. While many illustrative examples exist regarding the general developmental impact of these types of financial arrangements, apart from Mehta (2003), sustainable and scalable macro- and micro-financing models for sanitation for the urban poor continue to be a largely under-researched area.

An alternative avenue for self-financing is to accept the poor's do-it-yourself toilets, built with free and lowest-cost materials, but with a minimal level of improvement such as a removable cement slab with a cover, as the first step up the sanitation ladder. UCLTS has opportunities in locations with space and social cohesion, but it has not yet been tried out at scale. Since households become reluctant to reinvest if the toilets are soiled with excreta and collapse, an arising challenge is sustainable UCLTS at scale with more durable and hygienic toilet models.

A private sector that investigates the potential improvements and recognises their market potential is indispensable to increasing the quality of life for those living without adequate and reliable sanitation facilities. Services for emptying, or programmes that allow upgrading to composting models to avoid the recurrent cost of emptying services, are in short supply. Urban sanitation marketing is a promising route which combines marketing of self-financeable models and financing mechanisms with developing the supply and financing options to meet the generated demand either with toilet subsidies or with smart subsidies. Marketing of household toilets for renters to landlords is another interesting development.

Although private sanitation facilities are most preferable, many poor urban areas lack the required space, housing ownership and legal status for individual household toilets. In such cases, shared facilities are the only solution. There is evidence that management of sanitation blocks by CBOs that run the service on a cost-covering basis works better in terms of service access, use and maintenance than public toilets without any management, or managed by commercial entrepreneurs or an NGO. However, the management options and operational advantages/ disadvantages have not yet been adequately investigated. It may well be that different types of urban communities require different services and service management models.

New technologies not only for individual households, but also for communal services provide treatment and opportunities for productive use of waste water and energy. These benefits alone should make urban governments develop policies of full-cycle community-managed sanitation blocks with 'self-financing where possible, and partial city subsidisation where needed', given that higher service levels also get subsidization in many cases. Urban sanitation policies are highly needed and should include clear development strategies and criteria for support.

Multiple numbers of smaller sanitation blocks in, or next to, the locations where the poor live make it easier to end open defecation. Close-by facilities give the easiest and safest access for women, the elderly, the disabled and young children with associated benefits for social and economic development, and health. At the same time small units have been shown to be more difficult to run on a sustainable basis. More research is therefore needed on the best trade-off between larger scale provisions for economy-of-scale versus closer facilities for ease of access and use.

A third main conclusion on types of services is that conventional piped sewerage systems, while technically and economically unfeasible as a general solution, can serve the lower income urban populations in their 'service catchment areas' when their development and management includes more creative financing and management systems. Small and community-managed simplified sewerage systems with waste water treatment offer an alternative to centralised sewerage especially when equity and accountability can be made part of their local sustainability.

In the light of the above, a number of steps can help to move forward in urban sanitation. These are discussed below.

6.1 City actions

City governments and departments could, as a first step, adopt policies for improved sanitation that recognise the rights of the poor and have explicit targets to reach them, with appropriate mixes affordable services and programmes. Recognition and protection of de-facto settlement rights is a crucial condition for the poor and the local private sector to invest in sanitation.

To implement the policies, cities will need to develop more creative strategies and plans for city-wide sustained sanitation coverage. Cities should inform poor women and men, and their organisations, about the range of options for toilets and toilet services, and the ranges of costs and options for financing, organisation and management. Important for sustainability is that communities are

assisted in installing the best option for their situation and have their capacities built for equitable operation, maintenance, management and financing.

Since donors prefer to work with larger proposals to achieve maximum impact, cities with similar sanitation challenges may consider uniting to develop and submit joint proposals that put to test urban sanitation programmes with more innovative financing approaches.

6.2 Actions by national governments

National governments will have to increase public resources and funding for investments in urban sanitation as a whole, and allocate a larger share to low-income populations than in current policies and programmes. National finances come mainly from income tax revenues as well as taxes on property, goods and trading (Evans, Hutton and Haller, 2004). However, an exception should be made for sales taxes, which should be reduced or abolished for basic sanitation and hygiene goods, such as latrine slabs, pans and ceramic and plastic toilet platforms, plastic hand washing reservoirs with taps, and low-cost soap.

Also important is that national governments adopt policies for gradually phasing out the current practice of high subsidies on sanitation investment and recurrent costs for middle and upper class sections of cities and towns.

Another important change of policy concerns the recognition of the environmental, economic and social burdens of 'postponed concentrated open defecation' that comes from unsanitary end disposal of faecal sludge from emptied pits and septic tanks and from water-based sewerage services. Such a policy could recognise that septic tank toilets are not the ideal model as ministries and consumers currently think. Urban sanitation policies, strategies and programs can combine measures of promotion and credit for the different types of full-cycle toilets and community managed decentralised sewerage with biological end treatment in different parts of cities.

With the assistance of other financial resources such as ODA and private investments, national governments can also encourage research and development for effective and sustainable financing models of household and communal sanitation systems with in-built treatment, along with lower costs, greater convenience and attractiveness and better technical performance. However, this is only attractive when changed policies create a market for such products and services.

National governments can further welcome demonstration projects to test the effects of strengthening the local private sector to provide affordable sanitation services to the poor and adjust national policies accordingly. Such strengthening can consist of increasing the awareness of the private entrepreneurs of the presence and size of the urban sanitation market and the gender nature of the demands (women are the entry to mobilising household demand; men are target groups for financial support). National governments can also encourage research and development to adjust technologies, designs, and national standards, rules and regulations to what the poor aspire to and can pay for, and facilitate micro- and meso-credit to enable poor providers to provide and poor consumers to consume.

6.3 Roles of bilateral donors and development banks

Bilateral donors and development banks can provide valuable support to a range of development initiatives, including but not limited to the following:

- Developing and testing sanitation marketing initiatives in low-income urban areas;
- Building and strengthening capacities of local entrepreneurs for sanitation services to the poor;
- Combining UCLTS with sanitation marketing programmes on low-cost models;
- Achieving an optimal mix between smaller self-sustained and larger, publicly subsidised, community-managed sanitation blocks in areas where individual or shared household toilets are not feasible; and
- Implementing sustainable services of pit emptying, composting and reusing contents.

Donors and development banks can also support relevant research endeavours and independent studies, such as:

- Assessing the performance and outcomes of sanitation-related savings-and-loan programmes and the implementation of large scale sanitation block programme;
- Elucidating how the owners of filled-up pits of large numbers of double-vault composting toilets practise pit emptying, safe-end disposal, and/or productive use of excreta; and
- Show-casing utilities with sustainable and effective pro-poor financing of sanitation.

6.4 Learning and sharing/knowledge management

The current trends of decentralised urban governance and financing enhance the opportunities for innovative forms of community and group-managed services. It would therefore be very valuable for resources to be made available for expansion and knowledge management of the financing of the complete excreta disposal chain. Learning alliances are one model of establishing multi-level, multi-partner learning on effective financing of the sanitation chain for the poor. Learning alliances are platforms at, for example, local, city and state level, in which stakeholders from the civic, governmental, non-governmental and private sectors meet to exchange experiences both horizontally and vertically, establish new ways of cooperation and pool resources to plan and implement problem-solving learning, such as local action research. Such alliances can bring together all the different partners dealing with the financing of the various parts of the sanitation chains.

One activity could be to develop a more comprehensive typology of sanitation services that covers the whole sanitation chain serving the urban poor – exclusively or as part of the overall population - under different physical, climatic, economic and socio-cultural conditions. Such a typology would also provide a basis for feedback on, and incorporation of, new lessons learned on financing the sanitation chains that provide or include services to the poor.

6.5 Specific sanitation statistics of the urban poor

Finally, it is recommended to have not only an index of urban sanitation by countries as published by UNDP and development banks, but also that the United Nations or the World Bank establish a separate sanitation index on services for the poor. Such an index would expand on the performances of cities and countries in reaching the urban poor with adequate sanitation.

Such an index would deal with more than just access, and include toilet use and hygiene and freedom from open end disposal. At present, the urban sanitation and water supply data does not give separate sanitation statistics and trends for the urban poor, and it is these communities who are either underserved or not served at all. The current available statistics are also not giving a clear idea of the end disposal of improved sanitation systems.

As part of such a sanitation index or indices, key actors at various levels could begin to score cities and countries on their performance in improving sustained access to improved sanitation, particularly for lowest and low-income households, and freeing the cities and their inhabitants from the scourge of unsanitary and often public human excreta disposal. A city index on the whole sanitation chain, with separate data on access and service delivery for the urban poor, would help to start fill this vacuum. It can showcase valuable examples, allow comparisons between cities and motivate more cities to enable the urban poor to access and climb the safe sanitation ladder, moving from the simplest improved toilet to higher quality facilities and service levels as their income levels and aspiration grow, with huge environmental, economic, social and political benefits (NWP, 2006; Potter, et al., 2011).

References

- Ahsan, T., Ryan, P. and Islam, S., 2008. Functionality and sustainability of community latrines under the Advancing Sustainable Environmental Health urban programme. In: Wicken, J., et al., eds., 2008. *Beyond construction: Use by all, A collection of case studies from sanitation and hygiene promotion practitioners in South Asia*. [online] Delft: IRC International Water and Sanitation Centre, London: WaterAid, Dhaka: BRAC. Available at: <<http://www.irc.nl/page/43966>> [Accessed 10 November 2011].
- Akanji, O.O., 2002. Micro-finance as a strategy for poverty reduction, *CBN Economic and Financial Review*, 39 (4). Available at: <<http://www.cenbank.org/OUT/PUBLICATIONS/EFR/RD/2002/EFRVOL39-4-1.PDF>> [Accessed 10 November 2011].
- Alfaro, R., 1997. *Linkages Between Municipalities and Utilities: an experience in overcoming urban poverty*. (Urban Environmental Sanitation Working Paper) WA DC: UNDP and Water and Sanitation Program of the World Bank.
- Allan, S., 2003. *The WaterAid Bangladesh/VERC 100% sanitation approach: cost, motivation and sustainability*. [online] London: London School of Hygiene and Tropical Medicine. Available at: <http://www.communityledtotalsanitation.org/sites/communityledtotalsanitation.org/files/CLTS_Allan.pdf> [Accessed 10 November 2011].
- Ayee, J. and Crook, R., 2003. 'Toilet wars': urban sanitation services and the politics of public-private partnerships in Ghana. (IDS Working Paper 213) [online] Brighton: University of Sussex, Institute of Development Studies. Available at: <<http://www2.ids.ac.uk/gdr/cfs/pdfs/wp213.pdf>> [Accessed 10 November 2011].
- Bereziat, E., 2009. *The market for mechanical pit-emptying in Dakar & the realities of engaging entrepreneurs*. (Engaging Sanitation Entrepreneurs) [online] London: BPD – Building Partnerships for Development. Available at: <http://www.bpdws.org/web/d/doc_237.pdf?statsHandlerDone=1> [Accessed 10 November 2011].
- Besley, T. and Coate, S., 1995. Group lending, repayment incentives and social collateral. *Journal of Development Economics*, 46 (1), pp. 1-18.
- Bhatia, R., 2004. *Community-managed sanitation services for the urban poor in Asia, Africa and Latin America: Constraints to scaling up of 'islands of success'*. [online] Oslo: Norwegian Ministry of the Environment. Available at: <http://docs.watsan.net/Downloaded_Files/PDF/Bhatia-2004-Community.pdf> [Accessed 10 November 2011].
- Black, M. and Fawcett, B., 2008. *The Last Taboo: Opening the Door on the Global Sanitation Crisis*. London: Earthscan.
- Borghi, J., Guinness, L., Ouedraogo, J. and Curtis, V., 2002. Is hygiene promotion cost-effective? A case study in Burkina Faso, *Tropical Medicine and International Health*, 7(11), pp. 960–69. Available at: <<http://onlinelibrary.wiley.com/doi/10.1046/j.1365-3156.2002.00954.x/full>> [Accessed 10 November 2011].
- Buckley, C. and Bhagwan, J. N., 2005. Challenges with VIPs and on-site systems. Presentation at the Sanitation Week Information Sharing 'O&M Experiences of On-Site Sanitation'. [online] Pretoria: Water Research Commission, eThekweni Municipality, KwaZulu-Natal University and Pollution Research Group. Available at: <<http://www.wrc.org.za/downloads/waterwheel/sep-oct%2008/supplement/05%20VIP%20p%2010-13.pdf>> [Accessed October 2011].
- Burra, S., Patel, S. and Kerr, T., 2003. Community-designed, built and managed toilet blocks in Indian cities, *Environment and Urbanization*, 15, p. 11-32. Available at: <<http://eau.sagepub.com/content/15/2/11>> [Accessed 5 November 2011].

-
- CHF-Co-operative Housing Foundation), 1993. Supporting Shelter and Community Improvements for Low-Income Families in Central America, *Environment and Urbanisation*, 5 (1), pp. 38-51.
- Cardone, R. and Fonseca, C., 2006. *Experiences with innovative financing: small town water supply and sanitation service delivery*. (Background paper for a UN-Habitat publication) [online] UN-HABITAT. Available at: <<http://www.irc.nl/page/30429>> [Accessed 12 November 2011].
- Chirruete, F. Norman, G. and Parker, S., 2011. *Financing communal toilets: the Tchemulane project in Maputo*. (Practice Note 2) [online] London: WSUP-Water and Sanitation for the Urban Poor. Available at: <http://docs.watsan.net/Downloaded_Files/PDF/Chirruete-2011-Financing.pdf> [Accessed 8 November 2011].
- Churchill C., ed., 2006. *Protecting the Poor: A microinsurance compendium*. [online] Geneva: ILO-International Labour Office. Available at: <http://mmublog.org/wp-content/files_mf/protectingthepoormicroinsurancecompendiumfullbook.pdf> [Accessed 12 November 2011].
- Colin, J. and Lockwood, H., 2002. *Making Innovation Work through Partnerships in Water and Sanitation Projects*. (Research and Surveys Series) [online] London: BPD-Business Partners for Development, Water and Sanitation Cluster (Revised July 2002). Available at: <http://docs.watsan.net/Downloaded_Files/PDF/Colin-2002-Making.pdf> [Accessed 12 November 2011].
- Collignon, B. and Vezina, M., 2000. *Independent water and sanitation providers in African cities: full report of a ten-country study*. (Working paper series) [online] WA DC: UNDP-World Bank Water and Sanitation Program and The World Bank and Delft: IRC International Water and Sanitation Centre. Available at: <<http://go.worldbank.org/560U6LA1W0>> [Accessed 5 November 2011].
- Cull, R., Demirgüç-Kunt, A. and Morduch, J., 2008. *Microfinance Meets the Market*. (Policy Research Working Paper 4630) [online] WA DC: The World Bank: Development Research Group, Finance and Private Sector Team. Available at: <<http://www.microfinancegateway.org/gm/document-1.9.31151/16.pdf>> [Accessed 5 November 2011].
- Deiningner, K. and Liu, Y., 2009. *Determinants of Repayment Performance in Indian Micro-Credit Groups*. Policy Research Working Paper 4885. [online] WA DC: World Bank. Available at: <http://www.wds.worldbank.org/external/default/WDSContentServer/IW3P/IB/2009/03/30/000158349_20090330104823/Rendered/PDF/WPS4885.pdf> [Accessed 11 November 2011].
- Eales, K., 2005. *Bringing pit emptying out of the darkness: A comparison of approaches in Durban, South Africa, and Kibera, Kenya*. (Sanitation Partnership Series) [online] London: BPD-Building Partnerships for Development (Published April 2005). Available at: <http://www.bpdws.org/web/d/doc_131.pdf?statsHandlerDone=1> [Accessed 10 November 2011].
- Etherton, D., 1980. *Water and sanitation in slums and shanty towns*. NY: UNICEF-United Nations' Children Fund.
- Evans, B., Hutton, G. and Haller, L., 2004. *Closing the Sanitation Gap: the Case for Better Public Funding of Sanitation and Hygiene*. (Background paper for Roundtable on Sustainable Development Meeting) [online] Paris: OECD-Organisation for Economic Co-operation and Development. Available at: <http://docs.watsan.net/Downloaded_Files/PDF/Evans-2004-Closing.pdf> [Accessed 12 November 2011].
- Evans, B. and Tremolet, S., 2009. Targeting the Poor with Facilities and Improved Services. . In: Köhn, D. and Pfeiffer, V, eds., 2010. *KfW Water Symposium 2009, Financing sanitation: improving hygiene awareness and sanitation*. [online] London: IWA Publishing. Available at: <http://www.kfw-entwicklungsbank.de/DE_Home/Sektoren/Wasser/PUBlicationIWA_final_1004.pdf> [Accessed 20 November 2011].

-
- Folkard, A., 2009. (unpublished) *Financing rural household water and sanitation. Study on Water and Sanitation Lending of the Vietnam Bank for Social Policy in support of RWSS NTPII*. Hanoi: Government of Vietnam.
- Geyer, N. et al., 2011. Key factors to improve area-wide urban sanitation – case study of Gitega, Burundi. In: Republic of Rwanda, Ministry of Health and IRC International Water and Sanitation Centre, *Practitioners' Workshop on Pro-Poor Urban Sanitation and Hygiene*. Kigali, Rwanda 29-31 March 2011. Available at: <<http://www.irc.nl/page/64583>> [Accessed 17 November 2011].
- Gutterer, B., Sasse, L., Panzerbieter, T. and Reckerzugel, T., eds., 2009. *Decentralised wastewater treatment systems (DEWATS) and sanitation in Developing Countries: a practical guide*. [online] Bremen: BORDA-Bremen Overseas Research and Development Association and Loughborough: WEDC-Water, Engineering and Development Centre. Available at: <http://www.borda-net.org/fileadmin/borda-net/news/downloads/DEWATS_Guidebook_small.pdf> [Accessed 10 November 2011].
- Haider, I., 2008. Development of community based sanitation infrastructure in Hasanpura, Faisalabad. In: Wicken, J., et al., eds., 2008. *Beyond construction: Use by all, A collection of case studies from sanitation and hygiene promotion practitioners in South Asia*. [online] Delft: IRC International Water and Sanitation Centre, London: WaterAid, Dhaka: BRAC. Available at: <<http://www.irc.nl/page/40450>> [Accessed 10 November 2011].
- Hanchett, S., Khan, M. H. and Akhter, S., 2001. *WaterAid Bangladesh Urban Evaluation*. Dhaka: WaterAid.
- Hawkins, P. and Muximpua, O. n.d. The potential role of local monitoring in changing sanitation behaviour: A case study in Nhlamankulo Urban District, Maputo, Mozambique. In Kigali: Ministry of Health, Rwanda et al., *East Africa Practitioners Workshop on Pro Poor Urban Sanitation and Hygiene*. Kigali, Rwanda 29-31 March 2011. Available at: <<http://www.irc.nl/page/64585>> [Accessed 10 November 2011].
- Hobson, J., 2000. Sustainable sanitation: experiences in Pune with a municipal-NGO-community, *Environment and Urbanization*, 12 (2), pp. 53-62. Available at: <<http://eau.sagepub.com/content/12/2/53.abstract>> [Accessed 10 November 2011].
- Hutton, G., Haller, L. and Bartram, J., 2007. *Economic and health effects of increasing coverage of low cost household drinking-water supply and sanitation interventions to countries off-track to meet MDG target 10*. Geneva: WHO-World Health Organization.
- Hutton, G., Galing, E., Rodriguez, U. and Weitz, A., 2011. *The Economic Returns on Sanitation Investments in the Philippines*. (Water and Sanitation Program: Research Brief) [online] WSP-Water and Sanitation Program (Published August 2011). Available at: <<http://www.wsp.org/wsp/sites/wsp.org/files/publications/wsp-philippines-economic-returns.pdf>> [Accessed 12 November 2011].
- IRC-IRC International Water and Sanitation Centre, 1996. *Best practices : water supply, sanitation and solid waste collection services in low income urban areas: short version summaries prepared by IRC and partners for the Habitat II conference*. [online] Delft: IRC International Water and Sanitation Centre. Available at: <http://docs.watsan.net/Downloaded_Files/Text/IRC-1996-Best.doc> [Accessed 10 November 2011].
- ISSDP-Indonesia Sanitation Sector Development Program, 2007. *National Communication Strategy for Urban Sanitation Indonesia*. (Working Note No. 4) Jakarta: ISSDP.
- ISSDP-Indonesia Sanitation Sector Development Program, 2009. *Capacity building for urban sanitation development*. (Background report II. Gender and poor inclusive approaches to urban sanitation planning and development) [online] Jakarta: ISSPD. Available at: <<http://www.washdoc.info/docsearch/title/175358>> [Accessed 12 November 2011].
- Kabir, M.S. and Huo, X., 2011. Advancement of Rural Poor Women through Small Entrepreneurship Development: The Case of Bangladesh, *International Journal of Business and Management*, 6 (9), pp. 134-40.

-
- Available at: <<http://ccsenet.org/journal/index.php/ijbm/article/download/12078/8557>> [Accessed 10 November 2011].
- Kamara, I., 2011. Effect of integrated social marketing on sanitation promotion in urban slum communities – case of three parishes in Kawempe division, Kampala (Uganda). In Kigali: Ministry of Health, Rwanda et al., *East Africa Practitioners Workshop on Pro Poor Urban Sanitation and Hygiene*. Kigali, Rwanda 29-31 March 2011. Available at: <<http://www.irc.nl/page/64587>> [Accessed 10 November 2011].
- Kar, K., 2006. *Community Led Total Sanitation in Slums of Kalyani Municipality under Kolkata Urban Services for the Poor (KUSP): Lessons Learnt and Outcome in Sharing Workshop on CLTS*. Kalyani, India 26 May 2006. [online] Community Led Total Sanitation. Available at: <<http://www.communityledtotalsanitation.org/resource/kalyani-clts-urban-context>> [Accessed 5 November 2011].
- Khataza, R., 2008. A \$0.14 toilet in a month: Financing urban eco-sanitation through group savings in Malawi. In: IRC International Water and Sanitation Centre *IRC Symposium Sanitation for the urban poor: Partnerships and governance*. Delft, The Netherlands 19-21 November 2008. Available at: <http://docs.watsan.net/Downloaded_Files/PDF/Khataza-2008-Toilet.pdf> [Accessed 5 November 2011].
- Komives, K. and Prokopy, L. S., 2000. *Cost Recovery in Partnership: Results, Attitudes, Lessons and Strategies*. (Research and Survey Series) [online] London: BPD Water and Sanitation Cluster. Available at: <http://www.bpd-waterandsanitation.org/bpd/web/d/doc_21.pdf?statsHandlerDone=1> [Accessed 10 November 2011].
- Kuria, D., 2006. Modern Mixtures for Public Dry Toilets: Concepts and Realities. In: Global Dry Toilet Association of Finland, Tampere Polytechnic University of Applied Sciences and Tampere University of Technology, *The 2nd International Dry Toilet Conference*. Tampere, Finland, 16 -19 August.2006. Tampere: Global Dry Toilet Association of Finland.
- Kurian, C.O., n.d. *Community latrines as a viable option: Anjengo Pay and Use Toilet (APUL) for women in Kerala, India*. Thiruvananthapuram: SEUF-Socio-Economic Unit Foundation.
- Kurup, K., et al., 1996. The community-managed sanitation programme in Kerala: Learning from experience. (Project and Programme Papers 4E) [online] The Hague: IRC International Water and Sanitation Centre and DGIS-Directorate-General for International Cooperation and DANIDA-Danish International Development Agency . Available at: <<http://www.irc.nl/page/1869>> [Accessed 8 November 2011].
- Larbi, E., 1990. *Resource mobilization for community-based sanitation projects. Draft report of a literature search*. [online] The Hague: IRC International Water and Sanitation Centre. Available at: <http://docs.watsan.net/Scanned_PDF_Files/Class_Code_3_Sanitation/302.8-90RE-9826.pdf> [Accessed 8 November 2011].
- Lenton, R., 2005. *Water and Sanitation for the Unserved Poor*. [online] NY: UNDP Cooperation South. Available at: <<http://ssc.undp.org/uploads/media/4Roberto-Lenton.pdf>> [Accessed 8 November 2011].
- Lüthi, C., McConville, J. and Kvarnström, E., 2010. Community-based approaches for addressing the urban sanitation challenges, *International Journal of Urban Sustainable Development*, 1 (1-2), pp.49-63. Available at: <<http://www.tandfonline.com/doi/abs/10.1080/19463131003654764#preview>> [Accessed 8 November 2011].
- Magoya, J., 2011. *Transforming sanitation problems in peri-urban areas in Blantyre*. [online] Denver: Water for People. Available at: <<http://www.waterforpeople.org/media-center/in-the-media/sanitation-problems-malawi.html>> [Accessed 10 November 2011].
-

-
- Mara, D., 2009. Sanitation in low-income urban areas: technical options and financial arrangements. In: Köhn, D. and Pfeiffer, V, eds., 2010. *KfW Water Symposium 2009, Financing sanitation: improving hygiene awareness and sanitation*. [online] London: IWA Publishing. Available at: <http://www.kfw-entwicklungsbank.de/DE_Home/Sektoren/Wasser/PUBlicationIWA_final_1004.pdf> [Accessed 20 November 2011].
- Marín de Jaramillo, M., 2006. Experiencia de la comunidad de Altos de Menga en el establecimiento de sistemas de alcantarillado simplificado con enfoque de género en sectores peri-urbanos de Santiago de Cali en Colombia. In: World Water Forum, *Fourth World Water Forum*. Mexico City, Mexico, 16-22 March 2006.
- Mathew, K., Suma, Z. and Joseph, R., 2008. Preventing corruption, encouraging transparency and accountability in the water and sanitation sectors- a case study from Kerala, India. In: Wicken, J., et al., eds., 2008. *Beyond construction: Use by all, A collection of case studies from sanitation and hygiene promotion practitioners in South Asia*. [online] Delft: IRC International Water and Sanitation Centre, London: WaterAid, Dhaka: BRAC. Available at: <<http://www.irc.nl/page/43966>> [Accessed 10 November 2011].
- Mathys, A., 2009. Annex: From no basic sanitation to condominal sewerage: The Example of El Alto (Bolivia). In: Köhn, D. and Pfeiffer, V, eds., 2010. *KfW Water Symposium 2009, Financing sanitation: improving hygiene awareness and sanitation*. [online] London: IWA Publishing. Available at: <http://www.kfw-entwicklungsbank.de/DE_Home/Sektoren/Wasser/PUBlicationIWA_final_1004.pdf> [Accessed 20 November 2011].
- Mehta, M., 2003. *Meeting the financing challenge for water supply and sanitation, incentives to promote reforms, leverage resources, and improve targeting*. WA DC: WSP-Water and Sanitation Program of the World Bank. Available at: <<http://www.washdoc.info/docsearch/title/124537>> [Accessed 7 November 2011].
- Melo, J.C., 2005. *The Experience of Condominal Water and Sewerage Systems in Brazil: Case studies from Brasilia, Salvador and Parauapebas*. Lima: WSP-Water and Sanitation Program of the World Bank. Available at: <<http://siteresources.worldbank.org/INTWSS/Resources/CondominalWater-84.pdf>> [Accessed 7 November 2011].
- Mikhael, G. and Scott, R., 2011. *Manual emptying of faecal sludge in freetown, Sierra Leone*. [video] Loughborough: WEDC- Water, Engineering and Development Centre. Available at: <<http://www.youtube.com/watch?v=zFbfW0TjFxc>> [Accessed 7 November 2011].
- Mohanty, P.K., 2003. *Housing for the poor in India*. (Working Paper 4) Hyderabad: CGG-Centre for Good Governance (Published June 2003). Available at: <<http://www.cgg.gov.in/pdfs/WP-4-PKM-Housing for the Poor.pdf>> [Accessed 10 November 2011].
- Morgan, J., 1999. A dirty business - income generation in Kampala, *Waterlines* 18, (2), pp. 10-3.
- Muller, M. S. and Rijnsburger, J., 1992. *MAPET: A neighbourhood based pit emptying service with locally manufactured handpump equipment in Dar es Salaam, Tanzania. Final report 1988 – 1992*. [online] Gouda: WASTE Consultants. Available at: <http://www.sswm.info/sites/default/files/reference_attachments/Muller%20and%20Rijnsburger%201992%20Mapet.pdf> [Accessed 8 November 2011].
- Muller, M.S., 1997. *The collection of household excreta: The Operation of Services in Urban Low-income Neighbourhoods*. (Urban Waste Series 6) [online] Gouda: WASTE and Klong Luang: Asian Institute of Technology, Environmental Systems Information Center (ENSIC). Available at: <http://docs.watsan.net/Downloaded_Files/PDF/Waste-1997-Collection.pdf> [Accessed 8 November 2011].
- Muller, M. and Kirango, J., 1996. Manual pit latrine emptying technology in Dar es Salaam, Tanzania: service and equipment. (Case study by WASTE and IRC for HABITAT II). Available at: <<http://www.washdoc.info/docsearch/title/173855>> [Accessed 10 November 2011].

-
- Murray, J. and Rosenberg, R., 2006. Community-managed loan funds: which ones work?, *Small Enterprise Development*, 17 (3), pp. 13-27.
- NWP-Netherlands Water Partnership, 2006. *Smart Sanitation Solutions: Examples of innovative, low-cost technologies for toilets, collection, transportation, treatment and use of sanitation products*. [online] The Hague: Netherlands Water Partnership. Available at: <<http://www.irc.nl/page/28448>> [Accessed 8 November 2011].
- Napitupulu, L. and Hutton, G., 2008. *Economic impacts of sanitation in Indonesia*. [online] Jakarta: Water and Sanitation Program of the World Bank. Available at: <http://www.wsp.org/UserFiles/file/esi_indonesia.pdf> [Accessed 8 November 2011].
- Natty, M. B., 2011. Costs of Sanitation for the Urban Poor - Dar es Salaam perspective. In: Republic of Rwanda, Ministry of Health and IRC International Water and Sanitation Centre, *Practitioners' Workshop on Pro-Poor Urban Sanitation and Hygiene*. Kigali, Rwanda 29-31 March 2011. Available at: <<http://www.irc.nl/page/64592>> [Accessed 18 November 2011].
- Nuwagaba, F., 2011. Leveraging impact at scale through innovative financing for slum sanitation: PPPs, microcredit schemes and local entrepreneurship concept for slum sanitation in Uganda. In: Republic of Rwanda, Ministry of Health and IRC International Water and Sanitation Centre, *Practitioners' Workshop on Pro-Poor Urban Sanitation and Hygiene*. Kigali, Rwanda 29-31 March 2011. Available at: <<http://www.irfc.nl/page/64594>> [Accessed 18 November 2011].
- Obika, A. et al., 2002. *Social marketing for Urban Sanitation: Review of evidence and inception report* (revised edition). Loughborough: WEDC- Water, Engineering and Development Centre, Loughborough University of Technology. Available at: <http://wedc.lboro.ac.uk/docs/research/WEJX9/Inception_report.pdf> [Accessed 18 November 2011].
- Obika, A.E.U., 2004. *Social marketing for urban sanitation: Report of a 3-day regional workshop*. [online] Loughborough: WEDC- Water, Engineering and Development Centre. Available at: <<http://collections.europarchive.org/tna/20100423085708/http://research4development.info/PDF/Outputs/Water/R7819b.pdf>> [Accessed 18 November 2011].
- Ondieki, T. and Mbegera, M., 2009. *Impact assessment report on the PeePoo bag, Silanga village, Kibera, Nairobi*. [online] Stockholm: Peepoople AB. Available at: <<http://www.peepoople.com/pdf/Peepoo.Impact.Assessment.Report.pdf>> [Accessed 10 November 2011].
- Osumanu, L., et al., 2010. *Urban water and sanitation in Ghana: How local action is making a difference*. (Human Settlements Working Paper Series Water and Sanitation 25) [online]. London: IIED-International Institute for Environment and Development. Available at: <<http://pubs.iied.org/pdfs/10586IIED.pdf>> [Accessed 10 November 2011].
- Parkinson, J. and Quader, M., 2008. The challenge of servicing on-site sanitation in dense urban areas: Experiences from a pilot project in Dhaka, *Waterlines*, 27 (2), pp. 149-63.
- Potter, A. et al., 2011. *Assessing sanitation service levels* (WASHCost Working Paper 3, 2nd ed.) [online] The Hague: IRC International Water and Sanitation Centre (Published July 2011). Available at: <<http://www.washcost.info/page/902>> [Accessed 12 September 2011].
- Prüss-Üstün, A., Bos R., Gore F. and Bartram J., 2008. *Safer water, better health: Costs, benefits and sustainability of interventions to protect and promote health*. [online] Geneva: WHO-World Health Organization. Available at: <http://whqlibdoc.who.int/publications/2008/9789241596435_eng.pdf> [Accessed 10 November 2011].

-
- Qutub, S. A., Naseema S., Khalid, S. and Daanish A., 2008. Subsidy and sustainability in urban sanitation: The case of Quetta Katchi Abadis Environment Management Programme 1997 – 2003. In: Wicken, J., et al., eds., 2008. *Beyond construction: Use by all, A collection of case studies from sanitation and hygiene promotion practitioners in South Asia*. [online] Delft: IRC International Water and Sanitation Centre, London: WaterAid, Dhaka: BRAC. Available at: <<http://www.irc.nl/page/40469>> [Accessed 10 November 2011].
- Rashid, H.U. and Ryan, P., 2007. (unpublished) *Sludge Emptying, Transport, Treatment: Can Vacu-tug solve the downstream sanitation problems of Dhaka?*. Dhaka: DSK-Dushtha Shasthya Kendra, London: WaterAid and The Hague: IRC International Water and Sanitation Centre.
- Reep, M. van de, 2010. A Costs Analysis of Hygiene Promotion Interventions in Mozambique. In: IRC International Water and Sanitation Centre, *IRC Symposium, Pumps, pipes and promises: costs, finances and accountability for sustainable WASH services*. The Hague, The Netherlands, 16-18 November 2011. Available at: <<http://www.irc.nl/page/55895>> [Accessed 8 November 2011].
- Rosenboom, J. et al., 2011. Sanitation marketing in Cambodia. *Waterlines*, 30 (1). Available at: <http://www.ethosindia.in/othercompetitions/images/Solution_No_061.pdf> [Accessed 8 November 2011].
- Socio-Economic Units of the Kerala Water Authority, 1991. *The bacterial quality of water in selected wells in Kerala: an investigation*. (Research report 6) [online] Trivandrum: Kerala Water Authority, Socio-Economic Units of the Kerala Water Authority. Available at: <http://docs.watsan.net/Scanned_PDF_Files/Class_Code_8_Countries/822-91-9022.pdf> [Accessed 8 November 2011].
- Saywell, D. and Fonseca, C., 2006. *Microfinance for Sanitation*. (WELL factsheet) [online] Loughborough: WELL/WEDC- Water, Engineering and Development Centre, Loughborough University of Technology. Available at: <<http://www.lboro.ac.uk/well/resources/fact-sheets/fact-sheets-htm/mcfs.htm>> [Accessed 8 November 2011].
- Scott, R. and Sansom, K., 2006. Supporting non-state providers (NSPs) in sanitation service delivery. (WELL Task 2765) Loughborough: WEDC - Water, Engineering and Development Centre, London: LSHTM-London School of Hygiene and Tropical Medicine, and Delft: IRC International Water and Sanitation Centre (Published May 2006). Available at: <<http://info.lut.ac.uk/well/resources/well-studies/full-reports-pdf/task2765i.pdf>> [Accessed 20 November 2011].
- Schaub-Jones, D., 2006a. *Sanitation Partnerships: Dar es Salaam Case Study*. (BPD Sanitation Series) [online] London: Building Partnerships for Development. Available at: <http://www.bpdws.org/web/d/doc_117.pdf?statsHandlerDone=1> [Accessed 8 November 2011].
- Schaub-Jones, D., 2006b. *Sanitation Partnerships: Maputo Case Study*. London: Building Partnerships for Development.
- Sharma, M. and Zeller, M., 1997. Repayment performance in group-based credit programs in Bangladesh: an empirical analysis, *World Development*, 25(10), pp. 1731-42.
- Sijbesma, C. 2008. Sanitation and hygiene in South Asia: Progress and challenges. In: Wicken, J., et al., eds., 2008. *Beyond construction: Use by all, A collection of case studies from sanitation and hygiene promotion practitioners in South Asia*. [online] Delft: IRC International Water and Sanitation Centre, London: WaterAid, Dhaka: BRAC. Available at: <<http://www.irc.nl/page/40597>> [Accessed 10 November 2011].
- Sijbesma, C., 1981. *Participation and education in community water supply and sanitation programmes. A literature review*. [online] The Hague: IRC International Water and Sanitation Centre. Available at: <http://docs.watsan.net/Scanned_PDF_Files/Class_Code_2_Water/205.1-81PA-6106.pdf> [Accessed 10 November 2011].

-
- Sijbesma, C., Suma M. and K. Balachandra Kurup, 2007. Preventing corruption in sanitation: A case from Kerala, India. Washington DC: World Bank Institute.
- Sijbesma, C., Truong Xuan Truong, and Devine, J., 2010. *Case Study on Sustainability of Rural Sanitation Marketing in Vietnam*. (Technical Paper: Global Scaling Up Sanitation Project) [online] WA DC: WSP-Water and Sanitation Program of the World Bank. Available at: <http://www.wsp.org/wsp/sites/wsp.org/files/publications/WSP_SustainabilityCaseStudy_ExecSum_TSSM.pdf> [Accessed 10 November 2011].
- Riek, C. and Onyango, P., 2010. *Public toilet with biogas plant and water kiosk in Naivasha, Kenya*. (Case study of sustainable sanitation projects) [online] Munich: SuSaNa-Sustainable Sanitation Alliance. Available at: <<http://www.susana.org/images/documents/06-case-studies/en-susana-cs-kenya-naivasha-biogas-public-toilet-2009.pdf>> [Accessed 10 November 2011].
- Tran, T.D. n.d. *Analysis of the informal credit sector in Vietnam*. Canberra, National Centre for Development Studies, Australian National University. [online] Kobe: GDRC – The Global Development Research Centre. Available at: <http://www.gdrc.org/icm/viet-dat_tran.html> [Accessed 12 November 2011].
- Trémolet, S., Cardone, R., da Silva, C. and Fonseca, C., 2007. Innovations in Financing Urban Water & Sanitation. In: Rockefeller Foundation Centre for Sustainable Urban Development of Colombia University, *Global Urban Summit: Financing Shelter, Water and Sanitation*. Bellagio, Italy 1-6 July 2007. Available at: <http://docs.watsan.net/Downloaded_Files/PDF/Tremolet-2007-Innovations.pdf> [Accessed 10 November 2011].
- Trémolet, S., Evans, B. and Schaub-Jones, D., 2010. Output-Based Aid for Sustainable Sanitation. OBA Working Paper Series Paper No. 10. Global Partnership on Output-Based Aid. Available at: <http://www.wsp.org/wsp/sites/wsp.org/files/publications/OBA_Sanitation_Framework.pdf> [Accessed 10 November 2011]
- Trémolet, S., Perez, E. and Kolsky, P., 2010. Financing on-site sanitation for the poor: A six country comparative review and analysis. Washington DC: Water and Sanitation Program. Available at: <<http://www.washdoc.info/docsearch/title/169048>> [Accessed 10 November 2011].
- Tumwebaze, T.K., 2011. Effect of integrated social marketing on sanitation promotion in urban slum communities – case of three parishes in Kawempe division, Kampala. In: IRC International Water and Sanitation Centre, *IRC Symposium, Sanitation for the urban poor: partnerships and governance*. Delft, The Netherlands, 19-21 November 2008. Available at: <<http://www.irc.nl/page/46159>> [Accessed 10 November 2011].
- UNICEF-United Nations' Children Foundation, 2002. *Learning from experience: Water and environmental sanitation in India*. [online] NY: UNICEF. Available at: <http://www.unicef.org/publications/index_4405.html> [Accessed 10 November 2011].
- UNFPA-United Nations Population Fund, 2011. *Linking population, poverty and development. Urbanisation: a Majority of Cities*. [online] Available at: <<http://www.unfpa.org/pds/urbanization.htm>> [Accessed 24 November 2011].
- UN-Habitat, 2006. *State of the world's cities 2006/7: The millenium development goals and urban sustainability*. London: Earthscan.
- Vijayendra, T., 1980. (unpublished) *Sulabh Shauchalaya Sansthan, A Socially Relevant Small Scale Industry*. New Delhi: Public Enterprises Centre for Continuing Education.

-
- WASHCost, 2011. Applying the life-cycle cost approach to sanitation: 11 key messages from Burkina Faso, Ghana and Mozambique. In: Republic of Rwanda, Ministry of Health and IRC International Water and Sanitation Centre, *Practitioners' Workshop on Pro-Poor Urban Sanitation and Hygiene*. Kigali, Rwanda 29-31 March 2011. Available at: <<http://www.washcost.info/page/1438>> [Accessed 18 November 2011].
- WSSCC-Water Supply and Sanitation Collaborative Council, 2005. *Sanitation and hygiene promotion: Programming guidance*. [online] Geneva: Water Supply and Sanitation Collaborative Council and WA DC: WHO-World Health Organization. Available at: <http://www.who.int/water_sanitation_health/hygiene/sanhygpromo.pdf> [Accessed 18 November 2011].
- WaterAid, 2008. *Community-Municipal Corporation-NGO partnership for city-wide pro-poor slums' infrastructure improvement: Policy recommendations for community-managed toilets, bathing and washing complexes in urban slums*. New Delhi: WaterAid.
- Waterfield, C. and Duval, A. 1996. *CARE savings and credit sourcebook*. NY: Pact Publications and CARE International.
- Wegelin, M., 1997. *Operation and Maintenance of Sanitation Systems in Urban Low-Income Areas in India and Thailand. Report on a joint research programme, 1989-1993*. (IRC Project and Programme Papers 6E) [online] Delft: IRC International Water and Sanitation Centre. Available at: <http://docs.watsan.net/Downloaded_Files/PDF/Wegelin-Schuringa-1997-Operation.pdf> [Accessed 18 November 2011].
- Welle, K. and Wicken, J., 2008. Mapping as a basis for sanitation implementation in Pakistan: the case of the Orangi Pilot Project. In: Wicken, J., et al., eds., 2008. *Beyond construction: Use by all, A collection of case studies from sanitation and hygiene promotion practitioners in South Asia*. [online] Delft: IRC International Water and Sanitation Centre, London: WaterAid, Dhaka: BRAC. Available at: <<http://www.irc.nl/page/40473>> [Accessed 10 November 2011].
- Wheaton, A., Jachnow, A. and Münch, E. von, 2009. *Results of a medium-scale trial of single-use, self-sanitising toilet bags in poor urban settlements in Bangladesh*. [online] Dhaka: GTZ Deutsche Gesellschaft für Internationale Zusammenarbeit. Available at: <<http://www.susana.org/lang-en/library?view=cckbtypeitem&type=2&id=1125>> [Accessed 10 November 2011].
- Giveson, Z., 2010. *Urban CLTS in Zambia: the case of Chome and Lusaka*. [online] Community-Led Total Sanitation. Available at: <<http://www.communityledtotalsanitation.org/resource/urban-clts-zambia>> [Accessed 10 November 2011].

Glossary

ArborLoo: A composting toilet with a detachable slab. The slab is placed over a new pit when an old pit is filled up. The old pit is then covered with soil to allow its contents to disintegrate. To complete the composting process, a tree is planted in the old pit, or the compost is removed and used as fertilizer elsewhere.

Collateral: Property or goods, which a loan taker gives as payment to cover the value (in full or partial) of a debt that s/he is unable to pay back within the agreed period.

Community-Led Total Sanitation: A global initiative developed and implemented in Bangladesh, the Community-Led Total Sanitation Programme aims to improve sanitation and hygiene conditions of participating communities, making them open-defecation free (ODF).

Condominium sewerage: A system that makes use of narrower and shallower feeder sewers; a condominium sewerage has a shorter grid when compared to conventional sewer networks. The feeder pipes and manholes are situated in house backyards to eliminate blockages.

Concession: A service contract granted by a municipality to a commercial/private company to run a water supply and/or sewerage service for a specified time period. Selection often takes place through an open and competitive bidding process.

Devolution: A fund management arrangement wherein higher level government delegates financial resources and management authority to a lower or the lowest level of government

Flat tariff, subsidy: A tariff or grant arrangement (in cash or kind) that is equally distributed to everyone regardless of individual contexts. The opposite of a flat tariff or subsidy is a weighed tariff or subsidy.

Gulper: A small suction pump mounted on a transport devise and used to empty latrine pits into a barrel (or any type of similar container), allowing the transport and final disposal or treatment of excreta.

Joint Monitoring Programme: A programme initiated by UNICEF and WHO, the Joint Monitoring Programme monitors national and international progress linked to MDG7: *halving the number of people without access to safe water and sanitation by 2015.*

Life-Cycle Services Approach: A services delivery approach that covers all stages of the human excreta management cycle, from defecation to end treatment and productive use.

Micro-credit: Development loans extended by a bank or other financial institutions to facilitate the poor's access to, among other things, basic services at commercial or low interest rates. For the purpose of this TOP, micro-credit is further differentiated from meso-credit. The former refers to small loans extended to households, while the latter refers to small loans extended to local formal and informal sanitation enterprises.

Micro-Finance: Organisations such as cooperatives, social development banks, commercial banks, savings and credit unions, and NGOs, which give very small loans (micro-credit) to households (micro-credit) and entrepreneurs (meso-credit).

Micro-insurance: An insurance scheme designed to benefit the poor, by giving them the right to seek refunding for costs linked to disease, death or damage to/loss of houses in exchange for small scheduled payments.

Micro-guarantee: An agreement between a debtor and an organisation, person or group, whereby the latter assumes the responsibility of paying or fulfilling the former's debts or obligations in the event that s/he fails to repay a loan in full, or partially.

Open Defecation Free: A condition that is achieved when the practice of adults and children defecating on open ground and/or in water is completely eradicated.

Output-Based Aid: Output Based Aid ties the disbursement of public funding (in the form of grants) to the achievement of clearly specified results that directly support the overall goal, such as improved access to sanitation. Payments are typically provided to the suppliers after evidence of achieved results has been provided.

Peepoo bags: Bio-degradable, eco-friendly plastic defecation bags that rapidly disintegrate when buried in soil.

Pour-Flush Toilets: Toilets which are connected to a soak pit or septic tank via a toilet pan, fitted with a water-seal to contain odour of bodily waste. As their name indicates, pour-flush toilets are flushed manually, for example, with the use of a small pitcher filled with water.

Revolving Fund: A financial arrangement established and agreed upon amongst households, enterprises, communities and/or municipalities to finance loans for investment costs. A revolving fund is most effective when loan repayments are made on time and when sufficient interest is obtained to cover administrative costs and inflation. This enables new lenders to take out loans and keeps the fund revolving.

Sanitation block: Communal toilet facilities, typically with additional provisions for other sanitary and hygienic practices, such as handwashing, showering and sometimes the washing of clothes.

Sanitation ladder: A ladder that visually represents the variations in today's human excreta and wastewater disposal conditions. As households climb the ladder, they move to 'higher' forms of excreta disposal facilities and services. Depending on the type of sanitation ladder 'higher' can denote more convenient or environmentally safer forms of sanitation.

SanPlat toilet: A concave (curved) sanitary platform made from ferro-cement, moulded in metal, with a key-hole shaped squatting hole located in its centre. When not in use, a SanPlat toilet must be closed with a cover to avoid flies, and consequently, the spread of faecal-oral diseases.

Scavenger: Pertains to individuals who are paid to manually remove (and move) excreta from toilets to containers and a disposal site, often in waste land or in a local watercourse.

Social block tariff: A financing arrangement for piped sewerage services whereby households with the highest range(s) of wastewater discharge, pay higher tariffs, thereby cross-subsidising the tariff of households with lower volume ranges (or ‘blocks’) of waste water discharge.

Ultra-poor: Refers to the households that form the lowest 5% to 10% layer of the population segment that national governments classify as being ‘below the national poverty line’ of a specific country.

Urine Diversion Toilet: Also known as a dry toilet, a UDT is designed to have a separate outlet for urine and a double vault for the composting of human faeces. Diverting the urine away from the faeces eliminates the odour and speeds up the composting process.

Vacuum truck: A tanker which removes sludge from latrine pits and septic tanks by suction. When full, the truck empties the tank in a sewer, at a sewage treatment plant or in the environment, such as a river or a ravine.

Vacu-tug: Mini-emptiers for toilet pits and septic tanks that consist of a vacuum pump mounted on a small pushcart or on a trailer attached to a vehicle.

VIP toilet: Developed by Professor Albert Wright from Kumasi University in Ghana, the VIP toilet is a simple pit toilet with a screened vent pipe connected to the pit to eliminate odour, and trap and exterminate flies in order to help eliminate or reduce incidences of faecal-oral diseases.

WASHCost: An IRC five-year action research project that investigates the costs of providing water, sanitation and hygiene services to selected rural and peri-urban communities. The project collects and disaggregates cost data over the full life-cycle of WASH services in order to better understand the cost drivers behind equitable service delivery.

Weighed tariff, subsidy: A tariff or grant arrangement (in cash or kind) that is distributed based on the differential benefits and capacities to pay of the households participating in the scheme. Weighed subsidies and tariffs are typically designed to benefit individuals who are most in need, e.g. ultra-poor.

Resources¹⁸

General literature and materials available

Black, M. and Fawcett, B., 2008. *The last taboo: Opening the door on the global sanitation crisis*. London: Earthscan.

In this book, the authors demonstrate that taboos about bodily functions have deterred action in addressing excretion. The authors argue for the need to overcome an individual's distaste of human excrement as an imperative step forward in meeting the challenges of the global sanitation crisis. Narrating community-led efforts to clean neighbourhoods, the book explains how sanitation can serve as an entry point in facilitating child rights, gender equity and social justice. They also call for a sanitary revolution – similar to the kind that transformed public health conditions in Great Britain in the 19th century.

Borba, M., Smet, J. and Sijbesma, C., 2007. Enhancing livelihoods through sanitation. (Thematic Overview Paper 19) [online] Delft: IRC International Water and Sanitation Centre (Published May 2007). Available at: <<http://www.irc.nl/page/36080>> [Accessed 20 October 2011].

This TOP draws linkages between the empowerment of men, women and children in urban and rural areas and improved sanitation, health and physical fitness as a means of enhancing economic productivity. The paper is based on the notion that the poor are sanitation consumers, producers and workers, and therefore must be empowered as decision makers, allowing them to determine ways in how to adequately finance sanitation in their private domains.

Hicks, L., Mehta, M. and Mehta, D., 2008. *Think local, act local: effective financing of local governments to provide water and sanitation services*. [online] London: Water Aid. Available at: http://www.wateraid.org/documents/think_local_act_local_report.pdf [Accessed 20 October 2011].

Municipal and rural local governments typically allocate US\$6 per person per year in an attempt to measure and plan for water and sanitation services provision. Based on case studies conducted in 12 countries, this paper explains the challenges linked to the effective implementation of decentralisation. The paper concludes with a list of actions for policymakers at national and local levels.

Locussol, A.R. and Fall, M., 2009. Guiding principles for successful reforms of urban water supply and sanitation sectors. (Water Working Notes 19) [online] WA DC: World Bank. Available at <http://web.worldbank.org/external/projects/main?menuPK=51521804&pagePK=51351007&piPK=64675967&theSitePK=40941&menuPK=64154159&searchMenuPK=51521793&theSitePK=40941&entityID=000334955_20090204021237&searchMenuPK=51521793&theSitePK=40941> [Accessed 18 November 2011].

This report describes how services managed by official water supply and sanitation service (WSS) providers can be improved in communities where there is limited WSS coverage and/or where WSS is seen to fail. The report analyses data published by the Joint Monitoring Programme of the UNICEF and WHO and reviews indicators developed by the International Benchmarking Network for Water and

¹⁸ Description of most entries in this section is excerpted from corresponding websites and/or online materials viewed in pdf.

Sanitation Utilities (IBNET). It introduces a methodology for assessing the accountability framework of urban WSS sectors to inform attempts to design and implement reforms in the WSS sector.

McGranahan, G. and Satterthwaite, D., 2006. *Governance and getting the private sector to provide better water and sanitation services to the urban poor.* (Human Settlement Discussion Paper Series, Theme: Water-2) [online] London: IIED-International Institute for Environment and Development. Available at: <<http://pubs.iied.org/pdfs/10528IIED.pdf>> [Accessed 18 November 2011].

Municipal governance is traditionally bureaucratic, expert-driven, sectorally-divided and biased towards the affluent. This paper builds a case for a more open and transparent, inclusive and communicative, integrated and coherent, equitable and ethical governance approach to better serve the poor. It takes issue with trade practices introduced by the General Agreement on Trade in Services (GATS) of the World Trade Organization (WTO) that favour foreign competition and interests at the expense of national enterprise. The paper concludes with a plea for increased participation by the poor in decision making, and the need to develop a more equitable and just water and sanitation service.

OECD/DAC. *DAC Reference Manual on Urban Environmental Policy.* [online] Paris: OECD. Available at: <<http://www.oecd.org/dataoecd/29/7/31621883.pdf>> [Accessed 15 November 2011].

With the aim of stimulating balanced socio-economic development in urban centres, peri-urban areas and surrounding regions, this manual draws attention to the need to achieve a balance between cost recovery and demands for equity in financing development initiatives. Based on documented case studies, which obtained (almost) full cost recovery through the implementation of innovative and cost-effective approaches, this paper offers insight into how the gap between both positions may be bridged.

Public World and Freshwater Action Network, 2007. *Scoping study: dialogue between the World Bank and civil society organisations about urban water and sanitation: final report.* [online] London: FAN-Fresh Action Network and PW-Public World. Available at: <http://siteresources.worldbank.org/EXTWAT/Resources/4602122-1210008549997/WB-CSO_Scoping_Study_English.pdf> [Accessed 15 November 2011].

Reporting on the outcomes of preliminary research findings, discussion and debates from the World Bank's Water Week workshop held in Washington, D.C. in February 2007, this paper captures discussions linked to strengthening dialogue on urban water supply and sanitation between the World Bank and civil society organisations. The report details potential themes and modes for dialogue at global, regional and national levels.

Robinson, M., 2007. Does decentralisation improve equity and efficiency in public service provision?, *IDS Bulletin* 38 (1), pp. 7-17, Abstract only. Available through Eldis id21 Archive at: <<http://www.eldis.org/id21ext/s8bmr1g3.html>> [Accessed 10 November 2011].

In this essay contribution, the author presents findings on the effectiveness of decentralisation processes in establishing equity and making public service provision more efficient based on studies in Latin America, Sub-Saharan Africa and South Asia. Overall findings point out that: a) the poor and the socially marginalised have not, in general, benefited from improved access to public services; b) the quality of public services has generally not improved, and the gaps between wealthier and poorer areas are widening; c) while there have been gains in efficiency through financial decentralisation, resources

continue to be inadequate; and d) political and institutional conditions have a significant impact on decentralisation outcomes and user satisfaction.

Specific studies

Ayee, J., and Crook, R., 2003. *Toilet wars: urban sanitation services and the politics of public-private partnerships in Ghana*. (IDS Working Paper 213) [online] Brighton: University of Sussex, Institute of Development Studies. Available at: <<http://www2.ids.ac.uk/gdr/cfs/pdfs/wp213.pdf>> [Accessed 23 November 2011].

This paper examines the new forms of urban environmental sanitation partnerships arising between public authorities and private-and citizen-based organisations in the two largest cities in Ghana: Accra and Kumasi. It traces the history of public toilet policies in both cities and analyses the factors that contribute to their relative failure in poor neighbourhoods. The paper attributes the failure of public-private partnerships to factors like poor management, the politics of patronage and failure of regulation, suggesting a number of measures to mitigate these.

Berna, I. V., 2006. India: From alienation to an empowered community - applying a gender mainstreaming approach to a sanitation project, Tamil Nadu. In: UN Office of the Special Adviser on Gender Issues and Advancement of Women, *Gender, water and sanitation: Case studies on best practices*. New York: United Nations, Department of Economic and Social Affairs, Office of the Special Adviser on Gender Issues and Advancement of Women. Available at: <http://www.un.org/esa/sustdev/sdissues/water/casestudies_bestpractices.pdf> [Accessed 16 November 2011].

This paper reports on the outcomes of a women's empowerment project to improve sanitation conditions in six community sanitation blocks in Tiruchirapalli and Tamil Nadu, India. Constructed by the municipal corporation before April 1999, the sanitation blocks are now reported unserviceable due to poor municipal maintenance. The paper highlights the main obstacles in realising improved sanitation and hygiene and offers insights into how these may be overcome, such as women's empowerment through education and training; the involvement of men; eliminating domestic violence; facilitating the emergence of community management and the financing of recurrent costs of the toilets; and developing equal partnerships amongst the municipality, NGOs and communities.

Brocklehurst, C., 2007. *Citizens' report card on urban water, sanitation and solid waste services in Kenya: summary of results from Nairobi, Kisumu and Mombasa*. [online] Nairobi: Water and Sanitation Programme and Republic of Kenya Ministry of Water. Available at: <http://docs.watsan.net/Downloaded_Files/PDF/Kenya%20Min%20of%20Water-2007-Citizens.pdf> [Accessed 11 November 2011].

This report summarises the experiences and findings of the Citizen's Report Card (CRC) on water, sanitation and solid waste services in three of Kenya's largest cities. With a focus on sanitation services, Chapters 3 and 4 highlight problems faced in sanitation and solid waste management respectively, reporting on community satisfaction rates.

Burra, S., Patel, S. and Kerr, T., 2003. Community-designed, built and managed toilet blocks in Indian cities, *Environment and Urbanisation* [online] 15 (2) pp. 11-32. Available at: <<http://eau.sagepub.com/content/15/2/11.full.pdf>> [Accessed 10 November 2011].

In this report, the authors describe a successful ten-year programme in India – supported by the NGO SPARC – Society for the Promotion of Area Resource Centres – which implemented community-designed, built and managed toilet blocks for hundreds of thousands of urban poor dwellers. Demonstrating how such provisions are affordable and manageable for all cities in India, the paper highlights the capacity and competence of urban pro-poor organisations in helping change the landscape of poor sanitation and hygiene in slum residences.

Colin, J., 2002. *The National Sanitation Programme in Mozambique: Pioneering Peri-Urban Sanitation*. [online] Nairobi: WSP-SEA. Available at: <http://www.sulabhenvi.in/admin/upload/pdf_upload/af_bg_moz.pdf> [Accessed 10 November 2011].

Between 1985 and 1998, Mozambique's national sanitation programme produced over 230,000 toilet slabs, benefiting over 1.3 million people in a country that emerged from decades of civil war. Gaining international recognition for its pioneering peri-urban sanitation programme (at a large scale), its innovative use of a derivative of the 'Sanplat' (sanitary platform), and its replication worldwide, the paper reports on a backlash in the late 1990s owing to the programme's extreme reliance on high, externally-funded subsidies. This paper documents the experience in Mozambique and makes an argument for the need to pay equal attention towards promoting sanitation and hygiene practices to reduce dependency on externally-funded subsidies.

Collignon, B. and Vezina, M., 2000. *Independent Water and Sanitation Providers in African Cities: Full Report of a Ten Country Study* Washington: Water and Sanitation Program. [online] WA DC: Water and Sanitation Program of the World Bank. Available at: <<http://go.worldbank.org/560U6LA1W0>> [Accessed 21 November 2011].

Based on ten country studies in Africa, the report shows that a vibrant and independent water and sanitation sector of small entrepreneurs can competently respond to market niches and help meet the needs of both the poor and underserved. The study provides an overview of the types of sanitation services delivered by independent providers; discusses how the sanitation market works in facilitating cooperation and competition; and points its readers to the advantages and constraints experienced by private water and sanitation entrepreneurs.

Hall, D., Lobina, E., Viero, O. and Malz, H., 2002. *Water in Porto Alegre Brazil: Available, effective, sustainable and democratic*. [online] London: University of Greenwich and Porto Alegre: DMAE. Available at: <<http://www.psiru.org/reports/2002-08-W-dmae.pdf>> [Accessed 21 November 2011].

This paper describes the water supply and sanitation system established by Porto Alegre's city utility DMAE (Municipal Department of Water and Sewerage), which combines low-cost financing options with cost recovery, and the provisioning of a subsidised tariff for the poor (referred to as social tariff). Innovative forms of management are discussed, including a free customer service hotline focused on improving water supply and sanitation service.

Geyer, N. et al., 2011. Key factors to improve area-wide urban sanitation – case study of Gitega, Burundi. In: Republic of Rwanda, Ministry of Health and IRC International Water and Sanitation Centre, *Practitioners' Workshop on Pro-Poor Urban Sanitation and Hygiene*. Kigali, Rwanda 29-31 March 2011. Available at: <<http://www.irc.nl/page/64583>> [Accessed 18 November 2011].

This paper reports on a demand-oriented sanitation project launched in 2010 in Gitega, with support from the German government. The project aimed to rehabilitate sensitive public sanitation infrastructure facilities through the creation of a sanitation market, capacity building initiatives, and sensitisation and advocacy campaigns.

ISSDP – Indonesia Sanitation Strategy Development Program, 2009. *Background report II: Gender and poor inclusive approaches to urban sanitation planning and development*. (Capacity Building for Urban Sanitation Development) [online] Jakarta: Indonesia Sanitation Sector Development Program. Available at: <<http://www.washdoc.info/docsearch/title/175358>> [Accessed 24 November 2011].

The ISSDP report is a cross-cutting report that examines sanitation and hygiene conditions in selected Indonesian cities. Background II of this report unpacks gender and economic inequalities in selected cities and offers tools considered helpful in mainstreaming gender in research work, policy and practice.

Komives, K. and Prokopy, L. S., 2000. *Cost Recovery in Partnership: Results, Attitudes, Lessons and Strategies*. (Research and Survey Series) [online] London: BPD Water and Sanitation Cluster. Available at: <http://www.bpd-waterandsanitation.org/bpd/web/d/doc_21.pdf?statsHandlerDone=1> [Accessed 10 November 2011].

This report contributes to the growing literature of cost recovery through an examination of experiences in eight BPD projects (and in-country partnerships). The paper elucidates country-specific cost recovery challenges, goals and strategies meant to inform future project financing modalities.

Mwanza, D., 2000. Water and Sanitation Services to the Urban Poor. In: WEDC-Water, Engineering and Development Centre, *27th WEDC Conference: People and systems for water, sanitation and health*. Lusaka, Zambia August 2001. Available at: <<http://wedc.lboro.ac.uk/resources/conference/27/Mwanza2.pdf>> [Accessed 21 November 2011].

This paper summarises the outcomes of nine water and sanitation utility case studies spearheaded by the Water Utility Partnership for Capacity Building in Africa programme (Ethiopia, Ghana, Ivory Coast, Malawi, Mali, Nigeria, Senegal, Tanzania and Zambia). It documents the common constraints faced by all utilities in-country (public, private or parastatal) and features a selection of good practices for replication.

Ockelford, J., 2000. *Tri-Sector Partnerships Beyond those of Participating Groups in the BPD Cluster*. (Research and Survey Series) [online] London: BPD-Business Partners for Development (Published October 2000). Available at: <http://www.bpd-waterandsanitation.org/bpd/web/d/doc_98.pdf?statsHandlerDone=1> [Accessed 21 November 2011].

This report explores different types of tri-partite partnerships (formal private sector, government and civil society - poor communities and NGOs) outside the scope of BPD's work. In this study, three tri-partite partnerships on urban sanitation (in Angola, Colombia and Jamaica) are examined to inform partnership strategies in BPD.

Robertson, K., 2008. A \$0.14 toilet in a month: Financing urban eco-sanitation through group savings in Malawi. In: IRC International Water and Sanitation Centre, *IRC Symposium, Sanitation for the urban poor: partnerships and governance*. Delft, The Netherlands 19-21 November 2008. Available at: <<http://www.irc.nl/page/46163>> [Accessed 10 November 2011].

This paper reports on progress made by the Centre for Community Organisation and Development (CCOD) in championing a self-sustaining loan-financed urban sanitation programme. Using a combination of entrepreneurship principles, cost-sharing approaches, and network memberships, the paper examines CCOD's work in Malawi, a country that currently faces serious challenges associated with the rapid growth of urban slums and informal settlements.

Savina, A. and Kolsky, K., 2004. *Mobilizing Resources for Sanitation*. (WSP Field Note 31325) [online] Nairobi: WSP-Water and Sanitation Program-Africa (Published August 2004). Available at: <<http://go.worldbank.org/0QM8E39WV0>> [Accessed 24 November 2011].

Facilitating and sustaining investments toward urban sanitation remain a global challenge. This paper documents the experience of Burkina Faso in implementing a policy that introduced a sanitation service levy on all water bills. The paper concludes with valuable lessons on innovative financing modalities that may help countries develop similar sanitation investment approaches.

Saywell, D., 1996. Observations from Mozambique. In: WEDC-Water, Engineering and Development Centre, *22nd WEDC Conference, Reaching the unreached: challenges for the 21st century*. New Delhi, India 9-13 September 1996. Available at: <http://www.wedc-knowledge.org/wedcopac/opacreq.dll/fullInf?Search_link=AAAA:8913:19578545> [Accessed 20 November 2011].

In this paper, the author describes a government sanitation programme that promoted the installation and use of a thin, circular, unreinforced dome-shaped slab (with a removable lid cast) toilet in Mozambique in the latter part of the 1970s. Based on fieldwork conducted in several districts in Maputo and Quelimane, the paper reveals that despite high satisfaction rates with the technology, the technology is now reported to be at threat owing to its high dependency on external donor support (59.9%), with government and user contribution only accounting for 29.5% and 10.5% of total costs respectively.

Schaub-Jones, D., 2006. *Sanitation Partnerships: Can partnership make a difference to the urban sanitation challenge?*. (BPD Sanitation Series) [online] London: BPD-Building Partnerships for Development (February 2006). Available at: <<http://www.bvsde.paho.org/bvsacd/cd32/schaub1.pdf>> [Accessed 10 November 2011].

This note highlights the general and context-specific challenges in strengthening partnerships on sanitation for the urban poor found in five different countries in Africa. In this note, the author highlights the impact of selected issues – such as land ownership; wide segmentation of sanitation service chain (with different actors); payment and subsidy arrangements for infrastructure, maintenance and disposal, and frequency of water supply breakdowns – on the success of partnerships, and consequently, a project's development goals.

Trémolet, S., Kolsky, P. and Perez, E., 2010. *Financing on-site sanitation for the poor: a six country comparative review and analysis*. (WSP Sanitation Programme Technical Paper) [online] WA DC: WSP-Water and Sanitation Program and WB-World Bank (Published January 2010). Available at: <http://www.wsp.org/wsp/sites/wsp.org/files/publications/financing_analysis.pdf> [Accessed 10 November 2011].

This study offers alternative financing solutions to household sanitation based on case studies conducted in Bangladesh, Ecuador, India, Mozambique, Senegal and Vietnam. Various financing approaches are compared across countries, based on a set of common indicators that also explore the issues of public financing and targeting. Findings point out the need to revisit subsidy programmes, catering them to the specific needs of communities, in order to make them more efficient and effective.

Uddin, N. and Jones, E., 2000. Sanitation: The crisis of the urban poor. In: WEDC-Water, Engineering and Development Centre, *26th WEDC Conference, water, sanitation and hygiene challenges of the millennium*. Dhaka Bangladesh 2000. Available at: <<http://wedc.lboro.ac.uk/conferences/pdfs/26/Uddin.pdf>> [Accessed 10 November 2011].

This paper documents the experience of some areas in Bangladesh on cost recovery, financial management and stimulating investments toward sanitation. Based on documented experiences in Bangladesh, the paper reveals the importance of collectively responding to the challenges in urban sanitation of the poor, through a multi-stakeholder partnership approach.

Relevant websites

Best Practices

<<http://www.unhabitat.org/categories.asp?catid=34>>

Started in 1997 by the UN-Habitat, the Best Practices website is known for providing a platform for organisations to contribute cases and vie for the award of 'Best Practice' in urban sanitation for the urban poor. The link takes readers to an extensive database of case studies on water and sanitation, eco-sanitation, low-cost sanitation, provisions for basic services by micro-enterprises, public-private-community partnerships, services for the urban poor, and water and sanitation demand management.

Bremen Overseas Research and Development Association (BORDA)

< <http://www.borda-net.org/>>

BORDA is a German NGO that specialises in low-cost, community-managed, decentralised sewerage systems using the Decentralized Wastewater Treatment Solutions (DEWATS) technology. DEWATS technology is carried out in collaboration with local NGOs, municipalities and CBOs in low-income urban neighbourhoods.

BPD –Building Partnerships for Development, Water and Sanitation Cluster

<http://www.bpd-waterandsanitation.org/bpd/web/w/www_1_en.asp>

Founded in 1977, the BPD in Water and Sanitation is an independent institution and international cross-sector learning network focused on improving access to safe water and sanitation in poor communities. The BPD engages in action research and provides expert support towards developing and strengthening partnerships that benefit the water and sanitation needs of the poor in towns and cities.

BUS – Basic Urban Services

<<http://www.unhabitat.org/content.asp?typeid=19&catid=540&cid=5020&activeid=5008>>

The BUS initiative of UN-Habitat's Sustainable Cities Programme (SCP) aims to strengthen the capacity of local authorities and their partners in responding to basic urban services, such as water and sanitation, in poorly-serviced urban neighbourhoods. A joint initiative of the SCP and the IRC International Water and Sanitation Centre, BUS assists local authorities in developing municipal strategies for basic urban services (based on an SCP/EPM process).

CINARA – Instituto de Investigación y Desarrollo en Abastecimiento de Agua, Saneamiento Ambiental y Conservación del Recurso Hídrico

<<http://www.univalle.edu.co/~cinarauv/>>

CINARA is a research and development institute based at the Faculty of Engineering in the Universidad del Valle in Cali, Colombia. The institute is widely known in the water supply and environmental sanitation sector in Colombia, as well as in other Latin American countries for its environmental sanitation group support projects and contribution towards education, research and the documentation of projects in rural and poor (peri-) urban areas.

Cities Alliance / Community Water and Sanitation Facility

<<http://www.citiesalliance.org>>

*Cities Alliance is a global coalition of cities and development partners committed to scaling up successful approaches to poverty reduction in order to create **cities without slums** (Alliance's slogan). Cities Alliance takes cities in direct dialogue with bilateral and multilateral agencies and financial institutions, and promotes the role of local government in lobbying for increased international support.*

Communal Sanitation

<<http://www.personal.leeds.ac.uk/~cen6ddm/CommunalSanitation.html>>

Hosted by the Technical University of Leeds website (School of Civil Engineering), Communal Sanitation provides direct links to an electronic bibliography of documents on communal sanitation facilities in urban areas of developing countries. Other relevant web pages may be found on the website's index on: <<http://www.personal.leeds.ac.uk/~cen6ddm/siteA-Z.html>>.

CREPA – Regional Centre for Drinking Water at Low Cost

< <http://www.reseaucrepa.org/>>

CREPA is a regional knowledge centre that works in 17 Francophone countries in West Africa. CREPA provides project support, training, applied research and consultancies on sanitation for and with the urban poor. CREPA's home base is in Ouagadougou in Burkina Faso.

IANWGE – UN Inter-Agency Network on Women and Gender Equality

<<http://www.unwater.org/TFgender.html>>

Created in 2003, the UN's IANWGE was created in response to calls to mainstream the issue of gender in UN policymaking and planning for water during the International Year of Freshwater. The IANWGE website provides access to a wide range of research work, training and advocacy materials with a gender focus. Materials in Arabic, French and Spanish are also accessible from this site.

ICLEI – International Council for Local Environment Initiatives

<<http://www.iclei.org/>>

Founded in 1990, the ICLEI (also known as Local Governments for Sustainability) is an international association of local governments, national and regional local government organisations that promotes locally-designed and cost-efficient development initiatives as an effective means of achieving local, national, and global sustainability objectives. Working with local government in carrying out international performance-based, results-oriented campaigns and programmes, ICLEI also provides consulting, training, and information services to build capacity, share knowledge, and support local government in the implementation of sustainable development at the local level.

ID21 Communicating development research

< [http://www.eldis.org/index.cfm?objectid=233132A3-9116-DA80-](http://www.eldis.org/index.cfm?objectid=233132A3-9116-DA80-AC333E02F4EBEB3B&Search_string=ID21&search_type=0&offerRestrictToCategory=false&go.x=0&go.y=0)

[AC333E02F4EBEB3B&Search_string=ID21&search_type=0&offerRestrictToCategory=false&go.x=0&go.y=0](http://www.eldis.org/index.cfm?objectid=233132A3-9116-DA80-AC333E02F4EBEB3B&Search_string=ID21&search_type=0&offerRestrictToCategory=false&go.x=0&go.y=0)>

Hosted by the Eldis Communities website, ID21 communicates the latest UK-sourced international development research to policymakers and practitioners worldwide.

IDS – Institute of Development Studies

<<http://www.ids.ac.uk/>>

Founded in 1966, the IDS is a leading global charity for international development research, teaching and communications. The mix of academia, field research and communications expertise makes the IDS website a valuable resource to access information and research findings on urban development, water and sanitation, participation, finance and economics, governance and gender.

IRC International Water and Sanitation Centre

< <http://www.irc.nl/>>

IRC is an international think-tank and knowledge centre committed to bridging the knowledge gap and facilitating joint learning with partners for improved and low-cost water supply, sanitation and hygiene in developing countries. The IRC website compiles current news and organises events relevant to the sector, provides access to a wide range of web-based publications and materials, and links up its readers to ongoing development work conducted by a wide network of sector professionals and key WASH stakeholders.

NETWAS International – Network for Water and Sanitation International

<<http://www.netwas.org/index.php/misc/Welcome.html>>

NETWAS International is a knowledge centre for the WASH sector with a diverse range of expertise in social, health, engineering, management and information disciplines. NETWAS actively engages in issues of sanitation for the urban poor and provides capacity strengthening activities in line with its core expertise.

NETWAS Uganda

<<http://www.netwas.org/index.php/misc/Netwas-Uganda.html>>

NETWAS Uganda is a local non-profit organisation that was registered in Uganda in 1996. NETWAS Uganda is affiliated to NETWAS International and organises regular sanitation training courses.

Practical Action

<<http://www.practicalaction.org/>>

Practical Action is an international NGO committed to building the capacities of the urban poor to create, use and manage simple technologies as a means of transforming the poor's lives for the better. Specifically, Practical Action helps the poor improve their production, processing, marketing and access to basic services, such as water, sanitation, housing and electricity.

R4D – Research4development

<<http://www.research4development.info/AboutR4D.asp>>

R4D is the United Kingdom Department for International Development's (DFID) portal where information and results from DFID-funded research may be accessed.

Sanitation updates: news and resources for sanitation for all

<<http://sanitationupdates.wordpress.com/about/>>

A newsfeed on sanitation maintained by the IRC International Water and Sanitation Centre and USAID's WASHplus project, Sanitation updates was set up in promotion of the 2008 International Year

of Sanitation. To date, the newsfeed continues to provide the latest news, information and resources in support of realising 'sanitation for all'.

SWITCH – Sustainable Water Management in Cities of the Future

<<http://www.switchurbanwater.eu/index.php>>

Concluded in 2011, SWITCH was an action research programme co-funded by the European Union and a cross-disciplinary team of 33 partners in 15 cities around the world. SWITCH aimed to catalyse change for a more sustainable urban water management of the 'City of the Future'. SWITCH mainly explored technical and overall management issues, touching upon the issue of sanitation. The SWITCH website is currently being hosted by the Loughborough University.

The Water Channel

< <http://www.thewaterchannel.tv>>

An online repository for water videos, the Water Channel was launched in February 2009 and is a collaborative initiative between MetaMeta Communications and UNESCO-IHE Institute for Water Education. Sanitation is among one of the categories found in the Water Channel.

UNITAR – United Nations Institute for Training and Research

<http://www.unitar.org/certification_governance_urban_sanitation>

The UNITAR's Local Development Programme online course 'Governance in Urban Sanitation' seeks to enhance the capacity of local decision makers in developing urban sanitation projects that are efficient and grounded by the choices and needs of the poor. The course provides analytical tools that develop the ability to systematically assess situations in order to inform the design and implementation of financial and institutional reforms in the sector.

USAID Making cities work

< <http://www.makingcitieswork.org/usaids-making-cities-work>>

The USAID Making cities work website provides an overview of support programmes and tools by USAID missions and partners involved in urban development and management. The website has one section devoted to urban sanitation and wastewater treatment: 'City Management and Services' where issues of sanitation planning and tradeoffs, expanding services to unserved neighbourhoods, technologies and standards, financing and cost recovery are addressed.

WASHplus News Feeds

< <http://urbanhealthupdates.wordpress.com/about/>>

Managed by the USAID WASHplus project, this news feed features recent news and stories on urban health issues in developing countries. Its purpose is to create awareness and promote interest on urban health issues.

WaterAid

<<http://www.wateraid.org/>>

Water Aid is an international charity that aims to overcome poverty by enabling the world's poorest people to gain access to safe water, sanitation and hygiene education. Part of WaterAid's work is also to examine the interconnections and impact of financing in achieving its core development visions.

WB – World Bank, Urban development

<<http://go.worldbank.org/NMQBWKVX90>>

This WB website compiles research work and materials developed under the umbrella of the WB's urban development programme. The programme promotes sustainable and equitable development and growth in cities and towns to benefit the poor (and the overall development goals of countries). The subject areas tackled by the programme include: municipal financing, urban environment, urban health, urban poverty and urban development (including slum prevention).

WBI – World Bank institute

<<http://go.worldbank.org/53LOBQ2OK0>>

The WBI is the World Bank's main instrument for developing individual, organisational, and institutional capacity, through the exchange of knowledge between countries. WBI designs and delivers learning/training programmes that create opportunities for development stakeholders to acquire, share, and apply global and local knowledge and experiences. Some relevant training programmes include urban management, participatory budgeting, and governance and anti-corruption.

WEDC – Water, Engineering and Development Centre

<<http://wedc.lboro.ac.uk/>>

WEDC is a leading education and research institute for improving access to infrastructure and services for the poor in low- and middle-income countries. Based in the Department of Civil and Building Engineering in Loughborough University, WEDC provides post-graduate education, training courses and undertakes research consultancies.

WIN – Water Integrity Network

< <http://www.waterintegritynetwork.net/>>

The WIN supports anti-corruption activities in the water sector by forging coalitions that take action in ways that individuals or single organisations cannot. WIN aims to reduce poverty by fighting corruption and introducing mechanisms that improve the governance of water resources and services through enhanced integrity, transparency, and accountability. WIN organises capacity development and advocacy activities, and designs tools and manuals that help facilitate improved governance. WIN also provides small funding opportunities for activities that help local action.

WSUP – Water and Sanitation for the Urban Poor

<<http://www.wsup.com/>>

WSUP is a tri-sector partnership involving representatives from the private sector, civil society and academia. WSUP seeks to advance the Millennium Development Goals for water, sanitation, and associated health benefits through multi-sector and stakeholder partnership-delivery of sustainable, equitable, and affordable water and sanitation services to the urban poor in developing countries.

Relevant short videos and documentaries

Addressing sanitation in urban India

<<http://www.thewaterchannel.tv/en/videos/categories/viewvideo/578/sanitation-a-hygiene/addressing-sanitation-in-urban-india>>

The film advocates for the need to apply a holistic approach to urban sanitation in order to effectively redress sanitation problems in urban areas, taking the experience of urban India as an example.

African entrepreneurs promote clean toilets, hygiene

<http://www.youtube.com/watch?v=ewb_gGMO4xk>

Two African entrepreneurs explain their toilet cleaning service in South Africa and the Iko public toilets in Kenya.

Building the balance

< <http://www.irc.nl/page/43643>>

This video documents the true story of five poor women in peri-/urban and rural communities in Kerala who took charge of their sanitation conditions by empowering themselves as lady toilet masons. A co-production of the Socio-Economic Unit Foundation (SEUF) and IRC International Water and Sanitation Centre, the video provides a glimpse into how the empowerment of women impacts positively on women's lives and their respective communities.

Coming clean on sanitation

<http://www.thewaterchannel.tv/index.php?option=com_hwdvideoshare&Itemid=4&task=viewvideo&video_id=1023>

'Coming clean on sanitation' features the sanitation landscapes of six Asian countries and aims to increase awareness on Asia's sanitation challenges.

Development comes to Zabid

<<http://www.thewaterchannel.tv/en/videos/categories/viewvideo/701/sanitation-a-hygiene/development-comes-to-zabid>>

The video investigates a Yemeni-German project that put in place a modern sanitation infrastructure in Zabid, Yemen in 2003, reported to have improved sanitation conditions considerably. Since the project's implementation, the video moves on to discuss a range of challenges now faced by the government and the people of Zabid in sustaining the project and its achievements.

eThekwini water and sanitation programme – Ipumelelo Social Innovations Centre Award – Winner

< <http://www.youtube.com/watch?v=9NsjwkcQOck>>

This video features the groundbreaking water delivery approach implemented by the eThekwini Municipality's Water and Sanitation Programme, which started in 2003. Awarded the Gold Ipumelelo Innovations Award in 2004, the programme successfully provided 75,000 households with a daily 200 litre water supply free of charge, using a ground tank filled from a reticulated water system; and a ventilated, improved urine diversion toilet for homes located further away from the waterborne sewerage line.

The guys are extremely liquid

<<http://www.youtube.com/watch?v=bOOjQp6KgVI>>

Awarded second place in the USAID's Health Sanitation Video Contest in 2010, this video highlights the difficult working conditions of sanitation entrepreneurs in peri-urban areas and demonstrates the importance of professionalising their work as an added component to financing water, hygiene and sanitation.

The human excreta index

<<http://www.thehumanexcretaindex.com/>>

This 60-minute video presents case studies on ecological sanitation in China, India, Palestine, Peru, Uganda, South Africa and Sweden.

India's sanitation crisis (Al Jazeera news item)

<<http://www.youtube.com/watch?v=orIFs72HGmM&feature=related>>

In a country with mobile phones outnumbering toilets to provide adequate hygiene and sanitation for all, Al Jazeera reports on India's sanitation crisis, the failure of government public toilets and the widespread practice of open defecation.

Manually emptying a septic tank in Freetown, Sierra Leone

<<http://www.youtube.com/watch?v=zFbfWOTjFxc>>

A video presentation of photos taken during a 2011 WEDC case study, George Mikhael (photographer/documenter) presents on the costs of sanitation and the lived realities of manual pit emptiers in Freetown.

Mobile movement: an experiment in active philanthropy

<<http://www.youtube.com/user/MobileMovement?blend=14&ob=5>>

<<http://www.youtube.com/user/MobileMovement?blend=14&ob=5#p/u/6/YM3gOZba100>>

Mobile Movement connects 15 youth groups in Nairobi and organises social entrepreneurship and clean environment projects in low-income neighbourhoods. The project mobilises young professionals and students to support micro-financing activities and make creative businesses contributions.

Public toilet project in Edipa, Ghana

<<http://www.source.irc.nl/page/55526>>

In this video, Safrotwe Kakradae IV (a king in Ghana) explains how this public toilet project freed Edipa from open defecation practices.

Sanplat

<<http://www.youtube.com/watch?v=8QCjpt6zGYM&noredirect=1>>

A 10-second video that demonstrates the effective use and installation of plastic sanitary platforms.

Slum sanitation in Mumbai

<<http://www.susana.org/lang-en/videos-and-photos/resource-material-video?view=ccbkyteitem&type=3&id=61>>

This 16-minute, two-part documentary depicts the daily lives of slum residents in Mumbai and reveals the efforts of a local government-led programme (Mumbai Municipal Corporation) to resolve the issue of poor hygiene and sanitation conditions.

The gulper pump helps Tanzania's sewerage problem (BBC news item, 4 August 2011)

<<http://www.bbc.co.uk/news/world-radio-and-tv-14400201>>

This news feature explains the Gulper pump method of emptying toilets and reports on a range of benefits associated with its use including: reduced environmental contamination; reduced operational costs; safe and better paid employment possibilities, and improved health.

Urban sanitation: an NGO's experience in Pune and Sangli, India (Shelter Associates)

<<http://www.youtube.com/watch?v=3CzCAOrQeI&feature=related>>

This six-minute video features a community-managed household-financed toilet programme in 12 slums in the city of Pune, Western India. Pioneered by the Shelter Associates, a non-governmental organisation that seeks to improve access to sanitation for the urban poor, the video reports on the role of micro-credit savings and loan groups in co-financing construction costs (20%), with the remaining 80% financed by the national programme and external donors.

Urban Sanitation – Sharon Atilno Omondi – Kenya – Water Summit 2010

<http://www.youtube.com/watch?v=Bbdj9q2lrE8&feature=player_embedded#at=37>

Through the narration of Sharon Atilno Omondi, this two-minute video reveals sanitation conditions and financing mechanisms of informal water service delivery in Nairobi, reported to inequitably benefit members of the community where she resides.

Water and sanitation for the urban poor (WSUP advocacy video)

<<http://www.youtube.com/watch?v=E-GdIlol1P8>>

This ten-minute introductory video features the work of WSUP in addressing the challenges of water services, sanitation and hygiene. The video raises awareness on the issues at hand and WSUP's strategy of partnering with service providers and community-based water organisations in responding to these.

Relevant Contacts

AKVO

's-Gravenhekje 1A, 1011 TG
Amsterdam, Netherlands
T: +31 (0)70 304 3757
W: <<http://www.akvo.org>>

Cities Alliance: Cities without slums

1818 H Street, N.W., Mailstop (P.O. Box) MC 8-804
Washington, D.C. 20433 U.S.A.
T: +1 (0)202 473 9233
E: info@citiesalliance.org
W: <<http://www.citiesalliance.org/ca/>>

International Development Research Centre (IDRC)

Urban Poverty and Environment (UPE)
P.O. Box 8500
Ottawa ON, Canada K1G 3H9
T: +1 (0)613 236 6163
E: info@idrc.ca
W: <<http://www.idrc.ca/EN/Pages/default.aspx>>

International Institute for Environment and Development (IIED)

3 Endsleigh Street, WC1H 0DD
London, United Kingdom
T: +44 (0)20 7388 2117
E: info@iied.org
W: <<http://www.iied.org>>

IRC International Water and Sanitation Centre

Bezuidenhoutseweg 2, 2594 AV
The Hague, The Netherlands
T: +31 (0)70 304 4028
E: general@irc.nl
W: <www.irc.nl>

Peepoople AB

Alsnögatan 3, SE-116 41
Stockholm, Sweden
T: +46 (0)855 600 930
E: info@peepoople.com
W: <<http://www.peepoople.com/>>

Jean Africa Consultants (JAC)

P.O. Box 14347, 00100
Nairobi, Kenya
T: + 254(020) 2371356
E: <africajeans@gmail.com>

Practical Action

Bourton on Dunsmore, Rugby CV23 9QZ, United Kingdom
T: +44 (0) 1926 634400
E: practicalaction@practicalaction.org.uk
W: <<http://practicalaction.org/the-schumacher-centre-2>>

Socio-Economic Units Foundation (SEUF)

TC 15/74-1, B Street,
Elankom Gardens, Vellayambalam,
Sasthamangalam P.O.
Thiruvananthapuram - 695 010
Kerala, India
T: +91 (0)471 232 5907
E: seufhq@vsnl.net
W: <<http://www.seuf.org.in/>>

Slum Dwellers International (SDI)

P.O. BOX 14038, Mowbray 7705,
Cape Town, South Africa
T: +27 (0)21 689 9408
E: sdi@courc.co.za
W: <<http://www.sdinet.co.za/>>

**Sustainable Urban Development Network
(SUD-Net)**

P.O. Box 30030, 00100

Nairobi, Kenya

T: +254 (0)20 762 5405

E: ues@unhabitat.org

W: <http://www.unhabitat.org/categories.asp?catid=570>

UN-HABITAT

P.O. Box 30030, GPO,

Nairobi, 00100, Kenya

T: +254 (0)20 762 1234

E-mail: infohabitat@unhabitat.org

Website: <http://www.unhabitat.org/>

**United Nations Environment Programme
(UNEP)**

Division of Policy Development and Law, Urban
Environment Unit

P.O. Box 30552, 00100

Nairobi, Kenya

T: +254 (0)20 624 184

E: urban.environment@unep.org

W: <http://www.unep.org/>

UNITAR

International Environment House,

Chemin des Anémones 11-13, CH-1219 Châtelaine

Geneva, Switzerland

T: +41 (0)22 917 8400

E: Environment Unit: achim.halpaap@unitar.org;

Governance Unit: governance@unitar.org

W: <http://www.unitar.org/>

United Nations Children Fund (UNICEF)

United States Fund for UNICEF

125 Maiden Lane, 11th Floor

New York, NY 10038, U.S.A.

T: + 1 212 686 5522

W: http://www.unicef.org/wash/index_43109.html;

<http://www.unicefusa.org/about/contact/>

WASTE

Nieuwe Haven 201, 2801 CW

Gouda, The Netherlands

T: +31 (0)182 522 625

E: office@waste.nl

W: <http://www.waste.nl/page/169>

Water and Sanitation Program (WSP)

1818 H Street, N.W.

Washington, D.C. 20433, U.S.A.

T: +1 202 473 9785

E: wsp@worldbank.org

W: www.wsp.org;

www.worldbank.org/watsan

World Bank Institute (WBISD)

1818 H Street, NW, J4-083 MSN J4-400

Washington, DC 20433, U.S.A.

T: +1 202 473-6436

W: <http://wbi.worldbank.org/wbi/>

IRC International Water and Sanitation Centre

Bezuidenhoutseweg 2
2594 AV The Hague
The Netherlands

T +31 (0) 70 304 40 00

F +31 (0) 70 304 40 44

E general@irc.nl

www.irc.nl