Sanitation Services for the Urban Poor: Partnerships and Governance

IRC Symposium 2008 Proceedings

J. Verhagen, C. da Silva Wells, I. Krukkert, P. McIntyre, P. Ryan (eds.)

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Sanitation Services for the Urban Poor

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Partnerships and Governance

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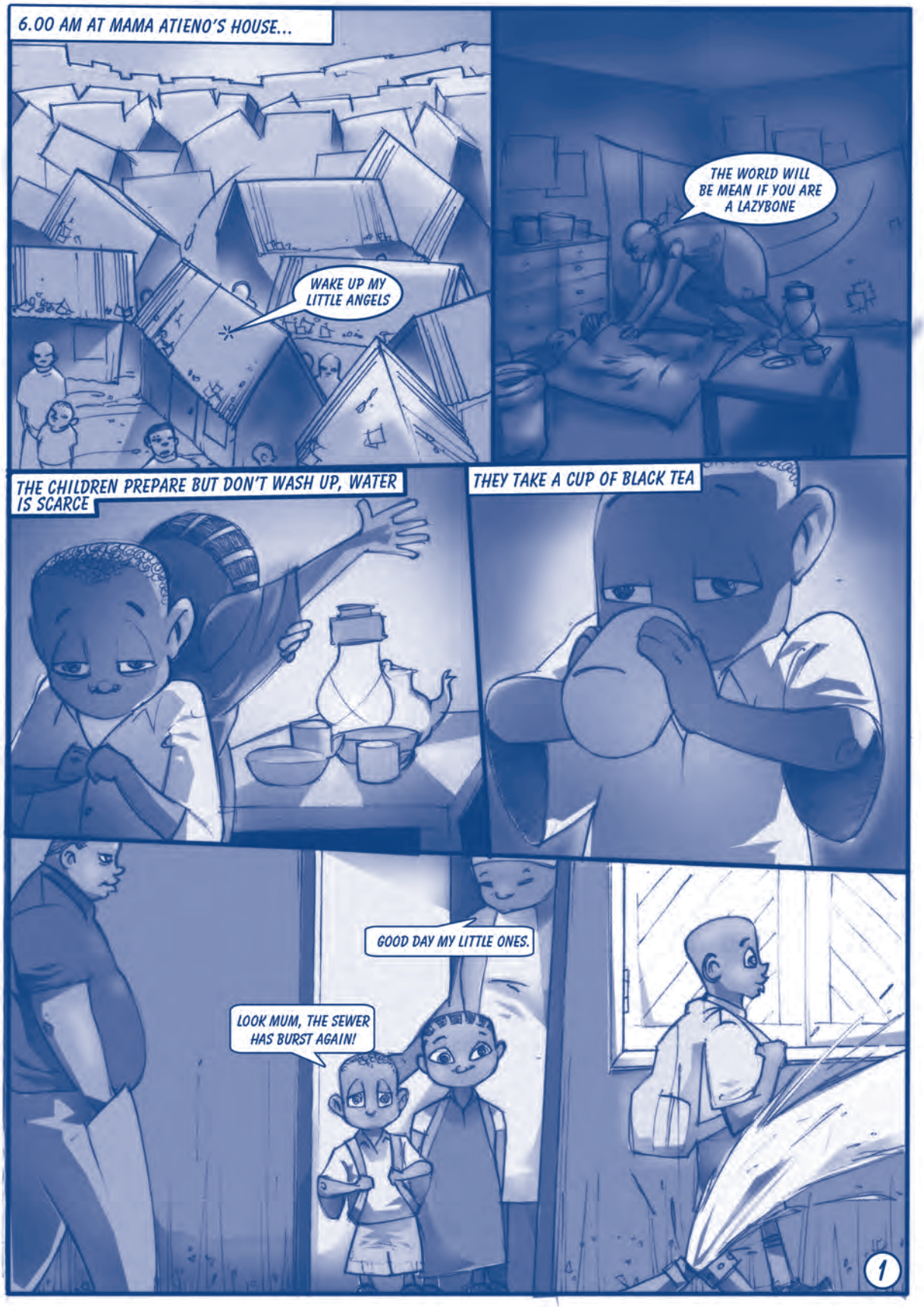

6.00 AM AT MAMA ATIENO'S HOUSE...
WAKE UP MY LITTLE ANGELS
THE WORLD WILL BE MEAN IF YOU ARE A LAZYBONE
THE CHILDREN PREPARE BUT DON'T WASH UP, WATER IS SCARCE
THEY TAKE A CUP OF BLACK TEA
GOOD DAY MY LITTLE ONES.
LOOK MUM, THE SEWER HAS BURST AGAIN!
1

Foreword

Achieving sustainable sanitation services that reach the urban poor has become one of the most urgent, challenging and potentially transforming tasks on the global agenda. At the individual human level, the urban sanitation crisis contributes to poverty, squalor, illness and human suffering in many countries and continents. At macro level it has the potential to destabilise development and fracture emerging economies. Sanitation is in a critical state for millions people and its impact felt most acutely where the population is growing fastest – in urban slums.

In 2008, for the first time in human history, the urban population surpassed that of rural areas. By 2015 it is estimated that 3.9 billion people will be living in urban areas. Nearly all population growth will occur in the cities of developing countries with an increasing number of the population living in slums (UNICEF/WHO 2008).

And it is particularly in these slums, where the sanitation problem is getting worse. We know from the 2010 UNICEF-WHO Joint Monitoring Program (JMP) report that more than 800 million urban dwellers gained access to sanitation between 1990 and 2008. But in the same period, the urban population also grew by more than a billion. So although we are running fast, we are not running fast enough to keep up.

In the absence of services provided by government or the private sector, an increasing number of urban dwellers have to find individual solutions, either by defecating in the open, or into plastic bags which they then dump, creating the so called "flying toilets".

Since local governments lack the capacity to play their role, the vast majority of faecal sludge goes untreated into the environment, polluting watercourses and presenting huge health risks. Failing urban sanitation has a wide range of consequences, most notably the endless outbreaks of diarrhoea, the disease of poverty which degrades communities and brings death to hundreds of thousands of children living in urban areas. Lack of safe, hygienic toilets is a major reason for girls not attending school, thus reinforcing the cycle of poverty. In urban slums, many women and girls avoid urination and defecation during the daytime in order to preserve their privacy and are therefore forced to make potentially dangerous night-time journeys to relieve themselves.

Such examples illustrate the many basic human rights challenges that are being faced in terms of poor sanitation: from women who cannot safely use toilets to the 'scavengers' in India who manually clean latrines. As Wilson Bezwada put it so eloquently in his presentation during the symposium, human beings are being used to plug the gaps in failing sanitation systems.

In rapidly changing and densely populated urban environments, the challenge of providing sanitation services interacts closely with the problems of housing, the legal status of communities and the struggle to secure viable livelihoods. Safe sanitation in dense urban areas is not something communities can achieve alone due to the sheer volume of waste, the need to remove it from the local environment and the necessity to deal with it safely. Moreover, sanitation is not just about toilets; it covers all the conditions affecting hygiene and health, particularly public health. Against this backdrop, there are no easy solutions or technical fixes as these are essentially issues of governance, and failing governance is a key aspect of urban degradation and poverty. Keeping pace with the growing problem of urban sanitation clearly requires the combined efforts of governments, communities, citizens and civil society and the private sector.

But there is hope in the many solutions and attempts at solutions that are emerging around the globe. Despite the enormity of the challenge, those of you who read the essays in this book or browse the papers on the DVD will realise that there is reason to be optimistic about future prospects. The fact is people are on the move and actions to change these circumstances are already under way.

The Orangi Pilot Project in Karachi for example brought together local government and a skilled, locally based NGO/CBO. Rather than build toilets, the Orangi Pilot Project promoted community activities and provided technical support to overcome constraints. As a result, nearly 100,000 households in Orangi (approximately one million people) have been able to develop their own sanitation systems – systems which are now being widely copied.

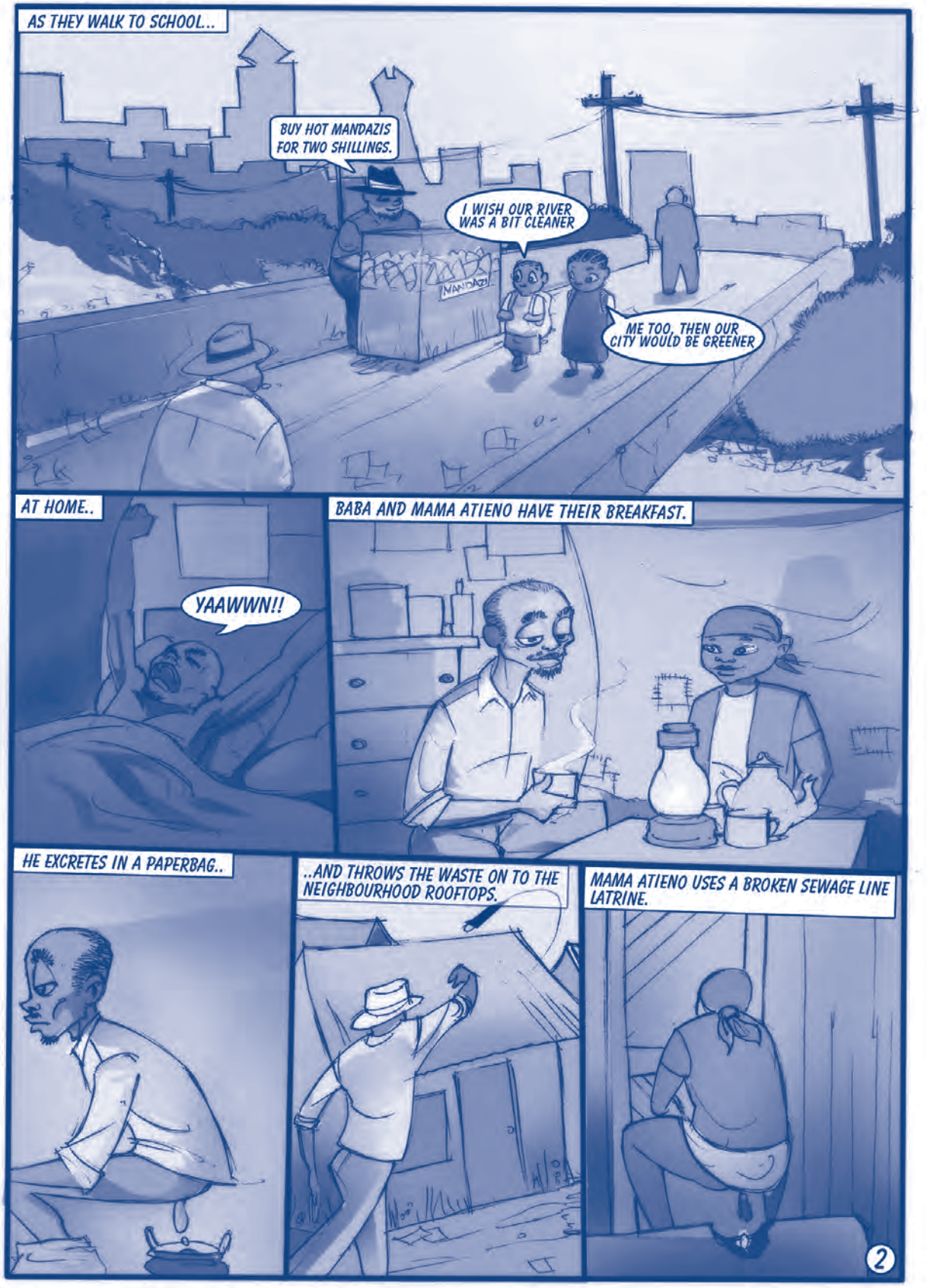
In Pune and Mumbai in India, the SPARC Alliance enabled women's groups from the slums to act as partners with the city government and acquire World Bank funding to build communal toilet blocks that today provide affordable sanitation and washing facilities for hundreds of thousands of poor households. To date, the SPARC alliance of civil society organisations has constructed community toilet blocks for almost 400,000 people in more than eight cities and is training community groups to build, manage and maintain these facilities.

The eThekwini Municipality in Durban, South Africa, is a local authority that is rising to the challenge of providing sanitation services. Here, the successes of its services are measured not only in terms of the 70,000 urine diversion toilets built in peri-urban areas or the 50,000 toilets constructed as part of the social housing scheme, but by the progress the team has made in emptying 10,000 of 60,000 overflowing pit toilets they inherited.

Although many technical challenges remain unresolved, the creativity and determination of communities and people working together is helping to develop the solutions to transform urban sanitation from problem into opportunity. With human waste rich in water, nutrition and organic matter, it is anticipated that it will one day be seen as a resource with a market value that will help enrich rather than endanger urban communities.

Our optimism comes from action and commitment. The International Year of Sanitation did much to raise the profile of the challenges in urban sanitation and mobilise people in the search for solutions. IRC is to be congratulated on a Symposium and a publication that has brought together so much rich experience and wisdom from around the world. I recommend this publication to you all.

Sir Fazle Hasan Abed, KCMG
Chairperson, BRAC


AS THEY WALK TO SCHOOL...
BUY HOT MANDAZIS FOR TWO SHILLINGS.
MANDAZI
I WISH OUR RIVER WAS A BIT CLEANER
ME TOO. THEN OUR CITY WOULD BE GREENER
AT HOME..
YAAWWN!!
BABA AND MAMA ATIENO HAVE THEIR BREAKFAST.
HE EXCRETES IN A PAPERBAG..
..AND THROWS THE WASTE ON TO THE NEIGHBOURHOOD ROOFTOPS.
MAMA ATIENO USES A BROKEN SEWAGE LINE LATRINE.
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Acknowledgements

This publication and the symposium on which it is based, 'Sanitation for the Urban Poor: Partnerships and Governance', is the result of efforts and inputs by many people and organisations. The authors would like to thank the *Water Supply and Sanitation Collaborative Council (*WSSCC) and GTZ who supported IRC in making the symposium and this publication possible. Thanks also to the Building Partnerships for Development in water and sanitation (BPD) who co-organised and co-facilitated the masterclass on Urban Sanitation Partnerships that preceded the symposium.

We would also like to thank the Netherlands Directorate-General of Development Cooperation (DGIS) that continues to support IRC financially and so makes it possible to bring people together in this way and to share experiences and learn together.

The final day of the Symposium coincided with the final day of the Dutch contribution to the International Year of Sanitation and following the closing session of the Symposium, we all attended the closing ceremony for this event at which HRH Prince Willem Alexander of the House of Orange was a speaker and honoured guest. The support given by the Prince to the International Year of Sanitation helped to put it on the map in the Netherlands and to a much wider audience globally. He has been unafraid to speak frankly of the challenge that untreated faeces poses to poor communities worldwide, of the affront to human rights implied by sanitation failures and of the need to address this as a priority issue.

We would like to express our gratitude to all the participants of the symposium and the authors of essays and papers for their valuable inputs on issues of governance and partnerships, approaches and technologies, finance and monitoring, which provided the basis for this publication. While we have acknowledged specific quotations from papers, it should also be evident that the collective experiences and wisdoms contained within these papers have permeated our understanding and this document. Even though the authors are not name checked here, their input has been invaluable, and the quality of the papers is very high.

The symposium took place during IRC's 40th anniversary, during which time the challenge from urban sanitation has grown and the responses have not so far proved adequate. But it seems that a turning point has been reached in the significance now attached to solving this problem. The symposium has been a modest contribution to this new thinking and its value was that it brought people together and provided time, space and a focus to broaden their knowledge and understanding. This publication and the DVD that accompanies it is part of a commitment to contribute to sharing, promoting and using knowledge for better sanitation services for the urban poor.

Special thanks are due to our colleagues at IRC for their help in organising the Symposium, in bringing together such as high quality team and in writing and editing this document.


SHE WASHES HER HANDS WITH WATER AND SOAP AFTER VISITING THE TOILET..
..SHE CLEANS UP THE HOUSE..
HMMM..LALALA. MMM...
..AND GOES TO BUY CLEAN WATER AT A NEARBY VENDOR
GOODMORNING NJERI? HOW ARE YOU AND THE FAMILY?
WE ARE FINE EXCEPT FOR LITTLE KAMAU WHO HAS A RUNNING STOMACH.
SORRY TO HEAR THAT.
LET ME RUSH HIM TO THE DISPENSARY NOW
SEE YOU AT THE MARKET LATER
MEANWHILE..BABA ATIENO IS GOING TO WORK.
HONEY SUCKER EXXPRESS
..HE EMPTIES PIT LATRINES WITH NO PROTECTIVE WEAR..
3

1. Symposium summary paper

Carmen da Silva Wells, Ingeborg Krukkert, Peter McIntyre

Introduction

This paper brings together lessons and issues raised at the symposium 'Sanitation for the Urban Poor: Partnerships and Governance', which was held from 19 to 21 November 2008 in Delft, the Netherlands. It sets out to capture some of the best practices and key lessons learnt in the International Year of Sanitation and before. It was to build on these lessons and on the sense of urgency that the IRC International Water and Sanitation Centre brought together some 88 practitioners, analysts and policy makers for the symposium. They came to Delft in the Netherlands from many countries, representing diverse institutions to explore issues of governance and partnerships, approaches and technologies, finance and monitoring.

The objectives of the symposium were to:

1. Explore a wide range of international experiences in urban sanitation and examine to what extent the approaches are embedded in the reality of the urban poor;
2. Identify promising approaches to urban sanitation and gaps in what we know about how to tackle urban sanitation at scale;
3. Learn from each other and share experiences.

The symposium was preceded by a masterclass on partnerships for sanitation for the urban poor. High quality essays and papers were commissioned in preparation for the symposium. These, and some outstanding keynote addresses, contributed to the quality and intensity of the discussions in the symposium. The symposium brought people together and provided time, space and a focus to broaden their knowledge and understanding. This publication and the DVD that accompanies it is part of a commitment to continue this work.

This publication consists of: the Symposium Summary Paper which aims to share the main lessons from the symposium and points to further reading in selected papers that were submitted; the Symposium Background Paper; the background essays; and an overview with descriptions of the selected and peer-reviewed papers from the symposium. The full versions are included on the DVD.

The DVD that accompanies this publication also contains short video interviews with participants of the symposium and provides further insight into the key ideas discussed. A range of other visual materials was used to bring the reality of the urban poor into the symposium: a photo impression of slums in Bangladesh (Dhaka), a comic strip by two Kenyan artists and two short videos giving an impression of life in an urban slum. All can be found on the DVD.

This summary highlights some of the most relevant ideas from the papers, which can be found on the DVD. It also draws on the key questions raised in the background

paper and the symposium essays. These questions highlight the interrelated issues of governance, partnerships, technologies and financing. In short these questions are:

1. Who takes responsibility for dealing with shit in poor urban areas and their surroundings?
2. How does this take place?
3. How do we deal with it?
4. Who foots the bill?

We have attempted to present issues raised, the answers that were provided and the gaps that were highlighted where more research and practical data are needed. This overview attempts to do justice to the richness in ideas and experiences at the symposium by pulling out some of the key themes and referring readers to passages they may want to peruse in the papers. This paper therefore both acts as an introduction to the symposium and draws some conclusions for the ongoing work. In it we freely make reference to the Symposium Background Paper, (which in turn drew on five thought-provoking essays prepared for the symposium), and to the papers submitted and presented. As these documents are available as part of this publication and online, references to them are often in passing to pull together strands of thought and experience. Readers are encouraged to read the papers themselves to understand these experiences more fully. In this paper we also make reference to some of the ideas and conclusions raised in the keynote presentations and during the concluding panel discussion on the final day of the symposium. This overview will end where the symposium ended, with conclusions and take home messages from the final day's panel discussion held at the Royal Tropical Institute (KIT) in Amsterdam.

In a nutshell – a summary of the symposium

The symposium involved three days of intense discussion that flowed from preparations over a period of several months. Five keynote essays were produced that provided the setting for the symposium. The key strands were drawn out in a background paper that posed the questions that were addressed during the discussions. A further 32 papers were presented to the symposium, many of which provided the jump-off point for parallel breakout sessions where the participants chose which papers they wanted to hear expanded. The background paper, the five keynote essays and a brief introduction to all 36 papers presented in the symposium are included in this publication. The papers discussed in the symposium may also be read online at http://www.irc.nl/page/39960.

Immediately before the symposium, Building Partnerships for Development in Water and Sanitation (BPD) and IRC International Water and Sanitation Centre (IRC) held a one-day masterclass for practitioners seeking to unravel the complexity of urban sanitation and effective partnerships. The masterclass concluded that there have been some good examples of successful collaboration but that to some extent they remain "isolated islands of success". It focused on three key actors: the household, the public

sector and the provider, trying to understand who is playing what role and what is driving them. The masterclass considered the private good (why households invest in something), the public good (the public sector and what it should be doing) and the providers' good (the service needs to be financially sustainable).

The symposium was formally opened on Wednesday 19 November 2008 by Lodewijk de Waal, Chair of the Supervisory Board of IRC, with a welcome from Peter de Vries, of the Netherlands Directorate-General of Development Cooperation (DGIS), who spoke about the relative difficulty of programming for sanitation as compared with expanding access to clean drinking water. The reality of life in urban slums was brought into the symposium with a video presentation on the use of latrines in a South African township, and with photographic reminders throughout the following days of the living conditions people put up with every day of their lives.

This paper will also make reference to two powerful keynote addresses on the first morning. Neil MacLeod, Water Services Manager of Durban (eThekweni) municipality in South Africa talked about the realities of introducing a sanitation service in poor communities, addressing some of the toughest questions, such as tackling the backlog of pit latrines that have never been emptied. Rosemary Rop, urban specialist for WSP-Africa, talked about the reality of partnerships in action in urban slum environments that have emerged from the racial segregation policies of Africa's colonial history.

The symposium demonstrated how technology, governance arrangements and financing have a direct impact on each other, and how sanitation cannot be considered separately from other pressing issues of urban life, such as issues of legal and illegal habitations, security, regulation and accountability. We learnt that sanitation for the urban poor is not about toilets or sewers; it is about a sanitation chain – from the seat/pan to collection, transport, treatment, disposal or reuse of urine and faeces. Sanitation is not merely about infrastructure projects but about processes of planning, of partnership and accountability, of developing solutions which are sustainable, affordable and meet users' demands. What's more, providing sanitation services to the urban poor involves linking governance, finance and technology into scalable and sustainable partnerships. We also understood how important it is to tackle issues of scale, so that promising initiatives are no longer isolated islands, and so that solutions address the huge and growing numbers of people living in towns and cities.

Some debates were not concluded – such as methods of financing sanitation in very poor communities and the most suitable forms of technology – but the issues at stake were defined and clarified. There was a clear commitment to further research that would focus on how to transform governance relations, partnerships and accountability. Some also expressed the need to explore the potential for extracting the valuable chemicals from faeces and urine that could close the sanitation loop, physically and financially. Meeting face-to-face has strengthened the informal networks that can spread knowledge, enquiry and debate around the world.

Understanding the scale of the challenge: the missing services that result in squalor

Box 1. Cities accumulate excreta

"Consider a poor urban area with an extremely high population density of around 250,000 people per km², such as might be found today in Kibera, Nairobi, Kenya, or indeed as existed in parts of Liverpool, England in the mid-19th century. Even if the residents of this area were to do nothing else they will require both food and water to survive. And every day as a result they will need to defecate. Depending on their diet each resident could be excreting around 1.5 litres of urine and 250g of faeces per day (using an average value of 500 litres urine and a relatively conservative 90 kg of wet mass faeces per capita and year) – resulting in 375 m³ of urine and 62.5 tonnes of faeces per km² every single day, and if this cannot be taken away it will simply accumulate".

Source: Bracken and Panesar 2008

One theme that came strongly out of the symposium was that solutions proposed for the sanitation crisis must be appropriate to local conditions – physically, culturally and economically as well as in terms of governance arrangements and institutional environment. However, there was a considerable degree of commonality in the squalor that slum dwellers endure the world over. Many papers describe situations where raw sewage runs through communities, and sometimes even through houses. Toubkiss (2008), in a review of sanitation financing models in sub-Saharan cities, agrees that although fewer people in rural areas have latrines, the situation is more problematic in cities. "The situation in peri-urban areas and slums is even worse: they are overcrowded and usually constructed downstream of flood zones or polluting residential and industrial sectors."

Kamara, Sande and Niwagaba in their paper on social marketing reported that close to 80% of slum dwellers in Kampala, Uganda, lack access to toilets with disastrous results in terms of diarrhoea, cholera and other infectious diseases (Kamara et al. 2008). The result as described by Mbaguta (2008) is that "In low-income urban areas people tend to use pit latrines, VIPs or septic tanks or dispose of their faeces in polythene bags or "flying toilets" which are discarded on roofs, rubbish bins, or drainage channels." Kumar reports that 20% of those who filled in citizens' report cards in Bhopal, India, many of whom are poor slum dwellers, are defecating in the open.

According to Colin et al. (2008) barely 1% of the population studied in six Indonesian cities has access to sewerage. While most households have a toilet, many of these city inhabitants discharge into open drains, canals, rivers and ponds. The UN-Habitat Lake Victoria Water and Sanitation Initiative (LVWATSAN) program has established that baseline coverage is far below official statistics; 72% of the population of the project towns in three countries around Lake Victoria lack sanitation and the most optimistic forecast for achieving the MDG sanitation target is 2076 (Alabaster 2008).

In India, where the urban population is about 300 million, the dismal state of sanitation "is well known and quite visible", says James. "The poor in urban slums have hardly any access to toilets and open defecation is the norm in most places. Public toilets are fewer than necessary and most are filthy and unusable, leading to the common sight of men relieving themselves against wells and in almost all available public spaces. Women are forced to go out early in the morning or late at night and are constantly at risk of assault. The inadequate coverage of sewerage systems in most urban areas means that surface and groundwater are under threat from raw sewage. Where houses are connected to sewage systems, the waste flows through city streets in open drains filled to capacity, badly maintained, choked with plastic bags and other solid waste, and eventually discharge largely untreated sewage into rivers, lakes and other water bodies, posing severe health and environmental risks to those exposed to its toxic contents, largely the poor" (James 2008).

Where communal facilities exist they are often overwhelmed by demand. In Kibera, Kenya, around 190 shared toilet facilities serve a population of 250,000 – in other words, each facility is shared between 1,300 people (Bracken and Panesar 2008). Kamara (2008) mentions a primary school in Elisa, Kampala, where 710 pupils and 33 staff share a six stall VIP latrine (124 people per seat). Kamara reports that 300-400 people sometimes queue to share one 4-8 stall latrine facility in that same city where "a number of latrines are on the verge of collapse, endangering the safety of users, and are so poorly constructed, operated and maintained that they pollute shallow groundwater sources, that are used for domestic water use by poor slum dwellers." In Mumbai, before the Alliance of NGOs launched its pioneering communal toilets programme, there was one municipal toilet for every 1,488 people and 80% of those were not working (Baken 2008). In India alone, urban population growth is projected to be the equivalent of adding the total population of Spain or Colombia to the challenge each year (James 2008).

Even in areas where progress is being made on the water target for the Millennium Development Goals (MDGs), sanitation and hygiene often lag behind. Opening the symposium, Peter de Vries, from the Netherlands Directorate-General of Development Cooperation (DGIS), reported that the substantial undertakings of The Netherlands international cooperation programme were on track for water but that results from sanitation programmes were lagging behind. He outlined some of the reasons why achieving the MDG targets for sanitation is a much bigger challenge, highlighting the importance of governance and capacity building. "Sector policies are usually less supportive, or even ignore the sanitation issue. Sanitation may fall under various departments or institutional settings or is simply delegated to local governments who have no means, or even no clue, to tackle it. [...] Demand creation and behavioural change are key to address the sanitation needs and facilities for the poor. All these aspects are now almost common knowledge, but one area remains to a large extent still a nobody's land and that is sanitation for the people in slums: the urban poor."

The sanitation chain

As delivery of urban sanitation services is scaled up, there is a tendency to focus only on the household level, ignoring the subsequent stages of waste management. However, sanitation is much broader than simply toilets; in the full sense it is about all aspects of hygiene and a clean and healthy environment. Even when sanitation is used narrowly to refer to the confinement and disposal of faeces and urine, it requires a chain of actions and services by different actors. The physical sanitation chain includes confinement (the toilet and safe storage), removal and transportation of faecal sludge, subsequent treatment and final safe disposal or re-use. Effective sanitation also requires hygiene education – people have to be able to change their practice as well as achieve access to toilets. It is inevitable that most focus is put on the early part of the chain – how to provide what kind of toilets – but there is increasing awareness that the most difficult problems relate to the removal of faecal sludge from urban slums and its subsequent safe disposal. In many cities, treatment, disposal or reuse is not managed: manual scavenging and pit emptying and dumping are symptoms of the gaps, or failure of considering the full sanitation chain.

But as the background paper (echoing the essay by Holden) asks: "What happens when the pit, septic tank or conservancy tank is full?" The question is what happens then to the human waste? A number of papers focus on environmental sanitation systems where human waste is made safe and used as a fertiliser, and still more papers mention the problems with the later part of this chain.

According to Lüthi, "Usually when talking about 'sanitation' one speaks *not* of sanitation, but rather of a single technology, or an instrument, that is designed to treat wastewater. Septic tanks, pit latrines, and composting toilets, among others, are often referred to as sanitation systems. What these are in fact, are technologies; technologies are merely single parts of a sanitation system. However, too often a technology (under the guise of being a sanitation solution), is implemented, only to realise later that there is no provision for the treated effluent (soon diverted into open drains), the faecal sludge (in the absence of a collection site, soon dumped in open fields), or other various sidestreams that may emerge. So while the technology itself may work, the system as a whole may actually be a failure" (Lüthi, Morel and Tilley 2008). Effective urban sanitation requires integrated thinking across a range of areas. On-site disposal may be feasible in low density areas and the urban fringe, but for densely populated slums, faecal sludge must be transported, treated, recycled and disposed of elsewhere.

In this context, Bracken and Panesar say that conventional sewer systems have little or no relevance for the urban poor in the developing world. "The same can be said to a large extent for sanitation systems that end simply at the bottom of a latrine pit – lack of maintenance, emptying services and treatment of the faecal sludge from the pit threatens public health and the environment and wastes valuable resources" (Bracken and Panesar 2008).

In South Africa, where attempts to provide basic sanitation are hindered by a number of structural problems, Mjoli and Bhagwan (2008) found that the majority of the eight municipalities they studied did not have operation and maintenance plans or budgets for emptying sludge from full VIP toilets. And to look more positively, Neil MacLeod Water Services Manager of Durban (eThekwini) municipality, South Africa – who gave an inspiring account of how service delivery can be tackled in his keynote address – counts the successes of his team not only by the 70,000 urine diversion toilets built in peri-urban areas, or the 50,000 toilets constructed as part of the social housing scheme, but by the start his team made in emptying 10,000 out of the 60,000 overflowing pit toilets they inherited.

The sanitation chain poses different and more difficult problems than the chain involved in delivering and managing water. People want the water and if it is produced and made available at a price they can afford, they will seek it out. But faecal sludge – shit – in the form that it comes out of pit latrines or is thrown in plastic bags is wanted by nobody. Although the chemicals in urine and faeces are potentially valuable, there is not yet any effective business model that can remove these waste products from urban areas and turn them into cash. As we will see, getting the sanitation chain to work is an uphill battle that poses some very specific governance requirements.

No secure home means no toilet

According to a UN expert group, a slum can be defined in part as having inadequate access to safe water and to sanitation, overcrowding, poor structural quality of housing and insecure residential status (Holden 2008). Settlements frequently develop on land that is unsuitable for any other purpose, such as railway reserves, river banks, unstable slopes, swamp land and landfill sites. "The choice of site greatly influences the types of services that can be provided. The size, location, condition and resilience of squatter settlements will be determined not just by the characteristics of their residents, but, more importantly, by the political context of official tolerance or intolerance towards them" (Holden 2008).

At the symposium, the centrality of issues relating to land rights policy frameworks for urban sanitation services was clearly illustrated. "Unrecognised slums remain the hardest to deal with as the authorities will not provide any form of communal service or enforce any order. In such areas, it is up to the household to deal with their sanitation on an individual basis or to group together to deal with it communally" (Holden 2008).

Allen, Hofmann and Griffiths agree that a regulatory framework can be used to restrict basic services. "In many cases the 'illegal' nature of their dwellings prevents the urban poor from being connected to formal systems of service provision or from using their homes as collateral for loans and credit" (Allen et al. 2008). They cite as an example the Milpa Alta area close to Mexico City where a dweller from outside the towns cannot, in theory, have access to water and sanitation networks. Those whose names appeared on the local census register after 1997 are also excluded (idem).

In South Africa, municipalities have been making efforts to extend sanitation services but those living in informal or unregistered housing often miss out. Mjoli and Bhagwan found that free basic sanitation services were benefiting only those poor households that lived in formal, urban residential properties. "Households living in backyards, dense urban informal settlements and rural areas were not considered for registration as indigent households, and therefore did not benefit" (Mjoli and Bhagwan 2008).

The overcrowded slums described by Toubkiss in sub-Saharan Africa, are left to their own devices as a result of their non-legal status. "They have long been abandoned by governments and municipalities and their inhabitants do not possess title papers that would enable them to prove their property right" (Toubkiss 2008). Lack of legal status gives rise to extra problems in seeking sanitation solutions since it demobilises the people who live in the slums and those who should serve them. This was also an issue in Indonesia as described by Colin. "Many people occupy land in densely populated areas which is hard to service, and where on-site solutions are not feasible. This is especially problematic where this involves illegal settlements as municipal governments are legally constrained from including them in their projects and planning processes" (Colin et al. 2008).

Not only do the local authorities not want to do business with illegal settlements, but landlords, who often own slum houses but live elsewhere, have little motivation in upgrading their properties and improving living conditions. As Eales says in her essay: "At the lower end of the market, other concerns generally crowd out improved sanitation as a priority for both tenant and landlord, and without tenure security, there are few incentives for tenants to invest their own resources in a toilet" (Eales 2008a). The permanency of structures varies, says Holden, depending on how secure the residents feel, which is why the *favelas* of Rio de Janeiro consist of solid well-built structures in comparison to the plastic shelters in the slums of the Far East. In Pune, India, 322 of the 503 slums have been declared official, whereas Kibera in Nairobi remains unrecognised, despite being first settled in 1918.

Winter et al. who sought to work with local residents and their leaders in some South African shack settlements found that most residents were forced to urinate and/or defecate on any available open ground. A mixture of black and grey water runs continuously down the streets and between shacks – and sometimes also into residents' houses. "This neglect appears to be a product of the fact that the settlements are on invaded land and that the municipal authorities hope that they would either soon be removed, and their residents settled elsewhere, or that the settlement would be upgraded to accommodate formal housing structures each with waterborne services" (Winter et al. 2008, p6).

Sometimes the residents themselves resist improvements that they fear will delay a move to better housing. Kathy Eales reports that VIP toilets are sometimes built on the periphery of highly dense settlements where they are still too far away to be used by women and children after dark. "Moreover, residents often reject VIP toilets, partly because they would prefer flush toilets, and partly because provision of VIP toilets is

taken as proof that they will not be re-housed any time soon. Consequently many people in informal settlements rely on bad pit toilets, plastic bags or open defecation" (Eales 2008b).

The overall effect is to ensure that sanitation remains a private problem with private solutions, exactly where collective solutions are most needed. Public health and sanitation becomes the outcome of thousands of individual choices of people with no options. Black and Fawcett (2008) draw a parallel with 19th Century London: public action encourages families to improve their toilets because they too are disgusted and appreciate the results. But to do that, they need to have security and low-cost options which meet their quality standards.

Who takes responsibility for dealing with sanitation services in poor urban areas?

> "Quite a number of us come from a primarily rural sanitation background and for me the urban realities are so much more complex and there are commonalities but they are very different applications and very different linkages and relationships are involved."
>
> Source: Kathy Eales, symposium panel discussion

There was broad agreement at the symposium that civil society and households themselves have important roles to play in meeting the challenge of sanitation for the urban poor. But, services at scale cannot be achieved without the active involvement of the government. In India, according to James: "The sheer size of the problem points to a government-led solution. Not only has the state got the human and technical resources, the institutional set-up and the funds, it also has the mandate to provide these services to citizens" (James 2008). The scale of the problem makes it critical that NGOs become more actively involved in scaling up and engage with government from the inception phase onwards, beyond the end of a specific project. At the same time, governments should look at ways to support the private sector in providing safe and affordable services.

As we have emphasised in the previous section, providing sanitation services to the urban poor involves dealing with problems that are not confined to sanitation but also relate to the broader urban environment and to failing governance. In order to provide desirable and sustainable sanitation services to the poor, roles and responsibilities, accountability and land rights need to be addressed. On the other hand, consumer demands and factors motivating behaviour change need to be understood.

Discussions during the symposium illustrate that decision making and planning processes may be transparent or participatory on paper, but in practice this is often not the case (see also Baken 2008). Especially when it comes to maintenance and

operation, local authorities are almost entirely absent despite their formal responsibility for the services. Communities need to take a more active role and mobilise around sanitation. They must be acknowledged by government, donors and investors as key stakeholders in planning, decision making and in operation and maintenance. NGOs and researchers need to work more closely with the bureaucracy and politicians to influence policy change and its translation to ground realities.

However, in urban slums communities cannot resolve the problems themselves. Whereas in rural areas, total defecation free campaigns, linked to hygiene education and options for family investment in toilets have had a profound impact, city areas demand a service, not least to remove the accumulated waste. As Eales says: "Urban improvement programmes need to go far further, and give attention to what happens next: what happens when the pit, septic tank or conservancy tank is full? How and where is the waste disposed of? What roles must be addressed to make the service work, and who should perform them?" (Eales 2008a)

It's all about governance

> "I think the main thing is governance and I think that everyone is beginning to realise that unless we have good governance we are not going to succeed."
>
> Source: Richard Holden, symposium panel discussion

Improved sanitation for the urban poor requires improved governance. The background paper defines governance as the process by which decisions are made and implemented. It implies that there is a lead agency in this process (local government for example) but that governance is a complex process which brings together and attempts to harmonise the decisions of many groups and institutions. This means that support structures for planning, construction, operation and maintenance and renewal must be strengthened at all levels: household, community and city level.

Colin (2008) highlights three elements of improved governance:

I. Enabling informed decisions to assist towns in preparing urban plans and households in planning for sanitation.
II. Improving citizens' ability to provide feedback and influence planning/ decision making
III. Improving communication between different levels of government.

Black and Fawcett (2008) argue that the 19th century sanitation revolution in Britain provides vital lessons around governance, public health legislation and implementation. Firstly, sanitation needs to be recognised as a public good, which merits large public investments. Secondly, to work at scale you need to get politicians on board and link improved sanitation to "good things that people aspire to". Thirdly, there is a need to develop demand and willingness to pay for sanitation and this means understanding

what people want. In Britain, the toilet became popular because it provided convenience, rather than being seen as a means to health improvement by the users.

Box 2. Understanding why people want improved sanitation

People want to get rid of squalor and to increase their privacy. In Bhopal, when the citizens' report card was introduced to assess urban services solid waste management, drainage and other sanitation-related services were at the top of their dissatisfaction list. In Uganda, the presence of toilets and safe sanitation options mean multiple things to the poor. "They represent the convenience of an amenity, a freedom from the indignity of open defecation in spaces visible to others, a key to a better living environment and a milestone towards achieving improved health standards" (Mbaguta 2008).

In Quetta, Pakistan, an environmental management programme worked with 'lane organisations' in urban areas to construct household toilets and small bore sewers with impressive results. Women lane organisations were developed to give women a role in decision making outside the home. Men and women lane managers and committee members reported 11 major benefits of sanitation. Interestingly, while reductions in diarrhoea, malaria and leishmaniasis were highly rated at number 4 in this list, the top two benefits were seen as the disposal of sewage and a less smelly environment; ridding themselves of a disgusting environment was even more important to residents than the health benefits (Qutub et al. 2008).

Studies in various contexts have revealed that health is not the major motivation for household investments in sanitation. For example, a study by Jenkins and Curtis (2005) in Benin explored why people opt for improved sanitation and produced a long list. Reduced health care expenses and spontaneous mentions of improvements in health came in at numbers 13 and 20 respectively. The top reasons were given as 1. Avoid discomforts of the bush, 2. Gain prestige from visitors, 3. Avoid dangers at night. Even "protecting my faeces from enemies" came higher in the list than health (David Schaub-Jones, Messages from the sanitation masterclass).

The question of what motivates people to demand toilets is one of the most important for getting governance right, because this is the 'pull' factor that can drive initiatives to expand in scale and to become ingrained in communities. It is why in eThekwini, the water and sanitation services are calling in marketing experts to find out what will best motivate people to demand sanitation.

Baskovitch says that demand strategies work when customers have motivation, opportunities and the capacity to purchase the sanitation technology that suits them. In poor households of Peru, baseline studies found that improving health status was not a motivator for investing in sanitation, but for improving the home. "Motivating families to invest in sanitation in the context of the APSS initiative would need to be linked with improving housing and social status" (Baskovitch 2008).

One of the key questions the symposium tried to answer was "Whose shit is it?" Or in less offensive wording "Whose city is this?" This question captures the essence of the governance-related issues around the delivery of urban sanitation services to the poor (Verhagen and Ryan 2008). Not only do different parts of the chain need to be well governed; different parts of the chain need interfaces in between to ensure a well-functioning delivery chain. At the symposium, participants concluded "there's money in muck". But, we need good business propositions, partnership arrangements and policies that enable private sector involvement.

Box 3. Community-led governance for eThekwini sanitation

Neil MacLeod is Water Services Manager of Durban (eThekwini) municipality, South Africa, a city that includes dense informal settlements in the centre as well as rural settlements on the periphery. In the year 2000, the municipality took responsibility for 3 million people – of whom 1 million had no water or sanitation services. It also inherited 60,000 overflowing pit toilets in dense urban settlements.

MacLeod says that local governments become overwhelmed by the rate of urbanisation and most often than not, focus on the better off. "When you come to the urban poor, the response is well, make your own plans."

By contrast, eThekwini has developed community-elected steering committees to take key decisions about each 500 to 5,000 family water and sanitation project, coordinated with the social housing programmes.

"We go to that community, engage with them … find out who represents the views of the community and who they are prepared to work through. Then we ask them to make decisions about the kind of services they want to see there; affordability, costs and options. We talk about how we are going to build the project, who is going to be employed. These are community-based decisions. We can create a skilled workforce … [and] we find that those small businesses remain after we have left. We have been doing this for ten years and we can see it is sustainable".

In the densest informal areas they build communal toilet blocks with a 5-10 year life to span the gap until the settlement is formalised. By September 2008 the municipality had built 70,000 urine diversion toilets in peri-urban areas, delivered 50,000 toilets as part of the social housing scheme and completed the first year of a five-year programme to empty the 60,000 pit toilets they inherited.

"We have found that what works in rural areas or peri-urban areas does not work in urban areas. Things like ecological sanitation and VIPs do not survive because you need space for the grey water and for evapo-transformation. You become a business of transporting the stuff – in our case 20 kilometres out of the city – to find an acceptable place to dispose of the excreta".

>>

The municipality uses street theatre, workshops and show-sites to sell toilet options and is hiring marketing experts to find out what motivates people to want a toilet. Community education continues after a project is completed to ensure that systems are maintained. Research with the World Health Organization has shown a 3-5-fold reduction in levels of diarrhoea where the municipality has delivered integrated water, sanitation and hygiene programmes.

eThekwini has not solved all its problems, but continues to do research and to learn. MacLeod says: "We have come to understand this water and sanitation goal as a progressive process. We get people onto the bottom rung of the ladder and they have to move themselves up the ladder. And improving the levels of sanitation for those poor people does not only benefit them, it benefits everyone in the community."

Source: Neil MacLeod, keynote address

The main function of governance is to deliver effective and sustainable services. Borba and De Souza describe how 'governance' is often mistakenly used to refer to 'management' or the adoption of management models and institutional arrangements considered 'politically correct', such as decentralisation or transparency. They claim has access to safe sanitation, for what purpose, how, where, when and other similar questions help to define the legitimacy of strategies to implement governance." (Borba and De Souza 2008).

In the closing session participants discussed "What can you expect governments to do?" What incentives are there? Governments could expect, force, or induce change, it was argued. Governments could be an effective regulator; they could make laws and regulations and implement them. This does not cost a lot. Kathy Eales had been struck by the difference between *government*-led and *governance*-led approaches. "That to me has been the lightbulb moment. … There is a lot to say about that but in short it is whose choices predominate and how we can best support and embed the informal relationships and informal mechanisms that do exist and are working."

Rosemary Rop, urban water and sanitation specialist for WSP Africa, stressed the importance of political leadership in arriving at effective governance, to do things 'right' in a particular context. "We are talking about policies, strategies, and not wish lists. Some of the policies devised in an attempt to address this challenge of urban and rural sanitation have been wish lists. Some of them we have seen in Africa. They have been wish lists so that potential donors will come and ride on the bandwagon. They have been completely unlinked to the legal framework. They have been completely unlinked to financial strategies. We are not talking about those kind of policies but ones that have been thought through carefully with a bit of fear and an understanding that many policies have not been effective in the past" (Rosemary Rop, keynote address).

Encouraging communities to make the environment and sanitation a political issue, several contributors agreed with Rop that policy makers can be motivated by fear of

losing reputation and revenue. "People don't want to come to a country where the rivers smell and the beaches are dirty," Neil MacLeod reported back from the session on *what governments can do*. Colin concluded that securing the active support of the mayors was an important breakthrough in getting cities to sign up to the Indonesia Sanitation Sector Development Program (ISSDP). "The summits attracted a lot of media attention and it became clear that pride and inter-city competition were powerful motivating factors. One city was reported in the press as the dirtiest in Indonesia and this prompted the mayor to ensure that his town did not languish at the bottom of the league table" (Colin et al. 2008).

As well as addressing politicians directly, it is also important to engage with the officials who are the gatekeepers for these issues and can promote good technical solutions. However, as James points out, officials take their orders from politicians.

Cases presented at the symposium show the importance of taking political dynamics into account. Experience from the Basic Urban Services Programme in Sri Lanka reveals that understanding the political dynamics and institutional context and effectively involving decision makers and their institutions is crucial to get good ideas implemented and solutions taken to scale (Smet 2008, p. 9). The same message comes from South Africa where Winter reported that in some shack settlements "increasing distrust between residents, elected political councillors and local authorities is a recipe that characterises the failure to implement sustainable services" (Winter et al. 2008).

James compares the task to getting elephants to fly: the scale and complexity of the problems requires a new way of working for bureaucrats, politicians and the rest of civil society. Participants agreed that this is a crucial challenge to engage in: if NGOs and others in development want the bureaucracy and government to change the way they do business, they have to invest time and effort in encouraging and helping them to do so.

Demand, capacity and regulation: a key role for government

The complexity of governance means that there can be no single solution for mobilising government, communities, NGOs and the private sector in a coherent way. It is clear that diverse issues, like demand, capacity for supply, finance and the regulatory framework all have to be in place, and more or less at the same time.

To mobilise consumer demand and support private sector investment. Black and Fawcett (2008) argue that it would be more effective to lay the groundwork in terms of planning, social mobilisation, regulation and investment, allowing people to adopt toilets when they are ready, than to go all out immediately for high coverage rates. Eales points out that the 'right' to a top line service is not much use to the poor if it cannot be delivered. Kamara suggests that governments can make a difference in communities where families do not own properties by making toilets compulsory in rented property and playing a stronger role in regulation, enforcement and large-scale awareness campaigns (Kamara et al. 2008).

Consumer desire for improved sanitation services may evaporate or never reach fulfilment if the barriers to translating this desire into action are too high. Some argue for developing small-scale entrepreneurship in toilet construction and emptying services to bridge critical gaps in demand satisfaction. If there is indeed "money in muck", then government should focus on supporting, incentivising and enabling the work of these small-scale providers (Eales 2008a). "But getting such businesses off the ground to foster a new, low-cost sanitation economy will require public investment and support, at least initially. [...] Once consumer interest has developed on a comprehensive scale measurable health impacts can materialise – so long as the rest of the infrastructure to service it (physical and administrative) is in place. [...] However, at present, examples of such approaches are few and far between" (Black and Fawcett 2008).

Different governance approaches are needed for a multitude of different poverty-stricken urban settings. Households, the private sector, civil society, and governments have a role to play. However, there is often a vacuum where governance should be. Rop describes how urban slums in Africa grew out of the segregationalist policies of the colonial period but in post-colonial times came to be seen as a symbol of vibrant economic growth. "As a result you have now a sort of laissez faire, where growth continues and in a place like Nairobi, 60% of the population is living on 5% of the space. You also have a situation where the three key players have no incentives to invest in urban sanitation – government, landlords and tenants themselves. We have inherited a political economy which has blocked out investment in urban sanitation. So we need to address governance issues and recognise these deep seated traditional approaches."

When public agencies fail, people find their own solutions for managing excreta and waste by turning to private providers. Van Dijk (2008) points out that Small Scale Independent Providers (SSIPs) and households sometimes account for 95% of the sanitation solutions in cities in developing countries. SSIPs have a role to play in provision of (spare) parts and other services for construction, maintenance upgrading or replacing facilities. However, we cannot look only to the private sector for solutions. According to Black and Fawcett "full-scale industrialised world sanitation would never have happened" [..] if left to the demand and profit principle" (Black and Fawcett 2008).

The role of civil society, the private sector and NGOs is seen as crucial in the partnerships that we will discuss in the next section. However, few would argue with James about the answer to the question that started this section: who actually has the primary responsibility to deal with the urban sanitation crisis. "It is the state – as opposed to civil society – that has the inescapable duty of providing adequate 'civic services' to its citizens. As the human rights perspective shows, the government is a 'duty bearer' and citizens are 'rights holders', and the government can be held accountable for failing to provide adequate services to its citizens" (James 2008).

Partnership approaches for tackling urban sanitation for the poor

" Partnerships are not a substitute for action by government, nor do they absolve government of responsibility for investing in service provision. But they do hold the potential to harness fresh approaches to achieve public sector objectives, leverage capacity and broker the relationships needed to overcome mistrust, disengagement, poor accountability and the fragmentation that characterises the sanitation sector. A key feature … is mutual respect, and recognition that the whole can be greater than the sum of the attributes and competencies of the constituent partners. Because sanitation is multi-disciplinary and cross-sectoral, effective partnerships require extraordinary commitment to step into the grey areas where needs are evident but responsibilities and accountability are not defined."

Source: Eales (2008a).

Urban sanitation is strongly segmented: In Indonesia, for example, six to nine offices are involved in urban sanitation, in some cities as many as 16 offices (Colin et al. 2008). The reality of fragmentation, the sheer scale of the problem and pace of urbanisation all point to the need for bringing stakeholders together to use their strengths to reach the poor. The background paper asks: *Are partnerships then a viable solution to the problems of governance?* The answer is found on the one hand in the inspiring examples of partnerships that exist and are tackling urban sanitation, and on the other hand the difficulties of extending and sustaining partnerships in this environment.

Eales notes that the profound challenges of sanitation are harder to resolve than those of water but that this strengthens the need for partnerships. "Effective urban sanitation requires integrated thinking across a range of areas: excreta management, drainage, management and transport of wastewater (and, ideally, storm water), solid waste management, hygiene behaviour, public and environmental health management, innovative financing, and so on. From the perspective of government, a useful starting point in any urban sanitation improvement initiative is to bring together the range of stakeholders involved in urban planning, public health and service delivery, and agree on common goals and approaches which serve the needs of the urban poor. Yet this is the exception, not the rule" (Eales 2008a).

Partnerships come in different forms and citizens can be engaged at different parts of the sanitation cycle: in planning (Lüthi et al. 2008; Colin et al. 2008; Smet 2008), in operation and maintenance (Winter et al. 2008), in monitoring (Borba and De Souza 2008, Kumar 2008) and in construction (Kamara et al. 2008; MacLeod 2008).

Examples of successful partnerships

> "Partnership is about systemic change. Things being done differently in a systematic way. Here we are unleashing the abilities, energies and competencies of different sectors allowing them to come together to do things in a different way. Let us see in these success stories how the energies and capacities of other sectors are being unleashed and what we can learn from that."
>
> Source: Rosemary Rop, Keynote address

A number of promising partnership approaches were presented at the symposium in background essays, presentations and keynote addresses. The background essays also acknowledge the inspirational work done by partnerships in constructing low-cost sewerage in the Orangi Pilot Project in Karachi (Sijbesma et al. 2008) and in building communal toilets in Pune and Mumbai (Baken 2008; Eales 2008a) at a scale that can start to be considered an urban service. These initiatives involved strong local organisations that were able to act as real partners with local government and donors rather than simply being clients of outside agencies. The Orangi Pilot, which has been widely copied, brought together local government with 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. Local government officials were empowered and provided with incentives to act while voters got support for community-led and managed schemes. (Sijbesma et al. 2008). In Mumbai a consortium of local organisations (the SPARC Alliance) worked with the city government with World Bank funding to build communal toilet blocks that provided affordable and manageable sanitation and washing facilities for hundreds of thousands of poor households. Baken concludes: "this helped to change the relationship between slum dwellers and local government. Organisations of slum dwellers were recognised as a capable and competent partner in improving urban infrastructure" (Baken 2008). In Pune, an enlightened Commissioner worked with the Alliance and other NGOs, completing more than 400 toilet blocks with more than 10,000 seats over a three-year period: "The Pune programme helped to reconfigure relationships between the city government and civil society. NGOs and communities were no longer regarded as 'clients' or 'supplicants', but as partners" (Idem). And the work of the SPARC Alliance of civil society organisations has spread, constructing community toilet blocks for almost 400,000 people in more than eight cities and training community groups to build, manage and maintain these toilet blocks (James 2008).

The Household Centred Environmental Sanitation (HCES) approach is an integrated approach in which the households and neighbourhoods decide on the services they need and these needs are then addressed by the local and higher levels of government. HCES not only puts household and neighbourhood priorities and means at the centre of the planning and implementation process, but also involves a wide range of stakeholders from government, private sector and civil society. While the 12 month

planning process starts with assessment of user's situation and priorities, government agencies are involved from the beginning as well. In the HCES approach the household and neighbourhood priorities are at the centre of the planning process, while at the same time other stakeholders – ranging from government to private sector – are involved too. "Thus, the link between community expression of needs and mobilisation of resources to solve them is assured" (Lüthi, Morel and Tilley 2008, p1). However, the HCES approach has not yet been proven at large scale.

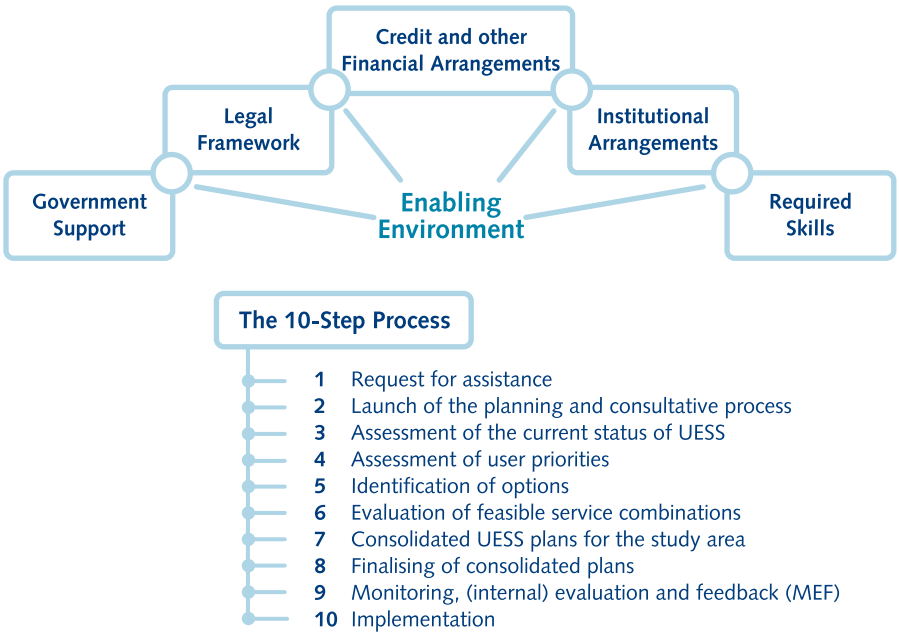

Fig. 1. Household Centred Environmental Sanitation – The defining elements of the HCES approach: an enabling environment framework and a 10-step planning process. Source: Lüthi et al. (2008).

The eThekwini municipality partnership model allows for the promotion of different technologies for different socio-economic groups and environmental conditions. The municipality has committed itself to providing an acceptable basic level of water and sanitation to all households in rural and peri-urban communities by 2010. Committees representing community members and private providers have engaged in an effective service provision partnership. Different sanitation solutions are applied in different parts of the municipality. Neil MacLeod, Head of Water and Sanitation in the eThekwini municipality says that partnerships are even more of an issue in urban poor communities.

An innovative partnership approach for low-cost sewerage is illustrated by the Quetta Katchi Abadis Environmental Management Programme (QKAEMP) which operated in Pakistan between 1997 and 2003, through a partnership between city governments,

community-based and non-governmental organisations, working through lane organisations. This public-private and civil society partnership for environmental management provided small-bore sewerage for 16% of residents in 47 *Katchi Abadis* (informal settlements) across Quetta city and provided sustained health and socio-economic benefits. Households were required to contribute 50% of the estimated cost of the lane sewer. In most cases, the lane organisations divided the burden equally and decided whether to make any exceptions for the poorest households, through a targeted, moderate, performance-responsive subsidy. Women lane organisations played a key role in raising savings for sanitation. "In places, they even negotiated deferred payment schedules for food items with the local grocery vendors in order for the financially weakest members to make their contribution to the sanitation programme" (Qutub et al. 2008).

An innovative partnership in Brazil aims to bridge the gap between city dwellers, municipalities and the state authorities. Residents and the sanitation company identify topics to be monitored and actions to be taken in order to address priority improvements (Borba and De Souza 2008).

The Alternative Pro-poor Sanitation Solutions (APSS) approach in Peru pays special attention to the active involvement of the private sector in sanitation supply, promoting it as a business opportunity to benefit local development as well. "A key element of the APSS implementing strategy is working out public-private alliances with different actors in both supply and demand sides. The model relies on key alliances and interactions among public and private actors. These alliances operate at local, national and regional levels and are meant to allow sustainability and scaling up for local sanitation markets" (Baskovich, p. 4).

In the slum communities in Kampala where the local NGO SSWARS introduced a social marketing approach, partnership has paid off. "The combination of efforts by SSWARS together with other NGOs in the water and sanitation sector and Kampala City Council government authorities in Kawempe Division has led to a dramatic decline in cholera cases during the rainy season. In 2007, only one cholera case was reported in the division compared to 333 cases in 2006" (Kamara et al. 2008). Kamara sees strategic governance and partnerships as essential to sustain interventions and strengthen the work of each partner.

Partnerships can link and strengthen groups in different areas and so spread innovation. UWASNET, the national water and sanitation network of NGOs in Uganda, with a mandate to strengthen coordination, collaboration and networking, has a membership of 170 NGOs.

in alignment – when you have an alignment of officials, managers, mayors, national government as well, that is when you succeed'. And the trouble is it is so hard to get that."

Source: Richard Holden in the panel discussion

Why do some people succeed? In all the examples stakeholder participation is key to success. In Karachi, Mumbai and Pune, in the HCES approach, the partnership approach in Brazil, and eThekwini initiative, the starting point was assessing the needs of residents who can address their priorities. Partnerships can also drive policy. Kumar describes the use of citizens' report cards and participatory town planning in Madhya Pradesh, India to increase citizens' involvement in improving sanitation services. Like the report cards used in Kenya (Eales 2008a) this is a partnership for advocacy that can inform the direction of new policy even when not directly geared to service delivery.

However, Rop alerts us to the danger of thinking of communities as a homogenous mass. Partnerships are also about seeking out the most vulnerable. "There are two aspects to community centred approaches. The idea that communities have a voice; that they have something to bring to the table in terms of tailoring what they need, targeting their own needs, owning it; that they have a valuable contribution to make. But also there are issues of gender and how can we ensure that the needs of the most vulnerable are met" (Rop Keynote address).

Winter argues that effective community-level solutions to wastewater management depend on the establishment of partnerships and trust amongst all stakeholders; but creating these co-operative relationships in informal settlements is complicated by issues of land tenure, the role of residents in planning and maintenance and the difficulty of long-term service delivery. Winter points to the need for demand stimulation, local government support and leadership. At the same time communities need to be organised and require external technical support to help them choose the most appropriate solutions that they can maintain.

Box 4. Sharing the costs of sanitation: partnership approaches

In *Sustainable financing options to sanitation for the urban poor* Kamundi (2008) describes a project in Kenya where the NGO, Practical Action and the Nairobi water company have worked together to improve sanitation in informal settlements through financing landlords to construct facilities for their tenants, financing trunk infrastructure to support community level facilities, and partnering with micro-financing institutions.

Limitations of partnerships, lessons from reality

Though partnerships between government, civil society and (often informal) private service providers are promising, experience shows that developing them is not easy. Eales states that partnerships require mutual respect, trust, and recognition that working together will benefit the individuals and have a greater result for the poor (Eales 2008a). These elements are not always there.

In the Quetta case, despite its success, Qutub says that the Government of Balochistan Pakistan and NESPAK (National Engineering Services Pakistan Limited) are thinking of reverting to the departmental and contractor mode of lane sanitation delivery. "It is alleged that civil society intermediation is costly and community construction is not up to standard. The minutes of meetings with government are not circulated in a timely manner. It is not known to civil society stakeholders what forums are authentic and what decisions are final" (Qutub et al. 2008). Qutub says that going back to the old model will revert to high levels of subsidy a backwards-looking policy that is "a matter of conscious political choice, driven by considerations other than the most sustainable way of delivering sanitation services" (Ibid).

Lüthi too sees a tendency for governments to recidivism. "The limitation of working with governmental agencies is their basic reluctance to deviate from the conventional way of doing things (i.e. stick to conventional planning methodologies and sanitation technologies), and to overcome the top-down decision-making processes which still pervade" (Lüthi et al. 2008). Allen notes that municipalities generally have little experience of working with the private sector to deliver basic services and this makes partnerships more problematic (Allen et al. 2008).

Although success is clearly demonstrated in the cases presented at the symposium, there were no examples of cases in which all steps are carried out yet. We can concur with Eales that successful partnerships are an exception rather than the rule. "Precisely because sanitation is multi-disciplinary and cross-sectoral, effective partnerships require extraordinary commitment to step into areas where needs are evident but responsibility is not defined. This calls for strong champions, lasting commitment to see through the accomplishment of key tasks, and ideally a clear policy framework" (Eales 2008a). Eales suggests local accountability mechanisms, mediated through CBO and NGOs, are likely to be more effective than formal partnerships (Eales 2008a).

James suggests that it is not only governmental bodies and bureaucracy that damage partnerships. They can also be damaged by the limited time frames of NGOs. …"Most projects end with making presentations of the evaluation findings ('key lessons learnt' or 'key policy recommendations') to senior bureaucrats, hoping that somehow, almost magically, these recommendations will be scaled up through government policy to cover the entire country (or region or state). There is little effort made to understand the enormous effort required to put into effect a single policy change" (James 2008).

"While NGOs or the private sector may have shown the way through innovative pilots or demonstrations, the real reason for the larger-scale success is that bureaucrats in partner government organisations have been convinced by the potential of the pilot

project and have actively facilitated its implementation.... In each case, the large, inefficient, over-staffed, under-paid, under-funded, corrupt and slow-moving ULBs (urban local bodies) of India have been made to change tack and improve the quality of service delivery. In other words, the elephant has been made to run, even if only for a short while" (James 2008).

What is needed?

Partnerships have to be built with those who have a real base in reality and can deliver and they have to be built on mutual respect. A funder-client relationship is not a partnership. Rosemary Rop in her keynote address used the analogy of the African stool, carved from a single piece of wood and standing firm on three legs. "What we need is a partnership of actors. We need the enabling environment from government. We need the energy and innovation and community linkages from civil society. We need the capacity of the private sector, the energy and the opportunities that it provides. We also need a partnership in vision and philosophy. It is not only the private good and public good; it is about a unified good. ...So it is no longer a charitable Pollyanna; it is no longer a money-minting Mr Wall Street concern, it is no longer the watchful big brother. Instead it is the new synergistic opportunity, three legs of the African stool. Its identity is rooted in social conscience. It is upheld by institutions of polished mature wood. It is sustained by far-sighted commercial sense. But none topples the other. Stronger than before they all stand as one". (Rosemary Rop, keynote address).

How do we deal with it? Technologies for urban sanitation for the poor

There was widespread agreement that no one technological model provides a sanitation solution to the urban poor. Different technological models are needed for the continuum of urban areas, and no technological model is adequate in the absence of a comprehensive approach and specific governance arrangements to ensure safe treatment and disposal. Solutions need to address the whole sanitation chain, rather than promoting particular technologies. Different technologies also require specific financing models. Toubkiss assesses the overall task as choosing something appropriate to the local situation. "From a technical point of view, the main challenge is to find technologies appropriate to local conditions, not directly imported from the North, and ones that are affordable for poor governments, municipalities and populations" (Toubkiss 2008).

Affordability and viability includes the feasibility of keeping the technology running effectively. Eales reports on a 2006 survey of 51 treatment plants in South Africa, which found a critical shortage of trained and skilled staff, particularly experienced process controllers and mechanical/electrical maintenance staff. It reported that 56% of the plants lacked the skilled staff to maintain the installed mechanical/electrical equipment and instrumentation adequately, while 50% were understaffed and needed additional skilled operators (Eales 2008b).

The symposium heard how 90% of the developing world relies on onsite sanitation (Rop, keynote address). Operation and maintenance and safe disposal of faeces, urine and wastewater are neglected and households and private providers continue to dump untreated waste in the absence of affordable options. Onsite disposal is only an option where houses have sufficient space for yards or gardens: in more crowded environments urine as well as faeces must be taken away and disposed of (Holden 2008). Indeed Eales argues that "to a large degree, the presence of simple pit latrines in an urban context reflects a failure in public planning and service delivery" (Eales 2008a).

When the quality of provision is poor, people may come to regard the technology 'choice' as part of their second-class status. In a baseline study of provision in APSS pilot areas in Peru, one in three latrines had no superstructure and one in four had no roof, "reinforcing the perception of latrines as insecure systems lacking in privacy" (Baskovitch 2008). Baskovitch argues that improving sanitation needs to go beyond access and addresses quality issues as well. "While poor people look for a lasting, definitive and integrated sanitation system they have been receiving latrines that are perceived as fragile, transitory and partial given the fact that they lack access to public water and sewer networks" (Ibid).

> "Sanitation is more than toilets. It is about cleaning up for health. Household sanitation is at the centre. Household-centred approaches have strong potential. We need to think about everything that is involved in a clean environment, not just about toilets".
>
> Source: Richard Holden, closing panel

Ecological sanitation

Eco sanitation approaches are described in the papers of Khataza (2008), Bracken & Panesar (2008), and Platzer et al (2008). Bracken & Panesar (2008) argue that affordable eco-sanitation alternatives bring double benefits to the urban poor: they protect health and improve agricultural production. They cite the FAO as seeing accelerated urbanisation in developing countries as having potential to achieve higher nutrient recovery from human excreta for crop production. They stress, however, the importance of functioning local authorities in getting these systems applied at city level. They provide examples from the Philippines and Burkina Faso. Platzer, Hoffman and Ticona (2008) studied a model for a dry sanitation solution in urban areas of Peru with urine diversion (UDD) toilets which they say would free up enough water to provide for 50% more inhabitants and would cost less than a waterborne solution. Their model includes a system for household collection of urine and dry faeces.

The good and promising part is that these ecosan projects use an "interdisciplinary approach that includes the technological aspects of excreta and wastewater management, their agricultural use, sociological aspects of acceptance and cultural appropriateness, health and hygiene, town planning, economic and small-enterprise

promotion, institutional administration" (Bracken & Panesar 2008) and the integration of municipal authorities.

The challenging part lies in the potential for scaling up. The projects described are not large-scale: it is about 30 urine diversion hydration toilets, one wastewater treatment plant, one biogas installation, the creation of (an unspecified number of) allotment gardens in another city in the Philippines, and 30 urine diversion dry toilet systems in schools. In Ouagadougou, Burkina Faso, the project has the ambition to reach up to 300,000 people to inform them of the potential of ecosan, but only 1,000 households, 2% of the city population, are being supported in obtaining an ecosan system. At the time the paper was written, 378 homes were using UDD toilets and 11 public toilets have been built. On the other end of the spectrum, there is the example of eThekwini municipality, where 70,000 urine diversion toilets have been constructed, the largest number anywhere in the world. According to Neil MacLeod, 90-95 % are being maintained. Why then are these technologies often not scaled up elsewhere? Experience from the symposium points particularly to the lack of institutional support, difficulties relating to logistics and to users' perceptions. More needs to be learnt on these issues and the potential for scaling up ecosan remains a topic of heated debate. The logistics are critical to transport separate waste streams out of the slum to be re-used outside the city. Some are frankly sceptical that this is viable. Even advocates agree that there is a need for more work. Platzer et al. say that their (theoretical) dry sanitation solution for urban areas in Peru has proven itself as a better economic and ecological solution than waterborne systems but concludes "We need practical examples!" (Platzer et al. 2008). The fundamental question will be whether local authorities which do not seem to have the capacity to establish an effective governance system for current sanitation approaches, will be able to develop a system for the mass removal of urine and faeces through a household collection system within areas where there is not even space for a vehicle.

Condominial sewerage

Condominial sewerage systems consisting of small bore sewers constructed at the back of houses or in lanes have been widely used in Latin America, and have spread to other countries. This system was described in the example from Quetta in Pakistan. Such low-cost systems take care of both urine and faeces, and allow for networked sewers which address the drainage and excreta management challenges of dense settlements at roughly half the conventional cost (Eales 2008a). They are often the outcome of successful mobilisation campaigns where communities come together to resolve their common difficulties in sanitation. Indeed they are dependent on collaboration between the community and local government and require a certain level of mobilisation and organisation in the community through a CBO or NGO (Allen et al. 2008). The model has spread to a number of countries inside and outside Latin America. As well as needing a strong mobilising group and a good partnership with a provider or local authority, there is also the question of what happens to the sewage at the end of the condominium system. This should flow into a regular sewerage system and lead to a treatment plant, but in many cases there is no treatment and some systems do not connect to sewerage systems. In Quetta for example, the effluent is disposed off to

municipal sewers, open drains and natural ravines (Qutub et al. 2008). Such systems require legal security and the continuing involvement of communities, and are not suitable in every environment.

Community toilet blocks

The community toilet movement in India has undoubtedly been a success providing almost half a million toilets in some of the most densely packed urban areas. Success has also been demonstrated in the eThekwini approach. As Eales points out "Communal toilet blocks are proving highly effective, because they concentrate usage in one place and so make sewer connections, management and operation financially viable" (Eales 2008a). However, it is not the technology that determines these successes but the governance arrangements and the attention paid to making them work. "These blocks readily lend themselves to partnership arrangements, where the skills and the strengths of different partners can be leveraged to best effect" (idem). Baken (2008) writes about the success of community-managed systems but also described how disastrous communal blocks can be if badly managed. "Indeed, the regular, government-constructed community toilet blocks constitute examples of hopelessness. …Construction and maintenance agencies showed no accountability to the communities concerned, meaning that they developed no sense of ownership. Most toilets became blocked, dirty and in serious disrepair within three months of construction, leaving people with no alternative but to defecate in the open" (Baken 2008, p12). Moreover communal toilets are not a panacea since they do not address issues of personal safety adequately, especially for women and children at night (Eales 2008a).

Other promising technologies discussed at the symposium address what happens to waste at the end of the line. These include decentralised wastewater systems (DEWATS), a modular technology for treating up to one megalitre of organic wastewater daily, and integrated algal ponding systems (IAPS) described by Eales as a significant advance on conventional pond systems.

Technology choices

Emphasis was placed on involving communities in making technology choices, as part of the process of addressing governance and building capacity. Lüthi, Morel and Tilley describe the HCES approach which attempts to address acceptability and affordability of solutions by involving a wide range of stakeholders in technology choice as well as in planning for operation and maintenance. The process takes into account local geography, culture, economics and demand and is informed by a "compendium of sanitation systems and technologies" providing a range of options that can support this participatory process (Lüthi et al. 2008).

Another example of an approach that addresses the whole sanitation chain is the Indonesian Sanitation Sector Development Program (ISSDP) described by Colin et al. (2008). The city-wide strategy documents address sanitation in its broadest sense: excreta disposal, drainage, solid waste management and hygiene behaviour. They look at infrastructure development, rehabilitation and physical and financial aspects

of operation and maintenance. One factor for success was: "avoiding 'blueprint' approaches to infrastructure development and instead, starting from an analysis of what already exists, then considering how this could be improved in incremental steps as funds and municipal capacity grow" (Colin et al. 2008).

User needs and preferences as well as affordability are key parameters to keep in mind in technology design. Experience with ecosan in South Africa and in Latin America (see for example Platzer et al., Hoffman, Eales) show that people's expectations about what 'improved sanitation' looks like may inhibit uptake of new technologies. These perceptions must be understood: If people see flush toilets as the solution and anything else as second class or temporary service, then they will not opt for that technology. Eales notes how flush toilets have historically been associated with white privilege and dry toilets with racial discrimination in South Africa, leading many people to regard flush toilets as the only viable option. Even low-cost flush systems may not be accepted. Pilot projects to introduce condominium sewering in Johannesburg and Durban have not been scaled up or replicated, because residents regard them as a lower standard alternative, and are not willing to take on responsibility for local maintenance when adjacent settlements with conventional sewering are not required to do so. (Eales 2008b). This view is not confined to South Africa. In Peru too, says Baskovitch, there is a preference for waterborne sanitation systems. "A greater percentage of the poor, in either urban or rural locations, has shown willingness to invest in waterborne sanitation systems rather than in improved dry latrines" (Baskovitch 2008).

In the broader (non-WASH) sanitation field there are also examples of how technological choice can be problematic. Smet describes how incoming councillors in Colombo, Sri Lanka, turned against a pro-poor scheme drawn up by the predecessors to deal with solid waste, against advice from the mayor and commissioner. "The newly elected Kotte councillors decided not to follow the environment-friendly and pro-poor approach in the Integrated SWM strategy, which would have brought many low-skilled paid jobs, but to go for central waste dumping through contractors and incineration of solid waste, with technology and installation provided by a European/French firm. The municipal direction on SWM changed 180 degrees" (Smet 2008). Smet sees an irony in the fact that the original strategy was devised through a participatory process backed by Dutch development money, but it was not able to withstand the commercial sales pitch from a European company.

Introducing technical options is a sensitive process. "Starting with an advanced technology (sewerage) creates expectations that make other, perhaps more feasible and sustainable options (e.g. ecosan) less attractive and seem backward" (Smet 2008). Others conclude that any alternative technological solution "has to be operated to a quality for the user which could be compared with a waterborne (WS) system" (Platzer et al. 2008).

We can conclude that technology not only has to be appropriate to the task but those introducing it also have to be sensitive to the political, social and cultural climate. There

is a long way to travel in solving the logistical and technological problems to make non-flush systems work in dense slums, but also in making them acceptable to people. There is moreover still a technological emphasis on the toilet end of the chain, and not enough on collection, transportation, treatment and reuse. Should research focus more on the Vacutug (first developed in 1995) and where the Vacutug will take the waste and less on the toilet?

Who foots the bill?

"Amongst all the problems cited for the failure of urban sanitation services for the poor, finance constitutes one of the most fundamental obstacles. Almost all the models for providing scaled up services rely on the users being able to contribute substantially to service provision – yet in urban areas, the start-up costs of any large-scale scheme are huge. The issue of financing sanitation services is characterised by a lack of clarity, lack of agreement and lack of data. What scarce data are available mostly concern the delivery of toilet seats rather than a sustainable service."

Source: Verhagen and Ryan 2008

While various studies show substantial economic benefits of public investment in sanitation, cases presented at the symposium reveal that sanitation is still often regarded as a private matter, resulting in lack of public investments in sanitation infrastructure and services. In Indonesia, for example, government expenditure on sanitation stands at 0.04% of total public expenditure (Colin et al. 2008), while coverage is among the lowest in Asia: only 1% of the population is served by sewerage, while the rest rely on self service and private providers. This private obligation is often failed. The cost of emptying pit latrines or septic tanks is often beyond people in poorer households (Allen et al. 2008).

National policies are insufficiently translated into programmes to develop a better living environment for the poor. In Indonesia, for example, the government adapted national sanitation goals in line with the MDGs, but has not developed a strategy for meeting these in urban areas. Municipalities are under little pressure to improve sanitation services and have difficulty accessing funds. Where improvements are undertaken, they tend to be piecemeal and disconnected to a strategic plan for the city as a whole (Colin et al. 2008).

Rosemary Rop questioned whether "lofty declarations" about spending are based on a real analysis of needs. In the eThekwini declaration African governments committed themselves to dedicate 0.5% of their GDP to sanitation. However, this would raise much greater sums of money than needed to meet the MDG target and the question was whether governments really understood how to spend the money. "As soon as we go down to the actual figures, the question begs. Is it going to be on operating

expenditure? Are you going to subsidise investment for the poor? Sewer works? Is it about capital expenditure? Is it about software, hygiene, marketing? These are critical questions on financing that you need to answer. When you begin to answer, we move away from the lofty declarations to something more concrete and a realisation that once there is more money, perhaps it is more than that." (Rop, Keynote address).

However, Toubkiss queries whether all the costs are in fact taken into account for the MDG estimates. "A review of sanitation… suggests that approximately US$ 26 billion are needed to achieve the national sanitation goals in Africa. This amount is consistent with recent macro-level assessments which have highlighted that an approximate US$ 23 to 50 billion would be necessary over the period 2000-2015 to reach the sanitation MDG (i.e. US$ 1.5 to 3.4 billion per year depending on the estimates). Such an investment represents 1 to 3 times what is required to reach the MDGs for water. However, these estimates only take into consideration the cost of collection and – sometimes – treatment of wastewater, ignoring the cost of evacuation. Furthermore, they do not encompass all categories of expenses since most countries exclude from their investment needs assessments, feasibility studies, operation and maintenance, capacity building, hygiene education and sanitation promotion, policy formulation, planning, monitoring and regulation. Consequently, the cost of reaching MDG Target 10 on sanitation will be considerably higher than even these estimates" (Toubkiss 2008).

Sijbesma also concludes that data on the full life-cycle costs of WASH services is lacking, which makes it impossible to make economically sound decisions, or to properly assess the financial value of any investment in sanitation (Sijbesma et al. 2008).

While the cases presented at the symposium provided some insight into costs, a balanced picture providing investment, maintenance and operation, as well as direct and indirect support costs, still cannot be given.

Who pays?

Finance can be raised from a range of sources such as households, communities, private sector, and government. At present, the urban poor are often left to find their own solutions and effectively finance their own sanitation. Cost recovery is a real obstacle to financing the entire sanitation chain rather than just funding initial capital costs or subsequent pit emptying. However, the discussions and papers presented state clearly that sanitation is a vital public domain responsibility. The sustainability of sanitation services such as sludge treatment or shared/public facilities is problematic because "negative effects of failing sanitation services are mostly felt 'downstream'" (Sijbesma et al. 2008).

Toubkiss points to major bottlenecks to increasing sanitation coverage in South Saharan Africa: stimulating household investments in onsite facilities and financing ongoing maintenance and operation. Since the private sector will not solve the problem of extending services to the poor, Government investment is crucial to ensure that consumer demand is translated into improved sanitation services for all.

Stimulating household investments for on-site sanitation facilities and anticipating the financing of ongoing maintenance and operation are key areas for innovation according to Toubkiss and crucial for reaching MDG 10. He says that it is difficult to charge poor households to maintain mini-sewerage systems, especially if they see it as just another facility, like roads. "Households do not save money as a result of having this facility, which would enable them to set aside a sum each month to pay the fee, particularly if it is a payment in advance, as this is, to finance repairs that are not necessarily needed straight away. Families have other priorities, like food and healthcare. In addition, they do not feel particularly concerned by the maintenance of structures that are far from their home (main drains, treatment plants etc.). All they want is to have their wastewater taken away: they do not want to concern themselves with where it goes and how it is dealt with" (Toubkiss 2008).

What innovative finance mechanisms could mobilise these resources?
Sijbesma states that innovation is needed to adjust finance mechanisms to the needs and abilities of the poor and to access funds in a more coordinated and strategic way, rather than developing totally new mechanisms. The focus should be on decentralised levels: community, sub-sovereign, local government or municipal level rather than national level (Sijbesma et al. 2008).

There is some positive experience in microfinance loans involving banks, such as the Dutch SNS Bank, microfinance banks and even commercial banks as documented by Keijzer and by Arney. Heather Arney describes a successful water and sanitation loan fund deployed through a network of women's self-help groups in Southern India (Arney 2008). The loan fund has reduced barriers faced by poor women to credit from formal lending institutions and has resulted in increased household investment in water and sanitation facilities. Microfinance principles can be successfully applied in the water and sanitation sector. When tied to participatory community groups, a viable market can be made for credit (Arney 2008). In her case study, loans taken out to improve water and sanitation by members of women's self help groups in India were repaid and the "pay off" from having access to an improved water and/or sanitation facility in terms of time and money saved can outweigh the cost of repaying the loan (Ibid, p7). She doubts that credit programmes alone, even in the presence of subsidies, will achieve universal access to water and sanitation, but concludes: "Catalysing the development of local credit markets appears to be a powerful tool for increasing access to water and sanitation and improving health outcomes" (Ibid).

"[...] micro finance does not exist in South Africa and there seem to be lots of opportunities. I can see that I need to go and talk to our government and to the local government people to see how we marry all these different players together to set up some microfinance opportunity for people to move up the ladder away from what government delivers for them."

Source: Neil MacLeod in the panel discussion

However, based on 12 case studies in sub-Saharan Africa, Toubkiss concludes that microfinance cannot substitute for subsidies when it comes to services for the poorest. He says that microfinance is often restrictive and inaccessible to the poor and argues for well-targeted household subsidies, for which microfinance could be used as a complement. More research is needed into how subsidies can best be managed in order to avoid demand distortion and loss of ownership. More time is also needed to see how well those programmes fare that try to function without subsidies (similar to the rural community-led total sanitation campaigns). Toubkiss also suggests that a sanitation surcharge on existing water services (as applied in Burkina Faso) is a promising way towards sustainability.

Box 5. Financing city-wide planning programme: lessons from Indonesia

Experience in six cities in city-wide sanitation planning through the Indonesia Sanitation Sector Development Program (ISSDP) provides lessons on financing:

1) Government needs to rationalise and publicise existing funding mechanisms for urban sanitation. Funding for urban sanitation improvements is potentially available from existing government sources, but municipalities do not know how to access it, while provincial governments have funds but do not know how to disburse them. Better communication between tiers of government is essential, as is access to multi-year funding for large investment programmes.

2) The sanitation sector needs common government/donor approaches based on a mutually agreed sector financing strategy and investment framework to achieve national targets.

Source: Colin et al. (2008)

A participatory budgeting mechanism through which communities can participate in urban planning is mentioned by Smits et al. in their paper on governance of urban environmental sanitation in Latin America. In Belo Horizonte and Lima "part of the municipal budget is set aside for works proposed and prioritised by the communities themselves. At neighbourhood level, citizens can propose certain works, and community organisations can vote for those works that they consider being priority" (Smits et al. 2008).

Keijzer et al. (2008) describe a Dutch funded approach being piloted in peri-urban areas in Africa that uses a range of technical options and combination of funding mechanisms (grants and loans). In one such scheme, if the utility provides household toilets, households pay a fee to the utility covering the costs of toilet construction over 7-10 years as well as the regular costs for the service. The household becomes the owner of the toilet and is responsible for cleaning and maintenance. In case of a public toilet, the block owner will be responsible for operation and maintenance and will pay a fee to the utility from the charges it collects from users.

Closing the loop and selling the product

Several authors call for a change in our perceptions to recognise the value of waste as a resource. Khataza argues that ecosan toilets have the potential in Malawi to close the sanitation cycle and generate income, as the high price of chemical fertiliser creates a growing market for compost. He describes a sanitation savings and loan scheme through the Malawi Homeless Peoples Federation, an association of slum dwellers and part of a multi-country movement in sub-Saharan Africa. In this approach, people in low-income urban areas who want a loan but cannot get it from regular banks, start saving with the scheme and can take a group loan for investments such as ecosan toilets when all group members have saved at least 10% of the loan's value. The loan is in the form of materials rather than cash and bulk procurement reduces the costs. With the help of the support NGOs, the groups manage finances themselves and determine the interest rates at which to lend their own money to each other. Ecosan compost, safe drinking water and various handicrafts provide income for the communities. The NGO administering the savings and loan scheme also gives various types of training, increasing repayment potential (Khataza 2008).

At the symposium there was considerable enthusiasm for schemes to sell human waste to be converted into fertiliser, but also an understanding that this would require a well-developed chain and business model. According to Toubkiss: "Among possible cost-recovery strategies, co-composting and recycling often fail because they require a whole supply chain whose end product is more expensive than industrial fertilisers" (Toubkiss 2008).

Holden is particularly sceptical of the practicalities of turning urine from urban slums into fertiliser and therefore into cash. "Urine has to be collected, stored and transported to farms when required. … Liquid urine would require its own specialised collection and transport system and the volume would pose a severe environmental risk if there was an accident." As far as the author is aware, "no studies have looked at this problem at scale and determined whether it would be economically feasible, although studies have been undertaken to look at the value of nitrogen and phosphorous in urine. Until there is enough information about the value added chain required to turn the raw product, (urine as it leaves the human body) into a commercially competitive product, and compare this to current processes, ecological sanitation in dense urban slums cannot be considered as a viable proposition" (Holden 2008).

What is needed?

Financing is an area that clearly requires further research. However, several key messages came out of the discussions.

- It is crucial to change the idea that sanitation and financing sanitation are private matters. They require multi-year public funding programmes.
- No single financing solution will address all circumstances: a combination of different approaches is needed, especially to reach the poorest of the poor.
- Better communication between the tiers of government is needed as well as greater accountability to users.

- Financing should be aimed at facilitating communities to invest and to plan for sanitation.
- More research and trials are needed into how to develop the logistics and the markets to exploit the chemicals in human waste.

Conclusions

Focus on the chain – not the toilet

The developing world is in the midst of a sanitation crisis. The clearest conclusion to come out of the symposium bears repeating: Sanitation for the urban poor is not about toilets or sewers; it is about a sanitation chain – from the seat/pan to collection, transport, treatment, disposal or reuse of urine and faeces. It is about processes of planning, of partnership and accountability, of developing solutions which are sustainable, affordable and meet users' demands. Providing sanitation services to the urban poor involves linking governance, finance and technology into scalable and sustainable partnerships.

Learn from what works

Rosemary Rop in her keynote address emphasised the importance of learning from existing pockets of success such as those described during the symposium, to determine the key underlying principles. She suggests six key drivers of success that should be seen as strategic guides to future development of sanitation advocacy.

- High-level political support and institutional leadership guided by policies and strategies to overcome administrative barriers
- A sustainable financing strategy
- Partnership across sectors
- Tailored technology
- Hygiene promotion and sanitation marketing
- Empowering community centred approaches.

Governance is the key requirement for scaling-up

The task of reaching the Millennium Development Goals (MDGs) means scaling up pockets of success to entire cities, including the poorest, with a service that continues to work over time. Experience shared at the symposium reveals that this is very difficult to do in practice.

Improving governance is at the heart of the challenge of improving sanitation for the urban poor. We need to move from a project-based approach to a service delivery approach. There was broad agreement that the lead responsibility for this lies with (local) government, which has an obligation to form strong partnerships with community organisations including NGOs and CBOs, the local private sector and donors and to draw on the strengths of all parties. In an Indian context: "Donor-funded and NGO-implemented projects can only show possible solutions, but cannot, on their own, scale up to address the country-wide problem. This is the role of

national, regional and state governments that have to provide civic services in general, and WASH services in particular, to the urban poor" (James 2008).

However, it was also clear from the symposium that the capacity of most local governments to lead this process is woefully weak, and donors and projects could pay more attention to the need to actively support government organisations tasked with carrying out the changes by building capacity, and facilitating information exchange. James again speaks for situations wider than India when he says: "The current state of governance and performance of ULBs [urban local bodies], however, tends to undermine confidence in government's ability to play this role effectively. ULB performance needs to be significantly enhanced, if the problem is to be tackled effectively, at least to reach the MDGs and to mitigate the risk of slippage in service delivery. This is where donor-funded projects could play a potentially significant role" (James 2008).

A survey conducted for the Lake Victoria Water and Sanitation Initiative brought out the same lesson. "Many past attempts to sustain improved water and sanitation services in secondary towns have failed as plans to provide supportive capacity building were not clearly thought out in the planning stage. The assessment also clearly indicated a wide variation in local capacity for sustaining improvements in services in the secondary towns in Kenya, Uganda and Tanzania. Further, there is an equal necessity to build capacity at regional levels to which responsibilities are being devolved rapidly because of ongoing sector reforms, but not necessarily with attendant enhancements in institutional or human resources capacity. Furthermore there are many good NGOs and community groups at the local level with fresh ideas, but there are few linkages with city-level government, meaning that good practices are seldom replicated or properly evaluated with respect to their impact on local government systems" (Alabaster 2008).

While the cases presented at the symposium provide useful lessons and promising approaches, there is little evidence of comprehensive approaches to planning and maintenance of urban sanitation systems as a whole. Yet, moving from pilots to large-scale implementation is urgently needed. As Kathy Eales stated in the closing panel: "It is about extending our notion of the project cycle as far as we are engaged with it and in providing support and practical thinking around how government can utilise research".

Experience from the 19th century sanitation revolution teaches us that transforming governance for improved sanitation for the poor takes time and substantial public investments. Lüthi agrees that patience is needed, alongside a sense of urgency, to build effective governance. "While it is true that a 12-month multi-stakeholder planning process can be a cumbersome affair for a community or municipal authority that wants quick results, there are no shortcuts to a sound, demand-led planning process which attains real ownership" (Lüthi et al. 2008).

During the closing panel discussion, Holden said "We have got to get good governance and we have got to reward success. [...]At the moment we tend to reward failure. If someone screws up they come back because their sewage works have failed because they have not maintained it, so what do we do? We give them more money, instead of giving money to the people who have actually maintained and allowing them to do more."

Partnerships in governance

There is a need for collaboration between users, regulators, and service providers. The involvement of actors with different roles and capabilities in sanitation for the urban poor through multi-stakeholder platforms seems to be promising but difficult and the examples of productive partnerships seem rare. Various cases describe approaches that involve households from the planning stage. Ownership and commitment from household, community and city level is crucial. This means getting landlords and community members on board in prioritising sanitation improvement and involving mayors, city planners and administrators/civil servants. Support structures for planning, construction, operation and maintenance and renewal are needed. This means capacities need to be developed at household, community and city level.

Promising approaches include linking urban sanitation improvement to other urban development initiatives and movements: linking with federations of the poor (for example in India), integrating poverty alleviation, housing and business incentives into sanitation programmes. This is critical because of the way that sanitation ties in with many other problems of urban living, especially those related to informal, unregistered habitations. The legitimacy of providing essential services to those who have no legal title to their homes has to be squarely addressed. One of the key governance roles is in regulation which can enforce a requirement for sanitation to be provided in rented property, and require local authorities to take the lead in providing sanitation to all communities.

Different aspects of sanitation, technology, governance arrangements and financing have a direct impact on each other. For instance, simple sewerage requires a certain type of partnership between local community, civil society, and city authorities; and also needs certain regulations to be in place, with room for community involvement and financing arrangements. However, it takes time to do all this well.

One way to ensure city-wide sanitation planning that is not stand-alone or project driven is to integrate sanitation planning with established government planning and budgeting cycles.

- Independent monitoring and evaluation in eThekwini has shown that providing water, sanitation and hygiene as a package greatly increases the health benefits and sanitation provision and waste management is linked to job creation and with social housing
- The Indonesian Sanitation Sector Development Program (ISSDP) described by Colin et al. (2008), fosters an enabling environment for progress, with special attention to planning, capacity building and institutional arrangements at city

and provincial level; policy and strategy at national level; plus advocacy and awareness-raising at all levels. ISSDP deployed full time city facilitators and administrative support to support existing government structures. *Colin indicates that government ownership of sanitation planning increased between 2006 and 2008 as a result of the* ISSDP.

- The Lake Victoria Water and Sanitation Initiative (LVWATSAN) also has scaling up as an explicit aim and focuses on capacity building for local service providers, NGOs and CBOs, local authorities, water resource management authorities and Regional Water Service Boards.

Gender

Gender was not a separated issue at the symposium but was clearly visible as one of the critical factors in effective governance. On the one hand women and children suffer most from the crisis in urban sanitation. On the other hand some of the most effective case studies highlighted how women have been instrumental in addressing these problems. Women play a leading role in the community participation in eThekwini; it was an alliance of women's NGOs that made the breakthrough in building and maintaining effective communal latrines in India, and in Quetta, Pakistan, women lane organisations were considered central to the success. During the closing discussion, Christine Sijbesma asked what new roles for women and men would emerge from efforts to improve sanitation. "We have been talking about sanitation and people and we are talking about new technologies, governance and making money. Who is going to do it and who is going to benefit?" Adriana Allen felt that there needed to be a new recognition of old roles – greater acknowledgement of the roles that women play and a high priority given to these issues.

Neil McCleod described how in eThekwini a steering committee manages each project. "We insist that a woman chairs this committee and we insist that more than 50% of the members are women. We started at the beginning with male dominated committees and they met on Saturdays or at night but we couldn't move the process forward and you didn't get sensible answers." In his view, women in South Africa would be the best people to set up and manage urine diversion systems that are designed to raise revenue.

But Richard Holden said that greater efforts were needed to put women in positions where they could take decisions. "I have found in my programmes that invariably it is the men making the decisions. …We have heard all week that women are far more concerned about privacy and comfort. Men just walk around the back of whatever wall they find. The politicians are invariably men and they take the same decisions. With the communal toilets, women are far more willing to pay for the communal toilets than men. It is basically about how to give them space so that they become the primary decision makers around sanitation. It is about how to get women making the decisions around technology."

Finance

Reaching the poor requires more investments and requires them to be better directed at financing unserved households. We need to educate banks and governments on the value of investments in sanitation, but as Rosemary Rop has said, not assume that nothing can be done without huge injections of funds. In some cases, funding for urban sanitation improvement is potentially available, but disbursement is hampered by lack of information or understanding of sanitation needs.

Microfinance has large potential, especially in South Asia and in Africa. However, to ensure microfinance reaches the poor, appropriate WASH policies are needed. Toubkiss argues that micro finance will not reach the poor and BRAC also came to this conclusion, and Toubkiss advocates (cross-)subsidies instead. It may be concluded that a combination of different approaches is needed. Microfinance seems worth exploring to support people to move up the ladder away from what government delivers for them as a basic service, while subsidies can be targeted at the very poorest in most need.

Cost recovery

Free basic sanitation services do not always benefit the poorest households. In South Africa, access to a basic sanitation service as a human right is enshrined in the Constitution and municipalities have an obligation to provide basic sanitation services to the poor. Papers by different authors reveal several weaknesses of this approach and conclude that in most cases free basic sanitation services are not benefiting the poorest households and are not sustainable (Mjoli and Bhagwan 2008; and Eales 2008b). Free basic sanitation services often focus mainly on large-scale provision of flushed toilets in a situation of water scarcity, there are no services planned for emptying the pits, insufficient treatment capacity for dealing with faecal sludge and people in informal settlements are not eligible to benefit from free basic sanitation provision. However, full cost recovery is impossible in very poor communities. "If policies insist on capital cost recovery from very poor households, many of the people who survive on less than US$2 a day will be excluded (Black and Fawcett 2008)".

Urine and faeces as money makers

There is an accepted need to rethink excreta as an economic and environmental good, but there are a lot of problems to overcome before it becomes a viable option in dense urban areas. Sanitation entrepreneurs and farmers address various parts of the puzzle, but need support from the public sector.

In the closing panel discussion Neil MacLeod mentioned three issues he would be taking home:

1. We have to do more on reusing urine and waste as a profitable business, rather than dumping the urine in the ground as we do now.
2. Making use of microfinancing opportunities to help people move up the sanitation ladder.
3. Starting a sanitation revolution in South Africa, building on the enthusiasm and drive among the symposium participants.

Technologies
Condominium sewerage, well-managed communal blocks and eco-sanitation have all made a contribution in different circumstances. However, at present, no technology successfully provides urban sanitation at scale in low-income communities. There is a clear need to explore other options and test solutions at scale, understanding that each technology comes with its own requirements in terms of financing, partnerships, and governance. Quality is an important issue, whatever the technology.

Most cases focus on the first half of the sanitation chain. There is a need to develop large-scale economical viable treatment (DEWATS show potential) or recycling technologies – such as biogas installations – to halt the continuing deterioration of the urban environment. For these technologies too, there is a need for further exploration and testing at scale.

Research
More research is needed, directed at the most difficult areas. As Adriana Allen said in the closing panel discussion: "We need to be more revolutionary. I feel that we really need to focus the research we do on sanitation on areas that are not so cosy. As researchers we tend to get really cosy with ecosan and microfinance and it is good work and we go on and on. It is very important to keep pushing ourselves and really focus on questions that throw us, like why is it that really good ideas are not being taken up or upscaled? Whether you come from a technological or financial or governance angle that is a really good research question."

"I think it is increasingly important that we are very strategic in the way that we do research and for me, being strategic relies very much on thinking about addressing ways of bridging the sanitation gap that we have been discussing. Are they grounded at community level and do they scale up? – and give a key role for government?"

Kathy Eales concludes that we need to be more disciplined and rigorous about sourcing research funds and making sure that project and research results are translated into information and how government can use it. "We all influence the way that donors use their money. We all love our pet projects and when they finish we tend to file our reports and rush on to the next thing, and government very often loses the learning that comes from those projects. It is about extending our notion of the project cycle as far as we are engaged with it and in providing support and practical thinking around how government can utilise this."

Finally we need to boldly go where almost no one dares to go: we need more understanding (and research) of the social dynamics of urban poor; we need to engage in the politics, the relationships between government and NGOs, and slum politics. Doing this kind of action research is entirely compatible with putting promising results into practice as soon as possible. Rosemary Rop quoted Aristotle: "For the things we have to learn before we can do them; we learn by doing them!"

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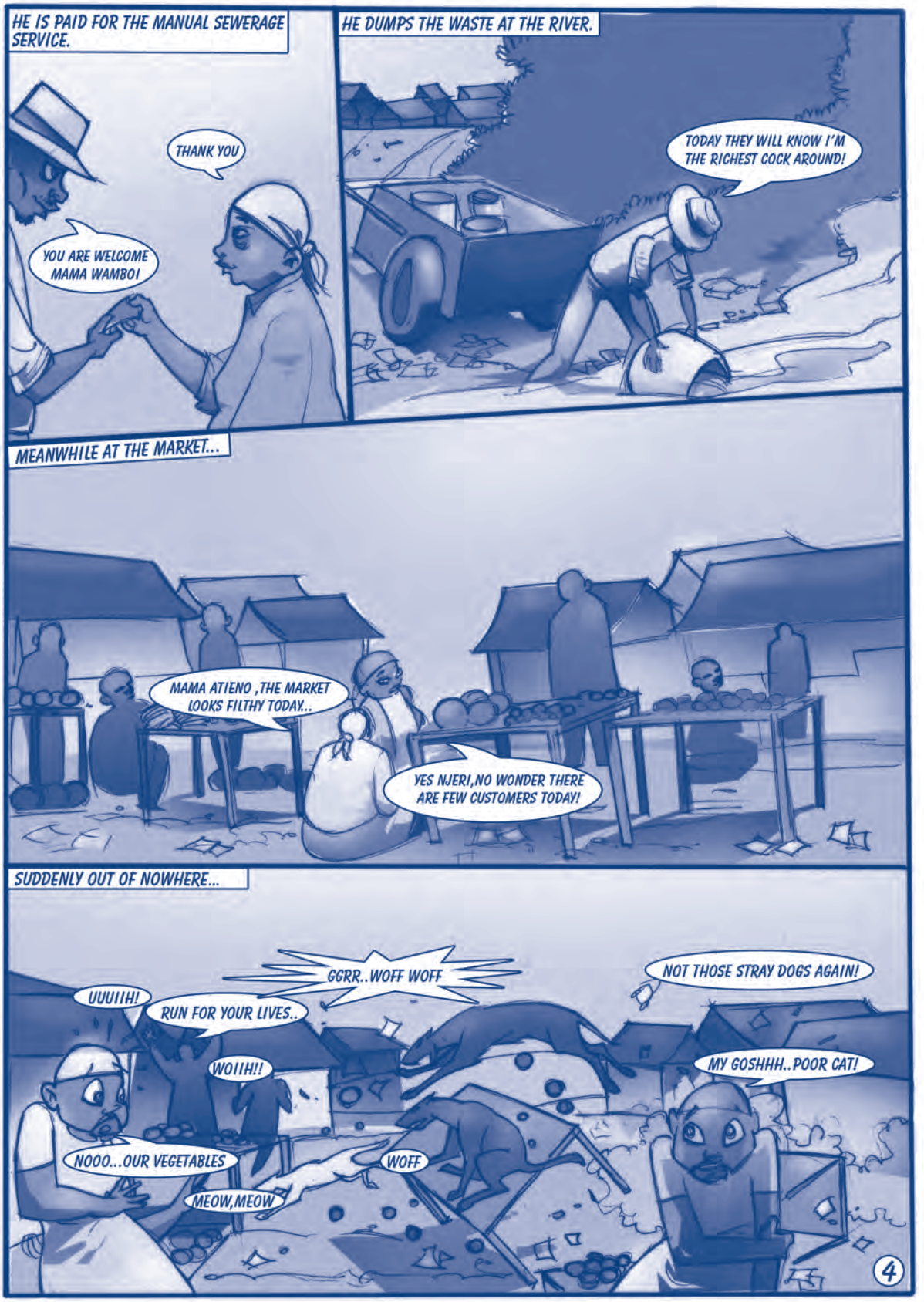
HE IS PAID FOR THE MANUAL SEWERAGE SERVICE.
THANK YOU
YOU ARE WELCOME MAMA WAMBOI
HE DUMPS THE WASTE AT THE RIVER.
TODAY THEY WILL KNOW I'M THE RICHEST COCK AROUND!
MEANWHILE AT THE MARKET...
MAMA ATIENO ,THE MARKET LOOKS FILTHY TODAY..
YES NJERI,NO WONDER THERE ARE FEW CUSTOMERS TODAY!
SUDDENLY OUT OF NOWHERE...
GGRR..WOFF WOFF
NOT THOSE STRAY DOGS AGAIN!
UUUIIH!
RUN FOR YOUR LIVES..
WOIIH!!
MY GOSHHH..POOR CAT!
NOOO...OUR VEGETABLES
WOFF
MEOW,MEOW
4

2. Sanitation services for the urban poor: symposium background paper

Joep Verhagen and Peter Ryan [The Netherlands]

This paper addresses sanitation for the urban poor from a service delivery perspective. This entails a shift from simply seeing interventions as capital projects towards a systems approach that considers all elements required to provide sustainable and appropriate sanitation services to the poor at scale. The paper argues that urban sanitation services should consider:

- *the entire sanitation chain: confinement (the toilet seat and safe storage under the seat), removal and transportation of faecal sludge, subsequent treatment and disposal or re-use;*
- *the service delivery process: planning, construction, operation and maintenance, and subsequent renewal of service delivery elements;*
- *both hardware and software elements, particularly hygienic behaviour.*

The delivery of sanitation services to the poor does not take place in isolation but in a larger urban reality. Hence, this background paper examines the broader urban context as well as sanitation-specific issues. Approaches that seek to isolate themselves from this urban reality will fail to scale up and at best remain islands of success in a sea of failure. The section on specific sanitation issues demonstrates that technological options, finance, partnerships and governance are strongly interconnected, underlining the need for an interdisciplinary approach and dialogue.

This paper is central to the symposium – it is designed to draw together some of the key arguments from the main papers being presented and to provoke participants into a response. Two key questions have been formulated to help guide examination of the cases that are to be presented and discussed during the symposium:

- *Is the approach or methodology well embedded in the urban environment, so having the potential to be scaled up?*
- *Whose shit is it, how is it dealt with, and who foots the bill?*

These questions and the resulting issues are explained in this background paper.

Introduction

Global urbanisation

The global urban population is increasing rapidly and today, for the first time in human history, outnumbers the rural population. The number of urban dwellers is set to increase to 3.9 billion in 2015 out of a projected global population of 7.2[1] billion. Almost all of this urban growth is taking place in developing countries as the urbanisation process has largely run its course in the higher income countries of the world. Within the developing countries, urbanisation is mainly taking place through the rapid growth of small and medium-sized towns and small cities rather than the development of large numbers of new mega-cities. For instance, in India 75% of the urban population lives in cities with a population of less than one million inhabitants (Verhagen and Bhatt 2004).

This rapid urbanisation is driven by a wide, complex and interlinked range of factors. Principal among these are:

- pressure created by overall population growth and associated household size reductions;
- an increasing level of rural poverty, which is, in turn, accentuated in many places by the apparent impact of global climate change;
- economic change processes including industrialisation in both rural and urban areas;
- prospects (real or perceived) of employment and better civic amenities in urban areas.

Urban sanitation – the quantitative problem

The world is way off track in terms of meeting its Millennium Development Goal (MDG) obligations in respect to sanitation. It is estimated that the MDG target of halving by 2015 the proportion of people without sustainable access to adequate sanitation will be missed by more than 700 million people. The most recent Joint Monitoring Programme (JMP) estimates (UNICEF/WHO 2008) show that urban sanitation coverage had risen to 79% by 2006. However, while 779 million people in urban areas gained access to improved sanitation for the first time between 1990 and 2006, this huge number did not even keep pace with the 956 million increase in the urban population over the same period. The JMP estimates that 320 million urban dwellers in developing countries still did not have access to improved sanitation in 2006. Almost by definition, the majority of these people belong to the urban poor and are living in slums, where the greatest increase in urbanisation is taking place.

The latest JMP report redefines access in terms of a sanitation ladder, differentiating between:

1 Source: Population Division of the Department of Economic and Social Affairs of the United Nations Secretariat, World Population Prospects: The 2006 Revision – http://esa.un.org/unup/ accessed on November 3, 2008.

- open defecation – indiscriminate defecation in fields, forests, other open spaces or disposal of faeces with other solid wastes;
- unimproved – where there is some containment of faeces but not in a way that separates excreta from human contact;
- shared facilities – a new distinction in the current JMP report - including private toilets shared (e.g. between families) and public toilets;
- improved sanitation facilities - there has been no change in the previous definition – a sanitation facility is considered adequate if it hygienically separates human excreta from human contact. Improved facilities are more likely to ensure privacy and hygienic use.

Though the JMP has been accepted as an international yardstick towards the attainment of Target 10 of the MDGs, it is often felt that it underestimates the challenge that is posed by delivering urban sanitation services to the poor. As Allen and Hofmann (2008) point out, improved sanitation is not the same as adequate sanitation. They are not the only ones to question the figures. "This figure (for the urban unserved) is reckoned to be an underestimate by today's leading authorities on slum and squatter settlements, who believe that the invisibility of the poorest and most deprived urban populations in data collection obscures the fact that residents in the worst living environments have nothing resembling adequate sanitation," (Black and Fawcett 2008). UN-HABITAT estimates that about 50% of the urban population lacks adequate sanitation services. This implies that the number of people who still need access is four to five time higher than that suggested by official statistics (UN-HABITAT 2003 referred in Sijbesma et al. 2008).

A second point is that the MDG definition counts the number of "improved seats" but ignores wider environmental issues. Malfunctioning treatment plants, absent or leaking sewerage systems and overflowing septic tanks pose a threat to the quality of the urban environment. It is estimated that 90% of urban wastewater in developing countries remains uncollected (Allen and Hofmann 2008). In many cases, the urban poor live in places that are most polluted (Baken 2003). The sanitation problem extends well beyond consideration of the point of defecation, and this is especially true for poor urban areas (Sijbesma et al. 2008).

The poor are especially affected by inadequate and substandard sanitation services and these effects are not only limited to the health impact resulting from daily exposure to polluted habitats. Many of the poor, women and girls in particular, are forced to divert time and energy in search of a private place to relieve themselves. Often they can find such places only before dawn or after dusk which brings the risk of sexual assaults. Women reduce their food and fluid intake during the day, which can result in kidney stones and urinal tract infections. Poor people are forced to pay in price for sanitation in terms of loss of time, dignity and health (Sijbesma et al. 2008).

Box 1. Key definitions

The title of the symposium is "Sanitation for the Urban Poor: Partnerships and Governance". None of these key words are unambiguous. This section provides definitions adopted for this symposium.

Sanitation
Sanitation is defined as the means necessary to dispose of human excreta and wastewater safely. Sanitation includes a mix of hardware and software measures covering confinement (a safe toilet), removal and transportation, and treatment, referred to collectively as the "sanitation chain".

Sustainability
The Sustainable Sanitation Alliance has adopted the following definition: in order to be sustainable, a sanitation system has to be not only economically viable, socially acceptable, and technically and institutionally appropriate, it should also protect the environment and the natural resources. Sustainability criteria include but are not limited to health and hygiene, environment and natural resources, technology and operation, financial and economic issues, social-cultural and institutional aspects, human dignity, quality of life and environmental security (SuSanA).

Urban
There is no universal definition of urban, nor need there be. National definitions are based on one or a mix of the following characteristics: population size, population densities, administrative boundaries, presence of typical urban services, etc. This symposium defines urban as areas that have typical urban characteristics while acknowledging that "typical urban characteristics" are context-specific. It should be noted that administrative boundaries do not necessarily coincide with this definition.

(Urban) Poverty
The symposium follows a definition of poverty based on underlying social exclusion: the urban poor are groups who are not able to gain access to basic amenities (including adequate sanitation), due to a combination of where they live, what they possess, who they are, and what they know. The chronic urban poor find themselves in a permanent state of social exclusion whilst the transitory poor move in and out of a state of social exclusion (Nelson et al. 2008).

Slums
There are many synonyms for the places where the urban poor live: slums, squatter settlements, barrios, ghettos, informal settlements, bastis, favelas, shanty towns, peri-urban areas. This symposium defines slums as densely populated urban areas that are the living areas, and often the working places, for the poor and very poor, that have poor-level services, and have mostly a (semi)-illegal character[2].

2 It is recognised that slums show many different characteristics. For instance, in Mumbai (India) a combination of disproportionate property prices and traffic congestion drive middle class families into some of the informal settlements. Other slums are the home of some of the poorest of the poor. For a typology of slums in Indian cities, refer to Baken 2000.

Sanitation for the urban poor

The divides: water vs. sanitation and rural vs. urban

In many sector debates, no clear distinction is made between water and sanitation or between rural and urban areas. Often sanitation is assumed by default to be included with water as in the debates on privatisation (Allen and Hofmann 2008; Eales 2008). However, urban areas – irrespective of their size – are not simply very densely populated rural areas. Urban areas are distinctly different in a number of ways, such as: the large number of people living in rented accommodation, the relative proximity of government, the monetary character of the urban economy, the scarcity of land, the large fluctuating migrant populations, the cultural diversity, etc. All these contextual factors pose their specific challenges to delivery of urban sanitation services to the poor. Moreover, urban sanitation is not simply the flip side of urban water supply (Eales 2008).

Some of the defining differences between urban sanitation and rural sanitation and urban water supply follow.

- In rural sanitation, the key issue is one of stimulating demand and promoting hygiene awareness. The former is seldom an issue for the urban poor, who have an articulated demand for access to adequate sanitation. However, sustainable urban sanitation does require large-scale personal behaviour change in terms of proper use, hand washing, maintenance, etc.
- While rural sanitation programmes can focus on behaviour change and motivate users to invest in a basic toilet, urban improvement programmes need to go much further. They must pay attention to what happens next. What happens when the pit, septic tank or conservancy tank is full? How and where is the waste disposed of? What roles must be addressed to make the service work and who should perform them? (Holden 2008) There are significant financing implications, because individual household investment in hardware that might suffice for rural sanitation must be supplemented by investments in supra-community infrastructure[3] by urban authorities.
- Urban sanitation is not the inverse of water supply (distribution from a central treatment facility through a decentralised network). Sanitation requires that waste is collected and transported from one central point to another. Many stakeholders are involved in this sanitation delivery chain. Even more than in the case of water pipes, a leaking sewerage network will cause serious health risks. Moreover, sustainable sanitation requires a change of personal behaviour; a service that cannot be "delivered" (Eales 2008). Effective urban sanitation requires integrated thinking across a range of areas: excreta management, drainage, management and transport of wastewater (and, ideally, stormwater), solid waste management,

3 It is recognised that eco-sanitation seeks to close the loop as close to the household as possible. However, it remains questionable whether it is feasible to close the loop in densely populated urban slums, in which case urine, grey water and human faeces need to be separated and transported safely out of the slum. For further discussion refer to Richard Holden 2008 (http://www.irc.nl/page/44100).

hygiene behaviour, public and environmental health management, innovative financing, and so on (Holden 2008).

- The negative impacts of inadequate urban sanitation are mostly felt downstream – i.e. pollution from faeces starts in one place and the effects are felt by other people in another place. In the absence of linkages between polluters and affected populations – as community-led total sanitation (CLTS) seeks to establish – the motivation to contribute to the costs of adequate sanitation services remains weak.
- Urban sanitation has to deal with high densities. Whilst on-site disposal is still feasible in low density areas and the urban fringe, in many areas off-site disposal is the only feasible option for the entire range of technological options. This requires that faecal sludge is transported out of the urban communities and treated, recycled or disposed elsewhere.

Finally, the debate on urban sanitation seems to be less advanced compared with that around rural WASH and urban water supply. The failures of the 1980s, during the International Water Supply and Sanitation Decade, set off an intense debate about why hardware – water points and toilets – sooner or later invariably seemed to fail. The debate has resulted in a better understanding of the building blocks of going to scale, certainly in rural water supply. Along similar lines, there has been a heated – and often dogmatic – debate around the ability or inability of the private sector to provide water to an entire urban population. Although this debate has not finally been concluded, it appears to have brought a better understanding of the economics, necessary institutional and regulatory structures, and choices for successful water supply provision in urban areas.

Similar debates have only just started within the sanitation sector, although there has been progress in, for example, acceptance of the need for hygiene promotion and the concept of becoming free from open defecation as one of the outcomes of community-led total sanitation (CLTS). Indeed, many see hygiene awareness processes that result in open defecation-free (ODF) communities as the way forward for rural sanitation.

But the picture for urban sanitation appears bleaker. Here too there have been successes - the Orangi Pilot Project in Karachi (Pakistan) shows that community orientated planning and the adoption of appropriate urban technologies can yield significant successes (Sijbesma et al. 2008). Likewise, the slum mapping and enumeration work pioneered in Indian cities can act as the precursor of large-scale improvements in sanitation facilities, especially when they are community (as against local authority) managed. And, some technological improvements have been made – witness, for example, the floating, tethered septic tanks in the ponds of Dhaka, providing off-site storage for waste from the hanging toilets that they have improved.

However, it appears that this progress is piecemeal, usually locally generated, rarely scaled up and, in any event, confined to a part of the urban sanitation chain. For instance, a project in Quetta (Pakistan) successfully tested condominium sewerage to provide sanitation services to the urban poor. However, in the absence of a well-

functioning sewerage network and treatment facilities, faecal sludge is being dumped in ravines in the vicinity of the city (Qutub et al. 2008).

Summarising, there is a need to take an all-encompassing view towards urban sanitation by addressing all elements of the sanitation chain; that is, confinement, removal and transport, and disposal. The field of urban sanitation is complex and poses enormous challenges. The key challenge – to provide sustainable and affordable sanitary services at scale and dispose safely of the faecal sludge from low-income areas with densities as high as 200,000 people per square kilometre – has not yet been solved. This is further compounded by the failure to maintain services for those who have already been reached. To use the metaphor of the sanitation ladder – we are not helping enough people onto the lower rungs of the ladder and we are failing to prevent people on the ladder from dropping off.

Sanitation and hygiene service delivery[4]

An appropriate and sustainable service for the urban poor would be safe and easy to use and would not lead to further deterioration in the urban environment. As with most complex problems, the failure to provide such services has many tangled roots. To provide sustainable and affordable sanitation services to the urban poor a number of factors have to be in place and working together, irrespective of the technology:

- Policy and political factors to create the environment to move forward
- Knowledge factors to enable appropriate questions to be asked and decisions to be made
- "Soft" factors such as skills, hygienic behaviour, norms and practices
- "Hard" factors such as suitable technologies
- Financial factors such as availability of finance for capital expenditure, ability/willingness of users to pay for services

For a service to work all of the above have to be in place. Where one or more are missing, the service is impaired or fails completely. With few honourable exceptions, there appears never to have been a comprehensive approach to planning and maintaining urban sanitation systems that has looked at these factors in combination.

In any event, in informal settlements, when it comes to sanitation, residents have by and large been left to fend for themselves. An individual household will take a decision to construct a toilet for its own use (perhaps shared with neighbours). What happens downstream in terms of impact on water supply, or in terms of when the pit is filled, is not a central consideration, at least not to start with. Where communities have come together, this has generally been because all other avenues of progress have failed. Where comprehensive sanitation interventions have been attempted, it has

4 The starting point for this section was a paper within the WASHCost project by Patrick Moriarty of IRC on service delivery approaches. His input is gratefully acknowledged.

usually been axiomatic that sanitation is equated with a water based technology. The approach comes to be dominated by the provision of a technical system – and so the mechanism to achieve it is the "project".

We are suggesting that the emphasis should move to a service delivery approach. But what is a sanitation service? How might such an approach differ from other approaches; particularly from what is generally referred to as a project-based approach? Why do we believe that a service based approach is preferable to a project-based approach?

A service delivery approach focuses on the service itself, understood in terms of quantity, quality, reliability and accessibility as the main objective of sanitation (and hygiene) interventions[5]. This contrasts with a project-based approach, which typically looks at sanitation delivery systems. Two key aspects of the service delivery approach are scale and sustainability.

To be worthy of the name a service should aim to meet, and continue to meet, its design parameters indefinitely. Individual elements of the service may need maintenance or repair – but the service itself should be continuous. At its simplest, a sanitation service can be best understood in terms of a user's ability to reliably access safe and convenient toilets, including excreta disposal, constantly and indefinitely. Hygiene-related services can be understood in terms of maintaining positive behaviour change. The crucial point is the focus on what is being achieved, rather than the means to supply it.

Services are provided by delivery systems. These contain both hardware and software. For sanitation, the hardware includes VIP latrines, Vacutugs and treatment plants, while the software includes hygiene education and the skills of the environmental health technicians. In some situations the system and the service may seem to be almost the same thing: certain types of ecosan may be a case in point. In most others – household sewerage for example – they clearly are not the same. However, even in the simplest of situations there are actually multiple elements necessary to make the system work effectively to provide a service: technicians, spare parts suppliers, committees, user knowledge and commitment, etc.

5 In sanitation there is a further parameter to consider, which arises from the public health premise that, until all members of a community engage in hygienic behaviour and use appropriate sanitation facilities, all members are at risk. On that basis, eradication of open defecation becomes a critical element of service delivery.

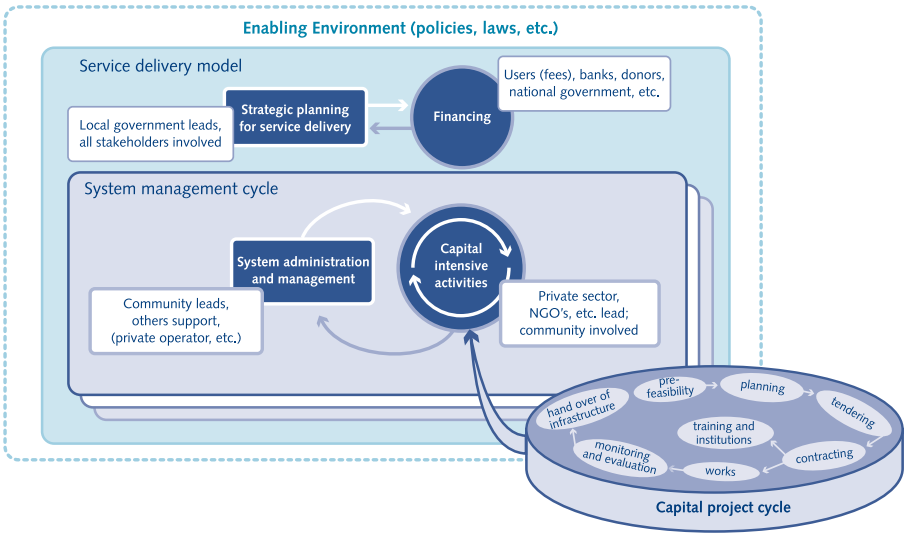

Figure 1 : Service Delivery Model
Source: Moriarty

Combining the concepts of sustainability and scale makes it possible to see that a sustainable scaled up sanitation and hygiene service delivery involves many different subsystems, each with its own life cycle. Different phases of the cycle implicate different actors in service. By considering a larger unit of service provision, it becomes (at least in theory) possible to achieve synergy and cost effectiveness in providing support services to individual systems.

Service delivery at scale is also about governance and decision making: who gets what, when and for what tariff. It is about tackling coverage: ensuring some for all. Ideally, the functions of governance should be separated from the functions of provision (constructing and managing systems). This is because governance requires the ability to monitor, criticise and change, based on whether the users are getting what they want and need. When the governor of the system is also the provider, it makes it much harder to be sensitive to failures in the system.

Providing a service to an entire population implies dealing with many different systems within a service area. Each of these will have its own cycle of capital intensive and management intensive periods. This is illustrated in figure 1, which helps to illustrate the concept of a *service delivery model*, by which we mean the totality of means necessary to deliver a given level or type of service.

In figure 1 the service delivery model for a given service area (for example a number of community sanitation blocks linked to mains sewers) is nested within an enabling environment of policy and legislation. The service delivery model incorporates strategic planning and financing for the service areas, as well as a number of system management cycles (i.e. a management cycle for the sewerage system and the

treatment plant). The service delivery model therefore incorporates *all* the elements necessary to provide a certain level of service within a defined service delivery area.

Equally, the nature of providing sustainable services implies the need to work at different scales – from the individual or household, through the community, to the intermediate and national. Each level has different roles in ensuring and protecting sustainable services and only when *all* elements are in place and working together will sustainable service delivery actually be achieved. To make a simple analogy, at household level, if one member of the family does not use the toilet properly and does not clean up, then all members of the family suffer. At community level if one family defecates in the open, all families are at risk. And so on up the scale. However, when looking at an entire system, while all levels are important, the intermediate level is likely to be the key level of sanitation service provision: national bodies do not implement service delivery at district level, and we know that communities cannot[6]. The important point is that the unit must be of a sufficiently large scale to contain all the main elements for sustainable sanitation and hygiene service delivery: hygiene promotion, planning and design, spare parts supplies, technical backstopping and so on.

It is possible in broad brush terms to set out the main differences between a service delivery and a traditional project-based approach. This is attempted in a highly summarised form in the table below.

Table 1 : Service delivery approach versus project approach

Element	Service delivery approach	Project approach
Planning	Seeks to plan and prioritise investment and activity on the basis of the needs of the entire population of the district or town.	Generally ad hoc (planned and implemented by individual households) or technical projects – leading to an inappropriate, unsustainable technology choice – so expensive as to be limiting in extent for resource reasons.

6 The much quoted example of the construction of community sanitation blocks (in Pune and other cities) might have the reader think that this is not so, but in fact this is a case in point: the community's role in developing and maintaining such facilities was an important, necessary, but ultimately contributory element. The NGO and community are in partnership with the city government. (Allen and Hofmann 2008).

Element	Service delivery approach	Project approach
Sanitation chain	All elements of the chain necessarily need to be included for the approach to be considered successful.	For both household and sewerage system facilities, the chain is a secondary consideration; latrines are not emptied, treatment systems are not present, or fail.
Maintenance	Sees individual, communal or area-wide "systems" as parts of mechanisms for service delivery. Accepts that systems have a life cycle that requires different management interventions in different phases.	The construction of systems is the main focus. Thinks in terms of "construction" and "post construction". The latter is typically a secondary consideration, and where sewerage is considered to be the "system" of choice then chronic shortfalls in resources leads rapidly to complete system failure.
Coordination	Seeks to coordinate all actors within an area under an overarching strategy, which includes commonly agreed model(s) for different types of service.	Different actors do their own thing using different types of systems and different intervention logic.
Resources and efficiency	Aims to optimise resource use, and achieve high levels of sustainability and reliability.	Overlap is common – synergy seldom achieved. Sustainability a recurrent and well-documented problem.
Outcome – separation of humans from harmful excreta?	Achievable.	Not consistently achievable.

Each different service type (from pit latrines to sewer connections) contains within it a host of implicit and often unaddressed assumptions about support services, financial requirements, ability and willingness to pay, technical capacity, spare parts and so on. The heart of the service delivery approach, and why this is important to future deliberations in the sector, lies in making these implicit assumptions explicit. Failure, first to consider, and secondly, to deal with these implicit assumptions, lies behind much of the current failure in urban sanitation.

Box 2. Great Stink London

It is well known, and often quoted, that urban sewerage systems were in use in Roman times and earlier civilisations. Water closets have been a feature of urban homes since the 17th century in increasing numbers. However, the discovery of the linkage between cholera outbreaks and water quality deficiencies by Dr John Snow in the 1850s provided an impetus to the construction of city-wide sewerage systems. It is interesting that the important linkage between poor sanitation and disease (life expectancy for a working person in England at that time did not even stretch into their thirties) was not established by Snow. The serious water quality issue that he spotted was only later identified as being attributable to the fact that the urban dweller was effectively drinking diluted sewage on a daily basis. This is not semantics; it highlights an issue which still prevails: the erroneous attribution of excessive mortality to a problem with "water" – which is a medium of transmission (albeit a most efficient one), whereas in reality the source of the problem is sanitation. To this day, sector professionals still talk about waterborne diseases with the assumption that the way forward is a water-related issue, when actually sanitation and hygiene improvements are the necessary response.

In any event, the "Great Stink" from the River Thames, effectively an open sewer at that time, precipitated British parliamentarians to demand action, leading to the construction of London's sewers (and associated treatment plants) during the 1860s. This rush to sewerage was a result of the mistaken belief that diseases were spread through "miasma", i.e. the smell of sewage indicated that disease was being transmitted through the air.

It is important to note a two-step process, the first being the adoption of toilets, the second being the other elements of the sanitation chain. The purchase of sanitary hardware (toilets) was undertaken by the private citizen, but the capital costs of the removal (sewerage) and treatment element were publicly provided. Up to this point, household faecal material merely ended up in cesspools and there was a huge industry of what is today known as "manual scavenging", then referred to as "nightsoil removal". It was the removal of faecal matter from the public environment that triggered the massive public health gains of the late 19th century, as life expectancy increased dramatically in all urban areas.

Source: Black and Fawcett (2008) and Holden (2008).

Delivering sustainable sanitation services to the urban poor at scale – the larger issues

Governance in general

Governance is the process by which decisions are made and implemented[7]. It can be seen as the interactions, relationships and networks between the different sectors and involves decisions, negotiation and different power relations between stakeholders to determine who gets what, when and how.

Governance operates at different levels, from the international level to households in communities. The relationships between government and different sectors of society determine how things are done and how services are provided. Governance is therefore much more than government, as it shapes the way a service or set of services are planned, managed and regulated within a set of political social and economic systems to ensure sustainable services.

Many stakeholders are (or should be) involved; ideally all those with a legitimate interest in the outcome of the decision-making process, including government organisations, service providers, capacity building organisations, contributors of finance, the users of services and organisations that support them. Governance emerges from the formal and informal relationships that exist between people, institutions and government.

In the sanitation sector at national level, stakeholders include the national departments of water, local government, health, education, international donors, national and international NGOs, finance institutions, local government associations, national skills training institutions, research institutes, educational bodies, etc. At the local level, stakeholders include local government (councillors and officials), community-based organisations, NGOs, services providers including outreach workers, community representatives, local associations, and possibly traditional leaders. Not least, stakeholders at local level include users of services.

People require sanitation and hygiene services that are sustainable, in which stakeholders, including the most vulnerable in society, have a say in key decisions and where access to the services is equitable and fair. This requires good governance. The value ("good") lies in constructive co-operation between the different sectors where the result is efficient use of resources, responsible use of power, and effective and sustainable service provision. Good governance can only emerge when stakeholders engage and participate with each other in an inclusive, transparent and accountable manner to accomplish better services free of corruption and abuse, and within the rule of law. Although good governance may be difficult to put into practice in some locations, and this especially includes informal urban settlements, it is important to

7 This is edited text from *Strengthening local governance for improved water and sanitation services*; Jean de la Harpe, IRC 2007.

work towards good or "good enough" governance in order to achieve sustainable services.

Good governance ensures that all stakeholders, including the poor and disadvantaged, have an opportunity to influence development decisions that affect their lives, to contribute to development, and to share the benefits and improve their livelihoods. The result of good governance is access to basic services on a sustainable basis. It can take years to achieve good governance, because different stakeholders and groups in society need to negotiate how things are done and how resources are allocated. What works in one country (or locations within it) may not work in another location/country. Countries need to create their own good governance frameworks, through locally led participatory processes.

The political reality of the urban poor

The call for improved governance is central to this background paper, as are key questions about how to achieve it: We can also ask, What makes it so difficult to improve governance? Who stands to gain from inadequate governance? How and why are attempts to improve governance being resisted? It is important to appreciate that providing urban sanitation services to the urban poor generates a number of governance-related problems that are not directly related to sanitation in particular but to the urban environment in general. In other words, providing water services, health care services, education, adequate housing, etc. are all equally reliant on good-enough governance.

There are a number of factors specific to urban areas such as lack of security of tenure, culture of poverty, lack of a sense of belonging or community, large floating populations, the predominantly monetary character of the urban economy, high land prices, a culture of impunity that accompanies non-provision for the poor, and proximity and tighter control of government. However, this section will start with a closer look at the service delivery mechanisms on which the urban poor rely.

Urban service delivery in practice

This section draws upon the essay that was authored for the symposium by Robert-Jan Baken, "The political and administrative context of slum improvement".

Thinking about the slums and the urban poor has changed profoundly over the past five decades, as described in Baken 2008. In the 1950s and 1960s slums at the edge of cities were regarded as a shameful but temporary presence that would disappear with economic development. In the 1970s and 1980s, when slum clearances had failed, there was a move towards supporting self-help groups and "sites-and-services" projects which encouraged families to move to planned areas of housing and to contribute in cash or labour towards building and services. In the market-driven 1990s it was assumed that a combination of privatisation and self-improvement would upgrade the slums. In the current decade, it has become clear that a proactive policy to prevent slum formation is unrealistic. Currently most rapidly growing cities

in developing countries seem to adopt a laissez-faire attitude that relies on slum formation as the main mechanism to deliver housing to the urban poor (Baken 2008).

The reality of the service delivery to the urban poor consists of a cocktail of an administrative muddle and political dealing carried out against a chaotic, often violent "enforcement" backdrop. While sensible and appropriate policies to confront slum conditions may exist on paper, their translation into practice is often marred by corruption and by the fact that those who are suppose to deliver services face no penalties if they fail to do so. On the one hand, slum dwellers are "illegals" and not entitled to a full range of services. On the other hand, the main delivery mechanism for housing is the illegal land brokers who buy land and subdivide it, and who enjoy the protection and collaboration of urban administrators and local politicians. Similarly, illegal invasions only succeed through the protection of the same groups. Votes, favourable job postings and bribes are the oil that keeps this delivery chain running (Baken 2003).

Similarly, the provision of infrastructure for the poor is often a matter of patronage – a sanitary block or water point often turns out to be an award for services or votes rendered, rather than in response to a shared view of what constitutes the rights of inhabitants. Those who try to provide services on the basis of need are vulnerable to attack as they are seen as undermining the prevailing structures and reward systems. Baken describes how all new slum dwellers are expected to align themselves with a political party, and the price for refusal can be extreme violence. Such an alignment places new inhabitants in a structure through which their needs might be met, and protection offered, but only if they play the game and provide the requisite contributions.

Baken describes the situation for the urban poor as being a complex and ever-shifting patronage web of local politicians, local administrators and slum leaders. Every slum and slum pocket has a leader who serves as the go-between between the urban poor and local administration. There are often strong links between slum leaders, local administration and local politicians. This basically means that planning of infrastructure is not a rational process but a political process.

In some cases slum leaders are quasi social workers; in other cases they are violent thugs. However, the uneasy relationship between the urban poor and their slum leaders is mostly characterised by distrust and deceit as most slum leaders seek to gain personal benefit from their leadership role. In this hierarchy, roles and responsibilities are well understood. In many locations it is the role of the government official to grant favours to slum dwellers, who have to be submissive to the point of begging. This is a comprehensively unequal relationship, riddled with political rivalries and factions. Many processes of slum clearance result from an upsurge in political conflict rather than from the enforcement of planning and building regulations that may be cited as the motivation.

Few people know their way around the urban administrative system. In many cases, by-laws, regulations and laws are outdated or contradictory, mandates are overlapping or totally absent and communication between different department conspicuously absent.

Urban service delivery is further hampered by weak social cohesion, the lack of security of tenure and the high percentage of people in rented accommodation. This combination of factors becomes one of the main stumbling blocks for service delivery to the urban poor. Urban authorities often perceive delivery of services and investments in infrastructure as de facto recognition of the slum. For their part, slum dwellers are hesitant to invest in the improvement of their habitat without having secure tenure and under conditions where every improvement may raise their rents.

So, could the community unite to secure their rights? It is common to use the word community as if urban society is harmonious and homogeneous – it goes without saying this is rarely the case. Real participation would undermine the "system" but although participation is often quoted in programmes – and there are examples where this has happened – lack of social cohesion is the norm. For instance, in Old Fadama in Accra (a slum with a strong social capital and a fairly stable population) residents indicate that when their huts collapse they have to sleep on the same plot and rebuild it within a few hours as otherwise their place will be taken by someone else.[8] Other slums have a large floating population consisting of temporary migrants in search of work.

A service delivery approach needs to take these realities into account to be able to deliver sanitations services to the urban poor. The symposium needs to interrogate whether the cases we examine engage with the urban reality in their countries, or seek to isolate themselves from it and create islands of success.

Delivering sustainable sanitation services to the urban poor – sanitation-related issues

Technological options

Esrey (1998: quoted in Holden 2008) estimates that an average person produces 50 litres of (dry) faeces and 400-500 litres of urine annually. The amount of grey water[9] generated varies enormously (from 4,500 to 73,000 litres) and is dependent on the availability of supply and how close to the final point of use it is brought. Even small amounts of faeces pose a significant threat to health. Whatever the density of the settlement, urine, faeces and grey water have to be disposed of in a safe and sustainable manner and the denser the settlement, the more problematic it becomes to do this safely.

8 Personal communication with residents of Old Fadama (Verhagen 2008).
9 Grey water is the wastewater that is produced from cooking, washing, etc.

On-site disposal is common in rural areas and applicable in less dense or small urban settlements. However, in dense or large urban settlements, urine, grey water and faeces need to be transported out of the area and safely disposed of elsewhere. The point of crossover from on-site to off-site disposal depends on local conditions but generally happens when households have no room to dig a second pit or have no pit at all. Off-site disposal has been a challenge ever since humans started living in cities, as it requires that:

- a collection, transport, and treatment system is put in place and maintained so as to ensure that faecal sludge is transported and disposed of safely;
- collective finance mechanisms are implemented – in most cases this necessitates a system for invoicing and collecting user charges;
- regulations are developed and enforced to ensure that the system is not abused.

However, service delivery mechanisms are very context specific. For instance, waterborne sewerage, one of the few technological options that has been successfully used at scale (and at high cost), is adapted to the local circumstances such as the availability of water, the appealing nature of "flush and forget", and the poor economics of reuse technologies available in the 19th century (Black and Fawcett 2008, 22 et seq.). However, the scale of capital and operating costs and the need for a reliable and continuous water supply put this option out of reach for a very large majority of the urban poor.

So, there is a large question mark as to what technology might be appropriate and affordable. There are design requirements at all levels. Hand washing facilities (water and soap or ash) are needed in the proximity of the toilet to maximise the health benefits of sanitation. Furthermore, the design of the toilets needs to ensure privacy, so that people, especially women, are not prey to violence and assault. Facilities also need to be usable by children and by people with mobility impairments and disabilities, and the menstrual management requirements of adolescent girls and women need to be provided for. These design parameters tend to be overlooked by male engineers.

Box 3. Ecological sanitation (ecosan)

The nutrient qualities of human excrement have been long appreciated. In some quarters that appreciation is being rekindled, in others it never died, while in some it may never exist.

The "nightsoil" removal from Victorian London fed the agricultural fields around the city and the construction of sewers led to an outcry about the loss of fertiliser. One German academic estimated that Victorian sewer systems in England "results in a loss annually of the materials capable of producing food for three and a half million people."[10] The problem encountered with large-scale attempts to extract nightsoil and use it for agriculture is that, in the end, the economics did not stand up. In some developing countries the latter day incarnation, now rebranded as part of ecosan, has made gains in many rural areas. In some places, notably in rural China, it never disappeared.

The reasons for this increase and its many adherents in rural areas arise from such considerations as increased cost of fertiliser, increasing amounts of poverty including that stemming from climate change impacts, and a general increase in awareness of the possibilities of losing the loop and increasing revenue for poor families. In an urban context the uncertainties remain as they did two centuries ago, being principally that the cost of removal of high volumes of untreated effluent make dubious economics. However, IRC's Source Bulletin reported in July 2008 that a public toilet has been opened in the city of Musiri, Tamil Nadu, and customers will be paid for their deposits into the ecosan toilet."[11] Although this was a contribution to a research project, this development may be at least a portent for the future. As water resources become more scarce, willingness to adopt waterborne sewerage will further decrease and more attention will be paid to the transport of faeces through other methods. A combination of the need to avoid putting sludge in the water and the potential for reuse may combine to revive interest in ecosan type approaches.

At community and higher levels there are a number of parameters that need to be taken into account. Effective urban sanitation requires integrated thinking across a range of areas: excreta management, drainage, management and transport of wastewater (and, ideally, storm water), solid waste management, hygiene behaviour, public and environmental health management, innovative financing, and so on. Factors that need to be considered include the following.

- The ability to separate grey water, urine and faeces successfully, as this greatly reduces the volume of harmful waste that needs to be handled and eases the recycling of grey water and urine.
- The density of settlements – in dense settlements digging a second (or even a first) pit is impossible and pits need to be emptied when they fill up. Pit emptying

10 Professor Justus von Liebig of Giessen University, quoted on p. 23 of Black & Fawcett (2008).
11 Source Bulletin, accessed from http://www.irc.nl/page/42564, September 2008.

is often problematic for various reasons and exposes labourers to serious health risks. Moreover, in most cases the sludge remains untreated as capacity is limited and there are usually no agreements between small-scale service providers and the treatment utilities. Moreover, the denser the settlement the greater the amount of sludge and wastewater and the less room for on-site disposal. In such cases, a storm water drainage network is needed for the wastewater.

- Many poor urban settlements are in areas unsuitable for the construction of pits, for instance on unstable soil, flood prone areas, or on steep hills. These factors also influence the potential to dispose of grey water on-site.
- Governance of sustainable urban sanitation requires the integration of complex services (water supply, collection, transportation and treatment) and collaboration between users, regulators and service providers. This has proven problematic in many instances and might be one of the stumbling blocks for ecological sanitation in cases where on-site treatment is not possible. As Holden points out in his paper for this symposium, it seems unrealistic to expect that governments that have been unable to provide conventional services will be able to deal with the more complex requirements of cartage and treatment (or eco-sanitation).

Box 4. Sanitation for small towns

Small towns account for a significant proportion of the growing world population and incorporate an ever increasing percentage of the total of those who remains unserved by water and sanitation. They lie somewhere between large urban centres and rural communities; the definition within this continuum is very much context based. While service delivery at either end of the continuum has elements that might be considered as norms, these are yet to emerge for the intermediate range – the small towns. There are particular issues which arise in such locations.

Often administrative centres and/or market towns, these locations "are sufficiently large and dense to benefit from the economies of scale offered by piped systems but too small and dispersed to be efficiently managed by a conventional water utility. They require formal management arrangements, a legal basis for ownership and management, and the ability to expand to meet growing demand for water."[12]

One might add that they are too large for a community-managed system (similar to a rural water supply). Such community-managed systems often fail owing to lack of an institutional support mechanism – something that would be particularly necessary in the case of a small town system.

However, they are too small to have their own specialist operation and management set-up. They "can't go it alone and need specialised professional support, in particular to train operators and to prepare and update business plans, expansion programs and efficiency strategies."[13]

12 Summary report on the small towns water and sanitation electronic conference, page 3; Jan- Mar 2000, Water and Sanitation Program.

13 *Conference Statement* of the Addis Ababa Small Towns Water Supply and Sanitation Conference, June 2002.

There is also felt to be an issue of political will. A large number of small towns with poor water and sanitation may be politically less visible than a small number of very large cities. So, with a limited cache of finance, time, energy and willpower, politicians and service providers turn their attentions elsewhere and residents of small towns lose out to their counterparts in the cities.

Governance arrangements for sanitation

This section draws upon the essay authored by Adriana Allen, Pascal Hofmann and Hannah Griffiths for this symposium, "Moving down the ladder: Governance and sanitation that works for the urban poor".

Whose shit is it? What do we mean by this question? Clearly not, literally, "whose bodies did this come from?" The question is deeper than that. It means, who is going to take responsibility for this shit? Who cares enough to stop the city and its peri-urban borders festering and blighting the lives of all who live there? To put it another way – whose city is this? This question captures the essence of the governance-related issues around the delivery of urban sanitation services to the poor. It goes beyond a technical question to the heart of what it means to be part of city governance – either formally as part of its government, or as part of civil society, community groups, NGOs, private sector, donors, law makers, regulatory bodies and the rest. Not only do different parts of the chain need to be well governed; different parts of the chain need interfaces in between to ensure a well-functioning delivery chain. If "taking responsibility" requires a lead from the city authorities, where within the authority will responsibility lie? Urban authorities are often hopelessly fragmented, and responsibility falls between water departments, sewage departments, public works and public health. One body needs to be made responsible and accountable, even if all these different actors have a role in governance.

For more than two decades a largely ideological debate has continued around delivery by private sector versus public sector. At its most simple, this debate is largely about two methods of failure: the private sector will not provide for the poor, as there is no profit to be made from them; the public sector lacks the capacity, finances and commitment to do so. Most of the debate has taken place around urban drinking water supply; sanitation was included by association without consideration of the differences between these sectors. One could argue that neither the private nor the public sector route has ever received realistic levels of funds or the right sort of critical political support to make the best of their efforts. However, the private versus public debate has died down, as the results of private sector involvement in the drinking water supply sector have been so chequered and widespread that service provision for the poor has not materialised.

This private versus public debate largely ignored the pressing issue of whether the urban poor were being provided with affordable and appropriate urban sanitation services. Due to the failure of formal private and public sector, many of the poor had come to rely on self-service and small-scale informal service providers. Most of these service delivery mechanisms are needs driven rather than supply driven. The

"sanitation wheel" (Figure 2 : The "Sanitation Wheel") provides a useful tool for further analysis of sanitation delivery mechanisms, although it should be noted that strategies cannot be as cleanly categorised as suggested in the illustration.

- The left side of the wheel corresponds with the formal delivery mechanisms that are policy driven. The right side of the wheel depicts the highly localised coping strategies adopted by the urban poor, most of which are needs driven.
- The wheel shows the three sectors that are involved in the delivery of sanitation services: public sector, private sector and civic society (including communities). However it is important to note that these sectors are not homogenous and that the composition of these sectors shows large differences between different places. The next section will further elaborate the partnerships between formal and informal service providers.
- The urban poor mainly depend on services delivery mechanisms that are found at the right side of the wheel, as most formal delivery mechanisms are out of reach of the urban poor. Instead the poor depend on the following five delivery mechanisms: (a) self provision through collective action; (b) direct social provision through state agencies; (c) direct social provision through non-state agencies; (d) direct market provision by formal and informal commercial providers; (e) indirect state provision through subcontracting (Joshi and Moore 2004 in Allen and Hoffman 2008).

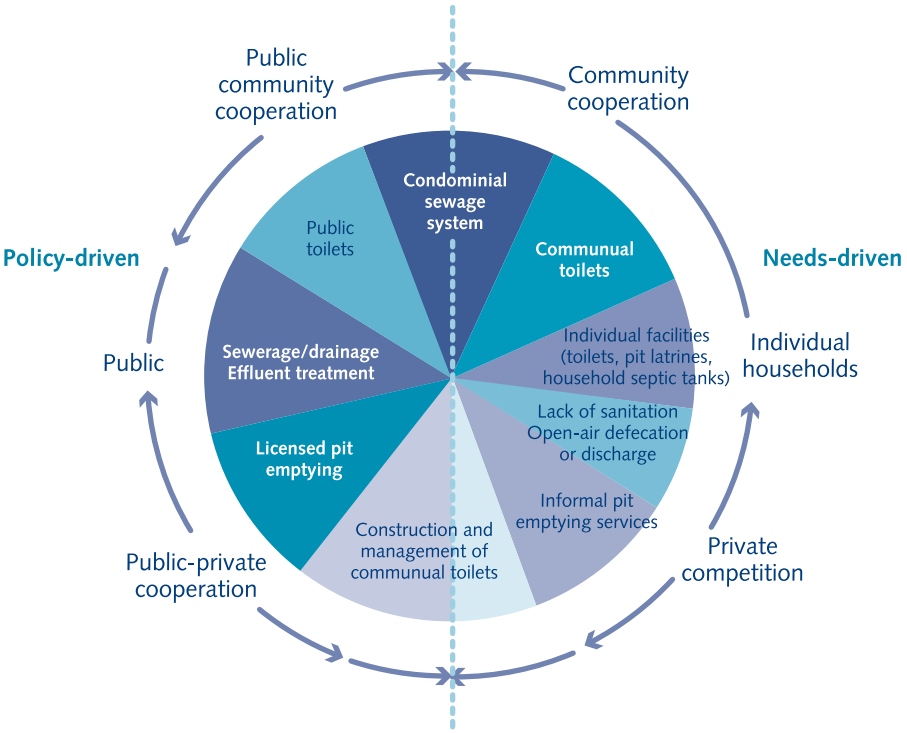

Figure 2 : The "Sanitation Wheel"

Source: Allen and Hofmann elaboration based on Tayler (2005).

However, the sanitation wheel mostly focuses on the beginning of the sanitation chain: providing a seat (or plastic bag or no seat at all) and in some cases collection and transportation. The right side of the wheel shows that treatment, planning and hygiene remain largely unaddressed when the poor need to rely on self service.

Within the context of the symposium, this sanitation wheel will be used to analyse the underlying governance arrangements that are presented in the different case studies. The lead questions are whether the poor were reached and whether their involvement led to their empowerment. Subsequently, the scalability of these approaches will be investigated.

In the next part of this paper we look at some of the ways in which some of the challenges might be met. Are partnerships a viable solution to the problems of governance? Are there innovative financing methods that could open up new ways to afford integrated services? Are there innovative technologies that seem better suited to being adapted to governance systems that are possible within poor urban areas?

Box 5. Community-managed toilets

If there is any doubt that demand for sanitation exists and can be met among the population of slum areas, then the experience of the inhabitants of the slums of Pune, India, will remove it (UN Habitat 2004, box 7.2 and Burra, Patel and Kerr 2003). Half a million people gained access to sanitation in a multi-sector partnership-implemented approach. Sparked by the desire of the city commissioner to improve sanitation, contracts were sought to build and operate public toilets. A local NGO, SPARC, formed an alliance building on existing relationships with people's organisations, Mahila Milan and the National Slum Dwellers' Federation. The alliance became a main contractor, designing and costing the work, while also developing its own capacity for management and maintenance. This process led to innovations and design improvements in public toilet blocks. They were better lit, had sufficient water for cleansing and washing, had separate entrances for women, and men and incorporated children's blocks with specifically designed facilities. Equally important was the fact that the blocks had room for caretaker dwellings and so the critical issue of maintenance and cleanliness could be successfully addressed. The practise spread successfully to Mumbai and has found adherents and similar success in other Indian cities, and is now spreading further afield, including to Nairobi and Dhaka.

Partnerships for service delivery

This section draws upon the essay authored by Kathy Eales for this symposium: "Partnerships for sanitation for the urban poor: Is it time to shift paradigm?".

In the absence of a flush and forget system, the sheer number of unserved people, the diversity of environments in which they live, and the formidable nature of scaling up sanitation technologies make the provision of urban sanitation a massive challenge.

Looking at conventional sewerage-type approaches, very few urban public utilities have the capacity and intention to deal with these problems without support from private sector and civic society; the same applies to private utilities. Waterborne sewerage remains out of reach for the vast majority of the urban poor (Eales 2008).

Additionally, the challenge is to address all elements of all parts of the sanitation chain, from demand creation/hygiene promotion, through consultation and planning, to construction, operation and maintenance, and (eventually) replacement. As this has to be done for each link in the chain: facility, transport, treatment and disposal, it is obvious that a single entity cannot do this; effective partnerships are required.

Partnerships have been defined as "instruments that enable organisations with differing skills and priorities to leverage increased impact through working together than would be possible by working alone" (Evans, McMahon and Caplan 2004: 1 quoted in Eales 2008). They bring together "the technical skills of professional service providers, the social-development skills and local knowledge of civil society groups, and the planning and management responsibilities of local government" (Ibid.). There are many forms of partnership, but key in this sector are those between governmental stakeholders, civil society stakeholders and non-government service providers. In the complex urban environment, all these stakeholders are likely to have a different (and often partial) understanding of the problem, different priorities, and conflicting and overlapping mandates. A first step to effective partnerships is to defragment and work towards a common understanding of the problem and a shared vision. This is often a difficult and slow process (Butterworth 2008).

Partnerships viewed from a pragmatic point of view can become vehicles for cost sharing and cost recovery. Good partnerships provide room for meaningful participation of all involved partners and eventually lead to the empowerment of the urban poor. In her background paper, Eales focuses on tri-partite partnerships between civic society, urban authorities and private sector. During the symposium, alternative arrangements such as learning alliances[14] were discussed.

There is a growing evidence of successful partnerships in the WASH sector, most (but not all) of them in the water sector. Effective sanitation delivery requires the involvement of a range of stakeholders. Such co-ordinated efforts seem to be more common in rural areas rather than in urban areas where fragmented and overlapping government responsibilities often form a major bottleneck. Partnerships for delivery of urban sanitation services face a set of specific challenges.

- The lack of security of tenure in most urban slums is one of the main stumbling blocks for the formation of partnerships. As noted, formal involvement of urban authorities is often equated with the granting of tenure rights. Moreover, without tenure rights the poor are reluctant to invest in the improvement of their habitat.

14 For more information on learning alliances refer to: http://www.irc.nl/page/14957.

- The high mobility of the urban poor and the lack of a sense of community hamper the building of stable and long-lasting partnerships.
- Political realities as described above and the resulting culture of distrust and deceit create another stumbling block.
- Partnerships for sanitation need to cover a wider range of activities than those for water, especially in the case of off-site disposal.

As a consequence, cases of successful partnerships to deliver sanitation services to the urban poor are limited. Eales in her essay discusses the following partnership models: (a) partnership for on-site sanitation; (b) condominium sewerage; and (c) community-managed sewerage. She argues that, to date, successful partnerships are an exception rather than rule and that it took strong, mature and fairly well-resourced partners in combination with time and determination to make these exceptions work. In many parts of the developing world these ingredients are missing, hence, there is a lot to be done to create the environment in which necessary partnerships can grow and thrive.

However, there might be a case for partnerships to contribute towards more coherence in the fragmented urban landscape and advocate for more pro-poor service delivery. Complex and seemingly intractable problems such as urban sanitation are often characterised by disagreement between different stakeholders about the exact nature of the problem and a sense that one's own problem needs to be dealt with on a priority basis. Partnerships such as this could be used to move towards a common understanding of the problem and a shared vision of future direction. This is more of a multi-stakeholder engagement, rather than a conventional partnership. Such fora might not always be long-term sustained efforts to build partnerships but could involve a series of interactions over a period of time.

The final role that partnerships could fill is that of seeking accountability of service providers. How can this be sought and what measures and support do those who seek this require? There is a small but growing body of experience in using citizens' report cards and other accountability-seeking or incentivising devices. One thing that slum dwellers do have in their favour is weight of numbers. How can this be used to lever services from providers who otherwise prove to be unaccountable?

Box 6. Condominium sewerage

The flush toilet has many advantages when the discharge is removed in sewers or a septic tank – the principle one being that the more offensive elements of defecation are reduced. But the chance of this sort of technology being available to people in the developing world are limited, partly because of the sheer cost of the sewerage system.

However, there have been examples in which a reduced scale sewerage system has been implemented and proved most beneficial. For example, the Orangi Pilot Project in Karachi, Pakistan, a combination of strong leadership and committed local organisations, led to the implementation of small bore sewerage at significantly reduced cost compared with full bore sewerage. This has spread to other cities in Pakistan and further afield.

In Tegucigalpa, Honduras a similar principle was applied slightly differently. The condominial sewerage system is one where (small bore) pipes are laid in sequence along a row of dwellings (as opposed to there being a main sewer and branches, as with "conventional" small and large bore sewerage systems). Such a system was developed in this case through the mobilisation, contribution and persistence of local people who had survived the landslide-induced horror and subsequent deprivations of Hurricane Mitch in 1998.

Black and Fawcett (2008, p. 57) indicate that now every home in the *barrio* has a toilet, while health visitors continue to maintain high levels of hygiene through a programme of visits. But there are drawbacks. Sometimes the cost, if community voluntary labour is included, can be comparable to conventional sewerage. Also, the success of the system depends upon there being a reliable and large supply of water. But possibly critical is the fact that, for such an investment of time, labour and finance to be made, the location needs to have the security that it will not be razed or inhabitants evicted. The issue of tenure is, once again, a vital consideration.

There is little doubt that small bore/condominial solutions are appropriate in some circumstances – water resources need to be reasonably plentiful, a high degree of community cohesion appears to be a requirement, and costs are not necessarily that low. So, they are not a cure-all for urban areas and careful consideration is required prior to their recommendation.

Financing sanitation

This section draws upon the paper written for this symposium by Sijbesma, Diaz, Fonseca, and Pezon: "Financing Sanitation in Poor Urban Areas".

Amongst all the problems cited for the failure of urban sanitation services for the poor, finance constitutes one of the most fundamental obstacles. Almost all the models for providing scaled up services rely on the users being able to contribute substantially to service provision – yet in urban areas, the start up costs of any large-scale scheme are huge. The issue of financing sanitation services is characterised by a lack of clarity,

lack of agreement and lack of data. What scarce data are available mostly concern the delivery of toilet seats rather than a sustainable service. The costing of the delivery of urban sanitation services should be subdivided into these categories:

- Capital investments in fixed assets (CapEx[15]) – this is the cost of hardware investment in pumps, pipes, latrines, etc.
- Capital maintenance expenditures (CapManEX) – the full depreciated replacement costs – rarely taken into account in investment decisions
- Operating & minor maintenance expenditures (OpEx) – the annual operation and minor maintenance costs, such as the costs of diesel or electricity for pumping, costs of operational staff, small replacement parts
- Direct support costs – the software costs (training, facilitation, community mobilisation, hygiene promotion, etc.) associated with the implementation and maintenance of hardware
- Indirect support costs – the costs that fall outside the direct system, but which are needed at higher levels of scale, such as training by districts, development of water resources management plans, etc.

This categorisation can be applied to each stage of the cycle, at each element of the sanitation delivery chain (planning, collection, transport, treatment and disposal).

The most comprehensive assessment to date of likely capital costs of sanitation at a global level was that conducted for the Camdessus Panel of 2003. It noted that the costs of achieving the water and sanitation MDGs were likely to be of the order of US $30 billion each and every year until 2015. An unpublished IRC global literature review shows that the capital investment costs for sanitation vary widely according to the technical options chosen. For example, if the 180 million urban inhabitants of Africa who currently lack adequate sanitation were to gain access to improved sanitation, this would cost US $5 billion for simple pit latrines up to US $25 billion in the unlikely (and undesirable) event that conventional sewerage systems were made universal in urban areas.

Table 2 : Capital investment costs – sanitation

Type of system	Capital Expenditure (US $/capita 2004 PPP)
Simple pit latrine	28
VIP latrine	50
Double vault latrine	50
Pour flush latrine	54
Urine diversion/ecosan	81
Conventional sewerage	139
Small bore/condominial sewerage	64

15 These definitions (CapEx, OpEx, etc.) were developed by Catarina Fonseca, IRC.

The partly overlapping categories in table 2 make it clear that delivery of sanitation services involves a great deal more than the initial hardware costs, often presented as the total needed to meet the MDGs (Sijbesma et al. 2008). Financing can be raised from a range of sources such as households, communities, private sector and government but making stakeholders pay for the negative impacts of inadequate sanitation services downstream will remain a challenge. A literature search found that most authors focus on the costs incurred at the household and community level and the finance mechanisms to cover these costs. Little has been written about the costs and finance mechanism for other parts of the sanitation chain, software costs, and maintenance and operating costs. This gap needs to be filled to achieve a better understanding of the delivery of sanitation services.[16]

In terms of sourcing financing at the household and community levels a number of interesting approaches are being developed. Sijbesma et al. (2008) note that these approaches are all aimed at making sanitation facilities affordable:

- By adjusting payment requirements and modalities to the ability of people to pay and to the mechanisms they use, for example, a high connection fee constitutes the principal bottleneck in many projects that target the poor. An innovative financial approach would look at solving this problem by spreading the connection fees over a longer period, instead of asking for an up-front payment;
- By increasing acceptability and willingness to pay: this can be done by increasing awareness of the core issue of sanitation among the population and by adjusting the service to their varying expectations and opportunities. Although this is not in itself innovative financing, it is a core activity to make financing more effective. Sijbesma et al. detail a number of mechanisms such as grants, low interest loans, group saving schemes, solidarity funds, revolving loans, etc. They cite Tremolé et al. who say that successful innovative financing examples share a number of characteristics:

– Low-income groups have information about various options
– Users and communities decide for themselves
– Finance schemes acknowledge the need to cover soft costs (training, advocacy, knowledge) and hard costs (infrastructure)
– The local private sector is involved
– The main source of financing continues to be user fees (in order to be sustainable)
– Barriers to extending the service to unserved inhabitants are broken down

Subsidies have been at the centre of intense debate for the delivery of sanitation. Experience indicates that subsidising hardware without investing in behavioural change programmes is likely to undermine the sustainability of rural sanitation services. Approaches such as community led total sanitation argue strongly for no subsidies at all. However, a practitioners' workshop in Bangladesh agreed that in many cases a subsidy is needed to reach the very poor and concluded that all rural sanitation projects

16 Personal communication with Christelle Pezon and Catarina Fonseca.

for the poor do contain a subsidy element (Wicken et al. 2008). Often the software costs of interventions are not calculated or charged for.

Black and Fawcett (2008) point out how in England the toilet was paid for by the householder, while all other elements were paid for by the state. In time, users paid for the operating cost of these publicly provided elements but it has only been since privatisation in the UK that the user is in effect being asked to pay for capital renewals. However, it seems clear that the costs of delivering urban sanitation services to the poor can only be partially recovered from the poor themselves. A (large) part of the costs will need to be covered through tax revenues or donor grants.

Conclusions

Providing adequate and affordable sanitation services to the urban poor seems to be one of key challenges for the sanitation sector. As described at the start of this paper, the number of unserved people has remained the same over the last decade, compounded by the failure of many existing services. As also noted, the actual number of people who are not served could be four to five time higher than the official estimates. Finally, providing sanitation services cannot be limited to providing a seat only; to ensure the health of tomorrow's cities treatment of faecal sludge needs to be addressed.

A service delivery approach provides a lens to moves the focus from considering projects to considering the entire chain of activities that need to be achieved to deliver sustainable sanitation service at scale. Such an approach assumes an active engagement with urban stakeholders rather than fencing them off in order to create small islands of success that are unlikely to be scaled up. During the symposium, our first key question is: *"Is the presented approach or methodology well embedded in the urban environment, hence does it have potential to be scaled up?"*

Looking through the service delivery lens makes clear that a co-production or partnership involving formal and informal partners and governmental and non-governmental partners is needed to deliver sanitation services to the urban poor. This is a far cry from the current situation in which most of the urban poor rely on self-service including "flying toilets" and open defecation. This background paper brings out two clear messages:

- Existing understanding and thinking about urban sanitation shows large gaps when it comes to delivering services along the chain to the poor at scale.
- It is clear that an interdisciplinary approach is needed; technological options come with different price tags and need different government and partnership arrangements, etc.

Irrespective of the starting point, choices in one of the highlighted key areas (technology, governance and partnerships, and finance) have a direct impact on each other. For instance, simple sewerage requires a certain type of partnership between local community, civil society and city authorities, and also needs certain regulations to be in place, with room for community involvement, etc. The symposium seeks to explore all cases from these angles. For this purpose, the second key question has been formulated as follows: *Whose shit is it, how is it dealt with and who foots the bill?* These key questions shed a light on two main objectives of the symposium: what are the promising approaches and what are the gaps in our common understanding on the delivery of urban sanitation services to the poor?

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POOR SANITATION AND HYGIENE STANDARDS AT THE SLUM VILLAGE RIVER.
WANDERING LIVESTOCK POLLUTE THE RIVER.
WOMEN USE THE POLLUTED WATER FOR LAUNDRY.
THE SLUMS' SEWAGE TOO DRAINS TO THE RIVER.
SEWAGE FROM THE BIG CITY IS DIRECED TO THE RIVER.
..A HAVEN FOR SCAVENGING BIRDS.
A DUMP SITE FOR THE CITY'S TRASH.
A PLAY POOL FOR THE CHILDREN AROUND.
5

3. Moving down the ladder: governance and sanitation that works for the urban poor

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The paper argues that the widespread privatisation of basic services in the 1990s has in turn led to a redefinition of the role of an "instrumentalised state", in which the traditional functions of legislation, regulation, direct provision and investment have been significantly redefined, in many cases bringing the role of the state closely aligned with the creation of "new business opportunities for transnational corporations" (Finger 2005, p. 275). However, neither the public nor the international private sector is filling the gap of meeting the WATSAN needs of the urban and peri-urban poor. The essay contrasts a so-called "rationalist perspective" dominated by the public-private controversy with an empirical perspective concerned with gaining a better grasp of the multiple – and often neglected – practices and arrangements by which the urban poor effectively access sanitation[2] on the ground. The concept of service co-production is presented in this context as a means to draw lessons from the ground of sanitation provision to and by the urban poor, and to devise meaningful ways to empower the poor to fully exercise their rights and to become agents of change, fostering a type of governance that is people-centred rather than producer-centred. The discussion then moves to examine how to move down the sanitation ladder in order to acknowledge and to support the actual options by which the urban poor effectively access sanitation, looking in particular at the roles and responsibilities of the different actors involved. Last but not least, the links between sanitation, land, housing, health and livelihoods are briefly examined, calling for the need to go beyond a sectoral approach to sanitation.

Introduction

This essay has been commissioned by the IRC International Water and Sanitation Centre (IRC) with the purpose of providing a synthesis of the current debate concerned with the governance of urban sanitation for the poor, as well as some discussion teasers to stimulate the debate at the *IRC Symposium on Urban Sanitation* to be held

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2 The definition of sanitation adopted for the purpose of this paper focuses on the effective and safe management and disposal of human excreta and wastewater. Solid waste management is not included here.

in November 2008. The timing of this discussion could not be better, as it not only coincides with the International Year of Sanitation but provides a great opportunity to reflect on the outcomes of over two decades of debate and experimentation with different and often controversial approaches to the governance of urban sanitation.

The essay starts by looking at the way in which the sanitation challenge has been framed within the Millennium Development Goals (MDGs). The discussion then moves to a brief examination of the urbanisation of poverty, necessary to place the sanitation challenge in the contextual reality of the urban and peri-urban poor. After this, the discussion outlines the contemporary debate on governance, arguing that notions of good governance and good urban management, as advocated by most international donor agencies, partially became conflated during the 1990s with the promotion of private sector participation (PSP). The analysis then examines the main governance propositions referred to in the provision of urban water and sanitation (WATSAN). It is argued here, that although there are many specific differences between water and sanitation, these sectors are bundled together not only in terms of the governance debate but also in terms of the legal frameworks adopted by national governments with regards to the status of these services as a right or as a commodity.

The empirical literature that supports the discussion through this essay is incipient but fast growing. The paper does not provide an extensive representation of such literature but rather highlights a number of case studies selected with the purpose of aiding the process of rethinking the urban sanitation challenge and its governance implications. The essay concludes by recapitulating the discussion through a number of recommendations or "teasers" aimed at fuelling the debate.

Unpacking the MDG sanitation challenge

The sanitation target was added to the water target under the seventh Millennium Development Goal (MDG) of ensuring environmental sustainability as an outcome of the World Summit on Sustainable Development in Johannesburg in 2002 (Scott et al. 2003). In general, access to water seems to be the priority while sanitation is less of a concern even for the poor; the development of the seventh MDG reflects this.

The concerns addressed by the MDGs in relation to water and sanitation are not new. The 1980s were declared as the water and sanitation decade with the overall aim of water and sanitation for all. That decade saw the recognition of the right to basic services and of the need for legal systems to protect them (Nunan and Sattherthwaite 2001). Efforts failed to meet this ambitious target mainly due to a focus on purely technical and financial aspects. Nevertheless, more progress in this area was achieved than ever before. WHO estimates that during the 1980s an additional 1.3 billion people gained access to safe water and 960 million to basic sanitation (Jolly 2003). Access in urban areas increased from 75% to 95% in the case of water supply and from 53% to 82% in the case of sanitation (ibid.).

Following the realisation that service improvements benefiting the poor would require more accountable and responsive political structures, towards the end of the 1980s donors started to fund capacity building in WATSAN institutions. In the 1990s these efforts shifted towards structural reform, with an emphasis on privatisation of publicly run water and sanitation services. However, many recipient governments were reluctant to respond to external impositions from donors to adopt good governance and the privatisation of services, so that implementation of the concept lagged behind.

The seventh MDG represents an attempt "to place deprived households at the centre of a new water and sanitation agenda, not only challenging the pro-poor credentials of existing reform efforts [such as those pursued throughout the 1990s], but demanding a more coherent and focused approach to addressing the water and sanitation problems of the poor" (McGranahan and Sattherthwaite 2006, 3). Instead of aiming to serve the whole population as in the 1980s, the MDG sanitation target focuses on halving the population without access to basic sanitation by 2014. The challenge to meet this target is much greater than that for water supply, not only because more people need to gain access to sanitation, but also because more funding is needed for sanitation infrastructure, particularly in urban areas. Although estimates show that an additional 1.2 billion people gained access to basic sanitation between 1990 and 2004, it is unlikely that the target will be met, with sub-Saharan Africa and South Asia being the regions where progress is the lowest (UN 2006).

The emphasis of the seventh MDG is on improved access rather than adequate access, thus, the lack of access to adequate facilities is likely to be several times higher than the estimates for lack of improved water and sanitation (McGranahan and Sattherthwaite 2006). The difficulty of collecting information about adequate services might explain why official figures and statistics focus on improved services, despite the risk of excluding people who might have access to a facility that is not suitable (Allen et al. 2006a). It can only be assumed that the situation for the urban poor is even worse than the numbers suggest, as the numbers hide the problems and costs associated with some facilities that are currently considered adequate and therefore fail to reflect the reality of many of the urban poor. For instance, official figures do not distinguish between facilities provided within a household and community or public toilets; access to either of these facilities is regarded as meeting basic sanitation needs. However, high densities in urban informal settlements might restrict access to communal facilities and user charges might not be affordable for everyone (Calaguas and Roaf 2001). Public latrines/toilets are the most widely applied sanitation option in densely populated low-income areas and play an important role, but they do not necessarily fulfil the needs of poor individual households (SIGUS 2003). While public toilets are important to serve public spaces and amenities, their adequacy as the only sanitation option is particularly questionable when it comes to meeting the hygiene needs of female household members and children. As a consequence, although facilities might be physically available, they currently do not meet the needs of the urban poor for reasons of overcrowding, lack of maintenance and user charges.

In developing countries, 90% of wastewater currently remains uncollected and only 10% of wastewater treatment plants operate successfully (UNEP and Stakeholder Forum 2006). The consequences are particularly felt by low-income communities living in urban areas due to the position and density of the settlements they live in (Calaguas and Roaf 2001). Since their health is affected, this has an immediate impact on their income-generating capacity. This might partly explain why several initiatives have looked at sanitation in relation to hygiene education, particularly focusing on schools (see Joshi and Morgan 2007). Despite this being an important component of sanitation efforts, if facilities for the urban poor are not in place or are inadequate, educational efforts are not going to be sufficient to improve the sanitation situation of the poor.

It is now widely acknowledged that privatisation does not work for the poor. However, the public sector seems to lack both the capacity and the funds necessary to solve the problem on its own (Nunan and Sattherthwaite 2001). While on-site sanitation (pit latrines and septic tanks) is the reality for many of the urban poor, and surely for the majority in the African context, efforts by policymakers and bureaucrats seem to focus on network sewerage and centralised systems that do little to improve sanitation in urban low-income areas (Schaub-Jones 2006; Calaguas and Roaf 2001). Subsequently the question arises: who will be serving the urban poor? This is above all, a question about the governance of sanitation. Unfortunately the debate in the 1990s focused on the public-private controversy, missing this question almost entirely. A central argument in this paper is that the answer to the above question needs to move beyond such controversy and be examined in the light of the wider and complex emergence of multilevel governance (Eckerberg and Joas 2004) and its impact on the poor.

The urbanisation of poverty and the right to the city

A consideration of the future suggests that the developing world will continue to become increasingly urbanised, with the world population becoming predominantly urban-based in the next 25 years. In this context, the developing world is already facing urban transition. This does not mean a transition to a fully urban status in which urbanisation will spread its influence, transforming the countryside, but rather a process of intensification of mutual rural-urban interactions leading to still poorly understood spatial, socio-cultural, demographic, economic and environmental realities.

Although demographic forecasts should be regarded with caution due to inconsistent definitions of 'urban' and 'rural' across the world, they are powerful in revealing the magnitude and scale of the urbanisation process. Contemporary trends do not simply imply that most of the world population will be living in cities, but that urbanisation does and will continue to affect the way in which rural and urban households and individuals – who could be referred to as key "demographic decision-makers" (Montgomery et al. 2004) – straddle these two worlds. Decisions about health, fertility, migration, production, service provision and so on are increasingly affected by the diffused power of the urbanisation process, not just spatially but through informational spillover and social networks.

This means that mainstream definitions of what is "urban" – mostly based on population size, population density, economic function or administrative-political boundaries – are increasingly unfit to identify the specific conditions affecting the poor or to inform programmes and policies aimed at improving their access to basic services. Common problems with such definitions include: (a) census time-lag and the great variations among national definitions, making international comparison difficult and often misleading (Satterthwaite 2000); (b) lack of disaggregated data at the local area unit and transpolation of inappropriate concepts from one context to another; (c) failure of statistic definitions and registration records to keep track of people's mobility between urban and rural areas and the emergence of fluid, fragmented and multi-location households (Rigg 1998); and (d) blurred geographical and spatial expressions in which the urban and rural physical boundaries become interlaced, as in the so-called peri-urban interface (PUI)[3] (Allen 2003). The PUI often captures a mix of urban and rural jurisdictions and this has important consequences with regards to the provision of services due to significant differences concerning the responsible body and the pricing of services, as shown in the case of metropolitan Chennai below (box 1).

Box 1. Between the urban and the rural: Who is responsible for service provision in peri-urban Chennai?

Since 1978, in the metropolitan areas of Chennai (India), the legal mandate for supplying water and providing sewerage and drainage services at affordable prices has been with the Chennai Metropolitan Water Supply and Sewerage Board (Metrowater). Due to severe policy, technical, financial and functional constraints, Metrowater is far from achieving its mission within the urban core of Chennai City, let alone the nearby peri-urban areas. Only recently has the jurisdiction of Metrowater been extended beyond the city of Chennai to include adjacent urban areas, including several peri-urban localities. As far as water supply is concerned, many peri-urban areas that are not included within Metrowater's jurisdiction fall within the responsibility of the Tamil Nadu Water Supply and Drainage Board and rely on rural schemes. This system is operated and maintained by "rural" local authorities, which generally lack the human and financial resources for effective maintenance and delivery of services. However, in practice there are some incentives for peri-urban dwellers to remain under the jurisdiction of rural local bodies even if their capacity as service providers is inadequate. First, funds from the state Ministry of Rural Development are considerably larger than those available through the programmes administered by the Ministry of Urban Development.

3 The notion of "peri-urban interface" makes reference not just to the fringe of the city but to a context where both rural and urban features tend to co-exist, in physical, environmental, social, economic and institutional terms. Environmentally, it is a heterogeneous mosaic of "agroecosystems" and "urban" ecosystems, affected by material and energy flows demanded by urban and rural systems. It tends to be socially and economically heterogeneous and subject to rapid changes over time. In institutional terms, it is characterized by the convergence of sectoral and overlapping institutions with different spatial and physical remits.

Second, under rural jurisdictions some services like water are free and charges for others (like electricity) are lower than in municipal areas. The duplicity of agencies for the provision of WATSAN in the peri-urban areas of Chennai has resulted in confusion, with the poor suffering the most, particularly women and children. With the state government institutions and elected local bodies virtually failing to deliver the most basic services in the PUI, the alternative is to look at community and household initiatives and small independent providers.

Source: Allen et al. 2006a.

In this context, the recent and projected population growth in the developing world is underlined not simply by a rural-urban poverty shift (at least in population percentages) but by a significant transformation of the linkages between urban and rural areas and above all, the causes of poverty and the ways out of it. Thus, addressing the MDGs requires an understanding of the changing nature and contemporary dynamics of the urbanisation of poverty. As argued by Satterthwaite (2000, 1), "[w]here you live and work influences whether or not you face deprivation and the nature of that deprivation". In this sense, even when rural-urban interdependencies among the poor are likely to intensify in the urban transition, there are certain characteristics that help differentiate poverty in the urban and peri-urban context. These include: (a) **greater reliance on livelihoods** drawn from labour markets within non-agricultural production or making/selling goods or services; (b) **greater reliance on cash** for access to food, water, sanitation, employment, garbage disposal, and so on; (c) very difficult conditions to **access land for housing** due to highly commercialised housing and land markets; and (d) severe difficulties in **accessing infrastructure and services** because of high prices. In many cases the illegal nature of their dwellings prevents the urban poor from being connected to formal systems of service provision or from using their homes as collateral for loans and credit. A regulatory framework that defines a settlement as illegal or irregular can be used to restrict public supply of basic services to the settlement. The Zero Growth Pact implemented in the metropolitan area of Mexico is a good example of how policies rationally designed to control metropolitan expansion in environmentally protected areas can reinforce unequal access to services, hitting the poorest worst (box 2).

Box 2. The Zero Growth Pact in the peri-urban interface of Mexico DF

The metropolitan area of Mexico City comprises 38 natural protected areas occupying 76,714 hectares. Urban expansion pressures constantly put at risk these areas, which are strategic for the sustainability of the metropolitan zone. Within this context, Milpa Alta is the most rural district in the metropolitan area of Mexico City and considered a natural protected area due to the location of strategic environmental resources for the city, particularly its role in the recharge of the aquifers that supply the whole metropolitan area. However, both in physical and socio-economic terms, this area is experiencing high population growth, not least from migrant households relocating there from other parts of the metropolitan area.

The Federal District Government has implemented several mechanisms to control metropolitan expansion over Milpa Alta. First, the territory has been divided into two zones: the towns, and the area outside them, the *parajes*. This creates a stratification of the population on a socio-economic level since a dweller from outside the towns cannot, in theory, have access to water and sanitation networks. Second, a census carried out in the *parajes* in 1997 was used to divide the population into two groups: those recorded in the census and those who settled after the census. The Zero Growth Pact is meant as an agreement between the delegation authorities and the *parajes* dwellers recorded in the census to stop new settlements. The pact establishes that only the registered population can have access to water provided by public tankers and taps. In return, those peri-urban dwellers included in the Pact have to police the area and denounce any new settlers, who are not allowed to receive any public water supply.

A contradictory situation hereby arises: on the one hand, the economic crisis of the former way of peasant subsistence in the area has led long-term settlers to divide land formerly used for cultivation, selling it to individuals or real estate speculators. On the other hand, politicians intervene discretionally to ensure the supply of free water to those they see as their client population who are outside the Zero Growth Pact. Thus the law is not always applied equally. Informal settlements continue to be established in this area and their dwellers forced to resort to accessing water and sanitation through different mechanisms, often involving forms of illegality and at higher unit costs.

Source: Allen et al. (2006a, p. 41).

Concerning the governance of service provision, the urban poor are likely to be closer to government as regulator and provider of services but this also means that often they are more exposed to practices of bad governance, such as clientelism and corruption. In addition, the urban and peri-urban poor are in many cases unlikely to access water and sanitation services through centralised network systems and instead rely on a wide variety of service providers and alternative methods (discussed in detail later). The right to water and sanitation is, in fact, not just a right to subsidised services but part of the "right of the poor to the city". In other words, a means to ensure that water and sanitation fulfil a social and environmental collective function, and that the

most disadvantaged groups in society are effectively empowered to have a say in the decision-making process (Allen et al. 2006b).

Bringing governance into focus

Over time the concept of governance has been given many different meanings and interpretations, but perhaps the most established definition is one that refers to the capacity of a political system to govern efficiently and to provide the necessary political conditions for the public good. In the 1980s, the concept was given a new connotation when it was reassessed in a context characterised by significant transformations. These included the dominance of neo-liberal politics and consequent withdrawal of the welfare state, economic globalisation and the emergence of transnational corporations (TNCs) as agents wielding considerable power and influence at a supra-national scale. Other equally significant developments were a wide recognition of the ecological crisis, the emergence of new social movements acting through local and global networks, and a reappraisal of the role of local authorities in the development process.

In this context, the debate on governance has expanded significantly and the notion has left the academic sphere of public policy analysis to become equally applied by international agencies, national and local governments, transnational corporations and civil society organisations. On the side of the international community, governance has become associated with an increased concern about how to improve the general conditions for policymaking and governing through adopting the values of efficiency, participatory democracy, social justice and environmental sustainability. However, in practice these principles are not always given equal status, as in the case of the notion of good governance, widely promoted by international institutions like the World Bank, in which efficiency (and implicitly private sector participation) has often taken priority, with good governance becoming a conditionality prescribed in the awarding of loans and grants and in international trading agreements[4]. It should be highlighted from the outset, that this notion of good governance has been largely influenced by the "new public management" (NPM)[5] school of thought. In basic terms, this school promotes the public sector use of private sector management techniques, arguing

4 The General Agreement on Trade in Services (GATS) includes the provision of environmental services as one of the twelve sectors explicitly considered. Signatory countries agreeing to liberalisation also agree to remove any barrier protecting national enterprises against foreign competition. Although water and sanitation are not explicitly included among the listed environmental services, GATS has significant and controversial consequences in relation to the rights of TNCs involved in basic services provision vis-à-vis national enterprises and signing states (McGranahan and Satterthwaite 2006).

5 NPM emerged as a response to the context of the economic and fiscal crises which afflicted a number of Western states in the late 1970s, which were largely attributed to the bureaucratic failures of the Keynesian welfare state. Over time, the principles of this school of thought were spread throughout the developing world, through the promotion of civil-service reform, privatisation, management decentralisation and a host of other measures focusing on the rolling-back of the state. This paper does not have the scope to address such reforms fully but there is a significant body of literature dedicated to examine both the arguments underlying NPM and their critique. (See Minogue et al. (1998) and Therkildsen (2001).

that the economic market should be used as a model for political and administrative relationships.

Within the academic and policy-making communities, the current governance debate is dominated by two contrasting definitions and sets of concerns. On the one hand, part of the literature on governance focuses mainly on the institutional capacity and performance of the state and the way it has adapted (and needs to adapt) to recent developments – looking more specifically at the way its traditional functions as legislator, regulator, provider and investor have changed in the light of more private sector and/or civil society participation. On the other hand, governance is also being deployed as a notion that refers to a new process of governing. This perspective pays particular attention to the ways in which contemporary trends are reshaping the relationship between those who govern and those who are governed through more participatory forms of direct democracy. These two approaches are referred to as "state-centric" and "society-centred" respectively (Pierre 2000; Pierre and Peters 2000).

The first approach is concerned with assessing the political and institutional capacity of the state to steer society towards certain goals associated with the public good. It also examines the relationship between the role of the state and the interests of other powerful actors. By contrast, the so-called society-centred approach is primarily concerned with the role of civil society in the governing process and its relation with the state through a variety of institutional arrangements. From this approach, governance refers to emerging governing practices that seek to build greater capacity for collective action through new relations between diverse social actors. Not surprisingly, the focus of this approach is on multi-agency ensembles, such as networks devised for creating synergy among different social actors in the pursuit of public policy goals. More widely, this perspective refers to the notion of multilevel governance mentioned before (Eckerberg and Joas 2004) in which the management and governing of environmental services and infrastructure seems to be moving away from national governments as central actors to a more complex and highly diverse network of agencies.

This essay is particularly concerned with a society-centred approach to governance, as the aim is to contribute to an understanding of the emerging governance arrangements that underlie the provision of sanitation services for the urban and peri-urban poor. A society-centred approach is relevant to this purpose because it allows the examination of alternative modes of governance to those that mainly focus either on the role of hierarchical structures (such as the state) or on the market. These alternative modes are less reliant on top-down policy instruments and are instead concerned with the need to find more accountable, democratic and interactive means of social organisation in which responsibility and accountability for interventions are often – but not always – shared between public, community and private actors. This does not by any means imply that the state has become obsolete or redundant but rather that its current role in the provision of services has been willingly or unwillingly transformed.

Service provision: state, private sector or civil society?

Central to this debate is the question of who should do what: in particular, whether the public sector, the private or the civil sector should deliver these services. During the 1990s the international debate on urban water and sanitation provision became almost exclusively concerned with the question of whether these services were better run by the public or the private sector. As argued by McGranahan and Satterthwaite (2006, 1), "[t]his presented an artificial choice, diverting attention from the real problem of how to reach the poor".

Table 1 presents a summary of the main arguments that characterise the controversy in favour of a significant role by either the state or the private sector. The arguments for private sector involvement are grounded almost exclusively in the principles of efficiency and effectiveness, relegating concerns about social fairness and environmental sustainability to the background. Although the evidence supporting these arguments remains slim in practice, in the last two decades developing countries have experienced a push towards the increased involvement of the private sector in the delivery of services (Batley 1996). In practical terms, private sector participation (PSP) has become widespread in the running of urban water and sanitation utilities even when the forms of service governance promoted by international agencies have been in many cases locally resisted and unpopular. For instance, in 2004, the Egyptian government abandoned its plans to privatise the WATSAN system in Greater Cairo, due to the negative record of, and reactions against, service privatisation in other parts of the world. Recent sector reforms have focused on the creation of two central government organisations: the Holding Company for Water and Wastewater managing public services (including sanitation) in the governorates and the Central Authority for the Drinking Water and Sanitation Sector, and the Protection of the Consumer, responsible for setting standards for utilities based on the recommendations of a ministerial coordinating committee, and for setting a new tariff structure aimed at improving cost recovery. The prevailing focus of these reforms is on urban areas. However, there is a persistent general lack of recognition of the wide set of actors involved in developing and servicing the urban and peri-urban poor, such as CBOs, local contractors and small (often informal) service providers (Allen et al. 2006a).

Table 1: State intervention or private sector involvement in the provision of basic services?

For state intervention	For private involvement
The public goods argument There are public goods where benefits are collective, for which there are no means of charging consumers (non-payers are non-excludable) and for which consumers do not have to compete (e.g. street lighting).	*The competitive allocation argument* Under non-competitive provision, resources are not used economically to produce a given output or existing resources are not used optimally to maximise outputs.

The market failure argument Private enterprise may fail because (a) the nature of the service leads to monopoly (e.g. water supply); (b) the necessary investments are so large or returns so uncertain that the private sector might not undertake them; (c) positive externalities are likely to reach those who are unwilling or unable to pay; (d) consumers may have too little knowledge to make informed choices.	*The state failure argument* State provision often fails to address consumers' preferences, or leads to charges that do not reflect producers' real costs, therefore making further investments unsustainable. In response to the failure of public services, enterprises and households often find their own market solutions.
The equity or "merit good" argument Everybody should have access to certain goods and services, regardless of their ability and willingness to pay (e.g. education and health). Environmental considerations may not be considered if service provision is left to market mechanisms.	*The poor pay the most anyway* State service provision often benefits the better off and fails to provide for the poor.

Source: Own elaboration, based on Batley (1996).

The arguments in table 1 can only be tested in the light of specific contexts and even within the same context there are significant variations among different services and areas. Within sanitation, piped sewerage systems are frequently located at the public goods end of the services spectrum. They are excludable but non-rival services[6], monopolistic and typically associated with high positive (health benefits) and negative (pollution) externalities. These characteristics make this service suitable for direct public provision, although private contractors might be involved in specific works. In the case of water supply, given its characteristics as an excludable and a rival good, piped water can be operated as a commercial enterprise. However, its characteristics as a natural monopoly, the large scale of necessary investments, and significant social benefits all make a case for government involvement, either as a direct or indirect provider. The discussion implies that arguments for public or private involvement are contentious and less clear cut than often suggested. On one side of the public-private debate is the view that increased private sector participation would resolve the many failures of public water and sanitation utilities, including their inability to reach the urban poor. At the other extreme of the debate, increased PSP is seen as part of the problem, as it involves withdrawing from the policies and institutions required to achieve universal coverage and adequate provision of water and sanitation (McGranahan and Satterthwaite 2006).

The public-private controversy is clearly aligned with the notion of good governance discussed in the previous section and seems to be somehow locked within the limits of

6 A "rival" service is one that is consumed or fully occupied when used, so that it cannot be used by someone else, as in the case of drinking water. A "non-rival" good or service can be used without excluding other users – for example a television signal or, as in this case, a sewerage system.

new managerial thinking, assuming the failure of centralised government-led service delivery systems and the need for a more efficient division of labour, usually under unbundled systems. This perspective often refers in detail to the institutions (state, market and civil society) of Western representative democracies and has mainly been imported to a developing country context through policy prescriptions. This so-called rationalist perspective encompasses various prevailing approaches within public policy analysis, as opposed to an empiricist perspective, concerned with the local-specific analysis of the empirical conditions under which the poor access basic services in the context of the developing world (Joshi and Moore 2002).

There are problems with both perspectives. Rationalists often fail to take account of the reality of how services operate on the ground outside Western systems, and their generalisations and policy prescriptions are therefore often impractical or irrelevant to the question of how to reach the poor. On the other hand, the empiricists are able to provide plenty of interesting and relevant insights into the contextual conditions and diversity of practices by which the poor gain access to services, but their findings often remain under-theorised, to the extent that it becomes difficult to extrapolate general lessons in terms of organisational development and governance arrangements. However, this does not need to be the case; as discussed later, it is possible to identify regular patterns across the wealth of organisational arrangements widely found in the urban context of the developing world and to confront rationalist predictions of what works and does not work with these real-world patterns.

The privatisation of governance

International adherence to the definition of water and sanitation as an economic good marks a paradigm shift in the governance of services delivery. Such definition was promoted and reproduced within the international arena by a large number of international agreements and declarations since the early 1990s, including among many others, the Dublin Statement and Rio's Agenda 21 in 1992. The central argument is that "managing water as an economic good … is an important way of addressing urgency [of the crisis of natural resource availability] by achieving efficient and equitable use, and encouraging conservation and protection of natural resources" (Finger 2005, p. 281). Much has been said on the benefits of bringing a market rational to water management resources, arguing for the benefits of a clear separation between provider and regulator and the adoption of indicators that provide for real costs, water tariffs and demand management. This line of argument foresees a reconciliation of financial and environmental arguments through the treatment of water (and sanitation) as an economic good.

Within the urban camp the above arguments were also aligned in the 1990s with calls for better urban management, in which good management and good governance were often conflated. They presented privatisation as the best response to the sense of urgency distilled out of the sustainable development crisis (seen as both an

environmental crisis, but also a crisis of the state) and the best way to bring together commercial principles, professional management and competition.

This paradigm shift rarely explicitly referred to sanitation per se; sanitation became part of the water management package and was therefore dragged to the same destiny in terms of governance recommendations. The packaging of water and sanitation was not rooted in any specific arguments for the privatisation of governance but resulted from previous calls for the integrated management of these services, which eventually translated into numerous national laws that brought them together. Examples of this include the Bolivian Law 2029 on Drinking Water and Sanitation, among many others. In fact, as argued by McGranahan and Satterthwaite (2006), the governance of water and sanitation debate had, in this context, very little to do with water and sanitation per se but was subsumed under a more ideological discussion about the effectiveness of the private sector in comparison to the public sector in almost any policy area. In practice, the arguments for the privatisation of water and sanitation services have been based loosely on the expectation that privatisation would result almost automatically in improved service provision. Very often – as in the case of Argentina (box 3) – this assumption has been part of a more general ideology that sees state ownership of any company as inappropriate and at odds with the principles of efficient and effective management.

Box 3. Private concession of WATSAN in Greater Buenos Aires: uncertainty, missed targets and tariff increases

Aguas Argentinas was the largest and first private concession of WATSAN in Latin America at the time of its introduction, covering the service provision of Greater Buenos Aires. The call for privatisation was justified on the basis of fiscal problems allegedly experienced by Obras Sanitarias de la Nacion (OSN), the state-owned company in charge of WATSAN. In fact, prior to privatisation, OSN was not in debt but actually reporting a surplus. Nevertheless, there were several signs of underperformance, such as lack of investment in new infrastructure, high rates of unaccounted for water, irregular water supply particularly during the summer, and water pollution resulting from too few sewerage connections and inadequate treatment (Artana et al. 1999).

In practice, the call for privatisation was politically legitimate in the sense that the decision was adopted by a democratically elected government. However, alternatives to privatisation were never discussed, nor was the privatisation call open to public consultation. It is argued that the allocation of 10% of the privatised company to OSN former workers effectively bought their consent for the concession and blunted potential opposition from trade union leaders (Artana et al. 1998). The World Bank and Inter-American Development Bank were intimately involved in the privatisation process, both in terms of influencing the drafting of the concession contract and drawing up a short list of candidates.

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A private consortium led by Suez Lyonnaise des Eaux and Aguas de Barcelona, Aguas Argentina (AA), offering the lowest tariff, was awarded a 30-year concession contract in 1993, with a commitment to reduce tariffs by 26.9% and connect 100% of the population in the concession area to water and 90% to sewerage. Although no survey had been undertaken to determine precisely the coverage deficit and required investment, it is estimated that at the time, 48% of the population in the outer districts of Greater Buenos Aires had no access to piped water and 72% lacked access to proper sanitation (Hardoy and Schusterman 2000). A newly formed independent regulatory body (ETOSS) was charged with the responsibility of setting tariffs, monitoring, regulating and enforcing the fulfilment of the concession contract. However, decisions by ETOSS were often ignored or overridden, particularly when they threatened private interests – for example, the government excluded ETOSS when it renegotiated the concession with AA in 1997. Uncertainty about what exactly had been agreed meant that Aguas Argentinas soon found itself requesting an increase in the tariffs. This was granted on condition that the concession area was to include the informal settlements initially excluded from the contract. But despite higher tariffs, AA continued to fail to meet new connection targets, despite a sustained increase in net profits over the next three years. In 1997, a universal service and environmental improvement fee (SUMA) was introduced with the purpose of meeting the costs of new connections through a cross-subsidies system, which had neither a significant impact on improving coverage provision, nor on preventing regular requests from AA for further tariff increments. A combination of poor performance and lack of accountability by AA, lack of transparency and public involvement, an ideologically blinkered government and a toothless regulatory body led to the renationalisation of the WWS network in Greater Buenos Aires in 2006.

In practice PSP in water and sanitation has dramatically increased in the most densely populated areas, where maintenance and investment costs are easier to recover. As a result, most large cities in the context of the developing world have some form of contractual arrangement with a TNC provider (in most cases one of three French companies: Suez, Vivendi and Bouiguez). Bakker (2002) identifies three different geographical areas emerging in relation to the privatisation of basic services: (a) larger cities where TNCs are currently the main water and sanitation providers; (b) suburban and small urban areas, where NGOs are seen as the main vehicle for community service provision; and (c) the rest, left to the state to still act as a direct provider. This segregation is not accidental, and it corresponds directly to the potential profitability of service provision in each of these three areas.

In this context TNC-led private sector participation performance has very mixed reviews. Whilst achievements often refer to water provision and PSP improvements in terms of increased bill collection rates and in some cases decreased unaccounted for water, there is little (if any) evidence suggesting that the engagement of large multinational corporations in water and sanitation has improved service provision to the poor. Overall, this is related to the fact that PSP contracts often fail to include the

poor, as in Buenos Aires. An additional problem with the involvement of large private sector providers relates to the limited share of risk that characterises most PSP contracts – one of the most commonly advocated reasons for their involvement in the first place. Private sector participation can take place through a wide variety of arrangements, ranging from **service contracts** in which the public sector retains overall responsibility; **management contracts,** which often transfer responsibility for overall management to private hands more comprehensively, but often on a short term basis (3-5 years); **lease contracts**, which involve more commercial responsibility and risk for the private sector for a period of about 10 years; and **concession contracts,** which include not just full private sector responsibility for the operation and maintenance of public utility's assets but also investments over a long period (often up to 25 years). These four types of arrangements vary in the degree of involvement, responsibility and risk awarded to the private sector. With few exceptions, like the experience of AA in Buenos Aires and that of Manila, there are few experiences of concession contracts, particularly in Africa (WELL n.d.). In most cases, PSP in water and sanitation has taken place under service, and to a lesser extent, management contracts, both of which involve a lower degree of financial risk for the private sector.

The state under reform

The privatisation of governance is often associated with a reduced state. However, it could be argued that the state has not necessarily become weaker or indeed obsolete but rather *instrumentalised* through the logic of partnership governance in a globalised economy, which advocates a "small but strong state" (World Bank, 1997 – *The State in a Changing World* – cited in Finger 2005). This implies a new global institutional framework in which the state actively facilitates and supports the operation of TNCs in the provision of basic services.

As mentioned before, four traditional functions can be identified with the role of the state in the governance and management of basic services: legislation, regulation, operational provision of services and investment. The privatisation of water and sanitation clearly involves a substantial change in the last two functions. The state is no longer in charge of direct provision; its investment function has also been significantly changed, shifting from being a direct investor to become a guarantor of credits and loans, often to TNCs. But the shift in governance also involves a significant change in the state's increased role as a regulatory body and also a change in the content of its legislative function, which became more focused on regulatory aspects dealing with the enforcement of universal standards and norms. At the legislative level, increased environmental and health standards and norms for WATSAN often imply higher investments in terms of infrastructure development and maintenance. This reinforces the TNCs market – although such investments are in reality made through contracting loans from the World Bank and International Monetary Fund, which reduce the financial risk for TNCs (enabled to make profits without taking risks) and are contracted by national governments.

As the move towards privatisation has run in parallel with calls for increased decentralisation, the changes in the state's functions also need to be examined in the light of the increased role and responsibilities attributed to local governments either as direct providers, as regulators of the private sector or by supporting alternative service providers to fill the capacity gap.

There is a large body of literature discussing the challenges associated with the increased role of municipalities as direct providers of water and sanitation. Authors like Hilda Herzer and Pedro Pirez (1989) have graphically described the processes of municipal decentralisation initiated in the late 1980s, as the "decentralisation of the crisis", making reference to the frequent mismatch between increased responsibilities and decreasing resources. However, decentralisation of service delivery has also played a positive role, bringing public agencies and service users closer to each other. A crucial aspect to enhance the capacity of local governments as direct service providers relies on the possibility of building dialogue, exchange and mutual support among municipalities. In the case of Brazil, cooperation among municipalities has allowed them to develop public-public alternative options to privatisation, reaching economies of scale in the delivery of services, whilst achieving universal access – treating and distributing 100 percent of the water and treating 100 percent of sewage collected – and strengthening participation and social control (box 4). In addition, in many cases municipal operators – such as the Service of Water Supply and Sanitation of Araraquara in São Paulo – have successfully integrated the management of solid wastes and rainwater drainage.

Box 4. Public-public partnerships: building cooperation across municipalities in Brazil

Brazil has about 1,800 municipalities responsible for providing water and 4,000 municipalities for operating sanitation services, with significant variations in terms of population size and local government technical and financial capacity. A recent evaluation by da Costa et al. (2006) examines 20 successful experiences of municipal public utility service of water supply and sanitation, which have met the principles of universal access, equity, integrality of actions, integration across service sectors, and quality of services, social control and municipal responsibility.

The cities of Araraquara and Guairá in São Paulo have achieved universal coverage in water supply and sanitation, even in the light of substantial and sustained population growth. This achievement has been driven by the specific priority given by the municipal administration to basic sanitation both in relation to ambulatory health care and infrastructure development and maintenance. Administrative continuity and planning also have contributed to the city achieving universal service.

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A common denominator across all successful experiences has been the emphasis on delivering services with focus on the citizens. In Ituiutaba, 90 out of the 153 workers from the Superintendence of Water and Sewage (SAE) are directly involved in relationship with the service users. Months after, service surveys began showing satisfaction rates of over 90%. In Campinas, in 2001, the municipality defeated an attempt to privatise Sanasa – the city's public environmental sanitation company. Sanasa is open to social control and has been nationally recognised as a highly efficient public company for its achievements in reducing water losses and policies of monitoring and use rationalisation. Similarly, Jaboticabal in São Paulo resisted a private concession for wastewater treatment. Instead the municipality created a special fund for the construction of a wastewater treatment plant, interceptor lines and water supply works. The fund is audited by civil society and the treatment plant is being constructed on land donated by the State of São Paulo University (UNESP), under condition that the local public authorities remains in control of WATSAN public management and the development of associated research projects.

In several cases various municipalities have come together in consortia to provide water supply and sanitation services to more than one municipality, serving both rural and urban populations. Similar consortia have been established between municipalities and public bodies at the state/provincial level. The local government of Caxias do Sul – the second largest municipality in the state of Rio Grande do Sul – has established a partnership with the Federal University of the state to develop an integrated solution to sanitation and rainwater drainage, through a combined sewage collecting system that covers 85% of the city. Integration across services and sectors has been achieved in the municipality of Alagoinhas in Bahia through the adoption of a Municipal Plan for Environmental Sanitation, which links sanitation, health and environmental management.

Source: Based on da Costa et al. (2006).

In some cases newly formed urban sanitation authorities have been created as an interface between central and local government. Box 5 illustrates an innovative approach adopted in the case of Tanzania through the creation of semi-autonomous bodies, an interesting alternative to tackle many of the problems typically associated with the lack of municipal capacity to deliver sanitation. However, the case also shows that a top-down approach to the creation of urban-based sanitation bodies, merely focused on improving technical and financial performance, can lead to socially unequal outcomes, conflicts of competence and approach with existing municipal bodies and, more significantly, miss the opportunity to bring public service providers closer to the citizens.

Box 5. Semi-autonomous urban water and sanitation authorities in Tanzania

To halt the progressive degradation of urban sanitary conditions in Tanzania the government initiated an innovative institutional framework for water and sanitation management in the mid-1990s. This constituted a mix of decentralised initiatives and ministerial control (in this case by the Urban Water and Sewerage Authorities or UWSA), which was based at the urban-local level and operated on a cost recovery basis. In 1994 the government created three experimental semi-autonomous bodies, one of which was in Moshi, a medium-sized town in the foothills of Mt Kilimanjaro. During its experimental phase the Moshi Urban Water and Sewerage Authority (MUWSA) achieved cost recovery and was therefore viewed a success, although financial aid was given by the International Development Agency (IDA). In 1998 it was scaled up to become a fully autonomous authority with a full Board of Directors, replacing an Advisory Board.

The Moshi case shows some institutional problems related to the semi-autonomous organisation of the MUWSA: confusions developed in relation to divisions of labour, and poor cooperation and latent competition existed between the various stakeholders, particularly the municipality and the MUWSA (which a stakeholder forum to facilitate communication may have resolved). In terms of improving sanitation for the urban poor, it may be hypothesised that due to their more localised position these semi-autonomous UWSA may be more flexible and responsive to meeting community needs, and thus to improve service provision. In Moshi however, such an assumption was shown to be misplaced: during the experimental phase only 30 new connections were recorded and service coverage only reached a total of 10 percent of the population. Nonetheless, the MUWSA did respond to this low service provision; understanding it to be a problem of poor communication. In 2003 it carried out an information campaign to resolve this. The government scaled up their initiative and by 1998 created similar semi-autonomous authorities for WATSAN in 18 Tanzanian towns. Overall, it is not easy to judge the success of this new governance structure in Tanzania due to its relatively short history. At the moment, it is functional. How successful it is in terms of meeting the WATSAN needs of the urban and peri-urban poor needs further evaluation.

Sources: Moshi Urban Water Supply and Sewerage Authority (MUWSA website 2008) and WaterAid and Tearfund (2003).

In relation to the second role (regulation), it should be noted that typically municipalities have had little experience in working with the private sector in the delivery of basic services. As highlighted by Scott and Sansom (2006, p. 2): "[t]he results of decentralization have been mixed and can be evaluated in terms of the benefits and costs, in terms of service delivery, of different approaches to decentralization (fiscal, administrative, regulatory, market, and financial), which in turn imply relationships of accountability between different actors in the delivery chain". The case of Aguas Argentinas (AA) in Greater Buenos Aires (box 3) is a good illustration of the problems associated with the creation of toothless regulatory bodies. Although ETOSS was able to

bring a pro-poor approach to the contract as signed with AA, it faced multiple difficulties and pressures in terms of playing a significant role as the arbiter between public and private interests. In most cases strict divisions of labour, in which municipalities or newly created bodies have been charged with the role of regulating large international companies responsible for service delivery, have been flawed by a significant power asymmetry between the regulator and those they are regulating.

Given the increasing significance of local non-state actors in the provision of sanitation, particularly for the urban and peri-urban poor, the role of municipalities in supporting their initiatives is crucial. However, two main approaches prevail. On the one hand, small independent private providers are still often demonised rather than supported, with a few exceptions, such as is illustrated in box 8. An underlying problem is the prevailing bias within municipal policy and planning frameworks towards large investments in trunk sewerage, storm water drainage systems and equipment for solid waste collection and disposal. In relation to sanitation, such bias favours conventional centralised systems and ignores what works for the poor. On the other hand, as far as collaboration between local authorities and civil society actors is concerned, new forms of citizen co-production are rapidly emerging – as discussed later. These initiatives can either result in the empowerment of civil society or in a more limited involvement, in which participation is merely conceived as a means. This implies that the global institutional framework resulting from increased PSP has also reshaped the role of other agents, not just the central or local state. As highlighted above, financial institutions play a new function in this system and so do NGOs, which are often charged with raising awareness, increasing financial resources and user contributions, and above all with legitimising PSP in poor urban areas and slums. In many cases, when TNCs do not become engaged in providing services for the urban poor, NGOs also play an increased delivery function.

Recapitulating, under the privatisation of governance, the state still plays four fundamental roles, as suggested by Bakker (2002). First, it performs a fundamental role in financing, although with the twist that this is not just through direct investment but through contracting loans for the development and rehabilitation of service infrastructure from which TNCs are making a profit. Second, the state acts not only as a guarantor for loans and grants but more generally provides the legal stability and security required to ensure that contracts will be respected and bills will be paid. Third, the state also acts as a guarantor of regular revenues, and fourth, it acts as a crucial risk bearer. In addition, it acts as a legitimate vehicle to enforce internationally agreed norms and standards.

A wider spectrum of service providers: How are basic services actually delivered to the urban poor?

In practice there is a fault line between the idea of the state as guarantor of basic service delivery, which encompasses the notions of social equity and basic rights to resources, and market-based approaches that focus almost exclusively on cost recovery

and the financial sustainability of service supply. Figure 1 presents a model set out by the Asian Development Bank, which indicates that very often the poor and moderately poor are best serviced by public/community partnerships. The model suggests that because of pricing issues, public-private partnerships are less effective in serving the poor.

Figure 1. Efficiency and Participatory Developments: partnerships
Source: Banyard (2004, p. 24).

The discussion above suggests that service provision can involve a variety of different (public-private and civil society) organisational arrangements. For instance, governments might assume different responsibilities in the provision of these services. Direct provision or production of a service involves the physical act of constructing, maintaining and delivering, whilst indirect provision involves the role of ensuring that the service is available through decisions about policy and standards of service. In this case, governments may be responsible for co-ordinating, financing, enabling and regulating producers. Reference is often made to the "regulator-provider-consumer triangle" as a means of explaining the basic roles and relations performed in the delivery of water and sanitation. However, there are significant differences in the configuration of this triangle, particularly between the arrangements prescribed and supported at the policy level and the concrete practices deployed on the ground.

The World Bank, among other institutions, acknowledges five main institutional options for service provision, namely: (i) public ownership and operation (which

includes contracting out); (ii) public ownership and private operation; (iii) private ownership and operation; (iv) community or user provision; and (v) mixed (joint ventures between public and beneficiaries or public and private direct providers) (Batley 1996, 731). However, when looking at the specific ways in which the urban and peri-urban poor gain access to water and sanitation services, it is possible to identify a much wider range of practices and arrangements. The five aforementioned options clearly feature within what could be called formal, policy-driven mechanisms supported by institutional arrangements of the state. Examples of this include, for instance, the operation and management of public toilets contracted out to private operators. The privately run public toilets in Kano, Nigeria are a good example of a successful policy-driven private-public partnership. While private contractors operate and sometimes construct the facilities, the public sector keeps control over defining and enforcing guidelines and standards for the design and maintenance (Ayoti n.d.). But in addition to these options, many other mechanisms can be characterised as being needs-driven and correspond to the arrangements by which the poor gain access to sanitation, often with little or no support from the state, its policies and resources. Informal private pit-emptying services are not uncommon in urban and peri-urban low-income areas and often emerge to complement the shortfalls in the formal sector (see the case of Cairo in Allen et al. 2006a, p. 80). Box 9 shows the benefits of a service provided by informal operators in Kano but also illustrates the limitations due to its informal status and lack of support by the state.

The sanitation wheel in figure 2 outlines a continuous spectrum of policy and needs-driven practices. It provides a schematic and comprehensive (although not exhaustive) representation of the universe of existing practices in sanitation as found in the urban and peri-urban context. To a certain extent the two sides of the wheel correspond to what are usually referred to as formal and informal practices (respectively on the left and the right of the wheel). However, these terms can be at times misleading, as some of the strategies in the wheel defy this distinction. Whilst policy-driven mechanisms can be clearly identified from the perspective of production and provision, the arrangements identified on the right-hand side of the wheel are best examined and understood from the perspective of access and, in particular, from the viewpoint of highly localised strategies adopted by the poor.

The sanitation wheel shows the role of the public, private and civil society in the provision of this service and the extent to which these roles are based on cooperative arrangements across two or three of these sectors and at different scales. The three sectors are far from homogeneous, as the public sector might be present in the form of highly centralised state agencies or of decentralised bodies. In the same way, the private sector might involve large companies operating under the formal sector, medium-sized licensed operators, or informal small-scale independent providers involved in latrine construction or pit-emptying services. The community sector is not homogeneous either, as it might involve arrangements characterised by a certain degree of formalisation, such as community schemes (e.g. communal toilet facilities) actively supported by the public sector or external NGOs, but also more informal relations of cooperation established among members of the community exclusively

on the basis of solidarity ties, which may allow some households to use a neighbour's toilet.

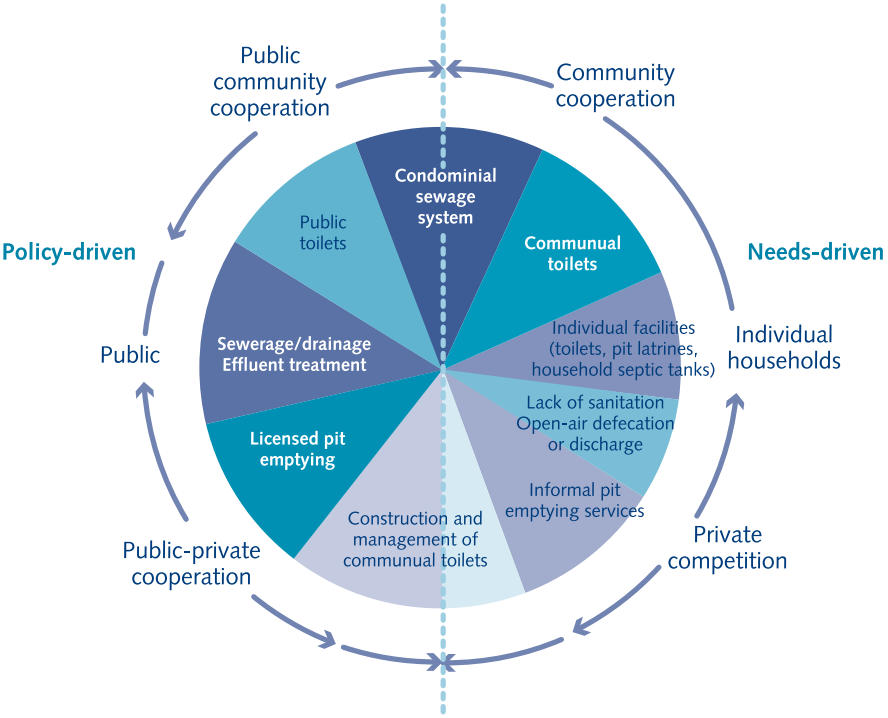

Figure 2. The Sanitation Wheel
Source: Elaborated on the basis of Tayler (2005).

The most common and extended practices by the urban and peri-urban poor are those identified on the right side of the wheel as needs-driven. In other words, the poor rarely have access to formal facilities operated by the public or formal private sector, such as waterborne sewerage or licensed pit-emptying services. A large number of the poor still lack any form of hygienic disposal for human excreta or rely on septic tanks, individual or shared pit latrines and/or public toilet facilities, which often involve a charge and need to be kept in a clean and usable state. A study of the strategies adopted by the peri-urban poor in five metropolitan areas (Chennai, Mexico, Caracas, Dar es Salaam and Cairo) revealed that sanitation is seen as being less of a priority than access to drinkable water, though there are different perceptions between women and men (Allen et al. 2006a). This is confirmed by other studies which found that women often have a better appreciation of the health implications of lack of sanitation than men, who prioritise other services and facilities at the time of making investment decisions (WSP 2004). In some cases the lack of investment in individual facilities is due to the reluctance of landlords to spend money on sanitation, particularly with regards to maintaining facilities after they have been built, or the fear of informal settlers of losing their investment due to the insecurity of land and housing tenure.

Different studies help to understand the potentials and limitations of each of these arrangements to reach the urban poor. Common problems affecting many public utilities and municipal services in developing and transitional countries include poor financial management, low funding priority, political interference, little or no independent regulation and poor engagement with civil society groups, as a WaterAid report argues (Gutierrez et al. 2003; see also WUP 2003). The same report challenges the role of TNCs in contributing towards the achievement of the MDGs and concludes that local private agents, reformed public utilities and community-managed schemes are more likely to reach the poor, although not always with a sustainable service. These arguments are particularly relevant in informal urban settlements and peri-urban areas. As highlighted earlier, the governance of WATSAN in these contexts presents a number of peculiarities, particularly when compared with the provision of the same services in either formal urban settlements or rural areas.

From partnership to service co-production

The wide range of practices identified under the sanitation wheel somehow correspond to five types of arrangements through which the poor access basic services: (a) self-provisioning through collective action; (b) direct social provision through private associations (religious organisations, philanthropic foundations, locally based associations and so on); (c) direct market provision on a commercial basis by formal and informal local providers; (d) direct social provision through state agencies; and (e) indirect state provision through sub-contracting of delivery responsibility to other agencies (CBOs, NGOs, private sector, user groups, etc.) (Joshi and Moore 2004). Multiple hybrid combinations of these five archetypes can be found in the urban context of developing countries, and many manage to do what the more conventional formal public, public-private and private arrangements often fail to achieve: to reach the poor on a sustained basis. Diversity and hybridity are in short what service co-production is about. Co-production in public services is increasingly a reality, not only in the context of the developing world but also in developed countries. It implies the participation of users and communities in the various stages of public services production, from planning and design stages through to service delivery, monitoring and evaluation.

In an attempt to explain why co-production seems to be more widespread and to work effectively in the context of the developing world, Joshi and Moore (2004) advance two hypotheses: First, co-production seems to be the only (or at least the most effective) way to reach a large number of beneficiaries, addressing their different needs and circumstances and making the most of existing local networks. Second, there is a huge diversity in the operational situations in which services are delivered, with different standards, costs, technologies, and so on, and often rapidly changing conditions that are difficult to address under standardised solutions or responses.

Several arguments highlight the importance of co-production. First, it allows users and communities to supplement government provision in those cases where a particular service is not reaching certain groups or individuals. Second, it can help in the development of an effective interface between public/professional service providers and users/communities by creating a mechanism for interaction and feedback that allows the reformulation of policy design and implementation to meet the particular needs and expectations of beneficiaries. Third, it can empower citizens to fully exercise their rights and to become agents of change, fostering a type of governance that is not producer-centred but people-centred.

Is the diversity of institutional arrangements found under service co-production similar to the eclectic pragmatic arrangements advocated by supporters of new public management? Our answer to this question is no. Although it is possible to identify pragmatic considerations as the driving forces of institutionalised service co-production, there is a fundamental difference in terms of its underlying assumptions. First, NPM advocates would welcome the possibility of citizens' involvement in the delivery of services only to the extent to which the market and the state (and a variety of partnership contractual arrangements between them) do not prove to be enough to reach the poor. Second, this perspective favours the most effective division of labour among various sectors and agents, whilst co-production is concerned with the integration of various inputs and the convergence of resources but also with structural changes in the decision-making process.

Thus, it could be argued that although it has become commonplace among international agencies and national governments to advocate more widely defined governance arrangements for service provision, the notions of public-private community partnerships and government-citizens co-production present two very different sets of assumptions. Although both concepts have been widely discussed within the co-production literature, the former is closely linked with the new public management school and primarily concerned with the principle of efficiency whilst the latter has been advanced from innovations within the public policy school of analysis and is centrally concerned with questions of social equality and political accountability. However, the differences between these two notions and their implicit governance frameworks have hardly been examined. This is relevant because the two notions place people in different positions vis-à-vis the state and the private sector. From the former perspective, individuals, groups and even communities are defined as "clients" – often labelled as the private community sector – with the potential to chip in with various resources and assets in the process of service delivery. Citizen co-production by contrast refers to people's involvement in the process of governing the delivery of services (and other public policies), paying particular attention to the need to reformulate citizens' rights and responsibilities vis-à-vis the state's (box 6).

Box 6. Citizen co-production in Caracas, Venezuela

In the case of Venezuela, the emergence of an institutionalised platform for service co-production has to be examined in the light of the substantial changes introduced by the Chavez administration. In 1999, through the adoption of a new constitution, the country began the reorganization of the State, marking a shift from representative to participatory democracy. Since then, the government policy to overcome poverty has focused on a strategy of social and productive integration through the active participation of the community. Within this framework, the 2001 Organic Drinking Water and Sanitation Service Act introduced a new institutional scheme separating policy, regulation and management functions. This transferred the service to the municipalities and activated the organisation of Technical Water Fora (TWF), designed as a direct channel between grassroots community organizations and Hidrocapital, the public sector regional water supply company responsible for water provision in the Caracas Metropolitan Region (CMR).

The new water regime does not allow private sector participation in the stages of water extraction and production, since water is defined as a public good and these activities are reserved for the State. In this context, WATSAN is regulated through Hidrocapital and the National Superintendence of Water Service by the National Water Office, which in turn reports to the Ministry of the Environment and Natural Resources. Hidrocapital undertook an organistional change to incorporate community participation into its operating procedures through the creation of the Community Management Office. The Office has been instrumental in expediting the implementation of TWF throughout the CMR, fostering the creation of more than 200 of TWF in the peri-urban areas alone (Cariola and Lacabana 2004).

Local community participation through the TWF takes place throughout the whole planning process, starting from the community water needs assessment and the elaboration of a joint diagnosis with Hidrocapital professionals, through the design of projects for the rehabilitation and/or expansion of the network, to the monitoring of the service provided, the state of the network, and the use of water in a sensible way. The projects engendered differ greatly in technical difficulty, cost, and complexity, ranging from small-scale water distribution systems to large-scale systems. Within this process the project constitutes a key outcome for the community, representing a common vision and allowing the necessary organisation of its implementation. In addition, the TWF are in charge of the financial co-management of the projects in collaboration with various state agencies and are also responsible for regulating the water tariffs agreed within each community. The TWF have helped improve coverage of WATSAN services and strengthened community solidarity ties, while providing examples of participatory democracy where not only rights, but also duties of community members are stressed. Although not easily attributable to the TWF alone, in Venezuela the MDGs of halving the population without access to water and sanitation by 2015 were already met in 2005.

Source: Allen (forthcoming).

Moving down the ladder: the management of sanitation options accessible to the urban poor

Conventional sewer connections by individual households are often presumed to be the prevalent sanitation solution in urban areas, as illustrated in the figure below. Sewers are largely in the care of private or public service providers where the fees for the service are added to people's water supply bills. Research in urban and peri-urban areas of developing countries shows that the poor are seldom connected to an underground sewer system and are unlikely to be connected in future (see, for example, Allen et al. 2006a; Schaub-Jones 2006). It is not only the cost of connection and maintenance fees that prevents the urban poor from gaining access to a sewer network but also the lack of regular water supply on which such a system relies (SIGUS 2003).

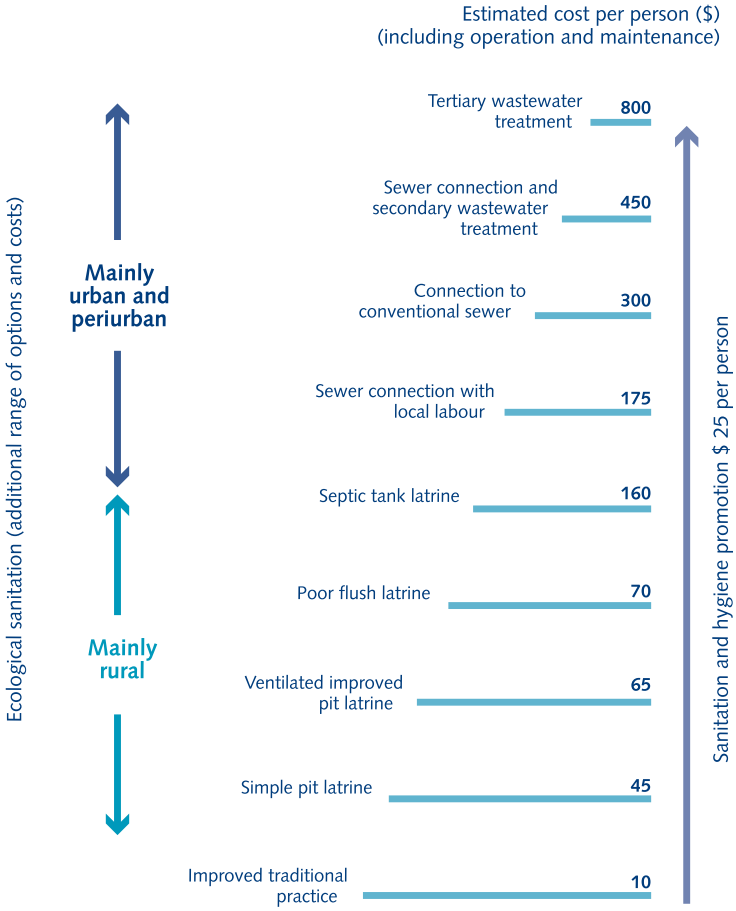

Figure 3. A ladder of options: different levels of sanitation services and their tentative costs

Source: Van de Guchte and Vandeweerd (2003, p. 20).

The reality for urban low-income households is much more complex than shown in figure 3, and remains largely invisible in official figures and statistics. Many publications looking at sanitation for the poor seem to focus on available options without considering the number of people sharing the same facility (see for example de Bruijne et al. 2007). However, this is important as it has implications on how these facilities are constructed, managed and used. Schaub-Jones (2006) suggests extending the sanitation ladder downwards in order to depict the situation of many urban poor people for whom sanitation is limited to communal or public facilities. This section takes a closer look at the sanitation options accessible to the urban poor, paying particular attention to the roles and responsibilities of the different actors involved.

Condominial sewer systems

There are a few examples of low cost, affordable sewer systems where the community is involved in the construction of sewers with shared management responsibilities with the utility, as in Brazil (box 7), Bolivia and Pakistan (SIGUS 2003). The success of such systems is dependent on collaboration between the community and local government throughout the process, and the community can cut costs further by providing labour during construction. After the new sewers have been built, there are many examples where a management committee that consists of community members is in charge of operation and maintenance of the community-level components, including the collection of user fees. Such a system requires a certain level of community mobilisation and organisation, for example through a CBO or NGO as in the Orangi Pilot Project in Pakistan (see Hasan 2006) or through locally based networks as in AguaTuya in Cochabamba, Bolivia (Viklund and Welander 2007).

Box 7. Condominial sewers in Brazil

The condominial sewer system was first developed in low-income settlements of Natal, a city in the northeast of Brazil, with the aim to extend wastewater collection to unserved areas. Support from the state water company (CAERN) and the World Bank contributed considerably to disseminating this approach across Brazil and legitimising it (Watson 1995).

The condominial sanitation system can provide an affordable sewage system for the poor provided there is regular water supply, ideally with a connection to each plot (Mara 1998). Condominial sewer systems are dependent on a productive partnership between the service provider(s) and the community mediated by the municipal government. The involvement of the community is crucial for what Watson labels a "customized service approach" (1995, p. 21), which tailors the project to demands and needs of the residents. Consequently, public agencies need to engage with communities throughout the process, which requires a substantial change in their approach to provide services and in some cases necessitates the involvement of consultants who have more experience in working with the urban poor and building condominial systems (ibid.). In many cases the community will participate in the operation and maintenance of the system in the form of

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condominiums formed throughout the process. Empirical evidence reveals that extensive customer involvement combined with political support from mayors and sewerage agencies are key to the success of the system (ibid.).

There is potential to link agricultural practices into such systems by using the collected and treated effluents for irrigation and fertilisation of agricultural plots. However, creating this synergetic partnership would require collaboration with yet another set of institutions of different jurisdictions and has so far proved difficult (Neder and Nazareth 1998).

Household toilet/latrine

Since sanitation at the household level is regarded as the sole responsibility of each individual household, utility providers and local authorities hardly get involved in the management of these facilities. A study in 10 African cities found that "almost all poor households build their own sanitation facilities or hire others to build facilities for them" (Collingnon and Vézina 2000 cited in Scott and Sansom 2006, 4). Subsequently, the issue of maintenance is of particular importance where the toilet or latrine is not connected to a sewer but to a septic tank that needs emptying. This becomes even more of an issue when the facility is shared by neighbours or relatives. However, the cost of emptying might not be affordable for poorer households, while density of housing restricts households from digging another pit next to the old one. It is particularly in the densely populated areas of the urban poor that negligence in managing these facilities can have serious impacts not only on the respective household but also on its neighbours, as the unsafe treatment of excreta can spread a number of water-related diseases. The latrine centre set up in Dar es Salaam (box 8) has been a potentially useful resource that assisted poor households to choose the appropriate option based on their circumstances and financial resources.

Box 8. Marketing and pooling small-scale independent providers through a latrine centre in Dar es Salaam

In Dar es Salaam, Tanzania a "latrine centre" made the sanitation services supplied by small-scale independent providers (SSIPs) more accessible to the urban poor. A group of informal latrine builders with support from WaterAid and the Water Engineering Development Centre (WEDC) formed a registered CBO and set up the latrine centre. The facility not only displayed sanitation options and their prices but also provided information, offered construction through the various SSIPs and also focused on raising awareness in the community (Scott 2006). This was all part of a marketing strategy to increase the demand for improved latrines by low-income people and enabled participating SSIPs to share resources and equipment. There are currently plans to adopt this approach in the Dar es Salaam Community Infrastructure Upgrading Programme funded by the World Bank and for scaling up in other localities (Fisher 2006). However, despite this innovative idea having the potential to be adopted elsewhere, the latrine centre in Dar es Salaam was surprisingly closed due to what has been reported as "problems in meeting local community's demands" in the area, an issue that deserves further investigation.

The latrine centre was not involved in providing information about or supporting contractors emptying pits and latrines. However, this often neglected sanitation function is crucial wherever a connection to a sewage network is lacking. The task is largely carried out by individual formal and informal small-scale independent providers (SSIPs). In very densely populated low-income areas with poor access roads and insufficient space for emptying trucks the service is carried out by manual cleaners (SIGU 2003). Since many SSIPs largely operate on an informal basis, they do not comply with state regulations and problems of inadequate disposal emerge. Including these providers in an establishment such as a latrine centre could be a way to formalise and regularise their operation. With the necessary support from the community and local government, SSIPs can play an invaluable role. In Maputo, Mozambique, they successfully provide pit latrine construction and pit-emptying services for the poor through ADASBU, a small community-based association that is formally registered and recognised working in partnership with a number of external support agencies[7] (ESAs), which facilitated the set-up of the initial project (Scott 2006). The local government helps this initiative by waiving fees for sludge disposal but does not provide any other formal support. In order for the service to be viable in economic terms the customer base has to continue growing. There is a need to evaluate what role ESAs play and how much their support influences the sustainability of such initiatives. Poorer households are not always able to afford having their latrines completely emptied, but when households only pay for partial sewage removal, this limits the viability of the CBO operation, in the absence of external funding (Scott 2006). In many cases the emptying of latrines is left to small independent private operators who lack formal recognition and support. The case of Kano (box 9) shows a practice that, with the necessary collaboration with the formal sector, has potential to be replicated and scaled up.

Box 9. Operation of informal night-soil attendants in Kano, Nigeria

Pit-emptying services in Kano are provided informally by private individuals as well as by organised independent groups. Their services are mainly required by low-income households where building another latrine is not feasible for financial or spatial reasons and where lack of regular water supply inhibits the use of flush toilets.

A contractual arrangement is reached between the pit emptier and the individual household before the work starts. The service remains unregulated as the government is generally against the use of latrine systems. At the same time, the local authority has not yet managed to come up with an alternative system, which renders the service provided by informal night-soil attendants essential.

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7 ADASBU, which focuses on water, sanitation, hygiene education, drainage and solid waste was initially supported by Médecins sans Frontières and is now supported by WaterAid.

Lack of support from the government currently leads to health risks associated with the operation of the service. Although the emptying of pit latrines helps to prevent the spread of excreta-related diseases in the respective neighbourhoods, the unregulated dumping of excreta in the outskirts of the city poses a serious health threat to peri-urban communities and is evidence of the need for improvements with regards to transportation and evacuation of liquid waste. Collaboration with and support from the government could not only help to improve the service in Kano but would also set a precedent and encourage the model to be scaled up and replicated elsewhere.

Source: Based on Debomy (2000).

Public toilets/latrines

Public latrines/toilets are the most common sanitation option in densely populated low-income areas where lack of space does not allow for facilities at household level (SIGUS 2003). Such facilities are usually built and owned by the government or contracted out to the private sector with little or no interaction with the potential users regarding "…the location, design, construction and provision for maintenance. The agencies responsible for construction and maintenance generally have little accountability to the communities in which they build" (Burra et al. 2003,12). In many cases building and maintenance are the responsibility of different agencies, leading to facilities being constructed without considering how they will be operated and by whom. This is aggravated by a general lack of understanding by the government and other service providers of the circumstances and needs of urban poor communities. The number of seats is often insufficient as in the case of Harare, where 1,300 people are supposed to share 6 seats (Manase et al. 2001). The privately run public conveniences in Kano demonstrate a practice where the public sector has managed to hand over responsibilities to the private sector without losing control over how facilities are designed and maintained. However, since these facilities have been built primarily to serve public areas, more information is needed on their adequacy to serve low-income households in the vicinity that lack private toilets (Ayoti n.d.).

Open defecation is common in close vicinity of inadequate public facilities and this poses a serious health threat, particularly for children. The case of Tiruchirapalli (box 10) shows how through the participation and mobilisation of women, public toilets can be built and operated successfully to meet community needs. Treating poor communities as one homogeneous group, which is the approach frequently taken by formal public and private service providers, neglects the different needs, practices and responsibilities with regards to age, gender, etc. (see Joshi and Morgan 2007). The formation of women's self-help groups (SHGs) was crucial in this case and through their involvement in construction and management many community members have been using and paying for the provided facilities. However, this pay-as-you-go approach means that public toilets might not be affordable for some of the poorer households, no matter how small the charge may be. This means that they still lack

access to a sanitation facility, which is a particular concern for women and children (Burra et al. 2003).

Box 10. SHGs managing public toilets in Tiruchirapalli, Tamil Nadu, India

Before the Tiruchirapalli City Corporation (TCC) approached WaterAid to help build communal latrines in several slums, existing latrines built by the TCC were not maintained and consequently not in use. The involvement of WaterAid assured that the project had a major community participation component and developed into "a 3-year integrated sanitation promotion programme for 100 slums" (Calaguas and Roaf 2001, p. 9). For those slums where WaterAid managed projects, the organisation collaborated with three local NGOs. The role of women in these projects was crucial as they were the first to get mobilised and form self-help groups (SHGs), which eventually federated into a network. Emphasis was placed on meeting the needs of the community and this lead to the construction of child-friendly toilets. Those slums managed by TCC were less successful and soon exchange visits were organised to learn from the SHG approach and extend it to the remaining slums. Now SHGs are managing the public toilet facilities across the targeted slums. The remaining challenge is to get men to use the facilities after they become used to defecating in the open (Ganapathy 2003).

This case shows that the involvement of the local community is crucial to the success and sustainability of sanitation projects for the urban poor. The programme has changed the governance of the city in that the SHG network has been invited to get involved in future developments of the city. However, it also needs to be mentioned that the project took part in regularised settlements and SHGs have only now started to engage with communities of unregularised communities.

Source: Based on Calaguas and Roaf (2001).

Community toilet blocks

Community toilets or latrines can provide a good compromise where individual facilities are not feasible. The difference between public toilets and a community toilet is that the former "serve the needs of whoever happens to be passing by, whether a local or a stranger" whereas the latter "belongs to, and is controlled by, a community" (Burra et al. 2003, p. 30). Community toilets are primarily used by a defined community and experience shows that NGOs and CBOs can contribute to more successful outcomes when closely collaborating with potential user communities (ibid.). Several experiences with community toilets across India involving the urban poor in the construction and management of community toilets has clearly changed the relationship between the city government and civil society, leading to a redefinition in roles and responsibilities (see box 11).

Box 11. Community toilets as a form of service co-production in Mumbai, India

This initiative came about in response to the inadequacy of public facilities provided by the municipality. The first community toilets in India built and managed by the community were funded by the UK charity Homeless International to set a precedent that would eventually convince the government and donors to collaborate with organisations of the urban poor. Initial efforts of the Alliance (made up of the NGO SPARC, the women's savings group Mahila Milan and the National Slum Dwellers Federation (NSDF)) to gain support from the government and donors for community-driven projects were unsuccessful. The municipal corporation in Mumbai started to appreciate the idea of involving the Alliance in improving sanitation in low-income areas once they had successfully implemented a number of toilet block projects across India.

There are clearly defined roles and responsibilities for the different actors involved in building and managing community toilets. The city government is in charge of setting standards, and for providing the land and capital cost for the construction as well as connections to water and electricity. The community takes part in the selection of the site and subsequently designs, builds and manages the facilities. Although contracts are given to an NGO, the success of community toilets rests upon active community involvement. This helps to integrate the needs of a diverse community into the layout of the facilities and also enhances their capacities and skills. User fees, mainly in the form of monthly family passes, allow a full-time caretaker to be employed and cover any maintenance work.

The experience with small-scale projects resulted in the Alliance's involvement in larger community toilet programmes in Pune and Mumbai and led to a form of service co-production where NGOs and the community are partners with the city government rather than simply with its clients.

Source: Based on Burra et al. (2003).

The constant involvement of civil society from the design stage ensures that maintenance practicalities are considered from the beginning (contrary to many practices for public facilities), and that the needs of different user groups are incorporated into the plans[8]. Although community toilets built by civil society are often cheaper than the ones constructed by local authorities, users still have to pay in order to cover maintenance costs. An approach promoted by the Alliance in India gives families the opportunity to buy monthly passes, which are considerably cheaper and therefore more affordable compared to single use charges of public facilities, while being sufficient to keep the facilities clean and in working order. As projects grow in size it has proven particularly difficult for civil society organisations to mobilise the necessary financial resources. Box 12 below illustrates an innovative approach to

8 Women and children in particular have specific needs with regards to the design of shared facilities. Women are in need of privacy, while small children may find adult facilities too difficult or intimidating to use (Burra et al. 2003).

bridge the finance gap in community-led initiatives such as the community toilets that are being used in three different countries of the South.

Box 12. Scaling up sanitation in India through the community-led infrastructure finance facility (CLIFF)

CLIFF is a finance facility at macro level that provides funding directly to organisations of the urban poor to support community-led projects that work in partnership with local governments (Jack and Morris 2005) and has been used among other things for the construction of community toilet blocks. CLIFF is managed by Homeless International (HI) and administered by Cities Alliance with funds from DFID and Sida. It provides a revolving fund to bridge the finance gap in order to construct facilities until revenues can be realised and further helps to "leverage and blend financial and other resources", with guarantees provided by the UK housing sector through the involvement of HI (ibid., 5). It has further been used to fund knowledge exchange visits within and between countries of the South to build capacity, not only of the urban poor but also of government officials and engineers.

Certain criteria need to be met in order to be eligible for CLIFF funding, including the need to "[b]uild on established local organisation by communities of the urban poor and their existing relationships with local authority and municipal officials, and have the potential to strengthen such city-community relationships" (Jack and Morris 2005, p. 4). So far it has proven particularly useful for the replication and scaling up of small-scale solutions. By the end of 2006 CLIFF helped to finance sanitation programmes in Pune and Mumbai, India benefiting around 260,000 families (Morris and Jack 2007). Since 2005 CLIFF has also been operating in Kenya and has started to run in the Philippines.

Table 2 presents the wealth of operators involved in the different sanitation systems discussed above. Overall, problems with inadequate sanitation facilities for the urban poor are in most cases associated with a supply-led approach adopted by the government and other service providers that fail to engage with target communities in low-income areas. Experience shows that an approach that pursues the active involvement of urban poor communities in the selection, construction and management of sanitation facilities has better and long-lasting results. It would be ideal to provide every urban poor household with an individual toilet or latrine, however, in very densely-populated low-income settlements this has proven to be unattainable and therefore other solutions need to be sought. Consequently there is a difference in scope for scaling up. The community toilet approach of the Alliance in India started small but was scaled up across India, and by now more than 500,000 urban dwellers across eight cities in India benefit from the facilities (Burra et al. 2003). In order to sustain and scale up initiatives where services are largely provided informally, collaboration with the local government is needed.

Table 2. Actors in the urban sanitation sector

Sanitation System	Roles and Responsibilities
On-site sanitation	
On-site sanitation (private facilities) This includes facilities that are shared by a small number of households	**CSOs**: stimulate demand for improved sanitation using marketing techniques, in collaboration with the media and marketing agencies and in association with builders, overall assuming the role of enabler (see box 8) **Individual households**: provision of labour **ESAs**: financial and technical support **Public or private utility**: provision of trunk sewer infrastructure and user charges through water bills
Pit latrines	Small-scale, informal private providers: often work in groups to dig and empty pits, construct latrine structures and supply component parts through local sanitary marts
Pour-flush latrines with septic tank	Small-scale, informal private providers: usually work in groups to desludge septic tanks, often with disposal to drains, sewers, wastewater treatment sites or the local environment
Shared facilities	
Communal toilet blocks Often provided where space and/or financial constraints make household provision impractical	**CSOs**: often contracted by the local authority, from construction to operation and maintenance Different **private providers** often contracted by the local authority for construction **or** managing operation and maintenance **Community**: provision of labour **ESAs**: financial and technical support **Local government**: regulator, co-funder, provision of additional services (e.g. water, electricity)
Public toilet blocks	Different private providers often contracted by the local authority for construction or managing operation and maintenance **Local government**: regulator, funder
Off-site sanitation	
Conventional sewerage	Concession contracts to large-scale **private providers** (through PPPs), usually for the provision of combined water and sewage services
Non-conventional sewerage (e.g. condominial sewerage system)	**Community-based CSOs**: responsible for operation, maintenance and repair of community-level components (e.g. house connections and small collector sewers), sometimes with involvement in design and construction. **Community**: provision of labour **Public or private utility**: provision of trunk infrastructure, possible share in management

Source: Own elaboration based on Scott and Sansom (2006, p. 3).

Each of the alternative options explored above has clear governance implications with regards to legislative function, regulation, operational provision of services and investment. The first two functions are either absent in cases where services are provided by the informal sector (many of the informal latrine constructions and emptying services) or are executed by the public sector clearly moving from provider

of services to facilitator and regulator (e.g. communal toilets). The provision of services to the urban poor is either done through SSIPs or civil society, often with support from a registered CBO or NGO. With regards to funding, individual households would provide this for private facilities, e.g. for the services of the latrine centre, while ESAs get involved in projects reaching a larger target population, sometimes with co-funding from the government.

Beyond sectoral approaches

Many cross-sectoral efforts focus on sanitation in relation to hygiene (see, for example, WSSCC and WHO 2005) because of the widespread diseases associated with the lack or inadequacy of sanitation facilities that contribute to high morbidity and mortality rates among low-income groups. Such diseases spread especially quickly in very dense settlements and can considerably increase the health costs of poor households, which in turn puts a serious strain on their financial resources. This is exacerbated where illness affecting the main income earners of a household cuts the income even further. Simple sanitation solutions, e.g. maintaining existing facilities, can often prevent this from happening and consequently help to stabilise livelihoods. At the same time, the expenses needed to access and use certain sanitation facilities (e.g. user fees for public toilets, construction costs for a household latrine and charges to empty pit latrines) can also take up large amounts of a household income and prevent them from using the money for other purposes such as food, children's education, etc. Informal services might often be more expensive but are frequently the only ones available to the poor. The community toilets in Mumbai (box 11) illustrate how sanitation solutions can be developed to improve the quality of life of low-income people in an affordable way.

Apart from the quality of life and livelihoods, sanitation is clearly linked to many other issues of concern to the urban poor, such as housing, other basic services and employment. Nevertheless, strategies that combine sanitation with these issues are infrequent. Many initiatives have demonstrated that improvements in sanitation impact positively on a number of other MDGs such as poverty, education, gender equality, etc. (see box 2 in Swann and Cotton 2005). This calls for cross-sectoral approaches and solutions that can create synergies and combine efforts in these areas through broader programmes and projects that use available resources more wisely.

The community toilet blocks in India are part of a larger programme of work that the Alliance is involved in, including community-managed resettlement and slum rehabilitation (Burra et al. 2003). This allows for sanitation options to be incorporated into the overall planning of settlements rather than coming as an add-on afterwards. According to MDG calculations it is cheaper and more sustainable to provide new affordable housing (US$ 25 per person – EUR 16) than to upgrade slums (US$ 42 per person – EUR 27) (Sheuya et al. 2007). However, such a statement needs to be treated with caution. In cases where relocation of slum communities is considered, their existing livelihoods and social networks need to be taken into account as they might be at risk when moving to a new location. The resettlement of the pavement

dwellers in Mumbai, where in-site upgrading was not an option, demonstrates how the involvement of the community can make such projects more appropriate. The participation of pavement dwellers, particularly females, in the planning of the buildings resulted in the design and construction of shared toilet facilities on each floor in order to sustain a communal meeting place that they were used to from living on the streets, and also to rule out gentrification. Excluding these women from the process would probably have resulted in the design of units with en-suite facilities based on the assumption that this is what everybody prefers. Other research shows that the involvement of poor communities in water and sanitation projects can subsequently be used to expand their influence on other development activities as illustrated in the case of SHGs in Tiruchirapalli (box 10).

It needs to be recognised that improvements in sanitation not only impact positively on people living in the area but also on those working there, such as the SSIPs providing pit-emptying services in various locations and others engaged in the informal economy (Nunan and Satterthwaite 2001). The provision of sanitation services represents an important, if not the only, source of income for some of the poor. Their employment would be seriously threatened if they were to be excluded from future sanitation solutions. Apart from activities directly linked to the provision of sanitation services, other productive activities carried out by the poor are linked informally to sanitation. As a consequence, cross-sectoral approaches further need to acknowledge the increasing rural-urban interdependencies of the urban poor in order to tackle the sanitation challenge. Many peri-urban poor dwellers in Mexico City reuse water for multiple purposes (e.g. toilet flushing, plant watering, etc.) and consequently contribute to a more sustainable management of greywater (Allen et al. 2006a). Formal support could widen the scope and benefits of such water-preserving practices considerably.

Furthermore, reusing wastewater for agricultural purposes can be a cost effective way to reduce the amount of sewage that needs to be discharged while at the same time providing an important input into productive processes (Hofmann 2005). The livelihoods of many urban and peri-urban farmers depend on sewage irrigation, but the informal nature of this activity brings with it a number of problems in terms of health and safety and regularity of supply. It would be a big step forward if the initial intentions in Brazil to link the transportation and treatment of sewage to agricultural practices were implemented in practice (see Neder and Nazareth 1998). In governance terms this presents a challenge to unite actors from two processes that are currently operating separately from each other: wastewater management and agricultural production. Furthermore, these practices of urban and peri-urban farmers need to be recognised and embedded into the formal system, similar to what ADASBU has achieved in Maputo for the operation of SSIPs with regards to pit-emptying services. This could be achieved through the involvement of CBOs and NGOs.

Concluding remarks

This essay has presented an overview of the current trends and approaches adopted in meeting the governance challenge of urban sanitation. The significance of sanitation for the improvement of the quality of life of the urban and peri-urban poor and the impacts on their livelihoods is often overlooked and might partly explain the greater international focus on water. Nevertheless, these issues are closely linked and need to be considered in order to successfully reach the poor. The first and most obvious conclusion is that the governance of urban sanitation remains under-analysed in comparison to water and this means that propositions for new governance arrangements appear to be thought out mainly in relation to water and applied to sanitation by default. Despite the importance of holistic and articulated approaches to the provision of water and sanitation, the above implies that organisational arrangements (and their social, economic and technical details) need to be examined in the light of the specific benefits and challenges posed by sanitation.

Without claiming to be comprehensive – either in terms of revealing the full complexity of the challenges faced or in offering a full representation of the many experiences under way – we have aimed at presenting a reconnaissance of the issues/trends emerging from the articulation of what has been characterised in the introduction as a rational and an empirical perspective. The central argument built throughout this essay is that any efforts to make the governance of sanitation work for the urban poor inevitably requires moving down the sanitation ladder to support and build upon the unconventional but widespread practices found at the lower spectrum of the ladder. Bearing this in mind, the following paragraphs are intended as teasers to fuel current thinking and doing in the field.

Reaching the urban poor: beyond trade offs

Most interventions aimed at improving urban sanitation are driven by one or more of the following principles: equity and justice (service for all), environmental sustainability (solutions to local problems that do not cause deterioration of the wider environment or use resources that cannot be replaced) and service delivery sustainability (sustained capacity to address needs or to meet the demand over time), not just in terms of provision but also subsequent operation and maintenance. Overall, a preoccupation with making providers more efficient – particularly in terms of cost recovery – seems to dominate current approaches to policy-driven responses. Thus, as shown in the case of the urban water and sanitation authorities in Tanzania (box 5), it is common to find not just private but increasingly public providers following this principle at the expense of others. But this does not need to be the case; reaching the urban poor in a more equitable and just fashion does not mean that the other two principles should be overlooked; otherwise pro-poor approaches are likely to be confined to one-off and short-term solutions, with limited scope for scaling up. Neither does this mean that there are magic or instant solutions to the simultaneous attainment of these three principles. Answers to this conundrum seem to lie in integrated changes at various levels: policy, regulation, planning and design, financing, delivery and monitoring, as discussed below.

From one orthodoxy to another? Moving beyond the private-public dichotomy

This analysis suggests that policy-oriented and action-oriented approaches to the governance of urban sanitation need to be urgently relinked. Of paramount importance to this purpose is to unlock those approaches from the boundaries of prevailing orthodoxies. As shown throughout the paper, the public-private controversy dominating the debate since the 1990s has done little for advancing the cause of better sanitation for the urban poor. It is now perhaps more widely accepted that to be efficient it is not sufficient to be private, and to be equitable it is not sufficient to be public. Throughout the paper we have identified a wide range of possible actions and types of organisation and management with potential to support the quest for universal access to urban sanitation, in ways that ensure equity, quality and social control. The spectrum of hybrid combinations emerging with regards to sanitation is less varied than in the case of water – partly due to technical reasons (Allen et al. 2006a). Nonetheless, such a spectrum is more complex than suggested by the policy-driven categories identified on the left-hand side of the sanitation wheel (figure 2). The crucial challenge ahead lies in rethinking the governance of urban sanitation from the perspective of the action-oriented approaches outlined on the wheel as "needs-driven". Moreover, this implies that there needs to be a change from the usual route of policy-based evidence to evidence-based policymaking, in which the latter acknowledges the lessons learnt from the reality on the ground.

Rethinking the relationships among agents

Overcoming the public-private controversy alone is not enough. It is now widely accepted that addressing the MDGs sanitation challenge in urban areas will require a combination of provision modes, and therefore a combination of agents. The latter is clearly exemplified in the arguments presented by the advocates of unbundling approaches to service delivery as the most appropriate (often only) route to meet targets. This is because of the perceived advantages of dividing responsibilities between the public, private and civil sectors, in order to combine their resources and inputs either under hierarchical or horizontal structures. Whilst hierarchical structures have received ample attention, little has been said about how to go about the creation of sustainable horizontal structures beyond the few case studies that have successfully pursued this route. Furthermore, the emphasis on unbundling has somehow focused on an apparently more efficient or viable division of labour in which "partnerships" often refer to the coexistence of different agents within service provision, with little discussion of the relationships between them. The state still plays a crucial role in shaping these relationships through legislation and policymaking, regulation and enforcement, planning and design, operational provision of services and investment.

Regulation and enforcement: from command & control and economic incentives to citizens steering

The issue of regulation needs to be re-examined in the light of the increased involvement of multinational companies in WATSAN and also the intimate involvement of multilateral lending agencies in the privatisation process. It is obvious that this map of powerful stakeholders creates new challenges for regulatory bodies in terms of ensuring accountability and transparency. In this context, it is commonly argued that

current approaches to regulation and enforcement need to shift from a command & control perspective to an incentive approach. In other words, it is assumed that economic incentives should be used to reward good performance and penalise harmful actions or failure to meet addressed targets (as shown in box 3, the latter is already common practice in most PSP initiatives). A common problem with the design and application of incentives is that they are usually centrally decided and enforced, often failing to establish positive links between regulators, regulated and users. By contrast, informed, organised and empowered citizens allied with public organisations can play an effective role in monitoring the quality of service delivery (as shown in the case of Caracas – see box 6). The problems of highly asymmetric power relations should not be underestimated here, and this requires a new approach to socially legitimate and strong regulating bodies, in order to increase transparency and constructive dialogue and to avoid corruption. This also points to the need to design incentive structures in line with less narrowly-defined efficiency criteria and with an explicit pro-poor focus. Furthermore, there is a need to acknowledge and support, through formal regulation, the role played by SSIPs and their practices (such as the pit-emptying service) in the lowest ranks of the sanitation ladder. Some current practices might not be the first choice of city governments, but they are often the only viable solution in relation to high density low-income areas.

Planning and design: From master plans to strategic action

In overall terms, the effective municipalisation of service provision requires not only technical and financial capacities and the ability to engage with local users, but also a fundamental shift in the way municipal planning operates. The master planning approach typically adopted in the past has meant that efforts to improve sanitation have tended to focus on the construction of large and centralised solutions, demanding high investments in trunk sewerage, wastewater treatment and disposal. Such plans have given little consideration to limitations in financial and institutional terms and usually neglect user needs and their ability to pay (WELL n.d.). The shortcomings associated with this approach are well documented, not only resulting in facilities that do not work for urban and peri-urban informal settlements, but also in chronic problems in the operation and maintenance of these facilities.

By contrast, many authors argue that master planning needs to be replaced by a Strategic Sanitation Approach (SSA) (Wright 1997; Saywell and Cotton 1998) that starts from grounding plans for improved sanitation in context-specific existing situations, leading to long-term actions and programmes that are designed in the light of the knowledge and experience acquired through short-term initiatives. This approach is strategic in the sense that rather than embarking on comprehensive solutions that are subsequently difficult to implement, planning should be both adaptive and incremental. The municipal initiatives reviewed in box 4 provide some examples of this approach.

The involvement of the users in the planning and design of sanitation facilities is crucial for two reasons. First, it opens the possibility for more locally appropriate technologies, with the potential of cutting costs and therefore making the service more affordable

for the poor. Second, it leads to more adequate facilities, as the urban poor know best what they need and understand the actual problems and deficiencies of current sanitation facilities.

Service delivery: from supply-driven to demand driven solutions?
There seems to be general consensus on the need to move from supply-driven to demand-driven solutions. This implies that approaches to improved urban sanitation should focus on what users want and are willing to pay, rather than on what professionals think is best. Clearly, involving poor communities in the delivery of services can create ownership and increase the capacities and skills of the urban poor. However, an exclusively demand-driven approach has its own limitations: it can become over-reliant on the knowledge and expectations of service users, limiting the scope for change and innovation. It can lead to a short-term perspective driven by immediate concerns at the expense of a wider, longer-term perspective. It can, and often does, conflate demand with willingness to pay, and it might pay insufficient attention to the effective capacity of service providers to respond to demand (WELL n.d., p. 9).

The obvious conclusion here is that both demand and supply – and indeed their articulation – need to be carefully considered in order to address the principles outlined above in an integrated fashion, whilst allowing scope for innovation and change. As shown in the many initiatives underway in Brazil (box 4), there is ample scope for municipalities to enhance responsiveness to users, while reaching the goals of universal provision and service systems that are environmentally, technically and financially sound through the integrated planning of environmental sanitation actions. Service delivery through inter-municipal consortia (where a group of municipalities provide sanitation services for more than one municipality) can be an effective way of reaching economies of scale, whilst spreading and sharing improvements in sanitation services among various urban and rural areas.

From TNCs to small-scale independent providers
As argued throughout the paper, in overall terms there is no evidence that increased formal PSP has helped – as intended – to bridge the financing gap in benefit of the poor. To a large extent, this seems to have been prompted by the lack of pro-poor conditions clearly established in the contracts, but also by the fact that the predominant forms of PSP arrangements applied do not attract substantial private capital investment.

PSP has been largely encouraged and examined in relation to TNCs. The picture differs significantly when considering other types of private operators than international companies. Whilst there is very little documented evidence of the outcomes of involving the national private sector, the literature on small service enterprises is incipient but fast growing. There is overwhelming evidence of the crucial role that small-scale enterprises and independent providers play in servicing the poor. Although the cost of their provision is higher than that of public utilities, which typically undercharge the real costs of service production, there is no conclusive evidence

that small independent providers are profiteering from the poor; rather, they are simply trying to survive in a very competitive market environment (WELL n.d.). The conditions shaping the relationship between small independent providers and users (in terms of cost, price, financial capacity, technologies used, quality and frequency of service and so on) need to be explored in detail and the scope for their engagement in local public-private sector partnerships needs to be fully realised. Ignoring their input not only means that the main source of actual provision to the urban poor remains unsupported, but also that the livelihoods derived from service provision for many among the poor continues to be limited and obstructed by policies and planning regulations that view small independent providers as illegal.

From profit to value-driven provision

The major finance question is how to meet the costs of urban sanitation in terms of infrastructure construction, operation and maintenance. Currently this question is predominantly approached by considering the willingness to pay of users (or rather, consumers). This tends to ignore the obvious fact that the poor often have limited capacity to pay for services delivery, let alone construction and maintenance. From a policy-driven perspective, the finance question is at worst commonly addressed by increasing consumer tariffs – typically excluding those who cannot pay – or at best, from a combination of increased tariffs and cross-subsidies to the poor (box 4). As argued above, an alternative perspective is to examine how to enhance the role played by SSIPs but also to look at how to reduce the costs of sanitation services and therefore adopt a more equitable and financially viable approach. Costs can be reduced through a number of options, including the use of affordable technology (favouring for instance on-plot or local sanitation facilities instead of centralised sewerage) and the adaptation of design standards to local situations. Much can be learnt here from the know-how and practices adopted by SSIPs and community-led initiatives. The latter in particular are typically value-driven rather than profit-driven (Scott and Sansom 2006). This implies that the question of finance is addressed in terms of best value rather than lowest cost and therefore approached from a broader perspective that explicitly or implicitly links sanitation improvements with other less tangible development outcomes, such as those resulting from community mobilisation (ibid.).

Moving down the ladder through citizen co-production

It could be argued that confining the role of citizens (and in particular of the urban poor) in service co-production merely to their self provision is hardly progressive. Yet, this approach still dominates much of the current experimentation with multi-agent partnerships. This is often based on the pragmatic acceptance that given the funding limitations of public agencies or the profit-seeking orientation of private providers the poor are better off by providing services for themselves, with some form of support from the state. Therefore, the discussion needs to move on from how best to use their inputs (time, money, labour, and so on) to fill the gap, to how to empower them to exert their full rights and responsibilities as citizens. Many of the successful cases that currently provide sanitation services to the urban poor explored in this paper represent a form of citizen co-production whereby community members participate in the provision of sanitation by taking clear responsibilities at various stages of the process.

The capacity in the community is subsequently strengthened and the newly acquired skills can be crucial in the poor's quest for better income earning opportunities. Furthermore, as shown in the cases of Caracas, Mumbai and Tiruchirapalli, citizen co-production has potential to change the perception of the poor within the city and to redefine their position in the system.

In short, citizen service co-production can bring about a significant transformation to the governance of sanitation, acknowledging that the state has a crucial role to play asdo citizens. However, its capacity for transformation depends on the extent to which citizens – and in particular poor women and men – are engaged as political constituencies in their own right and not just valued in terms of their potential material contributions (time, money and labour) to the provision of sanitation.

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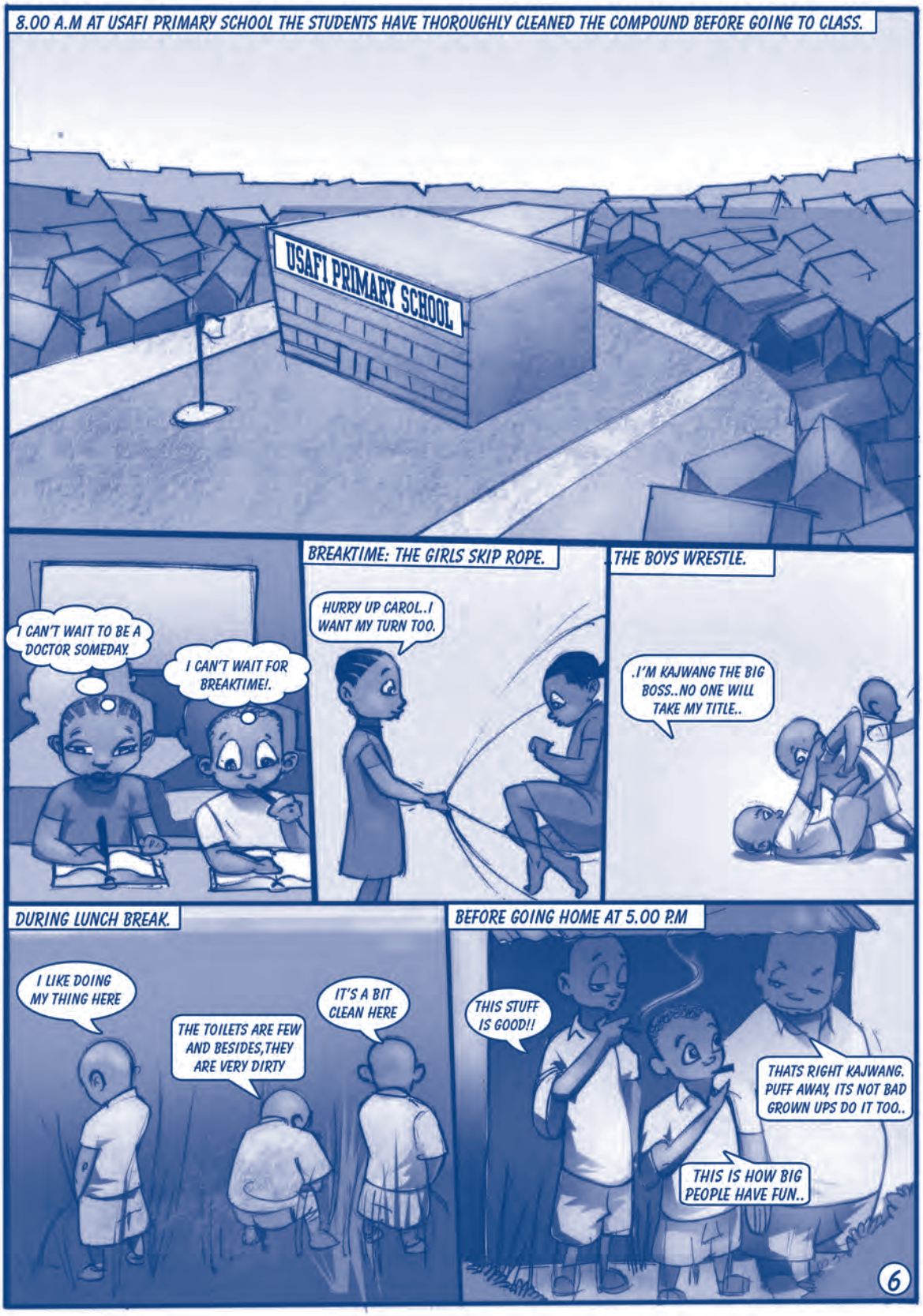
8.00 A.M AT USAFI PRIMARY SCHOOL THE STUDENTS HAVE THOROUGHLY CLEANED THE COMPOUND BEFORE GOING TO CLASS.
USAFI PRIMARY SCHOOL
I CAN'T WAIT TO BE A DOCTOR SOMEDAY.
I CAN'T WAIT FOR BREAKTIME!.
BREAKTIME: THE GIRLS SKIP ROPE.
HURRY UP CAROL..I WANT MY TURN TOO.
THE BOYS WRESTLE.
.I'M KAJWANG THE BIG BOSS..NO ONE WILL TAKE MY TITLE..
DURING LUNCH BREAK.
I LIKE DOING MY THING HERE
THE TOILETS ARE FEW AND BESIDES,THEY ARE VERY DIRTY
IT'S A BIT CLEAN HERE
BEFORE GOING HOME AT 5.00 P.M
THIS STUFF IS GOOD!!
THATS RIGHT KAJWANG. PUFF AWAY, ITS NOT BAD GROWN UPS DO IT TOO..
THIS IS HOW BIG PEOPLE HAVE FUN..
6

4. Financing sanitation in poor urban areas

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This essay addresses innovative ways of financing safe sanitation in poor urban households and neighbourhoods. Although sanitation comprises several components, this paper focuses only on human excreta disposal. It is argued that the urban poor already finance their sanitation, mostly in loss of time, energy, dignity, health, income and development opportunities. To turn these losses around and fulfil basic human rights, creative financing systems are needed. Using a combination of literature review, personal and documented experiences, the authors present an overview of traditional and innovative financing approaches and mechanisms for urban poor sanitation, and discuss their advantages and limitations.

The romanticisation of (extremely) low-cost (toilet) construction is unhelpful to the advancement of public health, without which the sanitary revolution serves little purpose.
Source: Adjusted from Maggie Black and Ben Fawcett (2008, p.194).

Introduction

Urbanisation and its impact on the growth of the urban poor
At some point in 2008, the world became predominantly urban. This urbanisation is observed not only in megacities with more than ten million inhabitants, but also in small and medium-sized cities all around the world. Urban population growth has three important impacts on cities, that have relevance to water and sanitation services: "It results in the development of new informal areas, often on the periphery of the city... leaving little space for rational planning of street layouts or development of core services. It results in densification of existing communities –placing additional demands on existing services and rendering retailing in previously unserved areas increasingly challenging technically. It results in an overall increase in demand, which can steer investment away from the retail end of the business into development of additional bulk water production and wastewater treatment capacity" (Evans 2007, p. 3).

Cities are facing an increasing challenge to provide adequate living conditions for these new residents who lack power and money. The challenge is threefold: technical (population density and water resource availability), institutional (social and political inclusion, extension of WASH services local service management) and financing. In this essay, we focus on the last challenge in an attempt to identify the innovative financial

approaches and mechanisms that are most likely to provide the urban poor with adequate sanitation.

According to UN-HABITAT's Global Report on Human Settlements, the number of urban poor living in dire conditions reached one billion in 2003. About 50% of the global urban population lack adequate provision for sanitation, and that rate is higher when considering poor urban dwellers. More worrying yet, the number of people lacking good quality sanitation could be four to five times higher than official statistics suggest (UN-Habitat 2003).

Table 1. Indicative estimates for the number (and proportion) of urban dwellers without adequate provision for water and sanitation

	Water	Sanitation
Africa	100-150 million (ca. 35-50%)	150-180 million (ca. 50-60%)
Asia	500-700 million (ca. 35-50%)	600-800 million (ca. 45-60%)
Latin America and Caribbean	80-120 million (ca. 20-30%)	100-150 million (ca. 25-40%)

Source: Based on evidence from city studies compiled by UN-Habitat (2003).

The consequences of lacking "adequate" sanitation

There is much discussion about what it means to have "adequate" sanitation. It is less controversial to agree on what is definitively not adequate. According to Paterson et al. (2007), "human waste is the major cause of disease transmission, and slum dwellers are often surrounded by human excreta in open drains and streets... in high-density peri-urban settlements the potential spread of diseases amongst the population is much greater, and therefore the importance of adequate sanitation even more crucial than in rural areas". This also applies to poor urban areas.

The negative effects of sub-standard sanitation services are mostly felt "downstream", rather than by the people who pay for the service. For example, if there is no effective treatment and sewage or sludge is dumped into rivers, it affects the people who rely on the river for unpolluted water. And because it does not necessarily affect the bill payers, this makes them less willing to pay these costs. This hampers the finance of adequate sanitation services along the entire chain. There are experiences of recovering costs of the provision of sanitation services through the water bill and through taxation. However, these approaches seem difficult for illegal settlements as people do not pay tax and often lack a formal water supply.

Another consequence of not having adequate sanitation is that the urban poor "finance" the disposal of their excreta, be it in other ways than through money. Many poor urban people, especially women and adolescent girls, divert time and energy away from other, more productive uses to go to private places where they can relieve themselves. Sometimes they can do so only after dusk or before dawn, risking their safety and health (including e.g. more kidney stones from reducing their intake of fluids and food in the daytime). Lack of toilets in schools and lack of separate toilets for

older girls are two reasons why many parents do not allow their daughters to complete their education. Poor people pay a further price by living in packed environments full of filth and stench with high transmission figures of faecal-oral infections and other environment-related diseases. Poor urban people thus pay for their sanitation in time, dignity, social pressures, loss of health and income and reduced development potentials (Moraes et al. 2003).

The oldest and most common way to finance improved sanitation relates to the "every household for itself" strategy. All over the world, poor families scrape together what little bits of money they can to buy the materials, sometimes hire a plumber or mason, and construct the type of toilets they want and can afford. Those who can hardly afford anything use free or the lowest-cost local materials and do all construction work themselves. Others install more advanced designs and combine toilets with bathing, washing and laundry provisions. Many such facilities employ different kinds of pits or septic tanks to contain the excreta and wastewater, as sewerage systems are often technically and/or financially out of reach. The great advantage of this approach is that it is extremely simple. No special inputs or financial provisions from outside are required. There are, however, also important disadvantages, including slow and inequitable coverage, risks of poor cost-quality ratio and exploitation of poorly informed and powerless consumers. Coverage is slow because sanitation often is a low priority for poor households, especially for the male heads who decide on larger investments, but are less personally affected by poor sanitation and usually have other priority demands.[1] The quality versus cost issue is critical says Maggie Black, a quote from whose book heads this paper. "It is not that low-cost toilets are a bad idea. We spend the whole book advocating low-cost toilets. It is extremely low-cost construction of sanitary toilets that we are not keen on. If you advocate no-cost or really low-cost construction without even cement or a proper slab, as a means of persuading people to build a toilet without any subsidy or access to home improvement finance, you risk that the toilet will be so basic that it will swiftly become unpleasant and unusable, and thus do little for public health."[2]

The urban poor not only pay a price for their own inadequate sanitation but often pay for failures elsewhere. Housed in low-lying places and on river banks, they get surface water and surface runoff contaminated by open defecation and sludge disposal from other parts of the city. These are same rivers where poor people bathe, wash clothes and dishes and which they sometimes must even use as the source of their drinking water. Other poor urban people use groundwater from shallow wells and handpumps that are polluted by human faeces from latrine soakpits and leaky septic tanks.

1 In Indonesia, for example, sanitation was found to be the second highest priority for poor women, but the eighth for men (ISSDP 2007).

2 Maggie Black, personal correspondence

Another consequence of inadequate sanitation is financial loss. Households lose income when they cannot work due to illness and must spend extra money on health care and, when there is a death in the family, on burials. Even the time taken to find somewhere to defecate is time lost to household tasks, domestic production, child care, education and paid work outside the family. Indonesia, for example, lost an estimated US $6.3 billion from poor sanitation and hygiene in 2006, equivalent to 2.3% of the country's gross domestic product (Napitupulu and Hutton 2008). In their recent study, Prüss-Üstün et al. (2008) estimate that the global savings from the combination of improved domestic water supply and sanitation in rural and urban areas is US $8 for every US $1 invested. According to Hutton et al. (2007), every unit currency invested in water and sanitation can generate benefits ranging from 2.8 to 6.6. These estimates include neither the benefits from productive use of water in rural areas nor the gain in property value in urban areas, nor do they include the intangible benefits of dignity, privacy, security and social status. There are hardly any separate figures on savings from improved urban sanitation alone, and no disaggregated figures for savings from improved urban sanitation for the poor and ultra-poor.[3]

The values are, however, likely to be high enough to warrant investing in a sanitary toilet and good toilet hygiene; the problem usually is, at least partly, how to finance this.

The cost of sanitation services in poor urban areas

The Camdessus Panel (Camdessus and Winpenny 2003) estimated the amount of financial resources needed to overcome the water and sanitation challenge. Their report said that the MDGs would only be achieved if annual investments doubled from their 2003 level of US $15 billion per year to US $30 billion per year. This was based on the estimated global annual cost of putting in place the infrastructure for urban and rural water and sanitation services. However, far from this happening, Shah (2007) states that "the water sector [water and sanitation] is experiencing decreased, static, or marginal increases in financing".

Table 2, derived from an unpublished IRC global literature review, shows that the capital investment costs for sanitation vary widely according to the technical options chosen. For example, if Africa planned to ensure that its 180 million urban inhabitants who currently lack adequate sanitation gain access to improved sanitation, this would cost US $5 billion for simple pit latrines up to US $25 billion if conventional sewerage systems were made universal in urban areas.

3 Evans et al. (2004) give estimated annual value of US $225 billion in time savings alone, if all households had sanitary toilets. Case studies from Bobo-Dialassou 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 a one-time payment of US $40 (Borghi et al. 2002 and Haider 2008).

Table 2. Capital investment costs – sanitation

Type of system	Capital expenditure (US $/capita 2004 PPP)
Simple pit latrine	28
VIP latrine	50
Double vault latrine	50
Pour flush latrine	54
Urine diversion/ecosan	81
Conventional sewerage	139
Unconventional sewerage[4]	64

Source: IRC unpublished data.

However, it is argued that all these figures underestimate the cost of providing sustainable services, which would require higher amounts for soft investments like capacity building and training, and recurrent costs to operate the service and to maintain the infrastructure.

Smits and Fonseca (2007) looked at a wider range of costs, namely:

- capital investments in fixed assets (CapEx) – this is the cost of hardware investment in pumps, pipes, latrines, etc.;
- operating and minor maintenance expenditures (OpEx) – the annual operation and minor maintenance costs, such as the costs of diesel or electricity for pumping, costs of operational staff, small replacement parts – usually required to be paid by beneficiaries;
- capital maintenance expenditures (CapManEX) – the full depreciated replacement costs – rarely taken into account in investment decisions;
- direct support costs – the software costs (training, facilitation, community mobilisation, hygiene education, etc.) associated with the implementation and maintenance of hardware;
- indirect support costs – he costs that fall outside the direct system, but which are needed at higher levels of scale, such as training by districts, development of water resources management plans, etc.

Details on the full life cycle costs of WASH services are missing, whichever technical system is chosen. This renders it impossible to make economically sound decisions, or to properly assess the financial value of any investment in sanitation.[5] However, it

4 "Unconventional" sewerage includes lower-cost options such as small-bore or condominium sewers.

5 The WASHCost Project (2008-2012) researches the life cycle costs of water, sanitation and hygiene (WASH) services in rural and peri-urban areas in four countries: Burkina Faso, Ghana, Mozambique and India (Andhra Pradesh). The rationale is that WASH governance will improve at all levels, as decision makers and stakeholders analyse the costs of sustainable, equitable and efficient services and put their knowledge to use.

is possible to outline roughly the cost structures associated with different sanitation options, based on the few cost elements that are available.

Individual toilets

Individual toilets are the most affordable solutions. For a pit latrine, the capital investment cost varies from US $28 to US $54 (table 2). Additional investment may occur, as households invest gradually to upgrade their equipment from simple toilet to combined toilet with bathroom and laundry provision. According to Varley, on-site facilities such as pit latrines with simple plumbing, septic tanks and small-bore sewers may range from US $68 to US $500 (Varley 2005).

Day-to-day costs are generally low (water, paper and soap), but the costs of emptying full pits and septic tanks and disposing of the sludge are high. These recurrent costs occur generally every two to five years, depending on the size of the household. In urban areas, the strategy of shifting or rebuilding the toilet, covering the full pit, and later using the excreta productively by planting a tree on the old site is seldom feasible. The only options are either to empty (part of) the pit or tank oneself or to call in the services of a manual or mechanical pit emptying service. According to Eales, pit emptying by vacuum trucks in Africa costs from US $73 to US $246 with an average of US $90 (Eales 2005). In low-income neighbourhoods and slums, manual excavation is the only alternative, either by the householder or by independent service providers.[6] In African cities the price per emptied pit is the equivalent of US $15-25 (Collignon and Vezina 2000). Poor people often prefer to have only the top layer of sludge removed to spread the recurrent costs. In Dar es Salaam, the capital of Tanzania, operators charge US $12.50 to empty a pit and the Dar es Salaam Sewerage and Sanitation Department trains the operators and takes care of end disposal (Muller and Rijnsburger 1992). In Durban, South Africa, the real average costs of an improved manual pit emptying and disposal model are the equivalent of US $132 per pit, including 8% management costs (Chris Buckley, pers. comm.).

Shared toilets or sanitation blocks

Lack of space in low-income urban areas often makes the construction of individual household toilets impossible. Toilets shared by several households tend to be more expensive to build than single household latrines, because they need higher quality

6 As a mechanical alternative to manual emptying, Manus Kofi, an Irish engineer, developed the manual pit emptying technology (MAPET), which later evolved into the Vacutug. It consists of a 500-litre tank with a vacuum pump and a four-metre long, three- inch wide PVC hose mounted on a small petrol-engine driven handcart. Two or three operators direct the cart to the pit, transfer the sludge to the tank using the hose and suction pump, and when the tank is full, empty it into the nearest sewer or sewage disposal station. Alternatively, the pit's contents are disposed of in a (covered) dug pit in the compound of the owner. A more recent mechanical emptying device developed by Steven Sugden is the *gulper*. This is a direct action suction pump that can be carried on foot, is placed directly over the pit and discharges the sludge through its spout directly into a plastic container. The operator closes the container and carries it off for disposal. See http://www.ideas-at-work.org/pdf/Gulper_pit_emptying_device.pdf and http://siteresources.worldbank.org/EXTWAT/Resources/4602122-1213366294492/5106220-1213649450319/1.8.1_Excreta_Management_in_Unplanned_Areas.pdf

materials to allow for more intensive use and ease of cleaning. Households pay recurrent fees to use these facilities, although these may overestimate the actual recurrent costs a bit since the fees generally include a small percentage of the construction costs. These fees are paid either per visit (pay-and-use tariff) or through a monthly subscription for use by the whole family. Under the typical single use fees in Trichy in Tamil Nadu, India, a household would pay Rs 150 (US $3) per month, which would be 10% of its average income (WaterAid 2008).

Conventional sewage

Conventional sewerage systems require by far the highest level of capital investment. At household level this translates into a connection fee to be paid up front and recurrent costs paid monthly, together with the water bill. The connection fee often equates to several months income for the household, while the recurrent water and wastewater bill comes to scarcely 10% of household income.

Table 3. Cost structures of sanitation

	Individual toilets	Shared toilets	Conventional sewerage
Capital investment	US $28 to $54 (basic) US $68 to $500 (complete)	More expensive than IT	US $1,000 (connection) Several US $1,000 (extension of the network)
Recurrent cost Day-to-day	Small (soap, paper, water)	Per visit	–
Recurrent cost Monthly	–	US $3 (India, 10% of income)	10% of income (water and sanitation bill, Morocco)
Recurrent cost 2 to 5 years	US $ 15 to $25 (manual) US $ 132 (improved manual) US $73 to $246 (truck)	–	–

Table 3 shows that the pattern of costs differs a lot according to the technical options. Individual toilets are the most affordable in term of capital investment, but their recurrent costs can overtake the original capital investment. Moreover, depending on who pays for what, the most expensive option in terms of capital costs could be cheaper than the less expensive one in the long term. When a household takes care of its individual toilet, it may end up paying far more than a family that was long ago connected to the sewerage network, who did not pay the connection fee, and whose monthly fees hardly cover the operating costs of the service. As the next section outlines, under traditional financing approaches, the more expensive the option, the smaller the charges allocated to the users.

The traditional approach and its shortfalls

Historically, WASH conventional services were heavily subsidised in developing and developed countries. Households whose homes were connected to the water and sewerage networks much earlier were hardly asked to pay even enough to

cover operating costs, and they were never charged for the connection itself. As a consequence, WASH services were poorly managed and, because no cash was coming in, service providers were unlikely to invest in network extensions to reach new urban areas to address demand from new settlers, among whom were the urban poor.

During the 1990s, donors and multinationals promoted a new approach, under which users would be charged the full costs of accessing WASH services. As it was politically highly sensitive to apply this principle to a population that was already receiving the service, the full cost principle was mainly applied to those who were about to be supplied with services. In Morocco, for instance, households were asked to contribute for the connection pipes and the secondary network, making the connection fee as high as US $1,300. This conceptual conversion of water and sanitation into a commodity failed. Donors and multinationals now agree that the capital investments cannot be fully charged to users, and limit their expectations to the recovery of operating costs and a small part of the investment costs. However, for conventional sewerage in particular, households are still asked to pay their connection fees up front. This leaves donors and taxpayers with the burden of meeting the investment costs, which focus mostly on infrastructure costs in this very top-down approach.

The limits of this traditional approach are well known. None of the systems financed in this way have proved sustainable. Most sanitation expenditure (57%) goes towards financing the *recurrent costs of already existing services in already served locations.* In fact, 60% of capital investment goes to locations that have already been covered, while only 40% is for new and unserved populations (Prüss-Üstün et al. 2008). While recurrent investment to sustain achievements is of course important, this tendency leaves little scope to expand proper sanitation to new locations and groups. No data is available on the proportion that reaches the urban poor, but the amount is likely to be a tiny proportion of the overall investments in improved city sanitation in the developing world.

This approach has also proved inequitable. According to Paterson et al. (2007), "the peri-urban [i.e. poor urban] areas generally receive disproportionately inadequate sanitation and other services, while better off residents in the formal sectors of cities receive reasonable levels of service often at subsidised rates". Indeed, funding investments centrally while leaving users to shoulder the recurrent costs means that the more expensive the service in terms of capital investment, the more it is subsidised. When considering the level of investments associated with the different technical options, it translates into subsidising conventional sewerage, which serves the better-off in urban areas. Conversely, the most affordable option (individual toilets) shows higher recurrent costs than capital investment. Subsidising the toilets therefore leaves households to meet the highest (recurrent) cost and may lead to the quality of service deteriorating sharply when they cannot afford to empty the pit.

Under the traditional approach, donor grants have been allocated to national governments, usually for financing centralised projects in mega capital cities, leaving small and medium-sized cities mostly uncovered. Most rural migration, however,

settles in poor urban areas in small and medium-sized cities that are not able to attract traditional donor money and are underfinanced by national and state governments.

Even if on-site facilities were chosen as the way to confront lack of service provision in poor urban areas, these small, decentralised investments are not suited to the formal financing institutions that led the process of traditional implementation through central governments and banks, etc. For this reason, there is a demand for new forms of financing mechanisms that are more capable of coping with the new pattern of finance that is needed.

The traditional approach for financing the sanitation sector in developing countries can be characterised by:

- targeting infrastructure development projects (large sewerage systems, treatment plants, etc.);
- top-down decision making;
- favouring large service providers who focus on existing users;
- looking only at the community/household cost of projects and programmes, leaving out the costing of the whole supply chain of sanitation services provision;
- not taking into account key costs like maintenance and the so-called soft costs (capacity building, policy development, etc.);
- political problems in independent service management, e.g. in tariff setting/ increases and personnel management ("hiring and firing").

Innovative approaches and mechanisms to finance sanitation for the urban poor

Innovative approaches and mechanisms are designed to address the key failures of the traditional approaches (mega projects, top-down decision making, focus on infrastructure, unsustainable financing, etc.). They also involve new actors (microfinance institutions, small-scale service providers and local entrepreneurs) and they take place all over the developing world. The potential of these innovative financial approaches and mechanisms is big, especially microfinance, which began as a system of microcredits and now embraces a wider range of initiatives designed to build inclusive financial systems for the poor.

Most experiences with microfinance are related to rural water supply, which is why some of the good practices quoted in this paper relate to this part of the WASH sector. We are well aware of the differences: urban areas are not merely very densely populated rural areas and the provision of sanitation services is significantly different from water services. However, the quoted good practices might provide a sense of direction to mobilise finance for sanitation services for the urban poor.

Innovative approaches to finance sanitation for the urban poor

Innovative financial approaches to sanitation do not require the development of new financial instruments, but a creative way of using existing commercial instruments, together with available funds allocated to the sector (from governments and international agencies). They also tap into the expertise of the sector's non-profit players (NGOs), which can help to bridge the implementation gap by reducing the associated risk.

Schematically, the approaches are directed at making sanitation facilities affordable by:

- adjusting the payment requirement and modalities to the ability of people to pay and to the mechanisms they use. For example, a high connection fee constitutes the principal bottleneck in implementing many projects that target the poor. An innovative financial approach would look at solving this problem by spreading the connection fees over a longer period, instead of asking for an up-front payment.
- increasing acceptability and willingness to pay. This can be done by increasing the awareness of the core issue of sanitation among the population and by adjusting the service to their varying expectations and opportunities. Although this is not, in itself, innovative financing it is a core activity to make financing more effective.

Innovative approaches include cost components that might be supported externally, and which should not be confined to infrastructure or capital investment. Much of the success of toilet programmes and campaigns depends on people's knowledge of, and easy access to, a range of affordable and popular toilets and materials to build or repair them. In Bangladesh, toilet construction financed by poor people themselves increased when external agencies supported the promotion, production and sale of affordable models. From the 1980s, the government engineering agency DPHE and UNICEF Bangladesh financed a large number of sanitation shops and local production centres (later replicated in India and Vietnam). At these outlets, people bought low-cost subsidised materials for building toilets, either doing the work themselves or hiring a local mason.

The unexpected effect of this support to producers and sellers of subsidised toilets and toilet ware was that small private entrepreneurs saw the potential market for low-cost sanitation. They began to stock and sell the parts as well, but at a lower cost. Thanks to lower prices and shorter transport distances, the private market shops became at least as popular as the subsidised outlets. Currently there are 3,000 government sponsored and 3,000 to 4,400 private production centres and outlets, as well as a large number of NGO sponsored centres. As a result, the government-UNICEF programme now supports new enterprises only in the most isolated areas. In other places it gives limited financial support to help small enterprises promote and market their wares better, e.g. through signposts outside their shops (Sijbesma 2008).

Innovative approaches to finance sanitation in poor urban areas can be characterised by:

- low-income groups having information about various options;
- users and communities deciding for themselves;
- finance schemes acknowledging the need to cover soft costs (training, advocacy, knowledge) and hard costs (infrastructure);
- the involvement of the local private sector;
- the main source of finance continuing to be user fees (in order to be sustainable);
- breaking barriers to extend the service to unserved inhabitants.

Source: Tremolé et al. (2007).

Financing mechanisms for sanitation for the urban poor

An important problem for poor households is not so much the cost or their willingness to pay, but the need for a sizable up-front lump sum investment, however simple and preliminary the toilet. In general, saving is not an attractive option for poor people because it postpones access to toilets and their benefits, the value of the money may depreciate, and other, more urgent cash needs may cause them to use the savings for other purposes.

In contrast to traditional financial mechanisms, which mainly operate at the national level, innovative finance mechanisms are better observed at community (or micro) level and the meso level (sub-sovereign, local government or municipal level).

Financing sources at the micro or local level

Micro-level financing is community based and takes place at the very local level of government. At this level, most financing has historically been gift money because of the generalised perception of high risk associated with any kind of loan/investment which requires repayment/return. An innovative financing mechanism looks to lessen this perception, to enable communities to access a bigger inflow of resources, or mitigate the perceived risks.

There are several potential mechanisms available at the local level.

- Grants: by definition these are transfers of resources that do not require repayment or compensation. These can take the form of budgetary allocations or subsidies from the central or local government, as well as donor and charity allocations. Recipients can be communities, neighbourhood associations, single households or small-scale entrepreneurs and the grant can be for various purposes, such as setting up a microfinance scheme for sanitation-related investments, covering connection costs, or the implementation of a small-scale sludge service for pit latrines.
- As noted above, grants have constituted the principal financing mechanism for sanitation in poor urban areas because of the perceived high risk associated with any payback scheme for the poor. A natural limitation for the use of this mechanism is the limited resources available to the public sector in developing

countries, inefficiencies on targeting the very poor, inefficiencies in the transfer mechanisms and the limited amount of resources of the international donor community. All these make the market for this source very competitive.

- Loans: in contrast to grants, loans have to be repaid to some extent (depending on their specific characteristics). Loans have not been used extensively for the poor because of their perceived incapacity to repay them. However, some microcredit and revolving fund schemes have shown success with a good level of payback. It must be said that most of the successful schemes have huge amounts of hidden backing related to the costs of process implementation, and this can undermine their scalability.
- Loans can also target small-scale entrepreneurs to help them to set up their business. Legal issues, as well as a failure to monitor services, have made governmental institutions very cautious about encouraging these entrepreneurs.
- Group saving schemes: there have been some experiences with various kinds of savings schemes, normally with the start-up costs financed by a grant. The purpose of these schemes has been to offer loans with special characteristics (interest-only loans to cover the administrative costs, and with no collateral required). The limitation is that the strength of such schemes is based on reducing the transaction costs (and risks) and this is achieved by knowing and trusting the applicants. This is diluted as the scope of the scheme grows, and this cannot be a solution in poor areas with a considerable number of inhabitants.
- Investments in and by individual entrepreneurs: small-scale entrepreneurs have been acting as the alternative to formal sanitation provision by the government. Investments can be made by these entrepreneurs financed by loans specially set up by microfinance institutions. The remainder of the money comes from entrepreneurs' own assets or financed by their own sources of finance. The high risk associated with this setup will be passed on to the final customers, in this case, poor individuals confronting tariffs much higher than inhabitants connected to the mains.

Financing sources at the meso or intermediate level

Some of the following financing mechanisms can be found at the meso and intermediate level of government.

- Central government transfers: budgetary appropriations are a common way for governments to finance services from taxation. These transfers to local government bodies at the intermediate level are designed to serve specific purposes of which sanitation services could be one. However, the first problem is that sanitation is in competition with other important sectors like education, defence, agriculture, health, etc. Moreover, inside the water and sanitation sector, the current lack of priority accorded to sanitation can harm sanitation allocations.
- The importance of sanitation and the huge potential impact of poor sanitation on the whole population are not clearly recognised in the budgetary process, and much more attention is given to water. Indeed, sanitation is commonly addressed as a water component.

- The limitations of governmental transfers are clear. Developing countries are, by definition, under-resourced and are already struggling with financing decentralised governmental institutions.
- Local revenue sources for municipalities: ideally, municipalities in a decentralised set-up should be able to leverage resources from citizens to provide essential services. However, this is normally not the case for municipalities in developing countries. Some mixed schemes that combine central government transfers and local municipality revenues are being used to a limited extent for sanitation.
- Donor funds (state agencies/international NGOs): donor funds from state agencies and international NGOs should be allocated to poor municipalities that cannot bankroll these services themselves. A couple of issues arise as limiting factors. First, municipalities that are not regarded as creditworthy by banks normally lack absorption capacity, which means that they may not be able to use the funds they receive efficiently. Second, there is evidence that these funds are allocated to better-off municipalities that compete aggressively to obtain them.
- There is a risk attached to this source of finance, since it can be perceived as the cheapest kind of loan, giving no incentive to generate resources for self-financing projects at the municipal level where this could be achieved.
- North-south solidarity funds (city twinning): a form of international tax transfer from local taxpayers in a developed country to a local authority in a developing country. In some countries (for instance in France), local authorities can transfer up to 1% of their water services revenue to help a city or a rural authority to develop access to water and sanitation.[7] This effectively increases sources of aid beyond traditional donors. However, it is unlikely that all poor municipalities will find it easy to locate a twin willing to provide funds in this way. For the money to be targeted in this manner, there would have to be a good awareness in the developed country of the importance of sanitation as well as water.
- Private sector/water company investments (national/international): the attractiveness of the sanitation sector for private international investment in developing countries is limited. Although the most common idea is that the private sector could provide finance to the sector, this has never been the principal intention of private operators, who are more likely to provide expertise and managerial discipline. This has been the experience in the water sector, where financing schemes have been part of governmental interventions in form of guarantees for the banks supporting the operations.
- Market-linked sources: municipal bonds for sanitation projects can only be used by creditworthy municipalities because of the due diligence of bonds issuing. Therefore, its use is very limited in favour of the very poor in small or medium-sized cities which do not have any credit rating in the market.
- International financing institutions: these institutions are more likely to act in creditworthy municipalities than in the very poor ones, although the idea of creative innovative finance would be to lower the perceived risk associated to municipalities through the involvement of institutions working at the ground level,

7 See http://www.pseau.org/outils/lettre for examples of solidarity funds between French and African local authorities.

like NGOs. However, the cost of NGO intervention can be a limiting factor for scaling up.

Actors and interface

A feature of these innovative financing approaches and mechanisms is the engagement of new actors in the water sector (microfinance institutions, local entrepreneurs and service providers) and the need to ease the interface between the usual players and the newcomers.

Microfinance institutions (MFIs) help finance urban sanitation for the poor in several ways.

- They give microcredit, micro-guarantees, micro-project finance and micro-insurance services to finance many kinds of micro-enterprise. The new businesses then use part of their profits to pay for improved sanitation. For example, the Grameen Bank found that one of the impacts of their microcredit services to poor women was that the women used part of their profits from their businesses to install proper toilets.
- They target these financial services on small businesses in the sanitation sector.
  - They help small sanitary service providers to finance their business and business improvements. Their clients in urban areas can be small sanitary ware shops, toilet construction enterprises, local groups that install and run urban sanitation blocks, and latrine pit and septic tank emptiers, etc.
  - They give credit to households to install the toilet they want and can afford to finance in stages. Duration of loans is generally less than three years, and the amounts range from US $50 to US $270 per household (Mehta 2008).

So far, microfinance experiences have mainly targeted household connections and investment for small water facilities for populations up to 25,000 people. Some countries, namely Bangladesh, India and Vietnam, have seen these microfinance schemes grow to considerable scale. The current trend towards decentralised and devolved urban governance and financing enhances opportunities for innovative forms of improved sanitation, managed and financed with or by community-based organisations. A typology of approaches with options, methods and materials for different types of physical, socio-economic, cultural and political circumstances might help to further develop and test such innovations. It would also provide a basis for feedback on lessons learned, and for incorporation of the results.

A typical actor who works on the interface between traditional and new actors is Water Partners International (WPI). WPI focuses on strategic partnerships to help bridge the MFIs and traditional water sector NGOs. WPI provides financial support to MFIs to conduct pilot projects in the water sector, and partners with them especially to increase their expertise in the sector. WPI also provides NGOs with training by teaming them up with leading MFI banks in their region, so that they can launch and manage microfinance operations. The sanitation microfinance pilot projects with NGOs in Tamil Nadu in India have achieved repayment rates greater than 90% for VIP and cluster latrines in rural areas and urban slums (Water Partners International 2005).

Examples of innovative financing for sanitation

Financing urban sanitation in Wogodogo, Burkina Faso
In Wogodogo, a low-income neighbourhood in the Burkina Faso capital Ouagadougou, a saving-credit initiative has been set up for household management of domestic waste. The credit was provided by LAGEMYAM, a women's association working for improved sanitation. LAGEMYAM agreed to finance the initial 70% required to start up the credit system.

The interest rate was set to cover the administrative costs. No collateral was required because the population did not have resources to meet this. Credit was provided only to borrowers who were already known to the association.

In a first phase, solid waste collection was organised and 28 households benefited from loans to construct excreta and wastewater infrastructure such as VIP latrines, drainage and soak pits for domestic waste treatment. However, only five households repaid their loans.

LAGEMYAM and CREPA (an NGO) had assumed that part of the revenue that the association received from the solid waste collection they carried out would finance the credit system for sanitation. But this did not happen, as the population had become used to getting sanitation facilities for free, and families invested the revenue from solid waste collection primarily in basic needs such as getting water and food rather than paying back the loan.

During the second phase, 18 additional households constructed more sanitation facilities. The number of reimbursements improved slightly, because project staff from CREPA and the NGO EAST launched an awareness campaign to underline the importance of repayments if the system of loans was to continue.

Participatory approaches were used to help the population develop self confidence and commitment vis à vis the credit system. The beneficiaries began to realise that if they didn't pay back the loans, the system could not continue and sanitation building would stop in the neighbourhood. The rate of reimbursement is now more than 80%.

Source: Kouassi-Komlan and Fonseca (2004).

Revolving fund for sanitation, Honduras
The Co-operative Housing Foundation (CHF) programme is part of a national strategy to provide loans for housing improvements in Tegucigalpa, the capital of Honduras. By 1993 the programme had disbursed around US $4 million dollars to Honduran NGOs for lending on to 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 of the CHF programme was to develop NGO capacity to develop their own credit lines from other government departments and eventually from the private banking sector. This meant that they first had to establish a track record of making and recovering loans successfully.

Loan agreements were made by beneficiaries directly with the NGO. No collateral was required although the backgrounds of borrowers were closely investigated and co-signatories were required to guarantee payments. Typically the loan would have a duration of three years and be paid off in monthly instalments. The average rate of interest was 15% per annum", which was low compared with alternative sources of informal finance through money lenders or retail credit.

The NGOs achieved a very high recovery rate of 95% in the early years. 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 the wide range of options in terms of the type of improvement made, the loan term and the quality of the improvement offered by lenders. Borrowers could tailor their lending package to their individual needs and hence avoid a "one size fits all" approach. It was discovered that households were often prepared to choose a high-cost option if the incremental increase in property value was also considered to be high.

The flexibility of loan terms meant that borrowers and lenders could test the loan system at lower risk to each party. Smaller short-term loans for sanitation were sometimes paid off early to be replaced by larger longer-term agreements for more substantial housing improvements.

Reliable technical advice and help in negotiating construction contracts was a key factor in attracting borrowers. Low income households often lacked the necessary information to make an informed decision about sanitation options. A prime function of the loan officer was to monitor construction quality for the customer and to voice the threat of refusing to pay for sub-standard work to keep contractors in line.

A large subsidy is built into the loan programme to cover the technical support provided by the CHF, but there is also provision in the financial planning for CHF to get sufficiently close-to-market interest rates to preserve the value of the fund's asset base. When NGOs take over the CHF function the cost of expert staff will be much lower, increasing the potential for sustainability.

Source: Co-operative Housing Foundation (1993).

Revolving funds at district level in Ghana

In Ghana, 22 Water Boards have formed the Association of Water and Sanitation Development Boards (AWSDB), which have a strategy similar to a community revolving fund, but at a larger scale. A key strategy of the AWSDBs was to establish

a pooled reserve fund invested in Treasury Bills and other short-term, low risk investments with a secure return. The interest earned on the reserve fund provides a large capital base for member boards in each district to fund deposits for their water supply and sanitation activities.

Source: WELL Briefing Note 16 – local financing mechanisms for water supply.pdf.

Revolving latrine fund for small local savings and credit unions in Lesotho

Savings and credit unions are a well-known phenomenon in Lesotho. UNICEF provided a revolving fund of Maloti 5000 (US $510) to each local cooperative credit group exclusively for making loans to members to install a toilet. It was operated under the following rules.

- Each cooperative/credit union has been established under local legislation which has a defined service area within a 10-mile radius.
- To be eligible for a toilet loan, a borrower must be a shareholder/depositor in the credit union and have made a deposit of no less than 50% of the amount borrowed.
- Five to seven members can borrow from the credit union at an interest rate of 1% per month on the loan balance that is outstanding.
- Households can only get short term-loans of 12-18 months. Borrowers must give security, most commonly through co-signatories.

Source: Larbi (1990).

The Orangi Pilot Project, Pakistan

Orangi is a low-income, informal area in Karachi, Pakistan's largest city, with 1.2 million of the city's 15 million plus residents. In 1980 the Orangi Pilot Project (OPP) sought to develop new models for providing affordable sanitation services for the urban poor. The pilot project focused on developing community-managed sewers and drains in informal areas, in a collaboration between the NGO, the local government and the households of the lanes that join the project. All households share the required investment for installing household toilets and making connections and primary pipelines for the disposal of black and grey water. Through the concept of "component sharing", OPP envisaged that each street in Orangi would be responsible for planning, installing, financing, and managing their lane sewer connected to each house, while the local government would fund the costs to extend the sewer lines and link them up with the city 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 that are affordable and sustainable in poor areas, with help from the NGO as a short-term facilitator, consultant and trainer. The success of the initial pilot attracted the international NGO WaterAid in the mid 1990s to help scale up the model. WaterAid provides technical and managerial support; funds training sessions on topics such as community mobilisation, surveying, planning, cost estimation and construction of sewers, and on documenting the work, reporting, accounting and management. Since the first pilot, 13 similar schemes have been

launched outside Karachi by NGOs and CBOs. Of these, 3 have been very successful, 4 have failed, and the rest show some signs of success.
Several factors can be gleaned from Orangi's experience to date.

- 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.
- 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 WaterAid funded the local NGO/CBO's overhead costs. All the success stories involved early engagement by the local NGO/CBO with relevant local government agencies to promote component sharing.
- Collaboration with local government resulted in tangible benefits: local government officials were empowered and provided with incentives to act and voters got support for community-led and -managed schemes, while local government no longer needed to find external funding for sanitation.

The sewers were built on the basis of full coverage of their costs by the joint user households, but care was taken to ensure that the charges necessary to cover these costs are low and affordable by households. Importantly, OPP's focus on strengthening management and 'soft' skills within communities was perhaps more important than the finance mechanism itself.

The low-cost sanitation system 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 costs.
Some of the other key lessons include:

a) local educated youth can be effectively involved in community mobilisation, surveying and drawing
b) small towns seem better able to adopt the approach, as they are less tied to vested interests and supply-driven approaches
c) planning tools must be suitable for local households, with maps showing how the lines will run and who will be connected, clear data on costs and a transparent and agreed system of cost-sharing.

Source: Trémolet et al. (2007)

Loans, training and promotion in Santiago, Chile
Several methods have been used to make the conventional sewerage system, with conventional sewer sizes and networks, affordable to the poorest consumers. An interesting example is EMOS, the Municipal Works Company of Santiago, the capital of Chile, which offers a broad package to achieve 97% sewerage connections. It was

initiated under its then female manager, Raquel Alfaro, who was very concerned with the vulnerable position of poor women and the low connection rates to urban water supply and sewerage in their neighbourhoods. Under her guidance, EMOS developed a strategy which has four components.

- Loans from 12 to 60 months are made to pay the connection fee and repaid as part of the monthly tariff payments for the service.
- Poor women in low-income neighbourhoods are trained to make connections and install and repair meters. Upon successful completion of the training course, the women receive a tool kit and a license as independent plumbers to make authorised connections for the utility.
- Promotion campaigns for water supply and sewerage connections are run through local schools. Children visit the city water supply and sewerage works and are educated on costs, financing and benefits of service connections.
- EMOS sends mobile vans to the poor parts of the city at preannounced fixed days and hours to make it easier for the households to register for a connection, learn about the loan system and eligibility and how to join. They learn how to fix their connections and pay their monthly bills.

Source: Alfaro (1997) and personal communication.

Conclusion

Potential and limits of innovative financing for sanitation for the urban poor

Most conventional financing goes to established services in already served areas and to conventional technological and administrative systems. This approach is not going to fulfil the sanitation target of the MDGs and beyond. To revise the current trend of an ever-growing sanitation backlog in poor urban areas we need not only to invest more and more wisely, but also finance in much more creative ways.

Self-financing continues to be the most common way by which the poor finance improved sanitation. Often the problem is not the total amount of money needed, but the up-front lump sum payment. Microcredit and loans are one way to cross the gap. While many illustrative examples exist, all are projects or one-off examples. There is a shortage of analysis of long-term microcredit programmes that include improved sanitation.

Documented experiences suggest that the more the terms and conditions for sanitation credit and toilet loan services are adjusted to the specific situations of different types of poor urban households and neighbourhoods, the more positive will be the results. The Grameen Bank charges commercial interest rates, but has a very high repayment rate because it is prepared to give very small loans to individuals, including poor urban women (who are excluded by many other banks); does not ask for collateral other than a guarantee from a relative or the group to which the person belongs; allows repayment at intervals that are suited to the different types of borrowers (some prefer to repay per week or even per day); and has local branches or representatives

close to their customers, so that physical and psychological distances for lending and repayment are small and people save the time and cost of travel.

Potential

According to Mehta (2008), microfinance potential in the WASH sector could be worth US $12 billion in the next decade, with sanitation alone accounting for US $8.64 billion. The largest demand by far will come from households for sanitation and this will far outstrip demand for small and medium enterprise loans and loans for upgrading urban services in low income areas. There will be considerable scope in rural areas for basic sanitation (individual toilets), and in small and medium-sized towns for improved sanitation (connection to well-functioning utilities). The highest potential is in South Asia (mainly India), especially for rural basic sanitation. However, in Sub-Saharan Africa demand for a higher level of sanitation services is greater than in South Asia.

Interestingly, if at the global level the future of microfinance is mainly in rural areas, in Sub-Saharan Africa it is likely to be in poor urban areas. The main potential is to finance the connection fee but there is also scope for products linked to shared toilets in dense slum areas and individual toilets where low income households have space. Promising outcomes could come from financial products linked to existing housing loans and to slum improvement schemes. Although the greatest attention has been paid to the impact of improved sanitation on health and the time saved, other impacts on the productive use of water and the rise in property values are also important and may generate sufficient income to pay back loans.

Mehta suggests that the reach of microfinance will depend on having appropriate WASH policies that encourage its use through appropriate capacity-building support. In particular, microfinance will have to be combined with grants, community mobilisation and demand promotion activities. Another potential that needs further investigation, is that microfinance could make it possible to link cost recovery to private benefits, so freeing up scarce public resources to focus on the poorest.

Limiting factors

Even with much cheaper models, smarter ways of financing and solidarity from other people, not all households are able to build a toilet and will continue to need subsidies. In Bangladesh, for example, central governments continue to give subsidies for household toilets for the ultra poor, through the districts. NGOs now supplement the government subsidy programme from donor funds.

Sanitation-related investments involving innovative finance schemes are scarce and scattered over the globe. The success of some interventions can be due to local specific factors or the specific characteristics of implementer's interventions, for which costs are not always included in a cost-benefit analysis of the project. This can be the most limiting factor for scaling-up or replication.

The scale and scope of the project is also another limiting factor. Small-scale interventions show some success since their most helpful characteristic is that they

reduce the transaction costs by getting to know participants and making loans based on a moral expectation to repay, rather than on collateral. This special feature is diluted as a project is scaled up, as without the personal touch there is more room for opportunistic behaviour and free-riding (i.e. not repaying the loan). Monitoring is needed to limit this opportunistic behaviour. This role has been carried out by NGOs through awareness campaigns, but they do this at an undetermined cost that could be outweighing the benefits. A strong case can, however, be made for the development and use of urban subsidies towards the recurrent costs of sanitation blocks and pit emptying, given the (hidden) subsidies on sanitation and water tariffs given to middle and upper class neighbourhoods.

More generally, innovative financial mechanisms need further assessment in terms of sustainability and equity. What is the social performance of microfinance in reaching the poor? Who benefits? Do the poor benefit at an early first stage? Are scarce resources then better targeted to those who cannot afford microfinance products?

Some work in 2005 by the CGAP task force resulted in a set of common indicators on intent, process and results. This needs to be followed up with case study analysis to improve understanding of microfinance and its impact on the urban poor. A better understanding of the cost structure of different systems and of the factors that drive costs would make it easier to establish appropriate microfinance mechanisms that address the obstacles to sanitation and to identify the level at which particular financial instruments could most appropriately be employed.

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THE CHILDREN WALK HOME TOGETHER.
WOULDN'T IT BE MUCH MORE FUN TO PLAY IF THIS PLACE WERE A BIT CLEAN.
YEAH..IT SURE WOULD, KAMAU STEPPED ON BROKEN GLASS THE OTHER DAY.
THE PASS BY THE MARKET ON THEIR WAY HOME.
HOW MUCH FOR THE POTATOES MADAM?
THREE FOR FIVE SHILLINGS.
BABA ATIENO ENTERTAINS HIS FRIENDS AT THE LOCAL BAR AFTER A FAT PAYMENT EARLIER ON.
I AM FILTHY RICH.. YESH IM FILTHY BUT.. RICH TODAY. ..MY FILTHY JOB HAS GOTTEN ME FILTHY RICHES TODAY.... HAHAHAHAHA....
I NEED A FAT PIECE..EH NA ULETE NA UGALI KUBWA
HAHAHA...
EH..EH..EHEE.. PRINCESS! I DON'T KNOW HOW ITS POSSIBLE BUT TODAY YOU LOOK BETTER THAN YESTERDAY.
MY PRINCESS.. TELL ME WHAT YOU DESIRE AND IT SHALL BE GIVEN.
I DON'T THINK YOU CAN PROVIDE A WORKING MAN.
YOU DRINK YOUR ALCOHOL.
7

5. Partnerships for sanitation for the urban poor: is it time to shift paradigm?

Kathy Eales [South Africa][1]

Pressure to achieve MDG goals is contributing to a reappraisal of the potential for partnerships to help overcome the challenges of providing viable, affordable sanitation services to the urban poor, by leveraging the combined strengths of government, civil society, and non-government service providers. A small but growing number of successful partnerships are supporting sanitation improvement for poor urban households, but the sector should be cautious in assuming that models that have worked well for water can be extrapolated to sanitation. On-site sanitation is highly segmented across toilet construction, waste collection and waste disposal, each supported by different micro service providers, and linking the three segments through strong working partnerships is very difficult. Strategies to extend conventional networked sewers are constrained by high capital and operating costs, and the reluctance of authorities to recognise the permanence of unauthorised settlements. Yet there have been some remarkable successes – notably in providing communal toilet blocks and condominial sewerage systems. Partnerships are not a substitute for action by government, nor do they absolve government of responsibility for investing in service provision. They do hold the potential to harness fresh approaches to achieve public sector objectives, leverage capacity and broker the relationships needed to overcome mistrust, disengagement, poor accountability and the fragmentation that often characterises the sanitation sector.

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Introduction

There has been explosive growth in global urban populations in recent decades. Africa is currently experiencing the highest rate of urbanisation, with a fourfold increase in urban dwellers anticipated between 1990 and 2020, to reach 500 million people. In tandem with this massive shift has come what Tipping and others call "the rapid urbanisation of poverty and ill-health" (2005, 13) and the growth and densification of slums. In developing countries, 40% -60% of urban dwellers have inadequate sanitation (Tipping et al. 2005, p. 17), and slum-dwellers are the most vulnerable to sanitation-related diseases because they are the most exposed to unmanaged human excreta and waste (Patterson et al. 2007).

Few local authorities – or even governments – are equipped to deal with this scale and pace of change, and few existing frameworks for urban service provision speak effectively to current service needs. This pace of settlement and change makes the current challenges of urban and peri-urban sanitation qualitatively different to those in rural areas, and even from those where growth is steady and even. Moreover, the service challenges of rapid settlement growth across Africa are playing out in a context where responsibility for service provision is being decentralised to local government; where the skills, systems and structures needed in government for service provision are still maturing. Where settlement outpaces urban planning and service provision, informal settlements develop in areas that are not close to water, sewer or power lines, and are often unsuited to human habitation, let alone development. All too often, the authorities avert their eyes and do not accept responsibility for the public health or well-being of the people in these settlements, on the grounds that they are not authorised to be there.

National sanitation policies and strategies tend to focus on non-reticulated rural areas, and urban strategies generally focus on infrastructure, and overwhelmingly on reticulated (networked) connections. Where public agencies fail to provide, people find their own solutions for managing excreta and waste. Many turn to "non-state providers", who have been filling the service-delivery gap in various ways at a micro-level for generations (Sansom 2006). What scope is there to harness these relationships, and build them into structured partnerships for service delivery?

High-level commitments to meeting national and global targets for sanitation are raising the profile of sanitation and putting pressure on governments to address service backlogs. Evidence of successful partnerships between government and independent providers in the water sector and elsewhere is prompting a review of partnership initiatives in the sanitation sector, in the hope of finding approaches that can be replicated and scaled up. But what kinds of partnerships are needed to improve urban sanitation for poor households, particularly in a context of rapid urban growth, and what is needed to make those partnerships work? What kinds of policy and legislative environment will best serve the urban poor, where local government is not yet equipped to provide a reliable and affordable sanitation service, and must work in tandem with others? Is improved regulation – pro-poor or otherwise – even relevant,

when the key service partners are generally informal, small scale and so numerous as to make conventional regulatory approaches prohibitively expensive and unworkable?

This paper starts with an overview of the recent literature on partnerships in the water and sanitation sectors. It provides some examples of successful sanitation partnerships, before moving on to a discussion of some opportunities and challenges around partnerships that serve the sanitation needs of the urban poor.

The landscape of current thinking

What do we mean by "partnerships"?
Evans, McMahon and Caplan (2004, p. 1) describe partnerships as "instruments that enable organisations with differing skills and priorities to leverage increased impact through working together than would be possible by working alone". They bring together "the technical skills of professional service providers, the social-development skills and local knowledge of civil society groups, and the planning and management responsibilities of local government" (ibid.) There are many forms of partnership, but this paper focuses on tri-sector relationships between government, civil society and non-government service providers.

The rediscovery of partnerships
There is long-standing evidence of fruitful partnerships for service delivery between government and non-government agencies, even in sanitation. The Sulabh International movement is probably the most long-standing and best known: it began as an NGO in Bihar, India, in 1970, and has provided improved private and public toilet facilities for millions of people since then through partnerships with local government, community-based organisations (CBOs) and local small-scale entrepreneurs, using increasingly sophisticated 15 to 30-year concessions.

But it was only in 2002, at the World Summit on Sustainable Development in Johannesburg, that there was high-level acknowledgement that partnership arrangements could complement the work of governments in meeting the goals of sustainable development and, specifically, the water and sanitation targets of the Millennium Development Goals. Since then, there have been a number of multilateral forums and events exploring and celebrating partnerships. Participants at a "Partnership Fair" at the Commission for Sustainable Development in New York in 2005 (CSD-13) stressed that working in partnerships is not simply old wine in new bottles. Key distinguishing features include a diverse range of stakeholders; strong involvement of civil society organisations; involvement of all partners from the outset, rather than subcontracting approaches; and shared vision, common goals and clear roles and responsibilities (CSD 2005).

A growing body of literature documents key lessons around partnerships and their outcomes. It has a strong bias towards water, rather than sanitation, with case studies describing a range of service provider partnerships. The World Bank, among others,

has shown particular interest in promoting utility/small scale provider partnerships, as a way of extending service coverage, leveraging the resources of big utilities through flexible small-scale entrepreneurs, particularly in areas which utilities find challenging. Sansom (2006) identifies three broad types of non-state water providers: informal or small-scale private water providers, civil society organisations supporting community-based management of water kiosks, and public-private partnership (PPP) operators for water services. He distinguishes further between independent water service providers who are not connected to the utility network and source water from wells, boreholes or springs, and intermediate water services providers, who sell water from the utility network (note the relevance for on-site and networked sanitation). Valfrey-Visser (2007) identifies a third category – independent operators who serve small towns considered unattractive by existing utilities: in Mauritania, West Africa, more than 300 contracts have been signed for the management of small town water services. Valfrey-Visser argues that independent providers provide a valuable service, rather than being simply an undesirable symptom of poor utility performance; they are innovative, responsive and contribute significantly to expanding coverage across urban and peri-urban settlements.

Accounts of urban community-managed water schemes and PPPs are well documented. In the urban context, private operators serve low income areas with a range of service and payment options in a variety of countries (notably Senegal, Argentina and the Philippines), and a small but growing number of tripartite partnerships between CBOs, NGOs and municipal water utility companies enable community-managed pipe networks in informal settlements – in Nairobi, Kenya, for example.

These innovations in extending urban water coverage have the potential to shape conceptions of what is also feasible and achievable for sanitation improvement. But as the following sections demonstrate, the profound challenges of urban sanitation improvement are harder to resolve than those of water. A range of service providers are already actively supporting urban sanitation improvement, but the majority are non-formal and will not easily be bound into meaningful tri-partite partnerships, formal contracts or regulatory mechanisms.

The contrariness of urban sanitation

Effective urban sanitation requires integrated thinking across a range of areas: excreta management, drainage, management and transport of wastewater (and, ideally, stormwater), solid waste management, hygiene behaviour, public and environmental health management, innovative financing, and so on. From the perspective of government, a useful starting point in any urban sanitation improvement initiative is to bring together the range of stakeholders involved in urban planning, public health and service delivery, and agree on common goals and approaches that serve the needs of the urban poor. Yet this is the exception, not the rule. Co-ordinated action is common in programmes targeting rural areas, yet urban initiatives seem to founder around fragmented government responsibilities, and the daunting cost of conventional sewerage.

In rural areas, partnership programmes around social marketing and other approaches to building demand for better sanitation, have reported significant successes in motivating households to build their own toilets. The Community-Led Total Sanitation approach, for example, now spreading from South Asia into East Africa and elsewhere, activates and mobilises collective shame to trigger behaviour change and to end open defecation, and motivates individual households to invest in basic toilets. Local government works jointly with community leaders, health extension workers, community-based organisations and NGOs to build demand. Attention is also given to creating and supporting the supply chain for building materials and construction support for different sanitation technologies to meet demand. In Bangladesh and Maharashtra State in India, local entrepreneurs work in partnership with local government to bring materials to the villages to improve household facilities (WSP 2007a). What prevents these approaches being adopted in urban areas to overcome sanitation backlogs there, particularly where financial constraints preclude comprehensive sewerage provision?

Two fundamental challenges confound basic urban sanitation improvement for the poor: settlement density and tenure insecurity. These in turn are likely to make partnerships for sanitation improvement harder to mobilise and sustain, because the systemic challenges they raise range far beyond sanitation, while partnerships generally need quick wins and regular successes to sustain motivation and momentum among partners. For example, partnerships for rural sanitation improvement generally focus on simple on–site technologies like pit latrines and their permutations, but these are highly problematic in urban areas. There is seldom space in a dense settlement to dig a second pit when the first pit fills. Moreover, higher loading ratios (a consequence of more users per toilet than is typical in rural areas), compounded by poor drainage and inadequate solid waste management, tend to rule out effective waste digestion. Consequently, the pits fill up and need desludging. Pit emptying is a dreadful job, and there are few simple answers to the problems of where or how to dispose of pit sludge. One remedy is to increase the number of toilets, to reduce the loading ratio and extend the service intervals between pit desludging. But this option fails to take account of the realities of extraordinarily dense settlements. Where people compete for space to erect a simple dwelling or compete for access to a rented dwelling, living space is prioritised over space for a toilet, particularly when the site can generate rent (Schaub-Jones, Eales and Tyers 2006).

A second challenge is that a minority of poor urban households have secure tenure, and thus conventional demand-responsive approaches (often co-ordinated through cross-sectoral partnerships), which focus on mobilising residents to invest in improved facilities, have little traction. Rental accommodation is the default for most urban newcomers, poor or otherwise. At the lower end of the market, other concerns generally crowd out improved sanitation as a priority for both tenant and landlord, and without tenure security, there are few incentives for tenants to invest their own resources in a toilet. The result is that many tenants have no option but to share the few available toilets, or rely on other expedients like packet toilets ("flying toilets", or excreta tossed away in a plastic bag). Informal settlements add a further dimension

to insecure tenure. Urban planning and formal settlement development generally lag far behind the pace of rural-urban migration and urban growth, with the result that many settlements are unplanned and unauthorised. Where the future of the settlement itself is uncertain or the authorities are reluctant to concede that the settlement is de facto permanent, significant investment in improving living conditions and services is unlikely (Eales and Schaub-Jones 2005). Thus a partnership aiming to tackle sanitation improvement in this environment would need to grapple with a far wider range of issues, dynamics and players than in situations where users have secure tenure and are relatively settled.

Urban settlement densities mean that sanitation requires a service to remove the accumulated waste, because there is seldom sufficient space on site to absorb, digest or dispose of the waste effectively. Thus, unlike rural sanitation improvement programmes, which focus on behaviour change and motivating users to invest in a basic toilet, urban improvement programmes need to go much further, and give attention to what happens next: what happens when the pit, septic tank or conservancy tank is full? How and where is the waste disposed of? What roles must be addressed to make the service work, and who should perform them?

Box 1. Lesotho's urban VIP toilet programme

Lesotho's Urban Sanitation Improvement Team (USIT) programme, active in the 1980s and 1990s, is an example of an integrated approach, with a donor-funded team supporting government-run hygiene promotion campaigns, builder training programmes and a loan scheme to help households build their own VIP toilets. Backing this up was a pit-emptying programme, using a mix of proprietary and conventional vacuum tankers to remove waste from full pits. Over time, two weak links emerged: firstly, the budget for construction loans was cut, and commercial lenders proved too expensive for most would-be borrowers; secondly, the pit-emptying service collapsed in the face of several challenges. User demand was erratic as service intervals per pit varied widely; the cost per pit was comparatively high; spares were hard to source for the proprietary vacuum tankers; and conventional vacuum tankers found it more profitable to focus on conservancy tanks, where the waste was more fluid, easier and quicker to remove, and there was less chance of solid waste clogging their hoses (Schaub-Jones et al. 2006). Similar challenges have been documented in Maputo, Nairobi and Dar es Salaam (Eales 2005).

Perhaps the essential first step is to ensure that policy speaks to the technologies in use, and that municipal by-laws are pragmatic. For example, it is in everyone's interest to safeguard public and environmental health by controlling where and how pit sludge is disposed of. However, unless pit emptying service providers have access to affordable and accessible waste transfer stations or dumping sites, such as managed sewer access points with screening to remove grit and solid waste, then pit sludge is likely to be dumped illegally. Fining transgressors will penalise those who rely on their

services, as service providers are likely to withdraw from the business or raise their fees. To a large degree, the presence of simple pit latrines in an urban context reflects a failure in public planning and service delivery; responsibility for the consequences of full pits cannot be left to the users alone. In an ideal world, the structure owner or landlord should be held responsible for ensuring each dwelling has a toilet and that no toilet undermines public or environmental health; but proving ownership and responsibility might not be straightforward, and the landlord will, without question, pass on the cost. Even a user-focused strategy, like "naming and shaming" might have little impact where social cohesion is limited and users perceive themselves to have few alternatives to current practices.

The on-site sanitation service "delivery" chain

The sanitation delivery chain is profoundly different to the water supply chain. For a start, good sanitation requires a blend of enabling infrastructure and of personal behaviour, which cannot be "delivered". A drinking water supply entails the distribution of water from a central point; urban on-site sanitation entails the collection of excreta at a range of discrete points (household or communal toilets), and its eventual secondary collection and transport to any one of a number of disposal sites. On-site sanitation is definitely not the inverse of water supply, in the sense of collecting and directing effluent to a central wastewater treatment facility. It involves the collection and transfer of waste from one decentralised site to another for disposal and, as such, has more in common with solid waste management, albeit that sanitation waste is more odious and hazardous.

A recent BPD water and sanitation study found that urban on-site sanitation is strongly segmented: providing access is one component; emptying facilities is another; and treating or disposing of waste is a third. All three are essential for the proper functioning of a pit toilet, but each segment is supported by different service providers, who are generally informal micro-entrepreneurs. This fragmentation has profound implications for partnerships, because it is very difficult to link the three segments and the role of players together into the kind of coherent delivery chain needed for effective service delivery (Schaub-Jones et al. 2006).

There are very few durable examples of on-site sanitation partnerships that integrate the different segments across toilet building, pit emptying and waste disposal. In South Africa, following the government's commitment to provide at least basic sanitation to all, eThekwini Municipality in Durban has responded to the reality of tens of thousands of full toilet pits by taking complete responsibility for on-site sanitation provision: from VIP toilet construction, through manual pit-emptying, sludge transport and waste disposal. The municipality funds and manages this delivery chain in its entirety, through a range of contractual relationships with private sector service providers, and is innovating in a range of ways to manage and regulate the performance of its subcontractors. There is no expectation or requirement that residents should contribute to the funding or operation of this service in any way.

But is the relationship between the municipality and the service providers who undertake pit emptying a partnership, or is it an example of innovative outsourcing and contract management by local government of a function needed to support a supply-driven VIP-based sanitation service? A partnership implies shared responsibility; outsourcing suggests that part of a defined responsibility is delegated to a third party, while accountability remains with the "outsourcer". A partnership surely requires more than commercial benefit or a contractual relationship. Perhaps the key partnership is the relationship between eThekwini's technical department and the political representatives of the people whose toilets are being desludged. The beneficiaries are barely involved; their needs and interests are articulated through their elected councillors and ward representatives. The councillors seek to ensure effective servicing and maximise local job creation, communicating details of the desludging programme to local residents, and identifying local residents for employment by the service provider in local pit emptying crews. The municipality liaises with the local representative structures to ensure smooth access for their contracted service providers to users' properties and their toilets. The result is a sound working relationship between the municipality, its outsourced service providers and the political representatives of the beneficiaries, and an innovative approach to getting the job done. If this is the real partnership, perhaps its defining characteristic is the interdependence of the role of players; remove any one of the three and the project would grind to a halt.

What distinguishes Durban is that the municipality has taken responsibility for on-site sanitation servicing at household level. South Africa's rights-based sanitation policies do not specify that municipalities must *empty* pit toilets; they mandate municipalities only to provide (not service) a VIP or equivalent basic toilet, and define municipal servicing responsibilities only in the context of reticulated (networked) services. But eThekwini Municipality inherited from the previous administration more than 100,000 VIP toilets (many of them now full) located in relatively dense settlements, and has accepted that it must provide a desludging service or face a public health disaster. In other countries, urban sanitation tends to be fragmented across the local authority, and accountability is diffuse: the utility is responsible for the reticulation network, and not household connections into that network; the municipal waste management authority is responsible for solid waste, not sewage sludge; environmental health is responsible for minimising health risks, but in most instances is reactive, not pro-active, around pit management; and so on.

A key gap in most urban management policies that speak to sanitation is precisely the interface between household and public responsibilities, and a silence in the policy framework around any kind of dry sanitation in an urban context. By-laws presuppose waterborne sanitation or septic tanks, and few local authorities have seriously considered what their responsibilities might need to be in facilitating pit emptying or safe disposal of pit sludge. Precisely because sanitation is multi-disciplinary and cross-sectoral, effective partnerships require extraordinary commitment to step into areas where needs are evident but responsibility is not defined. This calls for strong champions, lasting commitment to see through the accomplishment of key tasks, and

ideally a clear policy framework. However, even sound policies are not necessarily sufficient to achieve durable working partnerships.

Sewer systems overcome the segmentation of urban on-site systems by using water to transport waste to a centralised treatment facility, but their cost is enormously high – not merely the capital cost of the infrastructure and the recurrent operating costs, which together far outweigh the costs of a potable water supply, but the growing resource costs of deliberately polluting fresh water with human excreta and other wastes. Given the spill-over consequences for water quality for people living in unserved areas, conventional sewerage is profoundly anti-poor (Paterson et al. 2007). Sewerage systems also need to recover their operating costs. Subsidised tariffs on the scale required are often not feasible, and unsubsidised tariffs are often not affordable to users. By the same token, PPPs for conventional sanitation with sewers have limited prospects for success at scale, precisely because of profound risks around cost recovery where a significant proportion of users are poor, particularly where government looks to the private sector to raise the finance. And because utilities focus on water and wastewater management, they are seldom equipped to support on-site services, especially dry systems. They generally lack the skills, equipment and necessary management systems to support dispersed discrete installations that fill at different rates.

Given these profound challenges, how are the sanitation service needs of urban residents living in conditions of poverty being met? Globally, the reality is that the majority of slum residents are severely underserved. There are not enough on-site toilets, which places enormous pressure on those toilets that are available. The majority are simply receptacles for excreta, rather than conveniences that support hygiene improvement, and when they fill, the waste is often dumped at the nearest available site – often a gutter, stream, river or mound of solid waste. Systems with sewers can be even more problematic: flush toilets are particularly vulnerable to failure through clogging and blocking, especially when shared by multiple users. If there are problems with service payments, the water supply is often disconnected, which means the toilet cannot be used. This is particularly common in tenements where opportunistic landlords collect rent, but do not pay the service bills.

There are, however, at least two areas showing rich potential for improving sanitation services to urban people living in poverty: managed communal toilets, and condominial sewer systems. In each, tri-partite partnerships are integral to their success, with each partner taking responsibility for a component of the service in ways that enable delivery in areas that would otherwise not be served.

Community-managed toilet blocks

Communal or public toilets are a positive response where insecure tenure and a shortage of space make household toilets problematic. But problems with maintenance, ownership and safety mean they often fall into disuse, in spite of the huge need for sanitation. Involving residents in a demand-driven process has been found to be the best way to keep these services running, as the following summarised case studies show.

Box 2. The Greater Mumbai Slum Sanitation Programme

The Greater Mumbai Slum Sanitation Programme was launched in 1997 as a component of the World Bank-financed Bombay Sewage Disposal Project, which aimed to improve living conditions across the city through improved sewerage. Over time, the programme has delivered well over 300 toilet blocks and more than 5 000 seats.

The Municipal Corporation of Greater Mumbai (MCGM) contracts with an NGO or contractor to take responsibility for the four components of the programme: raise awareness about the programme among residents; work with them to form a CBO to lead local planning, construct the facilities using a contractor; and hand the facilities over to the CBO to operate and maintain. Slum communities are involved in project implementation from the planning stage, and are required to 'express their willingness to participate' in the project by making a financial contribution to the long-term running cost of the facility, and getting involved in planning and implementation of the toilet block.

Before construction begins (through an NGO-contractor partnership), each resident family in the project 'catchment' contributes an agreed cash amount which is set aside in a fund for maintenance. The Municipal Corporation funds the construction of the facility, largely using loan finance, and once construction is complete, the CBO signs a Memorandum of Understanding with the Municipal Corporation and takes responsibility for maintaining the toilet block. Users buy monthly family tickets or pay per use. Residents maintain the facilities themselves through CBOs or small local entrepreneurs, with operation and maintenance costs borne by the community (Moulik and Sen 2006; Sansom 2006; WSP 2007b).

Box 3. Communal toilets in Nairobi's informal settlements

Roughly 60% of Nairobi's population live in informal settlements, and source their water from non-formal water providers who sell water from illegal connections into the utility's network. Sanitation in these slums is generally grim, with a critical shortage of pit toilets and virtually no flush toilets. In Kiambiu, a Nairobi informal settlement, the catalyst for sanitation improvement was the decision of a community group to focus on clearing up the garbage that littered the settlement. That group attracted the attention and support of a leading NGO, Maji na Ufanisi, and together they began to explore options for drainage, water supply and sanitation improvements. Following participatory planning workshops where residents identified improved water and sanitation as their priority need, a range of external partners lent support and provided funding to the CBO to contract local builders to construct four ablution blocks, each providing toilets, showers and a water kiosk. In the toilet section, users squat over a concrete channel serving a row of booths, and a crude cistern sluices the excreta into a vast conservancy tank, or,

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where available, a sewer pipe. The CBO employs several staff to run and clean each facility and sell user tokens which fund operation and maintenance. The ablution blocks currently service a quarter of Kiambiu's residents, and there are plans to build further blocks in Kiambiu and elsewhere. There has been a dramatic improvement in the broader cleanliness of Kiambiu.

The city's water utility has now formally joined this partnership, and a formal Memorandum of Understanding has been drawn up. The utility has upgraded parts of Kiambiu's pipework and installed meters to measure the water supply to each ablution block, and signed a contract with the CBO permitting it to sell the water through kiosks. The discounted bulk water tariff enables the CBO to sell water to residents at a lower tariff than non-formal water sellers, while the formalisation of the water supply enables the CBO to offer reliable water, toilet and shower amenities.

Notwithstanding the significance of Nairobi's water utility forming a formal partnership with an NGO and a number of CBOs to improve water and sanitation delivery to the urban poor, the context is critical to understanding the willingness of the utility to commit its own funds for infrastructure development, and the drivers from the city and the utility's perspective. This understanding is critical to weighing the prospects for replication and scaling up elsewhere. Many years of activism by CBOs, supported by determined lobbying by major league donors and a change in political leadership, led to a change of heart by the Nairobi City Council, and recognition that Nairobi's informal settlements need to be acknowledged and developed as a permanent feature of the city. However, the city and the utility have not yet gone so far as to commit their own funds for infrastructure development for sanitation, and the toilet blocks are funded by donors. Meanwhile, the city's wholly-owned water utility, the Nairobi City Water and Sewerage Company, is facing growing water scarcity and a non-revenue water ratio (NRW) of 45%, resulting from a combination of illegal connections, poor revenue management and decaying infrastructure. (NRW covers, for example, leaks and spills in the network, faulty meters, which means the utility under-bills actual consumption, or fixed fees where the cost of actual consumption is far higher than the fee). It is vital that the utility seeks to reduce losses in the informal settlements where the majority of Nairobi's residents live. Improved water management is the driver for the utility; improved sanitation for residents is an adjunct benefit. Nonetheless, each partner benefits from the new arrangements, and the result is win-win outcomes all-round. Four blocks have been constructed so far in Kiambiu, with others under construction elsewhere in Nairobi.

(Personal communication with NGO and CBO members in Nairobi, July and November 2007; Mugo 2006)

Communal toilet blocks are proving highly effective, because they concentrate usage in one place and so make sewer connections, management and operation financially viable; user fees can be kept as low as possible to keep the service affordable even to the poorest without jeopardising sustainability, and linkage with water sales can enable a degree of cross-subsidy. These blocks readily lend themselves to partnership arrangements, where the skills and the strengths of different partners can be leveraged to best effect. In some examples, the municipality "subcontracts" to a service partner such as Sulabh International; in others, the driver is not the municipality, as funding comes from donors, and the municipality's participation is more symbolic than anything else. But these partnerships, in all their forms, are a valuable way of developing understanding and trust, in support of pro-poor service delivery between people from different sectors, organisations and strata who previously have had no experience of working together.

But communal toilets are not a panacea. They do not address issues of personal safety adequately, especially for women and children at night. The toilet block itself can be secured with good lighting and controlled entrance, but residents still need to walk through unsafe alleys to get there. This means that many people will not use them at night, and continue to use a plastic bag or bucket or practise open defecation. But the hard reality is that public safety and environmental health is precarious in many settlements. Communal toilets may fall short of the ideal, but they are still improvements, and these modest incremental changes may deliver more enduring benefits than bolder schemes that fail.

Condominial systems

Sewerage systems have the advantage of taking care of both excreta and wastewater by providing a closed channel to transport waste to an off-site treatment facility. But the cost of a conventional sewer connection is often prohibitive for people living in poverty. As an alternative, pioneers in Brazil developed condominial sewers, which run at shallow depths within household boundaries, to enable users to connect into urban sewer networks at greatly reduced cost. This approach has been used in Brazil since the mid-1980s, and has now been adopted to some degree in urban settlements in Bolivia, Peru, Paraguay, Ecuador, Indonesia, Pakistan, South Africa and elsewhere. Cost savings are achieved during installation through shallower excavation, simplified inspection chambers instead of costly manholes, reduced pipe diameters and layout lengths, and reduced need for heavy construction machinery (Vargas-Ramírez and Lampoglia 2006). In case of breakage, system components are easier and cheaper to replace. As Paterson et al. note, "Low cost and community involvement help to ensure, even in low-income settlements, that a high proportion of households are connected to the system" (Patterson et al. 2007, p. 9).

The condominium model rests on a relationship of co-responsibility for services between the service provider and the user. Users are involved during the implementation phase (although Patterson et al. (2007) note that the degree of participation varies widely); and with training provided by the utility, supported by local CBOs and NGOs, users gain insight into how the system works and what the

consequences are of improper use. Improved user understanding contributes to better functioning of the sewer system, through reduced blockages. Residents are expected to take responsibility for local operation and maintenance (O&M) themselves, although in practice they often require significant support from the utility or other service providers. Particularly in settlements with changing occupancy, problems have emerged around local O&M, with newcomers not fully understanding the system and sometimes being unwilling to take on the responsibilities; others are not willing to undertake O&M without payment.

Alternative support arrangements can, however, be structured to address these maintenance challenges, because the overall benefits of condominial sewers merit serious consideration: they allow for networked sewers, which address the drainage and excreta management challenges of dense settlements at roughly half the conventional cost. Put differently, government can double the coverage for the same investment.

A review of some options

Remarkable though these examples are of partnerships around community-managed and condominial sanitation systems, they are the exceptions in the developing world. The Mumbai example draws heavily on experienced and well-resourced NGO partners and a capable and mature local authority that is able to raise significant loan finance and is willing to innovate. Pro-active Kiambiu residents are supported by an unusually strong NGO, a wealth of prominent donors and a water utility that is under pressure to reduce water losses. In Latin America the condominial system is financed largely by the utility, and is premised on facilitating local connection into an established sewer backbone. Without in any way diminishing the achievements of these partnerships, they are able to leverage a strong institutional environment, access to substantial grants or loans, and established water and sewer networks. This is atypical in regions where responsibility is fragmented, local government is still weak, NGOs are under-resourced and inexperienced, communities are fractured and service providers are mostly small scale and non-formal. In this context, prospects for sanitation partnerships able to deliver comparable infrastructure developments are limited.

This is particularly relevant where most people rely on pit latrines. With the exception of South African examples like Durban, where a combination of policy, creativity and good resourcing has meant the municipality funds, manages and regulates full service provision (while actively developing more sustainable alternative service models), there is little prospect of most local authorities accepting responsibility for an integrated pit toilet service, directly or in conjunction with service providers. Pit toilets, moreover, are an inappropriate technology for this kind of servicing, particularly in dense settlements, because of the hazards of handling thick, wet sludge. Indeed, it is unlikely that partnerships can resolve successfully the immense life-cycle challenges raised by urban pit toilets. Small-scale service providers tend to focus on discrete service components, and seldom even specialise in sanitation-related work. Builders tend to build toilets,

houses, store-rooms, and so on; manual pit emptiers generally prefer almost any other casual work; waste transporters move a variety of goods and materials; and so on. Thus the relationship between the user and the service provider is generally very brief and focused on a finite, task-based interaction, and is informal and has a fairly low cash value. These attributes are not conducive to effective regulation. There are examples of initiatives that have attempted to co-ordinate, aggregate or cluster these interactions across multiple users, to serve the interests of both users and service providers – for example, NGO-run pit-emptying schemes in Maputo, Mozambique (Eales 2005) – but it has generally proved difficult to reconcile the real costs of servicing an inappropriate technology with the affordability levels of the customer base, and so far local authorities have proved unwilling to fill the gap.

There is an urgent advocacy role for partnerships to build common understanding of the nature and extent of current service deficiencies, and to promote consideration of bold and innovative alternative approaches. This is not to suggest that partnerships should stop at advocacy; rather, a paradigm shift is needed if urban sanitation improvement strategies are to evolve to meet the immensity of the challenges we face. Partnerships will be needed to support, consolidate and act on each advance.

Box 4. From hazardous waste to valuable resource

If pit-based toilet systems are inappropriate in dense settlements, partnerships should perhaps explore the application of technologies that allow excreta to be collected as a resource, not as hazardous waste. Source separation systems that desiccate faecal matter greatly facilitate safer collection, management and re-use of solids. This approach surely lends itself to more promising partnerships. The capital cost of construction is less, as there is no need for a deep pit. A regular monthly waste collection service can be instituted, where dry bagged solids are collected and removed for composting, with little risk to the service provider. Collection and disposal can be regulated, either as an integral part of a water utility's revised mandate, or through the local authority overseeing the performance of service providers contracted by users or by itself. Urine could be collected, with wastewater, through simple public gullies and low-cost small bore or condominial sewers. Of course, source separation systems require the active co-operation of users, and the challenges here should not be underestimated. But where partnerships make people as end users the subject rather than the object of the intervention, their creativity and co-operation can be harnessed.

A good example of a partnership serving the cause of advocacy is the Citizens' Report in Kenya, which assembled detailed information on users' experience and perceptions of service delivery in three cities (Kenya Ministry of Water and Irrigation and Water and Sanitation Program – Africa Region – (WSP-AF) 2007).

Sector-wide partnership approaches need to recognise the specificity of sanitation challenges for the urban poor: settlement density, insecure tenure, drainage, waste

removal, affordability, limited social cohesion and so on, with an overlay of corruption and poor governance. These challenges are likely to be magnified as the urbanisation of poverty intensifies, in response to globalisation and climate change impacts on rural livelihoods. Condominial or simplified sewering is arguably the most appropriate and viable urban sanitation technology for people living in poverty, because it deals with both excreta and wastewater. But this approach presupposes reticulated water supplies in close proximity to where people live, in addition to simplified sewers. The example of Delhi's failing water services, and growing reliance on inadequate tankered supplies, provides a harsh reality check to assumptions about the availability of water. Even more importantly, sewerage networks require the local authority to recognise and authorise informal settlements and include them in formal planning frameworks. These are not small challenges, but sanitation in slums cannot be improved in isolation. Drawing on their experience in the Greater Mumbai slum sanitation programme, Moulik and Sen argue that "the problems of service delivery to slums are rooted in the slum, and to housing and land policies in cities, and reforming these laws and policies hold the real answer" (Moulik and Sen 2006, p. 17).

Box 5. Kenya's Citizens' Report Card

The Citizens' Report Card (CRC) was undertaken in Kenya in the context of wide-ranging water sector reform which seeks to improve services while improving stakeholder and beneficiary involvement in service planning and operations. NGOs led the CRC investigation on behalf of a multi-stakeholder consortium in each of the three cities which represent local government, the national water regulatory agency, NGOs, residents' associations and donors. Qualitative methods (focus groups) and quantitative methods (a statistically-representative random sample of households across five income strata) were used to assess users' experiences and perceptions. This generated a wealth of information which is now supporting meaningful dialogue. The findings have allowed the concerns of consumers to come to the attention of policy and decision makers, and have given consumers and civil society organisations a robust tool to apply pressure on their water utilities and government. The CRC is now being used as a basis for interaction between citizen groups, service providers and policy makers to explore ways of improving service provision (Kenya Ministry of Water and Irrigation and Water and Sanitation Program – Africa Region – (WSP-AF) 2007).

Wide-ranging policy reform is needed to acknowledge the gap between existing policy and current reality, to acknowledge the value of multi-stakeholder partnerships and service partnering arrangements, to support government improvements to service provision and to reassess public finance priorities. Barbara Evans and others have pointed out that public funds in Britain in the late 19th century were made available for large-scale investment in sanitation once it was demonstrated that preventing environmental degradation was cheaper and more effective to society than continuing to pay the direct and indirect costs of the deteriorating sanitation situation in urban

slums and poor rural communities (Evans 2006). The current rate of slum growth dwarfs any 19th century experience by several orders of magnitude, and the broader societal impacts of unmanaged effluent discharge compound growing concerns around declining water quality and scarcity. Public policy and public finance need to work together to close the gap between the orderly serviced settlements the planners intended and the unserviced settlements that exist in reality.

Box 6. Key features of the successful partnerships described here

- Direct involvement of end users or their CBO representatives
- Strong NGO support to CBO establishment and engagement
- Mature local government willing to explore alternative approaches
- Willingness to innovate and tackle grey areas where needs are evident but policy and responsibility are not defined
- Recognition of interdependence
- Access to grant and loans
- Strengths and competencies of different role players respected and valued
- Users acceptance of shared responsibility for the overall functioning of the system, through payment for use, and through engagement with their CBO

Concluding comments

A small but growing number of successful partnerships are supporting sanitation improvement for poor urban households, but the sector should be cautious in assuming that models that have worked well for water can be extrapolated to sanitation. Sanitation collection is not just the inverse of water supply, and there is no simple sanitation equivalent of a small-scale water provider extending the distribution network through small-volume water sales, with consumers protected through simple regulatory tools. Existing regulatory models in the water and sanitation sector speak primarily to utilities, not small-scale providers, but reticulated sanitation reaches a declining proportion of those who need servicing, while the high capital costs of extending coverage deter most small entrepreneurs, particularly in unauthorised settlements. On-site sanitation service provision is highly segmented, with different micro-entrepreneurs serving different components of the delivery chain in brief, irregular, informal interactions with low cash value. Regulation, though desirable, is a lesser priority than supporting, incentivising and enabling the work of these small scale providers who fulfil a crucial need.

Partnerships are not a substitute for action by government, nor do they absolve government of responsibility for investing in service provision. But they do hold the potential to harness fresh approaches to achieve public sector objectives, leverage capacity and broker the relationships needed to overcome mistrust, disengagement, poor accountability and the fragmentation that characterises the sanitation sector. A key feature of the partnerships described above is mutual respect, and recognition

that the whole can be greater than the sum of the attributes and competencies of the constituent partners. Because sanitation is multidisciplinary and cross-sectoral, effective partnerships require extraordinary commitment to step into the grey areas where needs are evident but responsibilities and accountability are not defined. Engagement through partnership – like Kenya's CRC initiative – can clarify current challenges and inform the direction of new policies; policy debate can review public expenditure priorities, and support engagement with residents to explore possibilities around co-responsibility for service provision. Giving priority to regulation is premature in most instances, given the relative fragility of many partnering arrangements. Local accountability mechanisms, mediated through CBO and NGOs, are likely to be more effective.

Alongside exploration of service partnerships with a capital P, we should perhaps remain alert to opportunities for more modest "partnership moments". In relation to service provision for the poor, an important recognition is that service delivery is not a one-way supply process; it is dynamic and multifaceted, and requires reciprocal interaction, communication and ongoing innovation. There is an enormous need for partnerships that build understanding and communication and that help to close the gaps between people and government, within government, between local and national government, within civil society and so on. Often the most valuable are non-formal and unstructured, built around recognition of common interests despite profound difference.

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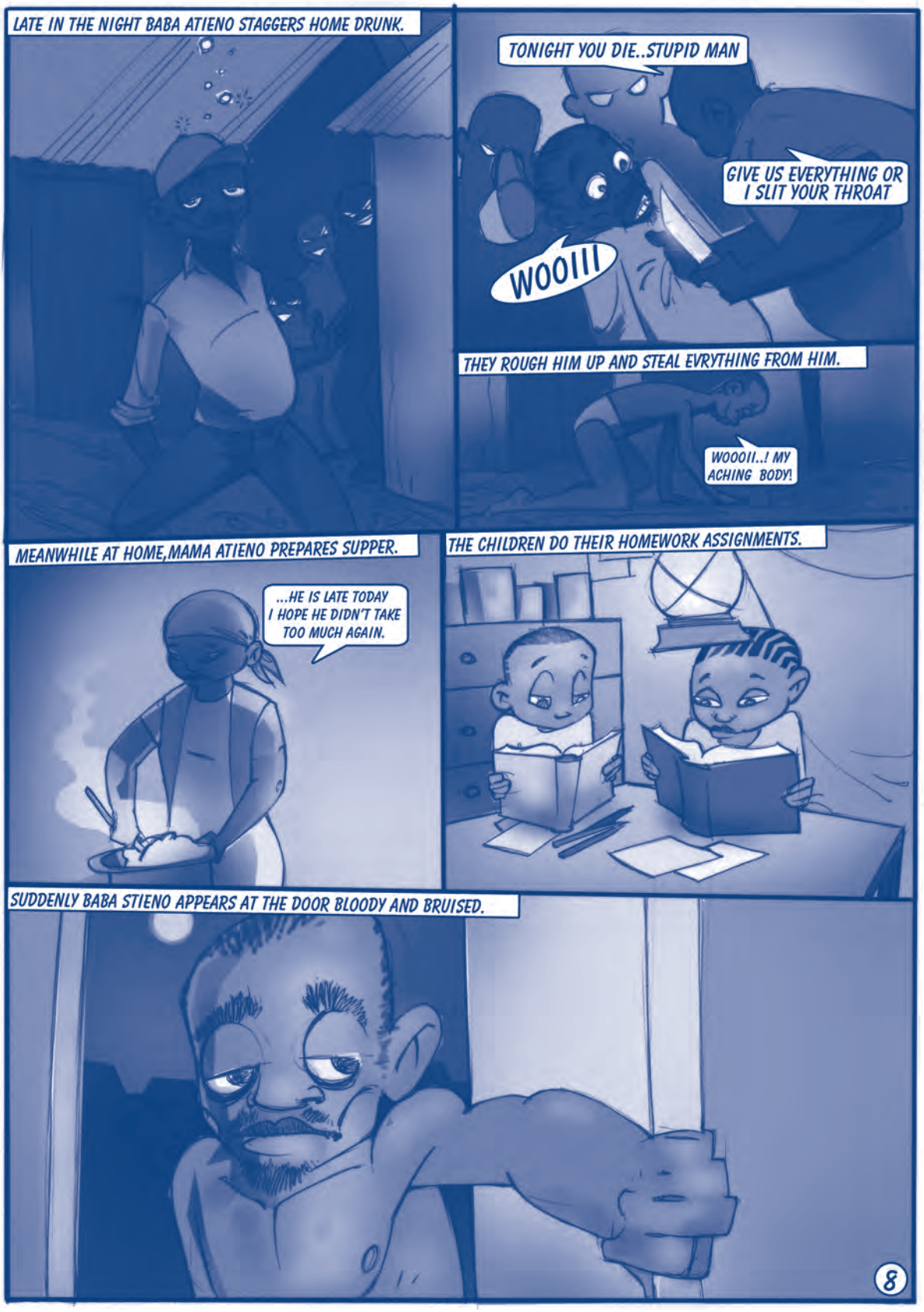
LATE IN THE NIGHT BABA ATIENO STAGGERS HOME DRUNK.
TONIGHT YOU DIE..STUPID MAN
GIVE US EVERYTHING OR I SLIT YOUR THROAT
WOOIII
THEY ROUGH HIM UP AND STEAL EVRYTHING FROM HIM.
WOOOII..! MY ACHING BODY!
MEANWHILE AT HOME,MAMA ATIENO PREPARES SUPPER.
...HE IS LATE TODAY I HOPE HE DIDN'T TAKE TOO MUCH AGAIN.
THE CHILDREN DO THEIR HOMEWORK ASSIGNMENTS.
SUDDENLY BABA STIENO APPEARS AT THE DOOR BLOODY AND BRUISED.

6. Urban sanitation technologies: the challenges of reaching the urban poor

Richard Holden [South Africa[1]

In the densest urban areas of the world, it is impossible to treat and manage excreta and greywater on site. Instead it must be transported out of the city and be safely disposed of. The problem of delivering sustainable sanitation services in these conditions is one of scale, to deal with the excreta and greywater from millions of people. Particular care must be taken when extrapolating results from pilot projects of a few hundred households to whole cities, due to the institutional complexities that arise and the sheer volume of sewage.

For 2,000 years, various societies have used a piped system with water as the transport medium in dense urban areas. The problem then as now has been an inability to treat the sewage before discharge into the environment. This is demonstrated by the fact that only 8% of the sewage in the developing world is currently treated. Although the poor generate less greywater than the rich, mainly due to lack of access to water, this is not a state of affairs that is desirable or likely to persist. Any solution will eventually have to deal with vastly increased volumes of greywater.

Given the institutional complexities surrounding dense urban slums it is unrealistic to expect that sustainable sanitation services can be provided. The objective is to minimise risks as far as possible so as to maximise the health benefits to the residents. This paper discusses the various technical options and makes recommendations for how to achieve this.

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Introduction

This paper sets out to explore the challenges of achieving sustainable sanitation faced by a very specific group of people: those living in dense urban slums where on-site treatment and disposal of excreta, greywater and solid refuse is not possible due to the high density of dwellings. According to UN-Habitat (2003), by 2030, unless there are major changes to current predictions, 56% of the world's population will live in an urban environment with the majority of growth being in developing countries and through the expansion of existing slums.

Sustainable sanitation requires that all the components are collected, transported and disposed of or reused, in a manner that minimises harm to the environment. In dense urban areas, this requires a high degree of co-operation amongst residents and between residents and government institutions, which also require the institutional ability to regulate. This has been a problem since the advent of urbanisation.

Although sanitation covers a broader remit, this paper will concentrate on how to deal with urine, faeces and greywater in the urban environment of the developing world. In slums on the periphery of the cities, peri-urban areas, etc. there is often sufficient space between the houses for the householders to manage their own sanitation. Greywater, which EcoSanRes (2008a, 1) defines as all household wastewater except toilet water, and urine can be infiltrated into the soil and faeces can be dealt with through digestion, dehydration or composting. These solutions can be replicated on a household by household basis. Gounden, Pfaff, Macleod and Buckley (2006) argue that this has been achieved in the water and sanitation programme in the peri-urban areas of eThekwini (Durban) Metropolitan Municipality, South Africa.

In dense urban slums, however, solutions must be implemented at slum level, not just for individual households, and this introduces the problem of scale. A sustainable solution must be able to remove and treat the waste from 500,000 people (the size of slums such as Kibera and Dharavi), not only from the slum, but also from the surrounding formal areas, which are often faced with the same problems. Most solutions promoted as an alternative to waterborne sewage have neglected this issue, with the result that when solutions have been taken to scale, there have been adverse consequences.

The main difference between slum areas and formal settlements is the volume of greywater and solid refuse generated: the general rule is that those who have a higher income and water within the house use more water and generate more solid refuse. Formalisation and improvement of slum areas would, therefore, eventually raise the requirements from the sanitation system to match those in adjacent formal settlements. Future requirements, therefore, need to be taken into consideration when implementing sanitation solutions. The densification of urban areas also creates the same challenges in that an on-site solution, which might have been possible when the area was first urbanised, is no longer viable when buildings and hard surfaces occupy

too great a portion of the site. This paper examines the point when this crossover occurs for different technologies, and the implications of this.

The paper looks at how to improve the current situation in the slums of the world. EcoSanRes (2008b) have demonstrated in the Erdos Project in Dongsheng, China, that it is possible to implement an alternative means of sanitation to waterborne sewage. However, this has been implemented in a new, well-controlled urban environment with high income households (relative to slum dwellers) and sufficient space to dispose of the products on site.

Defining the problem

In order to solve a problem it is necessary to define it. Lack of definition often causes confusion and leads to partial or inappropriate solutions, such as the disposal or reuse of excreta without dealing with greywater, or the application in dense urban areas of technologies which demand on-site disposal.

Application of technology is one of a number of integrated measures required to improve sanitary conditions. Although sanitation is often understood as dealing with urine and excreta, the definition of sanitation is much broader and concerns the conditions relating to public health. To improve sanitation, the entire environment needs to be looked at in a holistic manner so that improvements in one area are not undermined by the neglect of another, and to prevent the problem being transported elsewhere with the discharge of untreated sewage or indiscriminate tipping of solid waste. Kalbermatten, Middleton and Schertenlieb (1999, p. 5) have defined this holistic approach as "environmental sanitation".

In South Africa the Strategic Framework for Water Services (Department of Water Affairs and Forestry 2003, p. 46) defines sustainable sanitation as:
"The infrastructure necessary to provide a sanitation facility which is safe, reliable, private, protected from the weather and ventilated, keeps smells to the minimum, is easy to keep clean, minimises the risk of the spread of sanitation-related diseases by facilitating the appropriate control of disease carrying flies and pests, and enables safe and appropriate treatment and/or removal of human waste and wastewater in an environmentally sound manner."

The Sustainable Sanitation Alliance has developed a similar definition for "ecological sanitation". The argument has been put forward that sanitation is only sustainable (ecological sanitation) when the loop is closed and the products are reused in agriculture. Although this is achievable with on-site reuse in rural and peri-urban environments, it has yet to be demonstrated at scale in the urban environment.

In this paper the South African Strategic Framework definition will be used as the benchmark against which technologies will be considered as sustainable or not in dense urban slums.

Another problem is the definition of urban slums. Davis (2006, p. 31) cites Soweto (Johannesburg), Cape Flats (Cape Town) and Inanda (eThekwini) as three of the 30 mega-slums of the world. Although within these areas there are pockets of dense informal settlement, large parts of the Cape Flats and Soweto comprise fully serviced formal settlements where the residents have full title to their properties. Inanda in the peri-urban area of eThekwini is a mixture of formalised township and tribal area, where chiefs grant permission to occupy, which is then recognised as formal title by the government.

None of these areas meets the definition drawn up by The United Nations Expert Group Meeting in Nairobi in October 2002, which states that a slum combines to various extents, the following physical and legal characteristics (excluding the more difficult social dimensions):

- Inadequate access to safe water
- Inadequate access to sanitation and other infrastructure
- Poor structural quality of housing
- Overcrowding
- Insecure residential status (resulting in arbitrary demolition of property)

This paper uses the above definition with the additional characteristic that in dense urban slums, it is not possible to treat and dispose of excreta and greywater on site.

Urban areas: transportation and treatment of waste

Agrarian societies throughout history have successfully avoided solid waste pollution; however, many cities and towns have not. Although varying in degree and intensity, the urban refuse problem is exacerbated by limited space and dense populations. New ways of dealing with waste have progressed slowly.

In ancient cities, waste was left on the floors of homes or simply thrown into the streets, causing their levels to rise and ground floors to become basements, with further stories being constructed above. Many of the tell mounds in the near east, where the cities were constructed of mud block, show this progressive increase in ground level as successive levels of waste were sealed under the road surface.

In the period 800 BC to the third century AD, Rome developed a sanitation system that brought freshwater into the city via aqueducts and took excreta, wastewater, stormwater and refuse from the streets out via a sewer reticulation, and discharged it untreated into the River Tiber. Such a system was necessary as the majority of the inhabitants (1.25 million at the height of Imperial Rome's influence) lived near the centre of the city in three-to-six storey apartment buildings so that they could easily walk to the main centres of attraction. A waterborne system was necessary as the numbers of people and the densities would have overwhelmed any cartage system.

The reason for living near centres of attraction remains, and so the poor continue to crowd into slums close to the city centres rather than move to lower density areas on the periphery. Households in peri-urban areas can spend up to 30% of their incomes on transport, or as much as three to four hours a day walking to and from work and school. For this reason, many slum dwellers prefer the densely populated inner city slums, rather than living on the edge of the city, where conditions might be more tolerable but the cost of living is higher.

In ancient times regulation was needed to ensure the effective functioning of the systems. In 500 BC, Athens enforced ordinances against the throwing of garbage into the streets and required the scavengers to dispose of waste (untreated) at least a mile from the city walls. In Rome, where household connections were only provided to the rich, there is significant evidence in the archaeological and written record that illegal connections were a major problem, putting a strain on the city's water supply, just as in many developing countries today lack of regulation and enforcement is a major problem affecting the sustainability of schemes.

Demographia (2001) states that in the early 19th century the population of London doubled from 959,310 to 1,949,277. Until this date it was possible to remove "night soil" by cart for use as fertilizer on fields around London. As the population spiralled, the cartage system was unable to cope and cesspits overflowed into open sewers or streams and thence into the Thames.

As London obtained most of its drinking water from the Thames, this made Londoners particularly vulnerable to waterborne diseases. The first cholera pandemic began in India in 1817 and spread outwards to Europe. London's first case occurred in February 1832, and at least 6,000 people died in the capital. An outbreak in 1848-49 killed 54,000 people in Britain (14,000 in London) and 31,000 died in 1853-54 (10,000 in London). It was not until 1854 that John Snow conclusively identified the link between contaminated sewage entering the drinking water and cholera. In 1865, a system was constructed to intercept sewage flows discharging into the Thames in London and pipe it to a point below the Isle of Dogs, where it was released on the outgoing tide into the Thames. In 1887 it was recognised that this method of disposal was not acceptable and solids were settled out of the effluent before discharge into the Thames, the sludge being carried out to Barrow Deep beyond the mouth of the Thames. Today, sludge is incinerated or pelletised for use in agriculture.

Whilst the developed world has made progress in treating sewage before discharge, it remains a problem in the developing world where, according to UN-Habitat (2003), only 8% of sewage is treated. It seems unthinkable that 154 years after the link between faeces and cholera was established, the environment is still polluted with untreated sewage, and the vicious cycle of infection continues. Nevertheless, Nevondo and Cloete (2008) state that cholera is currently in its seventh global pandemic.

The poor in the dense urban slums are the most vulnerable to infection due to:

- inadequate and restricted access to safe drinking water and sufficient quantities of water for personal hygiene;
- lack of removal and treatment of excreta;
- lack of removal of solid waste, particularly the organic fraction, which attracts vermin.

Pagano (2000) argues that slums are often located at the receiving end of the waste stream from higher income residents, as in Payatas, Manila, located on the municipal rubbish dump to enable the residents to be close to work opportunities of scavenging. To solve the sanitation problem, therefore, often requires a far more holistic intervention than simply providing technology.

The institutional context

Technology does not fail humans; humans fail technology if the introduced technology cannot be sustained in the socio-economic, personal or cultural environment. The users are often blamed for the failure but the reality is that failure occurs because the technology is inappropriate to the circumstances.

Every technology has a specific set of operation, maintenance and institutional requirements for it to operate on a sustainable basis. These need to be considered when designing any sanitation intervention. Kalbermatten et al. (1999, p. 6) argue that despite the need for institutional arrangements to be taken into consideration during planning, sanitation interventions are often viewed solely as an engineering problem, and even then, not seen in the context of linkages with other engineering services. This lack of regard for the institutional and socio-economic environment has been widely demonstrated by the construction of waterborne sewage without the necessary treatment.

Personal or cultural perceptions also influence the acceptability and thus the sustainability of a technology. Wilke (2003) describes how it took her 18 months to fully accept a urine diversion toilet, even in a supportive environment where one person in the household understood exactly how the technology worked and could solve problems. The Economist (2008, p. 60) describes in India how people who empty toilets are socially excluded by the very people they serve, underlining the enormous disconnection people demonstrate between their own excreta, its impact on the environment and the fact that someone has to be exposed to their faeces in order to operate and maintain the system. Changing these perceptions takes time and the introduction of technology must match the rate of change to avoid rejection.

Changing perceptions is often hampered by the subsidies given to waterborne sewage and the lack of enforcement of environmental regulations. It is commonly found that the provision of water and sanitation services is underpriced, that tariffs are not recovered and that municipalities are not held accountable for the discharge of raw

sewage into the environment. The effect of this is that households have no incentive to adopt a technology that is more cost effective, as they see no financial benefit.

"Slums do not occur in a vacuum" (UN-Habitat 2003, p. 17). Despite easily recognisable similarities in terms of physical and social conditions and attitudes that surround slums, there are also very great differences between slums that reflect local cultures and conditions, accidents of history or politics, and topography or the built environment.

The size varies enormously. In some Asian cities, palaces are quite literally next to hovels, and there are no large identifiable slum areas of more than a few blocks whereas there are many slums around the world that are equivalent to cities in size. Dharavi in Mumbai, India, or Orangi in Karachi, Pakistan, house hundreds of thousands of households; Kibera in Nairobi, Kenya, has a population of 400,000 people. To a large extent, this is a function of the size of the city of which they are part. However, it is possible for a slum or informal settlement population to be larger than the city upon which it depends. For example, Ashaiman (in Ghana) has a larger population (150,000) than Tema (140,000), the municipality of which it is formally part.

Some slum areas, such as Dharavi, are working communities in their own right, with their own economy and social structure, whereas others, such as Kibera, are "black holes of misery and despair".

The permanency of structures also varies enormously, usually depending on how secure the residents feel, which is why the favelas of Rio de Janeiro consist of solid well-built structures in comparison to the plastic shelters alongside canals and on traffic islands in the slums of the Far East.

Apart from the physical characteristics of the slums, slum dwellers often have limited access to credit, the formal job market and social and economic networks due to stigmatisation and discrimination. This is accentuated when slums are located on the periphery of the cities and residents incur high transport costs to access jobs, markets, schools and the centres of administration of public services.

In order to diminish the chances of immediate eviction, settlements frequently develop on land that is unsuitable for any other purpose, such as railway reserves, canal and river banks, steep (and unstable) slopes, flood-prone and swamp land, and refuse landfill sites. The choice of site greatly influences the types of services that can be provided. The size, location, condition and resilience of squatter settlements will be determined not just by the characteristics of their residents, but more importantly, by the political context of official tolerance or intolerance towards them.

Formal recognition of slums is important in the development of sanitation services, particularly where a communal service is required to remove waste that cannot be disposed of in the immediate surrounds. In Pune, India, 322 of the 503 slums have

been declared official. UN-Habitat (2003) contrasts this with Kibera, Nairobi, which, despite being first settled in 1918, remains unrecognised.

Unrecognised slums remain the hardest to deal with as the authorities will not provide any form of communal service or enforce any order. In such areas, it is up to the household to deal with their sanitation on an individual basis or to group together to deal with it communally.

There is no single solution for the dense urban slums of this world. Each has its own specific characteristics, which must be taken into consideration when designing a solution.

Technologies for the urban poor

The problem is still how to transport waste out of the cities and treat, dispose or reuse it in the most efficient and effective manner. This section looks at the different technologies available, the institutional arrangements required and where the crossover occurs between a household-managed and a communally-managed solution. It examines the arguments made for and against the different technologies and finally tries to give some guidance on the approach to be taken to dense urban slums.

Sida (1998, p. 2) estimates that each year the average person produces 50 litres of faeces and 400-500 litres of urine. The amount of greywater generated varies enormously (from 4,500 to 73,000 litres) and is dependent on the availability of the water supply and its proximity to the final point of use. In South Africa it has been found that although water reticulation systems for basic human needs, as defined in the Strategic Framework for Water Services (2003, 46), are designed for 25 litres/person/day, actual consumption is in the order of 12.5 litres/person/day due to physical constraints of carrying water. In contrast, an up-market household would expect to generate 150-200 litres/person/day of greywater in addition to 30-50 litres of water to flush the toilet.

The component that poses most risk to health is faeces. Beneson (1995) states that urine is usually sterile and only poses a risk in special cases, although odour is a fairly major problem. With greywater there is no consensus with regard to safety. Studies from the Office of Water Reclamation, Los Angeles (1992) and Holden (2004), Johannesburg, state that greywater that has not been stored poses very little health risk and leads to minimal build up of salt and fats in the soil. Faecal contamination from animals is already present in soil, and greywater does not pose any additional risk. Barker and English (2000) suggest that it is unlikely that disease can be transferred from greywater to vegetables and back to humans. However, their guidelines recommend that, to be on the safe side, greywater should not be used to water vegetables. By contrast the guidelines issued in Arizona, USA, and in Victoria and Northern Territory States, Australia, present greywater as a heavily contaminated resource to be treated with the utmost caution. In South Africa Carden, Armitage,

Winter, Sichone and Rivett (2007) also infer that greywater is heavily contaminated. However, their report looks at wastewater as it left settlements and not greywater as disposed of by the individual household.

The Los Angeles study, by far the most detailed and with conclusions backed by rigorous testing, concludes that the risk from greywater as disposed of by the household is low.

The smallest fraction of sewage, faeces, poses the biggest risk. The biggest fraction greywater, poses very little risk at the moment of disposal by the household, but becomes problematic in dense urban areas due to the volumes generated. In a situation where it is not possible to deal with all the fractions in a sustainable manner, it makes sense to focus efforts on the containment and treatment of faeces, keeping grey water as free of faeces and other organic matter as possible to reduce risk.

The crossover to a communally-managed solution introduces the need for effective institutional support to:

- maintain transport systems and treatment works;
- invoice and collect the money for the operation and maintenance of the system and ensure that the money collected is kept for the maintenance of the system and not used for other purposes;
- enforce regulations so that the system is not abused, and to minimise the likelihood of failure.

The more complex the system, such as sewer reticulation and treatment works, the higher the skills required to operate and maintain it, which is why there has been a worldwide tendency to go for large regional works. Simpler systems can be easier to maintain, but because of their dispersed nature are harder to regulate and can lead to indiscriminate dumping of sewage into the environment.

Disposal of greywater

The area required to dispose of greywater on site is very site dependent as it is affected by the following:

- clay content of soil
- evaporation
- vegetation
- temperature
- humidity
- rainfall patterns (winter, summer or all year rainfall)

An example of how site-specific this is can be taken from a system in Johannesburg, South Africa. Johannesburg has cool dry winters and hot wet summers and evaporation in the order of 1,200 mm/m^2/year. In a house with four people, 192 m^3 of greywater have been disposed of annually on 240 m^2 of a good loam soil for

seven years without any ill effect. This amounts to 800 mm/m^2/year, which is a similar amount to the rainfall. By contrast Cape Town has cold wet winters leading to the possibility of saturation of the soil.

It must also be taken into consideration that the building footprint often increases over time, which eventually precludes the on-site disposal of greywater. In other areas of Johannesburg, such as Soweto and Norwood, houses have been extended to such an extent, or blocks of flats constructed, that on-site grey water disposal is no longer possible.

In Weiler's Farm, an informal settlement in the southern part of Johannesburg, where there are clearly identifiable stands, people are served with communal taps and dispose of greywater on site, many of them creating gardens around their dwellings.

By contrast in Slovo Park, Johannesburg, an informal settlement housing 4,000 inhabitants in 1,000 dwellings on 11,800 m^2, greywater is disposed of either by infiltration into the ground through constructed soak pits or by taking the greywater to the adjacent stormwater drains, a maximum walking distance of 100 m. The practice of tipping greywater into stormwater drains has also been noted in informal settlements at Khayelitsha, Cape Town. Solid refuse in Slovo Park is taken to skips on the outside of the settlement, which are removed by the municipality. These practices, together with the piping away of water from communal taps to stormwater drains, ensure that the pathways within the settlement remain dry and free of refuse. The biggest problem is that because there are no toilets within the settlement, people use the greywater buckets at night and thus tip blackwater into the environment.

On-site disposal of greywater would seem, at best, to be an interim solution for stand-alone houses with sufficient garden space. Once it is no longer possible to dispose of this on site, then it must be taken away. Simply tipping it into road outside the house is a worse option as it reduces the roadway to a muddy morass and it rapidly becomes contaminated with refuse. Conditions in Orangi, Karachi before the implementation of the sanitation project indicate that the volume of greywater rather than excreta was the major problem. Even where the road is paved, a continual flow of water along the surface tends to encourage plant growth and the break-up of the road surface.

Open channels, although preventing the roads becoming muddy, are often used as dumping grounds for solid waste and become blocked, becoming a maintenance problem and health hazard.

The best option for greywater is to keep it separate and pipe it, either into the nearest watercourse, stormwater pipe or adjacent sewers. The first two options are within the communal capability of the community themselves, without any assistance from local government, as has been demonstrated by the residents of Slovo Park.

Where the volume of water supplied is restricted by the provision of communal standpipes and households carry water to the house, it is not necessary to provide

individual household sewer connections to carry the greywater away. The residents of Slovo Park have demonstrated that, so long as the access point to the system is no more than 100 m from their dwelling, they will carry greywater to this point for disposal. A restricted access prevents large objects entering and blockage further down the system. This principle is applied to municipal systems in South Africa with a 110 mm diameter pipe on the property leading into a 160 mm diameter municipal sewer.

If the water sources, greywater disposal points and washing facilities are located at the same point, it has been found that water uses that require large volumes of water, such as clothes washing, are done at these points, reducing the amount of water that has to be carried to and from the dwelling. Sulabh and similar organisations have applied this principle in the construction of public toilets and bath houses in India. It is interesting to note that during the construction of communal flush toilets in Slovo Park the community requested that the toilets be made a paying facility, with an outside urinal for men, so that they would be maintained, as in the Sulabh model. This was rejected by the municipality on the grounds that sanitation is a basic human right. However, it made no provision for maintenance and security and the toilets soon broke down and were vandalised, depriving the community of the very right that the municipality had insisted it was upholding.

The need to carry water provides an effective restraint on the amount of greywater generated, even when a yard tap is provided. In South Africa, studies in Scenery Park; Buffalo City (East London); Eastern Cape and Phomolong, Matjhabeng, Free State have shown that monthly usage is below 6 m3/household per month, the amount that the South African National Government has determined that local government should provide as Free Basic Water.

This suggests that until there is a household piped water system, greywater can be removed by carrying it to piped disposal points not more than 100 m from the dwelling. However, when an unrestricted water supply is provided inside the dwelling, the piped disposal system must also be extended to all the houses.

Ventilated improved pit (VIP) and other pit latrines

Ventilated improved pit (VIP) or other pit latrines have been widely promoted as a sustainable means of sanitation. They work by containing the solids within the pit and leaching the urine and any wash water into the surrounding soil. In a ventilated pit, noxious gases generated are ventilated to the atmosphere above the toilet rather than remaining in the pit or the top structure. Pathogens die off in the pit or in the surrounding soil, which acts as part of the treatment mechanism. Although greywater can be tipped into the pit, large volumes will cause it to overflow. Thus for sustainability a separate means of greywater disposal is required.

Households would traditionally move the latrine to another site when the pit was full. The liquid in the first pit eventually dissipates and the pit can be reopened and reused.

To facilitate moving the latrine, top structures are lightweight or of a temporary nature. Well-built structures are not uncommon, but these are generally constructed over large deep pits where the household is confident that the toilet would have a significant lifespan and that neither the superstructure nor the soil will collapse, jeopardising their investment. Lifespans of over 40 years have been recorded, which is on par with the replacement of sewage treatment works.

For a pit latrine to be sustainable at a household level, the following conditions must be met:

1. The soil structure and the topography must be such as to allow the liquids to be contained for a sufficient length of time to allow for pathogen die-off and to prevent saturation of the ground.
2. There must be sufficient space for a 2nd or 3rd pit to be dug so that there is sufficient time for the liquid to seep out and it and it is possible to reopen the pit without encountering sludge.
3. Solid waste disposal must be catered for to prevent the pit being used for refuse disposal. In rural areas, kitchen waste is often fed to animals, combustibles burnt and only glass and tins buried in an on-site pit.

Within a rural environment it is not too difficult to achieve this if the soil conditions and topography permit. Unfortunately, these simple rules have often not been followed in sanitation programmes, such as the South African National Sanitation Programme, and many unsustainable latrines have been built with very small sealed pits and brick top structures. These fill up rapidly and must be emptied on a regular basis to be sustainable.

Moving this technology into the slum environment of the inner cities creates a number of problems:

1. Many slums are built on unsuitable ground where it is not physically possible to introduce pit latrine technology. In the Cape Flats, South Africa and Dharavi, India the water level is so close to the surface that pits cannot be dug. The favelas of Rio de Janeiro are situated on very steep hillsides, (so steep that often the roof of one house becomes the foundation of the next house) and any liquid would instantly surface. This problem was encountered in eThekwini, where settlement occurred on the steep slopes between the formal townships. During the late 80s and early 90s the inhabitants were provided with VIP latrines and a standpipe supply of water. However, in many cases it was found that the pit contents were seeping to the surface.
2. There is no space for a second pit and therefore for the technology to be sustainable the pit must be emptied, either mechanically or manually. Emptying has proven problematic for several reasons:
    - Pits are frequently used for the disposal of solid waste, which blocks pipes and pumps. Solid waste also leads to a more rapid filling of the pit and the presence of rubbish hinders the breakdown of the organic matter.

- Manual emptying, particularly where workers get into the pits, exposes workers to disease.
- The sludge must be transported out of the area using vehicles; in very dense slums it is not possible to get large vehicles into the area and close to the pits. A number of smaller vehicles such as the Vacutug and the MAPET have been tried, both of which are dependent on having sewers running under the settlement into which the load can be dumped (this has its own problems) or there must be sufficient co-ordination that the load can be transferred to a larger vehicle. The larger vehicle must then make it to the treatment facility (if one actually exists). Experience with septic tank sludge removal is that, in order to earn extra money, tanker drivers drop the prescribed number of loads at the treatment facility and empty additional loads into the nearest watercourse.
- The sludge must be transported to separate sludge ponds and cannot be disposed of in the normal sewage system. Bhagwan, Still, Buckley and Foxton (2008, in Holden 2008) have analysed the relative concentration of total suspended solids and nitrogen (measured as TKN) in pit sludge and show that the impact of just one pit latrine's sludge on a wastewater works is equivalent to the loading of between 500 m^3 and 1,000 m^3 of typical sewage. This means that even a relatively large works cannot deal with more than a few loads of pit sludge in a day, and there is a significant cost in the processing of this sludge. The practice of using MAPETs and Vacutugs to dump sludge into sewers would not be sustainable on large-scale basis, as it would adversely affect the wastewater treatment works. The practice of dumping faecal sludge into the sea, as happens at Lavender Hill, Accra, Ghana, should not be considered as a sustainable solution, due to the risk presented by introducing pathogenic material into the environment in an uncontrolled manner.

The twin-pit pour flush toilet as developed by Sulabh International Social Service Organisation is a variation on the above theme with the disadvantage that water must be carried to the toilet and that additional water must be infiltrated into the ground. Where pour flush has been introduced in South Africa it has failed due to the increased burden it places on women and children who have to carry the additional water to the toilet. In dense urban areas it can lead to saturation of the ground more quickly than a system that only leaches urine into the ground.

The crossover point from household to communal management occurs when the household no longer has sufficient space for a second pit and it is necessary to remove the sludge for treatment. Depending on the geology, household management is viable even in a very small area and is thus an option for urban slums.

Flush toilets with treatment

A flush toilet essentially comprises a water seal with a pipe leading away to some form of treatment, be it an on-site septic tank a communal treatment plant or a disposal facility. Water is used as the means of transport to carry the faeces to the point where

it is treated. The treated effluent is then discharged into the environment. With a septic tank this is through a French drain (a gravel filled ditch) and it can be seen that in essence there is very little difference between pit-type latrines, twin-pit pour flush toilets and septic tanks with French drains. All accept excreta into a digester and then infiltrate the effluent into the surrounding soil. In all cases, if greywater is added to the system it will lead to the soil becoming saturated more quickly.

To prevent sedimentation, minimum velocities must be maintained in the pipes. This is a function of the pipe size, flow and gradient. On a well-designed toilet the volume of flush required to clear the pan is less than the volume required to transport the waste along the pipe at a minimum grade of 1:60, as set out in the South African National Building Regulations. This minimum grade, therefore, is a compromise between reducing the volume of water required to transport the waste and reducing the depth of sewers. If the septic tank is immediately behind the toilet, very low volumes of water can be used to flush the pan. The twin-pit pour flush toilet is designed to be used with less than two litres per flush.

It is not necessary to use drinking-quality water for flushing toilets. The use of greywater, particularly from personal hygiene and clothes washing, is perfectly acceptable and has been promoted and practised in South African households in the urban areas of Durban, Pietermaritzburg and Port Elizabeth when water restrictions of 400 litres per household per day forced high volume water users to reduce their demand.

If greywater is kept separate, it is possible to have an on-site flush system on a very small plot. Use of twin pits rather than a septic tank (infiltration directly out of the pit rather than through a French drain) allows the sludge to dry out to a point where it can be manually removed with hand tools.

The crossover when individual household solutions are no longer viable comes when it is not possible to have a second pit, leading to the same problems as with pit latrines.

The alternative, if land can be made available, is to construct public toilet blocks and pipe everything away in a sewer reticulation.

Composting and dehydrating toilets

There are many different types of composting and dehydrating toilets, but the primary objective of all of these systems is to prevent the faeces ending up in a liquid sludge, thus greatly facilitating handling. Composting and dehydrating can occur within the toilet itself or by being removed to a household or central composting or dehydrating facility. Urine is diverted at source, using a special pedestal, mixed into the compost or separated after passing through the faecal matter. Where urine is kept separate, it is infiltrated into the ground, evaporated or piped away for collection. Whilst evaporation of urine from a single unit might not cause problems, evaporation from multiple units

can. In Barkley West, Northern Cape, a small town on the banks of the Vaal River with open farmland surrounding the area, the evaporation of urine from hundreds of units was highly unpleasant when a temperature inversion prevented pollutants from escaping. In the densities experienced in developing country slums, evaporation would cause problems, not only to the slum residents, but also to surrounding developments.

Greywater must be kept out of the system. An advantage, however, of the composting systems, is that the faeces can be co-composted with organic material. This has enormous advantages in areas where there is no formal refuse collection as it removes an attraction to vermin, and thus a vector for the spread of disease, from the environment.

Whilst the technology for waterborne sewage is almost standard in its application throughout the world, there is a very large variety in the design and complexity of composting and dehydrating systems (both toilet and subsequent treatment systems).

The most simple, sustainable system, the Fossa Alterna, comprises two pits, which are filled alternatively with excreta and other organic material such as leaves and kitchen waste. This system infiltrates the same amount of urine into the soil as a pit latrine. Once one pit is full it is left for a year to compost. When the second pit is full, the humus in the first pit can be dug out with a spade and the contents taken away in a bag. The only space required is for the two pits. Since there are no mechanical moving parts, a spade is all that is required to service the toilet. This technology was used successfully in a dense informal settlement in Hatcliffe, Harare, Zimbabwe. However, the distance to land outside the settlement was short and the number of dwellings small, so the issue of the household handing over the removal of the humus to a third party did not arise.

An alternative is to have a permanent toilet installation and remove the contents to a separate aerobic composter. In this system, both components are above ground, which has distinct advantages over a digester system if the area has a high water table or is subject to frequent flooding. This solution can also be placed inside a house as demonstrated by Holden (2004). The only tools required for such a system are a container in which to carry the faeces and a spade to turn the compost. In cases where there is extremely limited space, such as in Dharavi, composting could be undertaken on rooftops to render it safe before removal.

In Norrkoping, Sweden and Flintenbriete, Lubeck, Germany a number of sophisticated systems have been installed, which include separators of flush water and faecal matter, UV disinfection, vacuum toilets and composting plants. Such a level of sophistication requires a high level of technical support, at household or higher level. Such support is not available in developing countries; it is even debatable if this level of support would be available in developed countries. It must be noted that unlike a boiler failure, which leaves inhabitants with cold homes and cold water, failure of these system results in untreated sewage entering the environment. This was experienced by eThekwini Metropolitan Municipality, South Africa where many developers installed their own

wastewater treatment plants in the peri-urban areas but did not service them, and they promptly failed.

In Sweden urine from only 18 apartments was collected and in Germany only 350 people were served, requiring only two to six tanker loads per year to remove the liquid waste to nearby farmland. When dealing with the slums of 500,000 to 1 million people, a high degree of institutional support would be needed to ensure an efficient and effective service that does not fail in a similar manner to its waterborne counterpart.

The crossover point comes where there is no room for a second pit or composter, and the contents of the toilet must be removed for treatment. Since the material consists only of the faeces plus any bulking material used for odour control, it is easy to handle and can be moved with very low risk of spillage or it being very obvious what is being carried. (The author has flown with fresh toilet material inside the flight cabin and carried it through two security checks into the Presidency at the Union Buildings, Pretoria. No sludge could be transported in the same manner.) As with greywater there is a limit to how far residents will carry the material before dumping it. From the author's experience in the former homelands in South Africa this distance is approximately 200 m. At this point there would need to be a composter, either communally owned by a number of households or run by an outside organisation that would manage the composting for a fee.

Once the faeces have been composted, the material would need to be removed from the area. However, since it is now a harmless solid, it can be removed without specialised equipment and with minimal health risks to the workers.

Reuse or disposal in dense urban slums

Ecological sanitation proposes that the use of urine replaces, or partially replaces, the 100 million tons of nitrogen fertilizer produced each year using the Haber-Bosch process (Wikipedia 2008). Application of fertiliser is only beneficial if applied during a comparatively limited period during plant growth, so urine has to be collected, stored and transported to farms when required. Fertilizers are in granular form and can be transported in dry bulk or in bags, which do not require any specialised form of transport or warehousing. Liquid urine would require its own specialised collection and transport system and the volume would pose a severe environmental risk if there was an accident. As far as the author is aware, no studies have looked at this problem at scale and determined whether it would be economically feasible, although studies have been undertaken to look at the value of nitrogen and phosphorous in urine. Until there is enough information about the value added chain required to turn the raw product, (urine as it leaves the human body) into a commercially competitive product, and compare this to current processes, ecological sanitation in dense urban slums cannot be considered as a viable proposition.

Conclusions

The practice of mixing every component of sanitation together has created immense problems in the developing world, as only 8% of its sewage is treated before being discharged into the environment. This problem has been created by formal settlements and it is difficult to see how dense urban slums could achieve sustainable sanitation when the adjacent formal settlements have not.

In most urban slums any improvement to sanitation will be through the efforts of the inhabitants and therefore any technology must be within the institutional and technical capabilities of the community. True sustainability is unlikely to be achieved and the best that can be hoped for is a partial solution that minimises the risks.

First and foremost, faeces should be treated before being disposed of to ensure disease is not spread. Any form of pit latrine, digest or septic tank requires a transport system to remove the sludge to a place where it can be treated, separately from the normal sewage. This requires institutional arrangements and capital investment in specialised vehicles that is probably beyond the collective capabilities of slum dwellers. Since the authorities are unable to run the waterborne sewer systems sustainably, there is no reason to expect that they can run cartage and treatment systems in a sustainable manner.

Toilets from which the product is removed and composted locally overcome most problems, with the final composted product being safely removed from the slum area without the need for specialised equipment. This also allows for the composting of organic matter, thus removing a second factor in the transmission of disease from the environment. Although the benefits of this approach have been well demonstrated and it will result in a healthier environment, in many cultures there is still an extreme aversion to handling faeces and those who do this job are stigmatised. Much work needs to be done to overcome this.

Urine is sterile and limited in volume. As yet it has not been demonstrated that it is possible to remove large quantities of urine from dense urban areas and use it productively in agriculture. The most effective solution is to infiltrate it into the ground. If this is not possible due to the saturation of the ground, then the co-disposal with greywater is the only other option.

Greywater composes the biggest fraction of sanitation but since by definition slums have an inadequate supply of water, the generation of greywater per household is limited. If it can be kept separate and as free of pathogenic material as possible, then it can be discharged without treatment into the environment. To prevent greywater from damaging roads and other infrastructure it needs to be piped to the point of discharge. By limiting the access points and concentrating high volume users on the system, it can be kept shallow and can be maintained by the community.

The above solution is far from perfect and does not meet the definition of sustainability. However, given the constraints, it contains pathogenic material as far as possible and minimises risks.

To encourage people to adopt these practices, current perceptions need to be changed, particularly around waterborne sewage. This can be achieved by ensuring that users of waterborne sewage pay the full cost and do not receive any subsidies.

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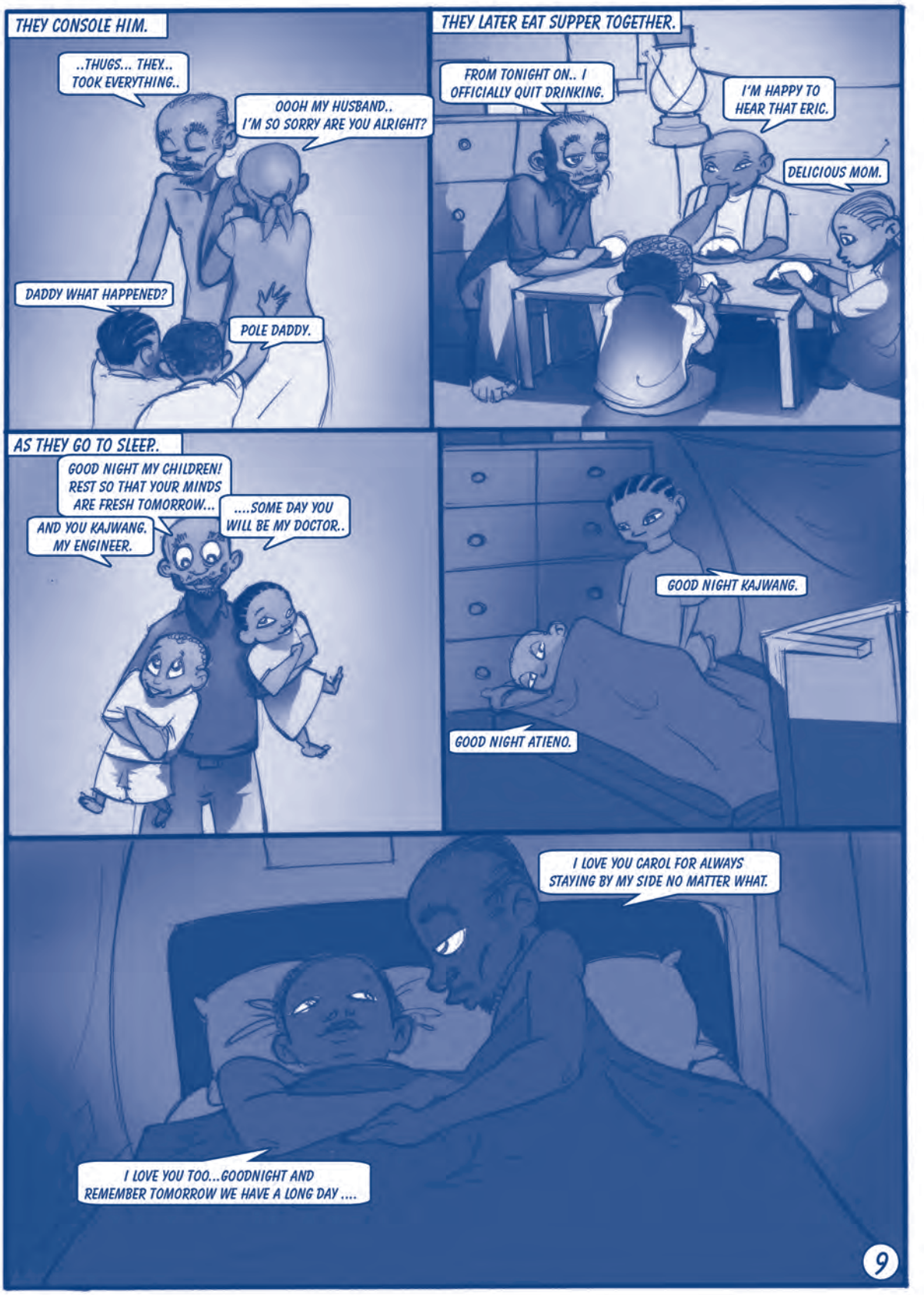
THEY CONSOLE HIM.
..THUGS... THEY.. TOOK EVERYTHING..
OOOH MY HUSBAND.. I'M SO SORRY ARE YOU ALRIGHT?
DADDY WHAT HAPPENED?
POLE DADDY.
THEY LATER EAT SUPPER TOGETHER.
FROM TONIGHT ON.. I OFFICIALLY QUIT DRINKING.
I'M HAPPY TO HEAR THAT ERIC.
DELICIOUS MOM.
AS THEY GO TO SLEEP..
GOOD NIGHT MY CHILDREN! REST SO THAT YOUR MINDS ARE FRESH TOMORROW...
....SOME DAY YOU WILL BE MY DOCTOR..
AND YOU KAJWANG. MY ENGINEER.
GOOD NIGHT KAJWANG.
GOOD NIGHT ATIENO.
I LOVE YOU CAROL FOR ALWAYS STAYING BY MY SIDE NO MATTER WHAT.
I LOVE YOU TOO...GOODNIGHT AND REMEMBER TOMORROW WE HAVE A LONG DAY ....

7. The political and administrative context of slum improvement: two contrasting Indian cases

Robert-Jan Baken [The Netherlands][1]

This essay deals with slum improvement. It focuses on the contrast between high-flown project intentions and the sobering reality of the politics of project implementation. It thereby attempts to shed some light on these issues. Moreover, it presents a beginning of a way out of the political and administrative impasse.

It tries to achieve this by giving a description of two contrasting cases in India. The first case is typical for many slum improvement projects in India and other developing countries. On paper, it is all-encompassing, integrated and participatory – a typical UNCHS "best practice". In practice, it is none of these things. The second case is much more modest. There is no predetermined, all-round plan. In terms of organisation, mobilisation, teaching and learning the kind of slum improvement highlighted in the second case builds on what the slum dwellers themselves know and understand. In terms of output, it concentrates on community toilet blocks.

The first case concerns slum improvement projects in Vijayawada and Visakhapatnam, two rapidly growing million-plus cities in Andhra Pradesh (1988-1996)[2]. It describes and analyses the problematic interaction between slum dwellers and the (local) government. The project was based on a number of unrealistic assumptions and approaches, e.g. with respect to dweller participation and the capacity of existing infrastructure networks. It invited patronage and corruption. Rather than truly including slums and slum dwellers in the urban civic space, the project delivered special slum (health, credit, livelihood, education and infrastructure) products of a substandard, makeshift quality.

The second case is that of the 10-year experience in the construction of toilet blocks in Indian urban slums by urban poor federations and women's co-operatives, with the support of the NGO SPARC. In its effort this alliance (called "the Alliance") improved sanitation and washing facilities for hundreds of thousands of poor households and proved that such facilities could be both affordable and manageable. Apart from this concrete outcome, the efforts of the Alliance and its partner slum communities resulted in the gradual reconstitution of citizenship for the slum dwellers. Indeed, for all those involved – government agencies, slum dwellers and NGOs – the whole exercise was a training in "deep democracy".

1. Author Robert-Jan Baken was invited to write this essay for the IRC symposium "Sanitation for the Urban Poor". He has done a PhD on the land markets in two cities and has authored a number of publications on the same topic. For his PhD he has done extensive research in all informal settlements of two cities in India – Vijayawada and Vishakhapatnam.
2. This case is largely based on Baken (2003, p. 305).

Introduction

Over time, scholars and development experts have come up with different analyses and solutions with respect to urban slums. In the 1950s and the 1960s, slums were thought to be temporary phenomena that would vanish with overall economic development. The solutions prescribed were either negligence or clearance and resettlement. In the 1970s and 1980s, as a response to the failure of the clearance and resettlement drives, the "self help school" gained prominence, advocating slum improvement sites and services projects. By the end of the 1980s, the neo-liberal revolution was already taking shape. The market approach promoted by the World Bank in the 1990s was an expression of this revolution. It started from the idea of cities as engines of growth in a structurally adjusted world and advocated a market-enabling strategy in the field of housing. The global freeing and opening up of markets completely changed the world.

This profound change largely confounded the idea of economic development as a function of government intervention. It left the development community searching for new solutions. As far as slum strategies are concerned, some things have become clear:

- The days in which one could propagate a pro-active policy that aims to prevent slum formation (e.g. by delivering sites and services to the poor) are definitely over.
- Current policy thinking is largely based on a laissez-faire position that relies on slum formation (squatting) as the main source of low income housing.

A recent review of slum development practice and policy, published by the United Nations Centre for Human Settlements-Habitat (UNCHS) presents a mixture of responses. The authors claim that the current best practice for housing intervention in developing countries is a holistic blend of participatory slum improvement that simultaneously deals with health, education, housing, livelihood and gender. While holistic, participatory and all-round improvement of the lives of slum dwellers is obviously desirable, the authors admit that such improvement requires a complex organisation and above all "local goodwill, cohesion and political will". They conclude that it remains to be seen whether projects of this type are replicable beyond demonstration projects (UN-HABITAT 2003, p. 132).

In its study, UNCHS often refers to political and administrative problems as the ultimate bottlenecks to development. This notwithstanding, they are not explicitly addressed. While (local) politics and the relationship between the state and the poor have been the subjects of a great number of studies, the analyses and insights of such studies have never played a role to speak of within the mainstream discourse of the development community. Maybe development consultants are reluctant to include such insights in their formal output because they are anxious not to jeopardise relations between developing country governments and the development agencies for which they (the consultants) work. If they address politics and government behaviour at all, their story is mostly couched in general terms. With its reference to governance inadequacies and lack of political will, the UNCHS study is no exception. But what is inadequate governance? How does it work? And what forms does political resistance

(i.e. the opposite of political will) take? These obvious questions and their answers matter in the search for solutions.

This essay is in four parts. The first section briefly describes the problematic administrative and political context of slum improvement in India. While the Indian focus enables a more in-depth analysis, essentially the problems addressed are universal and apply to a great number of urban situations all over the world. In the second section the Vijayawada-Visakhapatnam case is presented. In combination, the first and the second section give rise to the impression that everything is pretty much stuck in a mould which seems hard to break. The third section highlights the Alliance for community toilets case, showing that it is possible to break the mould. Rather than waiting for the whole world to change, the key players in this case started with a relatively modest and very concrete aim. Yet, with their community-driven and patient approach they changed quite a bit of "the surrounding world". The fourth and concluding section briefly recapitulates the findings and shows in what areas we should be looking for policy innovations.

The political and administrative context of slum improvement

In this section I will briefly introduce some of the main actors involved in local politics. I will argue that politics is largely confined to the field of plan, project or policy implementation. Since low-income housing constitutes a prime political issue, slum improvement typically attracts a lot of political attention.

While it is important to note that local politics is a force to reckon with, it is equally important to understand that the agencies in charge of the implementation of slum improvement projects, city governments, are in a very weak position. They are controlled by the state government, both in terms of decision making and funding. They have to deal with the impossible task of implementing a whole range of unrealistic higher-level plans, policies and projects – including master and infrastructure plans. One of the more serious problems is that these plans are not backed with the necessary funds. As a result of the impracticality of such plans and policies and the legal and policy vacuum, local governments operate in "an implementation muddle", demanding improvisation, flexible interpretation, and inviting the bending of rules and corruption. Since there is hardly any corrective feedback, the muddle tends to get larger and deeper. In this process, the legitimacy of any plans and the authority of the government are both undermined.

This also holds true for the implementation of slum improvement projects. Usually, there is no comprehensive local slum improvement plan to serve as a long-term framework for projects and there is no special slum improvement department. The basic outlines of slum improvement projects are designed at higher levels and the funding is controlled by foreign donors and/or the state government. While the paper organisation of slum improvement projects, their theory, jargon and funds trickle down to city levels, some of the possibly more enlightened ideas behind such projects do not

travel far. If they reach the project site at all, they typically fall victim to local project politics.

Local politics and low-income housing

The legal vacuum and implementation muddle are closely related to the fact that policymakers and legislators are largely unresponsive to groups or persons trying to influence policy and legal design – there are few well-organised political pressure groups or institutional channels that could be utilised for political demand making. The only alternative is to attempt to influence the implementation of policies. This is in line with political practice under traditional and colonial forms of governance. Citizens were expected to obey the rules coming from above. The only thing they could do was to ask for special favours, exemptions and the like. Under a "modern" democratic government this form of influence at the enforcement stage is called corruption. Although it has seldom been analysed as an alternative means of interest articulation, it can in fact be regarded as such (Scott 1972, 24).

This is precisely the field in which local politicians have specialised. "A politician's electoral success and survival is...closely related to his own capability to influence state resources – to ensure that officials use their discretion to favour, not disfavour, important constituents, and to divert a proportion of state resources into his own purse" (Wade 1985, 473).

Many politicians who take part in elections are expected to largely finance their election campaign and nurse their electorate themselves. In order to be able to offer the inducements needed to mobilise the political support of a particular (localised) group of voters and to raise money, politicians need the co-operation of local administrators. Politicians can make money by mediating in the purchase of public office, or by intervening in a host of distributive and legal matters.

The motivation behind the co-operation of bureaucrats is not only material gain, but also that, ultimately, the politicians are in charge and can have the bureaucrats transferred. Wade visualises a circuit of transactions, "in which the bureaucracy acquires control of funds, partly from clients and partly from the state treasury, channels these funds upwards to higher ranks and politicians, the latter in turn using the funds for distributing short-term material inducements in exchange for electoral support... What keeps the funds flowing ... into these channels – what keeps the system disciplined – is the personnel transfer" (Wade 1985, 484). In Wade's model, posts are (informally) purchased and the price offered for each post reflects the amount expected to be earned through illicit revenue. There is a fairly free exchange of information on the prices and potential revenue of posts. Higher level posts include the authority to transfer subordinates whose behaviour has been a source of complaints from politicians, administrators or affluent citizens, e.g. about the violation of specific rules for share-outs. As a result, the transfer mechanism keeps deviant (too corrupt or not corrupt enough) behaviour in check.

In urban areas, the political scene is dominated by legislators (members of the state parliament) who have their constituencies in the city. They have to build up their own support base by influencing the flow of public goods and services in favour of their supporters. In this context they may use the services of brokers, such as councillors. In turn, these councillors strongly depend on the support of their legislators. The most important group of lower-level political brokers tying the mass electorate to local (city) leaders, are non-elected popular leaders who generally operate on a neighbourhood level: slum leaders. Slum leaders mediate on behalf of their slum-dweller-clients in nearly all matters involving the government: e.g. getting a licence, an identity card or a ration card; dealing with the police in cases of arrest or fines; getting welfare, housing or other public scheme benefits. In addition, slum leaders also arbitrate in private conflicts. Most slum leaders are political agents representing a political party and more often than not they are instrumental in canvassing votes for their party. Their linkage with a particular political party is based on a reciprocal relation with its city party or faction leader, which is motivated by a political cost-benefit analysis. They are in key positions: they are supposed to deliver the goods to the masses and make sure that these masses deliver their votes in return. As a consequence, they have direct entry to the leadership of the city-level party or faction.

If a given party or faction leader is not able to "deliver the goods" needed to maintain the support of the slum population, its local leader may turn to other urban political leaders for support. Given the importance of material self-interest in these vertical relationships, such alliances are not particularly stable. Moreover, splits or fusions of parties and factions on a state or district level may cause a political realignment on a city level. It may cut off the flow of patronage opportunities from one city faction leader, while increasing opportunities for another. Given their political importance, every successful popular leader will sooner or later be approached by party representatives with an offer to start working for a particular city-level leader.

In terms of political patronage, the most important role of local politicians in the field of housing is to protect and guide squatters. The bulk of land provision for low-income housing concerns squatting. The lack of legal backing for squatting and the resulting insecurity among squatters form an ideal climate for a brand of politics that is largely based on grassroots leaders trading handpumps for votes. The demand for "goods" such as protection and some basic amenities among squatters is created by the actions and threats of the local administration, which is supposed to enforce the law and, thus, evict "encroachers". The antagonism between local bureaucrats (law enforcement) and politicians (supporting illegal activities) has become a structural phenomenon. Basically, it is the outcome of friction between law and urban practice. The removal of this friction by changing defunct legislation and ineffective policies is generally regarded to be a politician's job. The politicians, however, have maintained the friction. Indeed, over time, tackling the issue of low-income housing through political mediation has become informally institutionalised. Ultimately, local political leaders decide what land can be occupied. In some areas of a city the reign of particular leaders may be unquestioned. In other areas, there is active competition in capturing the support of the poor (Baken 2003).

Box 1. Slum leader negotiates political deals and protection

Venkat Ratnam (slum leader, Vijayawada): We put up our huts here, on the canal bank. When we were doing so, Communist Party (CPI) supporters threatened to remove our houses. In 1982, Mr N.T. Rama Rao formed a party called Telugu Desam (TDP)...I joined the party. Under the leadership of Prakash (legislator) about a hundred of us went to Hyderabad for a flag hoisting programme. When we returned, they elected me as the party president of this place. That's the way I got involved in the party.

(...) In the beginning, I organised the construction of 40, 50 houses. When the Public Works Department (PWD) supervisor asked me: 'Are you a big leader? You organised the construction of these houses without informing us.', I told him: 'Sir, we constructed these houses after informing the *sub-collector* and Mr. Prakash. I didn't organise it on my own. I'm not a leader'. He filed a case against me. Four police constables came to my house and ordered me to come to the police station. I phoned the Mr. Prakash and told him the story. He came and settled the dispute. (...)

After Prakash was suspended, Mr. Rao (TDP leader) approached me for support during the elections. We said: 'Okay we will do so', but we requested him to arrange a handpump in our locality first. He arranged it. In this manner I joined his group. Then Raja (another legislator) sent me two messages, saying: 'Venkat Ratnam, come to me. I can arrange anything, whatever you want'. I told him I worked for Rao and couldn't leave him. As a response, he started pressurising me by falsely involving me in police cases two or three times. Being unable to bear the pressure, I joined Raja's group. I was never able to meet Rao. CPI supporters attacked me two or three times. After these attacks, we had to go to the police station. Also, there were some disputes. Rao wasn't even available to do the ordinary (mediation) work. Besides, he didn't maintain a gang which could come here quickly and assist us. For these reasons, I stopped working for him. (...)

When we were helping people with their ration cards in the ice factory, CPI activist, Subba Rao, came to me, dragged those cards out of my hands and started quarrelling…They had a grudge against me, because they thought I might attain a good position by helping the people in this way… I escaped, went to the Commissioner of Police (a prominent TDP supporter) and told him what had happened. 'Okay', he said, 'if they beat you up, don't go to the police station. You should come to me directly. I will take action'…

When I got government loans issued, I didn't know which party the beneficiaries belonged to. They came to me and asked me 'Brother, I want a rickshaw,...I want a loan'. If I thought I could trust them, I wrote an application for them. Because CPI leaders thought I was dragging CPI youth into the TDP by getting loans for them, they were throwing stones at our houses during the night…They gave *arrack* (strong liquor) to the gang men and asked them to attack me. They threatened me: 'How long can you live, how long can the policemen protect you,.. we'll see'. We went to sub-collector Banerjee, and filed a case against the CPI men involved. After that they stopped interfering in my affairs…

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The CPI councillor came here and asked me to give plots to his men. I told him: 'Sir, I won't give them to people who already own a house. I won't give them a plot'. The quarrelling got worse word by word. On top of that, I raised the issue of his appropriation of a number of (government) plots in the relocation colony. Because of this, they had me beaten up again. Then we invited CPI and CPM[3] councillors, and welcomed them warmly. We told them: 'Sir, we don't have taps in Krishna Nagar. Arrange two taps and the construction of steps'. They replied: 'We will arrange it', but, so far, through those parties nothing has been done for Krishna Nagar.

If people occupy land directly, without any interference by these TDP and CPI, they will be immediately approached by them and asked to join them. If they refuse to join, if they don't hoist their flags... they will cut off their legs and hands… (Interview fragments; Baken 2003, pp. 51-53)

Slum improvement in Vijayawada and Visakhapatnam (1988-1996)

This section describes the implementation of integrated slum improvement projects of Vijayawada and Visakhapatnam, both rapidly growing cities in Andhra Pradesh, India (1988-1996). The main sponsor of the projects was the UK's ODA (now DFID). The two cities were part of a series of five projects, labelled by an ODA representative as "the first generation of ODA-sponsored slum improvement projects", based on a more or less uniform approach (Slingsby 1996, p. 184). They attempted to integrate two ongoing projects: the Urban Community Development Project (UCD), which strongly emphasised community participation and mainly dealt with "soft" community concerns such as child care and health care, and the all-India Environmental Improvement Scheme (EIS), with its "hard" (top-down) infrastructure focus. In fact, they included a great variety of existing government (loan) schemes to be coordinated or implemented by the mainstream government bureaucracy that was extended by a temporary project wing of the city government. The projects aimed at the all-round improvement in the lives of slum dwellers: (a) improving health care; (b) raising education and literacy levels; (c) raising income and wealth levels through training and credit arrangements; (d) improving physical housing conditions; and (e) strengthening community organisations. The per capita amount spent on the projects matched these high aspirations: it was three to four times the amount of the EIS. Originally, the organisational heart of the project was formed by the slum dwellers themselves: by neighbourhood committees (NHCs) and the improvement plans they were supposed to make.

3 The Communist Party of India is known as the CPI. A rival group, the Communist Party of India (Marxist) is known as the CPM.

The projects included 196 and 136 slums in Vijayawada and Visakhapatnam respectively. In theory these comprised all the existing slums; in practice, roughly one third of the slums (most of them marginal) were not included. While in Visakhapatnam, community development was envisaged as an integral part of the project, at some stage the role of community organisers was relegated to the background. Engineers, who provided the project "hardware", assumed a dominant role. In Vijayawada, from the beginning, community development was a separate and minor scheme component. There was a continuous lack of community development staff, both in numbers and competence/commitment. The Vijayawada project included a large relocation component affecting at least 30,000 slum dwellers.

The ODA must have realised that low-income housing is an important political issue. In any case, it had requested local legislators, prior to the start of the project, to remain aloof. However, the project was implemented through the mainstream government machinery, and the usual politics did not fail to materialise. Project plans were unrealistic on a number of counts. The funding by no means matched the scale of the problem. Many project items were bound to reach only a limited number of people, and that only through mediation of political leaders or public servants. In this process, a large share of the meagre funds was "lost". These flaws were by no means restricted to the soft project parts. On the contrary, the quality of the infrastructure works was greatly affected by unrealistic planning, political manoeuvring and corruption. This exemplified the problems throughout the projects.

The next paragraphs address the problems involved improving slum infrastructure. The following passage turns to the problematic issue of participation. The token nature of this participation is aptly illustrated by the case of the association of neighbourhood committees, which concludes this section.

Infrastructure: money flows away faster than the water in the drains

In an article published in 1996, one of the ODA field officers who had been involved in the monitoring of the Vijayawada and Visakhapatnam projects concluded that the connection of slums to the overall city infrastructure networks had proved very problematic (Slingsby 1996, p. 187). Water supply is a good example. At the time of the implementation of the slum improvement project in Visakhapatnam, municipal taps all over the city ran for one hour or one-half hour per day. In Vijayawada, the situation was slightly better. Those who could afford it remedied the failure of public water supply systems by boring their own wells and installing their own pumps, resulting in a continuously receding groundwater level. Those who could not dig wells had to make do with the inadequate public water ration. Slum dwellers spent a lot of time and energy in walking, queuing-up, carrying water and fighting in order to get their water (Baken 2000, p. 415).

The question is how this problem can be resolved. Linking slums to the water supply network amounts to sharing an insufficient quantity of water with a greater number of households. Moreover, in contrast with better-off households, slum dwellers do not get individual connections. They have to share a small amount among themselves.

Slums are often at the end of the line where the water pressure has dropped to a minimum. Nor can bore wells connected to handpumps or motor pump sets feeding a number of taps constitute a lasting solution, as the pumps often break down or the sources dry up. The water quality may also deteriorate over time. Unless they are regularly checked, repaired and deepened, a significant share of the community bore wells and pumps (more than 50%) are bound to become defunct within a few years of installation.

Notwithstanding these obvious constraints, the projects opted for a "simple" solution. Wherever possible, slums were connected to the city supply networks. If this was thought infeasible or too costly, bore wells and pumps were provided. As a result, the water supply problem in most slums remained. In some areas, problems increased. Indian engineers are not stupid! They knew that the water supply strategy pursued would not lead to a lasting improvement. They didn't do enough.

What applies to water supply also holds true for other forms of infrastructure. The project was like an island in time and space. There was no long-term city level slum improvement strategy linked to an overall infrastructure plan. Although one can speak of some kind of system for infrastructure provision, the city government had neither the money, nor the decision making power to design and implement such a plan. It usually followed a piecemeal and ad hoc approach.

Project engineers pursued a strategy based upon a slum and area-wide organisational set-up and a common "small works" focus. None of the project officers had been given the task of linking the slum infrastructure into the urban system. Accordingly, no one had cared to do so. This is related to the division of project responsibility into a great number of confined duties and tasks, which is common to Indian administration. The project leader was responsible for the project as a whole, and the project officers stuck rigidly to their well-defined and limited duties. Assistant engineers fulfilled their assignments by constructing roads and drains and installing handpumps according to a neighbourhood plan, even if roads and drains remained unconnected to the existing networks. Such apparent shortcomings did not often trigger feedback or subsequent remedial action.

An additional drawback has been the frequent transfer of project leaders and staff, resulting in a discontinuity in terms of personnel, supervision and control. Organisationally, the projects were part of the state and local administration and personnel system. One of the most important defects of this system is systematic corruption directly related to the shortcomings listed above, and the most important cause of the overall indifference with respect to project outcomes. Corruption does not only lead to a misuse of project money, but is also connected to the issues of transfer, motivation and dedication of project staff; the quality of project output; community participation and the like. No amount of technical advice could overcome this fundamental problem.

Although there may have been exceptions, the great majority of the project engineers were not particularly motivated by the urge to improve the living and housing conditions of the poor. Their main motivation for joining the project was the large amounts of money involved in the infrastructure component of the scheme. In fact, it is an open secret that:

- engineers paid significant amounts of money to state and local-level politicians in order to be able to join the project;
- the main attractions of the scheme were the sizeable additional (illicit) income and the chance of being sent on an ODA-paid training "holiday" abroad or in India;
- there was a strong competition for engineering jobs resulting in frequent transfers of engineering staff on the basis of complaints from contractors or open charges of corruption.

The existence of informally institutionalised corruption and a politically controlled transfer mechanism was confirmed by various project officers working for the Visakhapatnam project. As far as Vijayawada is concerned, it was more open than secret. Almost every week, there were reports in local newspapers of semi-legal forms of contractor co-operation and corrupt practices involving project engineers. Local contractors appeared to operate as a well-organised syndicate, using cooked-up selection-cum-share-out systems. This also involved project staff, who demanded fixed, rank-linked co-operation rates and kept silent about the grossly substandard work delivered by the contractors.

It is hard to give an accurate estimate of the share of project funds that somehow disappear in process of implementing engineering works. Together, the 'excess quotations' of the contractor syndicates, the gifts to project engineers, the meddling with quantities of construction inputs and the quality of the work, the uncalled-for work extensions and the discrepancy between various quantitative dimensions stipulated by the contracts and those taking shape in reality amount to an embezzlement of project funds of at least 40%–50%. This is a very conservative estimate. Moreover, it does not include the spending of funds on the unnecessary renewal of existing roads, drains and taps and the 'misuse' of funds on 'off-site infrastructure', or on improving non-slum settlements (Baken 2003, pp. 311-13).

To conclude, although many slum dwellers have benefited from the projects, cost effectiveness was very poor. Roads and steps constituted an important improvement but water supply remained a serious problem and more often than not there was something wrong with the drainage canals, leading to stagnant water in settlements. Soft project benefits reached only a tiny share of the target group. After the project ended, none of the project arrangements put in place to maintain and reinforce project improvements continued.

A community-centred approach?

There are many forces at play that render slum community life uncongenial; a problematic starting point for community development schemes and a great challenge for community organisers and social workers.

Firstly, there is the poverty that forces people to live from day to day, limiting their social and time horizons. Several household members may be engaged in physical labour, involving long days of toil. The heads of households may be in the habit of drinking heavily, thereby further eroding the financial and social basis of family and community life, and deterring the prospect of "moving on".

Secondly, the larger part of the slum population is illiterate and badly informed on a variety of issues which are of direct relevance to their daily lives. They do not know the rules and procedures with respect to obtaining all kinds of public benefits, such as loans, licenses, land titles and ration cards. They do not know and do not claim their rights. On the whole, they feel incapable of dealing with all kinds of formalities involving public agencies. This makes them a rather easy prey for manipulative neighbourhood and city-level leaders.

Slum (community) leadership constitutes a third factor behind the uneasiness of community life in slums. Every slum has at least one leader who plays a mediating role between the slum community on the one hand, and local public agencies and city and state-level politicians on the other. While there are many types of leaders representing a whole range of leadership styles – from forceful, sometimes violent "bullies", to more or less genuine "social workers" – on the whole, the relationship between slum leaders and their neighbourhood clientele is characterised by distrust and deceit. The majority of the slum leaders are at least partly motivated by the opportunities of material gain arising out of their mediating role. This is not only known to all people involved, but also accepted.

Distrust and deceit are characteristic of the relationships involved in virtually all encounters between public and higher-level political agents and slum communities. In most cases, slum dwellers are right to suspect government officials of taking either bribes or part of their public benefits. The co-operation is uneasy. While officials cheat the slum dwellers, the slum dwellers, assisted by their leaders, try to cheat the officers by, for example, making up stories in order to increase their eligibility for government goods, such as (housing) loans and relocation plots. In this uneasy game of give and take, both parties play a more or less prescribed role. The official acts with arrogance, sometimes with outright contempt. The slum dwellers show their submissiveness. They literally beg.

To a lesser extent, the distrust and deceit mentioned above determine mutual relationships between slum dwellers as well. This can be regarded as a fourth factor constraining slum community life. Slum dwellers are not only suspicious of their leaders and government officers, but also of their neighbours. In many slums, community life is further complicated by multiple leadership, dividing the community in rival groups, which may coincide with caste and/or political party subdivisions. This creates an additional source of suspicion, which may at times lead to open and violent conflicts.

The ODA-sponsored slum improvement projects constituted one of these encounters between public agents and slum communities. By pouring in enormous amounts of money for infrastructure constructed according to usual government procedures, by stepping up the selective issue of loans and other public benefits, they invited an increase in intra-slum rivalry, mistrust and politicking.

One way of trying to control conflicts and corruption is to make the set-up of the scheme as transparent as possible and to ensure that slum communities are well informed. This could, in principle, eliminate a very important source of conflict and suspicion: ignorance. Another, complementary way is to put the slum communities in charge of important components of the project. It should be acknowledged that this is possible only if the design of the project starts from the primacy of community development and community development staff, and if this staff is made up of highly motivated and competent community organisers and social workers.

Even if these conditions are fulfilled, a lot of difficulties remain. Getting people to participate and co-operate necessitates changing people's attitudes towards one another, their leaders and government officers, as well as changing leadership styles. It is hard to see how community organisers can achieve this within the limitations imposed by the project. Nevertheless, modest changes are possible, in particular in slums that are blessed with comparatively enlightened leaders who have a social work orientation.

In theory the ODA-sponsored projects in Vijayawada and Visakhapatnam placed the participation of slum dwellers in project design and implementation at the heart of their approach. This idea, however, runs counter to usual government practices. Since the projects were not designed to break away from these practices, they were not at all transparent in their set-up and participation remained a token exercise. Slum communities were badly informed and put in charge only of minor project components. In brief, the projects followed a half-hearted approach. Theoretically, neighbourhood committees formed the organisational core. In practice, however, the project was hardware- and engineer-dominated. Since the engineers were not committed to the ideal of community development, an integrated approach as envisaged in the original design of the project was not feasible. In fact, the sheer magnitude of the project, the various types of public benefits it provided for, and the great number of project officers running around, seemed incongruent with a community-centred approach.

In this context, the role of the neighbourhood committees was problematic. The most important representatives of many NHCs took up the well-tried and accepted role of ordinary slum leaders. They started mediating between the project staff and their fellow dwellers, thereby profiting themselves. If the leading NHC members did not play such a role, they mostly ran into trouble. Their slum community was confronted with inadequate project implementation. Invariably there would be incidents and rumours pointing at corruption. Things were delayed. Without explanation, the infrastructure work suddenly stopped. Although beneficiary contributions had been paid, loans were not issued, etc. Information about project components, the sequence of activities,

the terms and conditions of various schemes and reasons behind possible delays was largely lacking. Communication between the NHCs and the project organisation was poor. Although they had no means of changing or speeding things up, leading NHC members were held responsible for project defects or imperfections by fellow slum dwellers. They were commonly suspected of cheating; of being involved in the ´project mess" themselves (see box 2).

Box 2. "I will not listen to you – I'd rather die"

Interview with the NHC president KL Rao Nagar (slum in Vijayawada)

What is the state of the water supply in this neighbourhood?

Previously there were municipal taps and we got enough water. Recently, the project people installed one tap for every 24 families. Since then the pressure has dropped…Previously there were 19 taps. They were installed by the Corporation. They supplied water for 24 hours per day…Now, they have removed these 19 taps and installed 21.

They put in new taps?

Yes, they installed new ones. At the same time they imposed timings. It starts at 7 o'clock or 8 o'clock in the morning. It is not fixed. There is only little pressure…The water only runs for an hour or so. We have been here for the past 15 years. We have occupied this place. During all these 15 years, the taps were on the other side of the road. Actually, according to the ODA plan, the new taps would again be on the other side of the road. The project engineer was determined to install that tap according to plan. We said: 'Don't do that, sir. We have been here for the past 15 years. We don't have any facilities. If we have go to the other side, they don't allow us to get water because it is not even enough for themselves'. He replied: 'I went to Indonesia for training, and I have to do what they have taught me there. So, I will stick to the ODA plan'. All the people asked him not to do so. He said: 'I will not listen to you. I'd rather die.' …

If you go to the ODA office, to see the engineers, the additional commissioner or a project officer…are they available? Except for the old project director, none of the officers listens to our suggestions or answer our questions. They don't do anything of the kind.

Now a new director has come…

He visited this area once. After that we went to the office and asked him: 'What is the matter, sir. For two years the construction of our community hall is pending. The construction hasn't started.' Then he replied: 'I will have it constructed within two months.' We suggested: 'Sir, it is not a good idea to construct a community hall on the public toilet site. Remove our huts and construct it on the cleared site. Then, we can be moved to the public toilet sites. These toilets are not used anyway.

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Also, at the end of the road there is some vacant land, which was given to someone. Please, construct the hall there.' He replied: 'I can't do that. I cannot remove the huts. Only if you ask me to construct the community hall on the location given by the plan, I can have it done, provided nobody will object. For the rest, I can't do anything.' …

ODA didn't bring us any benefits. It was said that they would give loans…At first, they gave 'business' loans to 12 people. The beneficiaries had to pay bribes and most of them got their loans through interference of the councillor and the legislator. Nine of these people did not start a business, and six of them didn't repay a single rupee. The neighbourhood committee was not involved in this. They didn't ask us. They didn't give us any responsibility. Some ODA and bank officers came and asked some questions. The ODA project officer selected the candidates. Since the beneficiaries failed to make their repayments, it would have been nice if they had stopped it completely. But, again, they interviewed 60 persons and selected 17 of them. Even now, one year after the selection, none of these loans have been given. Three times we talked to the project officer… He said: 'We give, we do, we think,' but the people didn't get the loans. Because they didn't get their loans, they started thinking that we (NHC) had played a role in this. They collected 25 rupees for stamp paper from the people who were selected to get a loan. Because the loans are not released, people think: 'This president, secretary and members ate the 25 rupees.' We told the ODA officers about this many times. But they say: 'Since the first ones are not repaying, we can't give anything to the next ones.' …

The pre-school is not functioning well. Only 15 children go there every day. Adult education is another problem. There are simply no efforts of the ODA staff to raise interest in this. Only six people go there. The NHC has not been asked to participate. It seems as though they don't want us to. …

They constructed a main drain. They didn't cover it with slabs and they didn't complete the construction. They stopped in the middle of nowhere. Because of that, there is no flow. Because they stopped the construction and didn't cover it, children fell into the drain. People are building on top of the drain. This makes cleaning in the rainy season impossible. Neither the municipality, nor ODA stops it. We have informed them but they don't seem to care.

Interview with NHC president Sarabaiah Gudi (Vijayawada)

They have constructed half the drains. They still have to construct the other half. They stopped. If you go to the office to tell them about this, they say: 'We'll send somebody.' But they don't do that. If we ask the engineers, they tell us to go to the office and complain there. They are quarrelling amongst themselves.

Who is responsible for the delay? The contractors?

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The supervisors are in the hands of the contractors. … The supervisors do whatever the contractors tell them to do. They actually work for the contractors. If we tell the office people: 'Sir, although we tell them that this is both your and our project and that we should co-operate and complete the work, your supervisors don't look after the work. They swallow some bribes and act according to the contractor's wishes.' If we tell them, there is no response. Or they simply say they will look into the matter. …

They did everything they promised in two or three slums and because of that it looks as though they have done a fine job in all the areas. In fact, I don't know what they have done or what they should do. I was informed about this, on two or three issues, only recently... but they didn't give anything to us. How many slums are in such a situation? We don't know, do we? That's it. That's what they have done for us. If we want to meet the project director, we have to hang around the office for days. And then, he shows only contempt. He says 'I will send them, mother. The work will be done, but it will take some time. You ask me to speed up the work, but how can I do that? We have already promised to complete the work in other areas first.'…We can't continue any longer. How many have given up like we did? ...

We don't know whether they stopped because they didn't get cement, or because the contractors don't want to come. They completed only half the drains. There is no flow. The water is clogging everywhere. The drain goes up and down, there is no even slope. …When we asked them why they only constructed half the drain, they said: 'There is no cement at the godown (warehouse). They don't have stock. They have to buy new cement.' We went to the office and asked: 'Sir, they told us that there is no cement. If you would only give little cement to the contractors, they told us that they will do the work. If you don't give cement they won't do the work.' They said: 'OK, we will give them cement.' They brought 25 bags of cement. They stocked them in my house. They only used 2 or 3 bags here. It is said that they work at another place too. They have taken the rest of the bags there. I opposed. I shouted: 'Why do you take our cement to another area. If some bags are left after the work here is completed, you can take them. I don't want to use them myself.' Then he (the contractor) said: 'Who are you to advise us. If you want, you can complain in the office, to the supervisor. We have permission to do this.'

Afterwards I went to the project director and told him what had happened. … Then he ordered somebody to come and asked him to have a look in our slum. He said: 'OK I will go there.' But, he didn't come. Nobody came. Then we can only think that they had agreed with the shift of the bags. … In the meantime, we have gone to the office two or three times. On one occasion they said that the project director was in a meeting and that it was not possible to meet him. The next time he said:

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'OK, *amma*, I will talk to my people and send them.'… We asked them whether they would complete the work and whether we could fill the drains if they didn't intend to do so. Our people quarrel. 'We don't want your water. We don't want it.' They are shouting at me: 'You should get this works done perfectly. If that is not possible, we prefer to live in the way we did in the past.' …

ODA pays the rents for school buildings and runs the schools. But in our area, we pay the rent. We collected some money from the dwellers and constructed a (thatched) school. Although we asked them to provide a simple (thatched) roof for our school, they didn't do it. What is this?

The additional commissioner (AC) says: 'We can't do anything about it. They don't give us money. If they would release money we can help you. If they don't release money, there's nothing we can do about it.' What more can we do. Because it is not our money, we don't shout. We keep quiet. We don't know whether they care about all this or not.

What about the electricity supply?

They didn't provide anything. When we complained about the darkness, our party man brought a bulb and arranged it. We asked for an electricity supply. We asked for water supply. Initially, they promised to supply these things. They promised to give electricity. They promised to install pumps, they promised to improve our slum. They promised to provide facilities to all people. They promised to give (asbestos) sheets. They promised to construct toilets. They promised so many things. But they didn't do any of these things properly. If you look around you will only find this road. Anybody who visits this place will see the road. They constructed the road only to make people think that they have improved everything. There is nothing more to it.

The Association of Neighbourhood Committees (Vijayawada)

Participation is not a familiar concept in Indian administration. Top-down approaches are firmly rooted in administrative traditions; in leadership patterns and styles and in the hierarchical caste structure of society. An upper caste project engineer is not likely to listen to a low caste dweller, let alone consult him concerning the location of a handpump or the width of the lane in front of the slum dweller's house. On the contrary, he may even demolish the house without informing the dweller. If people attempt to raise their voices, they are confronted by an unresponsive apparatus peopled with either indifferent or powerless officers who are supposed to leave all non-trivial decisions to the top executive. In this respect, the project didn't differ from the common hierarchical set-up of local governance in India.

As shown in the previous section, there are a number of reasons why slum dwellers show no inclination to organise and do something themselves. They play the role of passive recipients, who complain a lot but still make themselves subservient to the

project organisation. Their complaints are less related to a feeling of injustice than an expression of powerlessness.

The real feeling of injustice starts only when people begin to understand what the official standards, plans and policies are about. When some modern ideas, however distorted, trickle down to complement their confined world view and they begin to think that they can somehow benefit from such ideas. The ODA slum improvement projects were at least partly based upon such modern ideas, e.g. with respect to dweller participation.

In Vijayawada there was a secretary of one of the NHCs, Naik, who gradually became aware of the project discrepancies. When I first met him, he was outraged about the behaviour of project officers. He accused them of indifference, corruption and delivering sub-standard work. Then he started visiting other slums and found out that his experience matched that of members of other NHCs. In a very important step, he approached local journalists writing for a variety of newspapers. He developed a good understanding with some of them. The newspapers appeared to be eager to print Naik's allegations and criticism. Nearly every week an article was published in one of the local papers (see box 3).

Box 3. ODA project office "a place of iniquity"

The ODA project office has become a place of iniquity; a place characterised by a misuse of power and corruption. Instead of improving slums, the project staff primarily show an urge to improve their own positions. Since the start of the project … 15 project officers have been sent abroad for training. Each trip costs some Rs. 300,000 to 500,000. Except for two, all the foreign trained officers have been transferred soon after they had returned from their foreign mission. Recently arrangements were made for another foreign study trip. The officer involved will retire by May of this year. Well-informed sources have it that the officer was selected only because of political representation. In addition he had to pay a sizeable bribe.

In many slums recently constructed cement concrete roads show signs of decay such as cracks and holes. Community halls have developed cracks as well. The roofs of many of them are leaking. These phenomena can be found in Joji Nagar, Darsipet, Gollapalem Gattu, Karakata South and Madhura Nagar. In Urmilla Nagar, improperly constructed drains have resulted in stagnant rain water which at times enters into the houses. There were also complaints about the television sets purchased by the ODA project. Out of the 80 sets some 47 are still in the ODA storage room. …

Source: Newspaper article (Vijayawada, Ahdhra Prahba, June 1992)

With his vigour and enthusiasm and his open criticism, Naik irritated the project management and some of the local politicians. At the same time he became a kind of spokesman for everybody – contractors, project officers and NHC members – who had something to talk or complain about. This kept him well informed about the ins and outs of the project. He started collecting project documents and had them translated in Telugu. Then he began to publicly compare the goals, intentions and activities included in the reports, with what had become of them on ground level.

When, in March 1993, an Association of Neighbourhood Committees (ANHC) was constituted and officially registered, Naik had become a local force to be reckoned with. He himself became the secretary and the main public spokesman of the association, which represented 45 NHCs. The main aim of the association was to inform the slum dwellers about the aims of the ODA programme and get them involved in its planning, decision making and implementation.

The interesting thing about Naik and his association is that they constituted a type of leadership that departed from the common pattern. While this seems to have been exactly what the ODA had envisaged at the start of the project, the local project organisation was neither capable nor willing to involve the association in its operations. The reason is simply that this would threaten the interests of contractors, project officers, and politicians. The public attacks on the project management led to hardening of positions and to open conflict.

The most important, but largely passive source of power was the existence of a kind of higher authority: the Field Management Office (FMO) of the ODA in New Delhi. When the ANHC started communicating with the FMO, it greatly annoyed some local politicians. The more respectable ones argued that it was wrong and shameful to wash one's dirty linen in front of a foreign donor. Others rightly feared political competition. They asserted that the ANHC invited trouble and disobedience to the common rules of conduct and argued that the NHCs should have been more thoroughly politicised, following the common patterns of leadership, to begin with. Behind the screens, however, some of them tried to win Naik's support.

In the meantime, the ANHC had started organising its own awareness and health programmes. It went on to criticise the project management and thereby provoked the transfer of the project director. Naik carefully avoided getting involved in "messy" subjects. However, at the end of 1995, the situation got out of hand. When the association asked to be provided with a room in the project office, the project director angrily refused and told them to go to court. They duly filed a lawsuit demanding, among other things, to be allowed to participate officially in the project. The negative response of the city government can be characterised as angry, pompous and legalistic (Baken 2000, pp. 433-37).

Community toilets in Mumbai, Pune, Kanpur, Bangalore and Hyderabad (1988-2003)

There is no mention of the improvement of sanitary condition under the above described slum improvement schemes. The reason is simply that sanitation had a very low priority. In Vijayawada a low-cost loan scheme was introduced enabling slum households to construct individual toilets. Only a fraction of the total slum population was reached by the scheme, and this only after mediation of public servants and building material suppliers. Many loans ended up outside the ODA slums.

The low priority attached to slum sanitation in Vijayawada and Visakhapatnam, until only very recently reflected the all-India situation. Few city governments had invested anything substantial in this field. There are various reasons for this apparent reluctance (see e.g. Chaplin 1999; Burra et al. 2003, 14). One is that there is no easy solution. There is either no space or no money to construct private toilets, and most practical examples of public or community toilets are not particularly propitious. Indeed, the regular government-constructed community toilet blocks constitute examples of hopelessness. Design and construction were conducted in a way similar to that in the slum improvement projects. On the whole, the quality was extremely poor, due to inappropriate cement mixtures, building materials and design, and inadequate water supply. Construction and maintenance agencies showed no accountability to the communities concerned, meaning that they developed no sense of ownership. Most toilets became blocked, dirty and in serious disrepair within three months of construction, leaving people with no alternative but to defecate in the open. In turn, this resulted in health hazards and quite naturally turned the toilet sites into garbage dumps. An alternative to such community blocks offered by NGOs, charitable organisations and the like were pay-to-use public toilets. In general, such toilets have proved too expensive for the average slum household.

Given this state of affairs, it is not surprising that the city government of Mumbai, when confronted with an almost 200 million dollar World Bank loan to extend its sewer system (late 1980s), concentrated on marine outfalls and treatment plants. NGOs had to remind the city government that half of the population lived in a slum-like environment without sewers and toilets and would not benefit from the project at all.

Indeed, a survey of 151 settlements in Mumbai with 1 million people, conducted by slum dwellers' organisations, showed a distressing situation. There were 3,433 municipal toilet seats, one for every 1,488 persons. Eighty percent of the toilets were not working. Most toilets had broken doors and many had overflowing septic tanks, latrines clogged with excrement and sites covered with garbage (Burra et al. 2003, p. 16).

Three organisations in Mumbai took up the challenge to reverse the negative thinking surrounding community toilets and to improve the sanitary conditions in slums.

- SPARC, founded in 1984, by a group of female social workers who worked among poor women, many of them homeless
- Mahila Milan, a group of female Muslim ex-sex trade workers who were among SPARC's constituencies and formed a separate NGO in 1986
- the National Slum Dwellers Federation, a broad-based slum dwellers' organisation

Together these organisations formed "the Alliance". This brought together a peculiar association of qualities: the technical knowledge and varied network (including elite and private sector connections) of SPARC; the radical grass roots political organisation and federation of the NSDF; and the strength of the poor women of Mahila Milan, who had learned the hard way how to deal with the police, slum lords and real estate developers in the streets of central Mumbai (Appudurai 2001, p. 28).

The Alliance convinced both the city government of Mumbai and the World Bank that part of the loan to Mumbai should be used to construct community toilet blocks. This marked the start of an impressive record of Alliance-guided community initiatives in various Indian cities. It constitutes a case that contrasts with the one above. To begin with, it starts from the urgent need among slum dwellers to improve sanitation. Secondly, it concerns truly community-driven, -designed and -managed initiatives. These initiatives resulted in improved sanitation and washing facilities for hundreds of thousands of poor households and proved that such facilities could be both affordable and manageable. Last but not least, this helped to change the relationship between slum dwellers and local government. Organisations of slum dwellers were recognised as a capable and competent partner in improving urban infrastructure.

The Alliance managed to get involved in sanitation projects in Mumbai, Kanpur, Bangalore, Hyderabad and Lucknow (1988-1996). In all these cities it started with community-led surveys that formed the basis for the first experiments in implementing the concept of community-built and -managed toilet blocks. These experiments were not without problems. In Mumbai, for example, the World Bank obsession with market competition resulted in repeated bidding for contracts and competition among slum dwellers, NGOs and contractors. This ran completely counter to the community-driven approach of the Alliance which, rather than competition, needed continuity in the process of design, construction and maintenance.

In Pune an enlightened commissioner (elite bureaucrat of the Indian Administrative Service) took charge of city management and was eager to build a great number of community toilets within his term in office. The Alliance was ready to take up the role of contractor and, with other NGOs, was invited to bid for the construction and maintenance of community toilets. Over the period 1999-2001, it completed more than 400 toilet blocks with more than 10,000 seats. Families were entitled to use the toilets for a low monthly fee, which contributed to their maintenance.

The Pune programme helped to reconfigure relationships between the city government and civil society. NGOs and communities were no longer regarded as "clients" or "supplicants", but as partners.

"The division of roles was also clear; city authorities changed their role from being a toilet provider to setting standards, funding the capital cost of construction, and providing water and electricity. The NGOs and community organizations designed, built and maintained the toilet blocks. This programme was unusual for India for its transparency and accountability; there were no deals struck behind closed doors. There was constant communication between senior government officials and community leaders. Weekly meetings brought all stakeholders together to review progress and identify problems. All aspects of costing and financing were publicly available. Access by community organizers to senior officials kept in check the petty corruption that characterizes so many communities' relationships with local government agencies, as more junior government staff and local politicians demand illegal payments." (Burra et al. 2003, p. 20).

Of course, there were problems similar to those in Vijayawada and Visakhapatnam. "Some NGOs with contracts were actually thinly disguised fronts for contractors; their poor performance in part undermined the legitimacy of genuine organizations. Other NGOs struggled to develop more participatory engagements with community organizations, but lacked roots firmly based in the urban poor communities." (ibid.) Some politicians sought to gain political capital by opposing any payment for the use of the toilet blocks, thereby defeating the system of maintenance. In some cases, this actually depressed collection rates.

In keeping with the opposition of local politicians against the role played by the Association of Neighbourhood Committees in Vijayawada, many politicians in Mumbai and Pune protested against community-managed processes. It undermined their patronage role vis-à-vis slum populations and threatened their political careers. Since they lost their usual cuts, contractors, engineers and councillors were not particularly happy either. Inevitably there were government staff who didn't like the new approach. They did not want to work with organised women's groups because they felt unable to ask these groups for the bribes they usually received from contractors. And naturally, slum communities did not instantaneously become transformed into smooth operating cooperatives (see box 4).

Box 4. It is not easy to get money out of people

Community leader, Mumbai: Now we have a new toilet block. It was completed nine months ago. If we keep it clean, it will remain clean. It is our responsibility. But who is going to take it? That is the problem. We have 360 member families. Of them, 300 pay 20 rupees every month. They know which families do not pay. They say, '...charge even 50 rupees, but keep the toilets clean.' We have a total collection of around 6,000 rupees. We have employed two people to clean the toilets. One of them stays in the caretaker's room up here. Their salary together with cleaning materials costs 4,000 rupees. Electricity costs 200 rupees. We used to fill the

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overhead tank by using the motor but the municipality took it away. And people waste water. They leave the water taps open and go away. We have not received water bills so far, but we have to pay for the water. Our collection of 6,000 rupees is not enough for all our expenses. It is not easy to get money out of people. We have to go from house to house to collect the money. I am fed up.'

Source: Interview fragment (Bapat & Agarwal 2003, p. 76).

There were many more problems. Given the fact that the studies on which this case is based are written by people who have a lively interest in the projects themselves, it is likely that there is a certain bias in favour of success stories. An independent, detailed evaluation of the projects would probably lead to a more nuanced picture.

On the other hand, I'm inclined to believe that there have been a considerable number of real success stories in which dwellers were given a prime role in the design and construction of their toilet blocks. Some women community leaders were said to have won contracts and successfully managed the construction process of their new toilets themselves. With time, such women's groups gained experience in dealing with local government agencies. This helped them build confidence in dealing with other public agencies.

In 2000, because of its previous involvement and experience, SPARC won the tender to build 320 toilet blocks with 6,400 seats in 20 wards of Mumbai. The driving force behind this was another IAS commissioner who had seen the work of the Alliance in Pune. It proved hard to work with a highly bureaucratic city government that was not used to working with NGOs and caused long delays in payments. Nonetheless, by the middle of 2003, most of the blocks were completed (180) and another 110 were under way.

The programmes are well documented (see e.g. Burra et al. 2003; Appadurai 2001; Bapat & Agarwal 2003; Patel 1999, 2001; Patel et al. 2001).They introduced innovations in the fields of design, the provision of water supply and drainage, and in funding and maintenance[4].

4 As far as design of community toilet blocks is concerned, the following issues are worth acknowledging: invariably the community-constructed blocks were bright and well-ventilated. They had large water storage tanks to ensure enough water for washing and cleaning and separate entrances and facilities for women, men and children – children easily loose out to adult and/or may be afraid of using conventional latrines. In addition, they included a room where the caretaker and family could live – resulting in lower management and maintenance costs. To conclude, the toilet blocks either contained a community hall or a meeting space (e.g. on a roof terrace) – this generated or enhanced the desire to keep it clean. With respect to water supply and drainage, the programmes attached great importance to connecting the toilet blocks to the city water supply and sewers. While on the one hand this may be expensive, on the other it seems an essential ingredient for a successfully operated toilet block. In order to cut public costs, communities were supposed to handle "little pipe items", while the city government was encouraged to concentrate on the big pipes. "If the city can deliver sewers and water supply to the settlements, communities can take over from there." (Burra et al. 2003, 24) As regards the funding of maintenance, the Alliance promotes a system whereby each household buys a monthly pass for Rs. 20.

The large-scale programmes in Pune and Mumbai attracted staff and politicians from other cities to come and learn. They also provoked negotiations between federations and authorities in other cities. Sanitation became a more regularly discussed public issue, for example when a new toilet block was inaugurated. Such occasions also constituted a chance for dialogue over other issues such as water, electricity, paved roads and secure tenure.

In the best cases, the traditional relationship between politicians as patrons and voters as clients underwent a transformation. Previously, a toilet block was the "gift" from a local councillor or a legislator; now citizens saw toilet blocks as their right. Their involvement built their strength and confidence to negotiate with local municipal officials on other issues. "As pressures build from below, the administrative and political processes are compelled to respond. The culture of silence and subservience begins to give way to a more substantively democratic process" (Burra et al. 2003, p. 25).

Conclusions

I have briefly described two entirely different approaches to slum improvement implemented in comparable contexts. The simple and straightforward aim of physical improvement in the form of a well-functioning community toilet block of the second case contrasts sharply with the multiple, all-round goals of the Vijayawada and Visakhapatnam projects. While the toilet blocks gave community involvement a very clear significance and sense of direction, community participation in Vijayawada and Visakhapatnam only had a symbolic meaning and was actually undermined by the complex project set-up. Another set of factors that negatively affected integration, participation and the quality of project output, concerned patronage, corruption and discontinuity of personnel, which are integral parts of normal public administrative procedures. One argument in favour of putting the responsibility of project implementation in the hands of the existing government administration is that, in this manner, the project can be more easily linked into existing plans and policies. Since there are no comprehensive plans and policies, there is only little merit in this argument.

Those designing the Vijayawada and Visakhapatnam projects argued in favour of implementation through local government organisations. In combination with extensive staff training programmes, they thought that this could bring about a lasting change in the local approach towards the slum problem and make several project activities an integral and ongoing part of local government activities. A great number of factors render this argument invalid. Some concern practical matters, such as the lack of financial means to continue project activities on a meaningful scale; the dependence on state government decisions as regards the implementation of various weaker section programmes; and the transfer of key executives and trained staff even during the project period. The second category of factors relate to more fundamental issues. Although the project included a great variety of activities, it did not constitute

an essential change in strategy or an improvement over past practices. One could say that the most noteworthy aspects of the project were related to the amount of money spent, to the coverage of the scheme and the quantity of the infrastructure provided. While the project included rather irrelevant awareness programmes, it did not deal with very simple and low-cost, yet essential matters, such as the issuing of conditional land titles and ration cards, which would have signified a structural improvement of the legal position and the security of slum dwellers. Moreover, while relocation was couched in careful terms in the project manual, and depicted as something to be avoided at all costs except to help dwellers improve their housing environment, during the project, slums were cleared and slum dwellers were dumped in remote, inaccessible places without facilities. If it had not been for an ODA consultant who closely monitored the relocation scheme, it would have happened more than once.

The proponents of the community-driven approach would probably argue that the best training ground for a (local) government agency and individual government agents dealing with slums and slum dwellers is not located in a well-equipped training institute abroad, but in the local slums among the local slum dwellers; they are the experts in urban poverty and poverty alleviation. The building of community toilets, while very important in itself, is also an important part of a strategy aimed at enabling the poor to work their way into the public sphere and visible citizenship. This develops into a gradual and risk-laden process of slow learning and cumulative change that cannot be captured in the form of a project. The strategy is pragmatic and relies on the politics of accommodation, negotiation and long-term pressure and asset building. Of crucial importance in this strategy is the community collection of data by means of surveys, and the related setting of precedents. In such a process, "... the poor need to claim, refine and define certain ways of doing things in spaces they already control, and then use these practices to show donors, city officials and other activists that their 'precedents' are good ones, and encourage such actors to invest further in them. This is a politics of show-and-tell but it is also a philosophy of 'do first, talk later'." (Appadurai 2001, p. 33).

It invites bureaucrats to creatively apply regulations and public plans, creating new space for partnership and pushing existing boundaries. It should be acknowledged that without the support and active promotion of high-placed bureaucrats of the IAS cadre, such as the municipal or additional commissioners in the cases of Pune and Mumbai, this would never have been possible. Since, in India, such elite bureaucrats are in a very powerful position, their support and promotion can make a world of difference. The problem with such support is that IAS officers are in office only temporarily.

If all this talk about extending the civic space of slum dwellers or the reconstitution of citizenship seems rather vague, I am convinced of its significance. One should not forget that, at present, many slum dwellers live in illegality. Although there are many shades of illegality, large parts of the urban poor have to make do with the margins of the city. For this and other reasons, I hope that the expansion of civic space by slum dwellers will ultimately allow for a serious discussion and resolution of the land problem. After all, a low-income housing policy based on slum improvement relies

on poor people to create slums first. By and large, slum creation takes the form of squatting. This is an illegal, insecure form of land delivery. Moreover, with urban growth and the increasing pressure on land, both the quantity and quality of potential "squatting grounds is decreasing considerably (see Baken 2003). This system is not only unjust, but it has far reaching consequences with respect to possibilities and costs for future slum improvement.

The enforcement of the Nagarpalika Act (1991) marked the start of a decentralisation campaign by the central government. It meant to curb the discretionary powers of the "state government vis-à-vis the local bodies and aimed to formalise centre-state-local body relationships, augment and rationalise the financial base of local bodies, safeguarding their democratic function and enlarging their role in development planning" (Ministry of Urban Development, GOI 1993). The more recent Jawaharlal Nehru National Urban Renewal Mission (JNNURM) wants, among other things, to strengthen the trend of decentralisation and puts more emphasis on efforts to improve basic infrastructure in low-income areas. These initiatives are surely not flawless, but they point in the right direction. In combination with the grassroots experiments of the kind undertaken by the Alliance, these initiatives from above could help to produce meaningful contentions of local democracy that are currently lacking. If it could result in a shift of the focus of politics, from plan implementation to plan formulation, a lot could be gained. Obviously, however, this does not happen overnight.

In Brazil it did happen. In many respects, the situation in Brazil was comparable to that in India. Public funds were typically spent through a mixture of corruption, patronage and obscure technocratism. In Porto Alegre, a regional capital of 1.3 million inhabitants, this changed in 1989, when the Workers' Party came into power and started living up to its promises in the fields of citizen participation and redirecting policy priorities towards the poor. Faced with an acute financial crisis, its first year in office boiled down to debt management. Then, a group within the administration proposed participatory decision making. Moreover it demanded that priority be given to basic infrastructure in the poorest neighbourhoods. This resulted in a total commitment, backed by funds, to the decisions made by neighbourhood budget assemblies (Abers 2002). Almost instantaneously local politics was linked to policies and all kinds of government interventions.

Since then, residents have met in their neighbourhoods annually to discuss needs for community infrastructure, electing delegates of 16 district budget forums. Through conflictual negotiations among neighbourhood representatives, these delegates list priorities for each type of capital expenditure such as basic sanitation, street paving and parks. Every year, open assemblies in each district also elect two members to a city-wide municipal budget council that devises criteria for distributing funds among districts and approves an investment plan that respects the priorities of each one (ibid.). The results in Porto Alegre have been impressive.

"Between 1989 and 1996, the number of households with access to water services rose from 80% to 98%; the percentage of the population served by the municipal

sewage system rose from 46% to 85%; the number of children enrolled in public schools doubled; in poorer neighbourhoods, 30 kilometres of roads were paved annually since 1989; and because of transparency affecting motivation to pay taxes, revenue increased by nearly 50%." (Waglé & Shah in Bräutigam 2004, pp. 658-59).

By 2000, more than 100 Brazilian cities were implementing the new policy. Porto Alegre remained an exceptional case – in most other cases participatory control remained limited to a small portion of expenditures. Yet, it became clear that the policy has a tremendous potential to mobilise people.

In contrast with the more modest Indian experiments in local democracy, those of Porto Alegre were clearly more revolutionary. This was enabled by the fact that the transformation was backed by a political movement and party. The new policy itself was linked to mainstream politics. In its turn, the policy of participatory budgeting gave meaning and legitimacy to a host of government schemes and initiatives. There are fundamental political, social and economic differences between Porto Alegre and Pune or Mumbai. Still, for me, all these experiments are important sources of hope for the future. They show in what area we have to search for solutions.

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AT THE CHIEF'S OFFICE,SATURDAY MORNING THE NEXT DAY AT 7:00AM.THE SLUM DWELLERS HAVE GATHERED AT THE CHIEFS CAMP FOR THE SCHEDUELED GENERAL CLEANUP.
GOOD MORNING MY FELLOW RESIDENTS?
WE WANT CLEANLINESS.
THANK YOU FOR HEARING MY PLEA TO COME TOGETHER FOR THE SAKE OF CLEANING OUR ENVIRONMENT AND LEARN TO OBSERVE STRICT SANITATION MEASURES FROM TODAY,FOR THE GOOD OF OUR FUTURE GENERATIONS.
LET US BEGIN.
THEY CLEAN EVERYWHERE..FROM THE FILTHY TRENCHES..
..TO THE ROADS AND ALLEYS.
..AND THE RIVER BANK.
10

8. Overview papers for the IRC Symposium 'Sanitation for the Urban Poor'

This chapter provides an overview of the papers and essays written for the IRC Symposium 2008, 'Sanitation for the Urban Poor: Partnerships and Governance,' held in Delft, the Netherlands between 19 – 21 November.

The complete version of each paper and essay found in the table presentation is included in the accompanying DVD. In the same DVD, power point presentations, graphic materials and short video interviews conducted with participants during the symposium may also be viewed.

Twenty symposium papers received an additional editing round by IRC. The other papers in the DVD are in their original versions – that is, as they were compiled in the set of papers distributed during the symposium.

The table found in the succeeding pages provides a brief description of each paper.

Final editing done by IRC	Author	Title	Description of paper	Theme	Country or region	URL
Yes	Alabaster, Graham P.	The challenges of meeting the water and sanitation MDGs in the smaller urban centres in the Lake Victoria Region	The implementation of the Lake Victoria Water and Sanitation Initiative (LVWATSAN) started in June, 2006 in Kenya, Uganda and Tanzania. The focus of the initiative has been to rehabilitate and improve physical infrastructure in the 7 pilot towns, while at the same time building the necessary institutional capacity to improve water and sanitation governance and ensure the long term sustainability, so protecting Lake Victoria.	Partnerships	East Africa: Kenya; Tanzania; Uganda	http://www.irc.nl/page/45490
Yes	Allen, Adriana; Pascal Hofmann and Hannah Griffiths	Moving down the ladder: governance and sanitation that works for the urban poor (Essay written for symposium)	Neither the public nor the international private sector is filling in the gap of meeting the WATSAN needs of the urban and peri-urban poor. The concept of 'service co-production' is presented in this context as a means to draw lessons from the ground of sanitation provision to and by the urban poor, fostering a type of governance that is people-centred rather than producer-centred.	Local governance	Global	http://www.irc.nl/page/42653
Yes	Arney, Heather; Sait Damodaran; Michaela Meckel; Andrew Barenberg; and Gary White	Creating access to credit for water and sanitation: women's self-help groups in India	This paper looks at the development of a water and sanitation loan fund deployed through a network of women's self-help groups in Southern India. The success of the loan fund reduced barriers to credit from formal lending institutions and increased investment in water and sanitation facilities.	Finance	India	http://www.irc.nl/page/44897
Yes	Baken, Robert-Jan	The political and administrative context of slum improvement : two contrasting Indian cases	This essay describes two entirely different approaches to slum improvement implemented in comparable contexts. The first case concerns slum improvement projects in two rapidly growing million-plus cities in Andhra Pradesh. The second case is that of the ten-year experience in the construction of toilet blocks in Indian urban slums by urban poor federations and women's cooperatives, with the support of the NGO SPARC.	Urban dynamics	India	http://www.irc.nl/page/42608

Yes	Baskovich, Malva Rosa	Building inclusive sanitation markets for the poor	The "Alternative Pro-poor Sanitation Solutions in Peru" (APSS) initiative proposes a market approach to sanitation based on the interaction of demand who gives priority to sanitation; profitable local-national supply; a micro-credit system; and key local actors committed to sustainable sanitation management.	Finance	Peru	http://www.irc.nl/page/44893
Yes	Black, Maggie and Ben Fawcett	A new revolution for urban sanitation: lessons from the nineteenth century	The sanitary revolution that occurred in Britain and the industrializing world in the latter half of the 19th century has several valuable lessons for the similar revolution now needed to enable 40 per cent of the world's population to access toilets and sanitation services. Among the most important are those concerning governance.	Local governance	United Kingdom	http://www.irc.nl/page/44894
No	Blankwaardt, Bob; Deirdre Casella; Jo Smet and Marielle Snel	Local governance for basic urban services: Country case from Burkina Faso	The objective of this paper is to share the major experiences and lessons learnt, to highlight the remaining challenges and to suggest ways forward, in particular in scaling up the basic urban services (BUS) demonstration projects in Burkina Faso.	Local governance	Burkina Faso	http://www.irc.nl/page/45287
Yes	Borba, Maria Lucia and D.V. de Souza	Monitoring environmental sanitation by city-dwellers in Vila Machado, a peri-urban barrio of Metro São Paulo	SABESP, the São Paulo State Basic Sanitation Company, coordinates water supply to meet the demand of nine million city dwellers for treated water in the São Paulo Metropolitan Area, Brazil. Residents are happy with the water supply system but frustrated with the lack of a sewer collection network.	Local governance Urban dynamics	Brazil	http://www.irc.nl/page/44895
Yes	Bracken, P. and A. R. Panesar	Ecosan in poor urban areas – sustaining sanitation and food security	Whilst conventional (disposal-oriented) sanitation systems have improved the public health situation for many in cities that can afford them, they have failed to reach the poorest, drained economies, squandered resources and broken nutrient cycles.	Technologies	Burkina Faso; Philippines	http://www.irc.nl/page/44908

Final editing done by IRC	Author	Title	Description of paper	Theme	Country or region	URL
Yes	Colin, J.S.; J.S. Wibowo; C. Keetelaar; N. T. Utomo; I.C. Blackett	Developing city sanitation strategies in Indonesia	This paper examines the city level planning and capacity building process which is at the heart of the Indonesia Sanitation Sector Development Program (ISSDP). Central to the process are collaboration between the various government organisations involved in sanitation at municipal level, and the identification of prioritised, affordable actions that will enable the cities to move steadily towards effective services, city-wide.	Urban dynamics	Indonesia	http://www.irc.nl/page/45199
No	Dijk, Meine Pieter van	Sanitation in developing countries: integrated solutions, including financial options	Theoretical and practical arguments are used to explain why private sector involvement (PSI) is more frequent in sanitation than in drinking water. The issue how to improve the efficiency in sanitation will be raised by looking at possibilities to unbundle sanitation, to use technological innovations and to bring in more competition.	Finance	Africa	http://www.irc.nl/page/45200
Yes	Eales, Kathy	Partnerships for sanitation for the urban poor: Is it time to shift paradigm? (Essay written for symposium)	Partnerships are not a substitute for action by government, nor do they absolve government of responsibility for investing in service provision. They do hold the potential to harness fresh approaches to achieve public sector objectives, leverage capacity and broker the relationships needed to overcome mistrust, disengagement, poor accountability and the fragmentation that often characterises the sanitation sector.	Partnerships	Global	http://www.irc.nl/page/42882
Yes	Eales, Kathy	Rethinking sanitation improvement for poor households in urban South Africa	The massive acceleration in sanitation provision in South Africa has been to the credit of all involved since democratisation. But it comes attended by huge problems, such as water scarcity and declining quality arising from an inability to treat increasing amounts of sewage. This leads to an unsustainable situation in many locations.	Technologies	South Africa	http://www.irc.nl/page/44896

No	Gentes, Ingo and A. Sergio Ruiz	Approaches towards assessing sanitation rights in Bolivia	Bolivia's actual policy structure seeks to ensure a broad consensus on better water governance relying on a participatory democracy approach and the commitment on indicators for sustainable development. The newly implemented Water Ministry (2006) has radically changed the regulation model and administration system for urban and rural water and sanitation services, seeking to enhance the role of social participation.	Local governance	Bolivia	http://www.irc.nl/page/45286
Yes	Holden, Richard	Urban sanitation technologies: the challenges of reaching the urban poor (Essay written for symposium)	Given the institutional complexities surrounding dense urban slums it is unrealistic to expect that sustainable sanitation services can be provided. The objective is to minimise risks as far as possible so as to maximise the health benefits to the residents. This paper discusses the various technical options and makes recommendations for how to achieve this.	Technologies	Global	http://www.irc.nl/page/44100
Yes	James, A.J.	Giving wings to the elephant: facilitating governance for urban sanitation in India	This paper states that the sheer size of the challenge and the obligation that government provide adequate sanitation services to its citizens, point to a government-led solution, through improved provision by urban local bodies (ULBs), public-private partnerships or greater involvement of civil society and its organizations.	Local governance	India	http://www.irc.nl/page/45285
Yes	Kamara, Innocent Tumwebaze; H.T. Sande and C.B. Niwagaba	Social marketing for scaling up sanitation for the urban poor – a case of slum communities in Kawempe Division, Kampala City	The paper presents experiences of using social marketing to improve sanitation in urban slum areas to scale up improved sanitation and hygiene practices. It also briefly describes a community sanitation revolving fund scheme.	Finance	Uganda	http://www.irc.nl/page/44898
No	Kamundi, E.K. and C.K.M. Nekesa	Sustainable financing options to sanitation for the urban poor in Nairobi Kenya	Lessons learnt from this paper: despite increasing funding to integrated water and sanitation initiatives, proper sanitary practice, usage, and coverage remains low; current models for utilisation of funds remain dependent on continued external donations; Implementers of sanitation programmes have by-passed key stakeholders and sometimes damaged local initiative.	Finance	Kenya	http://www.irc.nl/page/45483

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No	Keijzer, Martin; Gert de Bruijne and K. Hetzer	Sanitation in peri-urban areas in Africa	Describes a programme (2008 – 2012) which aims to improve the sanitation situation in peri-urban areas of 5 cities in Mali, Ethiopia, Kenya, Zambia and. In each project city the relevant utility has to take up responsibility for dealing with the sanitation problem in their areas, directly or through small-scale private sector.	Partnerships	West Africa; East Africa	http://www.irc.nl/page/44899
No	Khan, Farooq; M. Riaz; Iftikhar Hussain; Rabia Syed and Bilal Javed	Performance benchmarking in four Tehsil Municipal Administrations of Peshawar NWFP Pakistan	After promulgation of new system of local government in Pakistan under the Local Government Ordinance (LGO) of 2001, the municipal service delivery was entrusted to the newly established entities called "Tehsil Municipal Administration" (TMA). A study was conducted to establish a Performance Benchmarking system to allow informed decision-making and course correction mechanism within TMAs to eventually result in improved municipal service delivery.	Local governance	Pakistan	http://www.irc.nl/page/45489
Yes	Khataza, Robertson	A $0.14 Home: financing the urban sanitation through group savings	Describes a loan-financed urban sanitation programme, with an entrepreneurship approach. Each programme package (comprising ECO-SAN toilets, kiosk-piped water and skills training for improved livelihoods) produces a business product in the form of compost, safe drinking water and various handcrafts which are either marketed within or outside the communities. The loan comes from a revolving fund basket where network members save their monthly contributions.	Finance	Malawi	http://www.irc.nl/page/44900
Yes	Kumar, A. Shrdha and B. Yogesh Kumar	Citizens' participation in improving sanitation services in urban India: Report card on water and sanitation services in Madhya Pradesh	Participation of citizens in the decision-making process is extremely important and necessary. This paper is based on using citizen report cards to assess performance of the water and environmental sanitation services in Bhopal municipal corporation and six small towns of Madhya Pradesh state in India.	Local governance	India	http://www.irc.nl/page/45290

Yes	Luthi, Christoph; Antoine Morel and Elizabeth Tilley	Integrate at the top, involve at the bottom – The Household-Centred Approach to Environmental Sanitation	This paper presents initial experience with implementation of the Household-Centred Environmental Sanitation (HCES) approach, jointly developed by the WSSCC and Eawag/Sandec (Water and Sanitation in Developing Countries).	Technologies	Tanzania; Laos	http://www.irc.nl/page/44902
Yes	Mbaguta, Alex Muhumuza	Partnerships for sanitation for the urban poor	This paper discusses sanitation for the urban poor, partnerships and governance in Uganda. It two major objectives: to discuss how public private partnership (PPP) is helping improve sanitation among the urban poor; and to make recommendations for future improvement.	Partnerships	Uganda	http://www.irc.nl/page/45484
No	Michelutti, Enrico	Local government and communities at work: questioning the Community Water Supply and Sanitation Project Dar es Salaam, Tanzania	The paper presents a SWOT analysis of the Community Water Supply and Sanitation Project, questioning the Municipality's' role and highlighting the institutional fragmentation of the project's actors.	Local governance	Tanzania	http://www.irc.nl/page/44903
Yes	Mjoli, N. and J. Bhagwan	Free basic sanitation services – South African experience	The paper sets out an analysis of eight case studies investigating the approaches used by a range of metro, district and local municipalities to provide free basic sanitation services in South Africa. The study focussed on free basic sanitation policies, funding arrangements, integration of health and hygiene education, poverty reduction, operation and maintenance plans for dry on-site sanitation systems and methods used to target the poor.	Local governance	South Africa	http://www.irc.nl/page/44904
No	Norström, Anna; E. S. Owusu and D. Van Rooijen	Sanitation challenges for a new Municipal Assembly in the Greater Accra Region, Ghana	Accra, the capital of Ghana, is one of the fastest growing cities in West Africa and the boundaries of urban Accra have long since expanded beyond the administrative borders of Accra Metropolitan Area. One way to deal with the fast growing population in some areas has been to create new administrative units, i.e. divide large administrative enclaves into smaller ones.	Local governance	Ghana	http://www.irc.nl/page/45492

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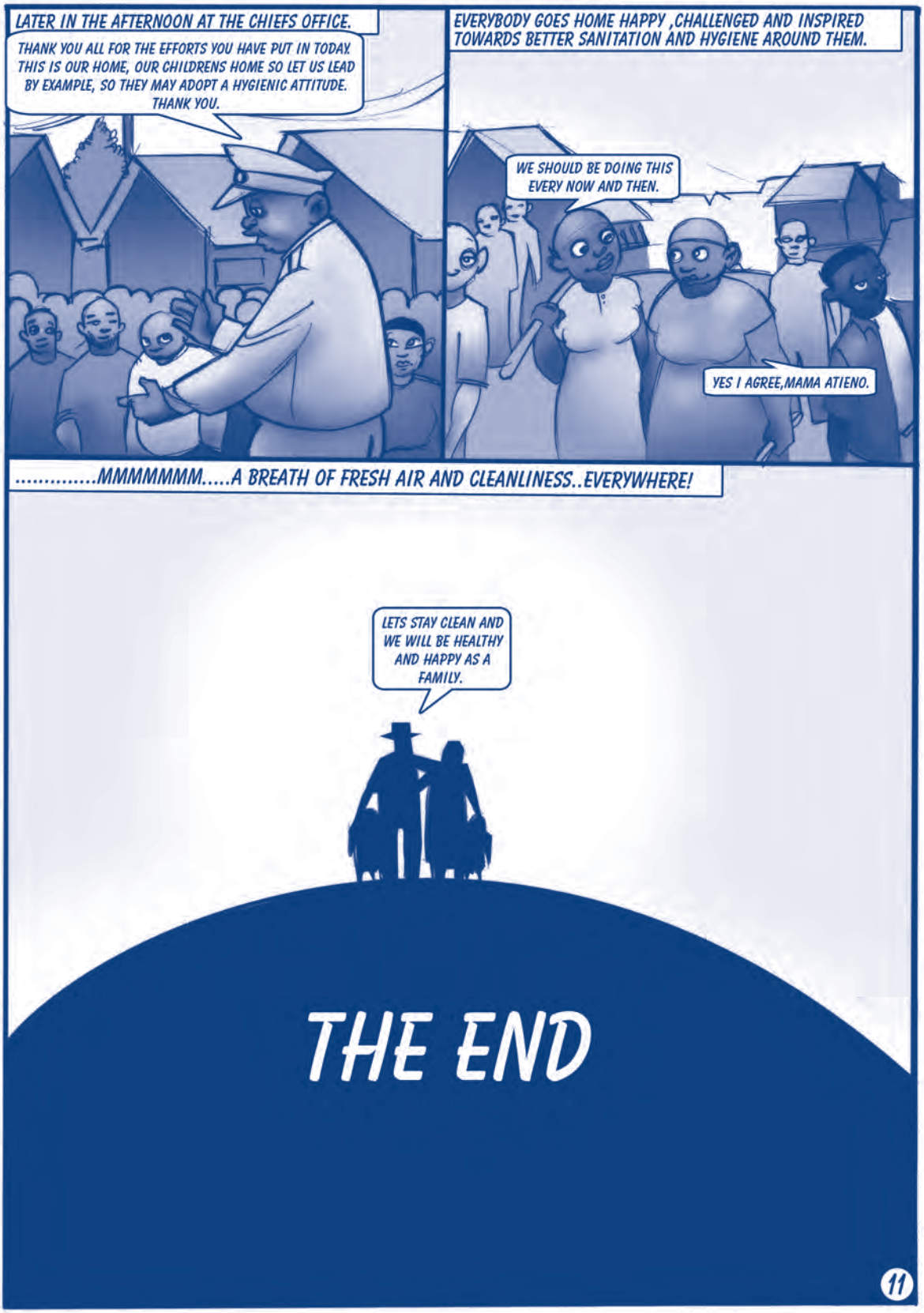
Yes	Platzer, Christoph; Heike Hoffmann, Elier Ticona	Alternatives to waterborne sanitation: a comparative study – limits and potentials	The study analyses the potentials and limits of alternatives to waterborne sanitation. It is based on a comparison of a waterborne sanitation to a dry sanitation solution. One very important point is that the introduction of a UDDT (urine diversion dry toilets) solution enables a water provision for 50% more inhabitants.	Technologies	Peru	http://www.irc.nl/page/44905
Yes	Qutub, Syed Ayub; Naseema Salam, Khalid Shah and Daanish Anjum	Community-based sanitation for urban poor: the case of Quetta, Pakistan	Rapid urbanisation has increased the need for an adequate sanitation system in Quetta, Pakistan's 12th largest city but inadequate institutional capacities have hindered the development of one. This has caused chronic problems in the city's 47 Katchi Abadis (informal settlements).	Partnerships	Pakistan	http://www.irc.nl/page/44892
No	Sánchez, Eduardo; Túpac Mejía and Stef Smits	Capacity for local governance of sanitation services provision among poor urban communities in Honduras	This paper reports on the finding from the small town of Talanga and the peri-urban areas of Tegucigalpa. Specific recommendations for both types of settings are presented, such as the need to extend post-construction support mechanism from water supply to sanitation and to strengthen participatory planning processes in sanitation development in urban settings.	Local governance	Honduras	http://www.irc.nl/page/44910
No	Shayo, Alfred J.	Integrated support for a sustainable urban environment, Arusha, Tanzania	This paper analyses the Integrated Support for a Sustainable Urban Environment (ISSUE – 2) project, started in 2007, from inception to implementation stage. It covers the formation of stakeholders' partnership, its successes, challenges, lessons learned and recommendations for proper implementation of human excreta and solid waste management for the urban poor.	Partnerships	Tanzania	http://www.irc.nl/page/44906
Yes	Sijbesma, Christine; Carlos Diaz; Catarina Fonseca and Christelle Pezon	Financing sanitation in poor urban areas (Essay written for symposium)	Using a combination of literature review, personal and documented experiences, the authors present an overview of traditional and innovative financing approaches and mechanisms for urban poor sanitation, and discuss their advantages and limitations.	Finance	Global	http://www.irc.nl/page/45460

Yes	Smet, Jo	Political and social dynamics in upgrading urban sanitation : a case from Sri Lanka	Paper about the Basic Urban Services project in Colombo (Sri Lanka) which aimed to improve low-income urban sanitation through multi-stakeholder involvement at local, municipal and agency level. The main conclusion is that political dynamics are hard to manage from a sole sanitation strategy perspective.	Urban dynamics	Sri Lanka	http://www.irc.nl/page/45482
No	Smits, Stef; A. Galvis; D.P. Bernal, J. T. Visscher; A. Santandreu; N.O. de Nascimento and John Butterworth	Governance of urban environmental sanitation in Latin America; case studies from Belo Horizonte, Cali and Lima	Cities in Latin America face a double challenge in environmental sanitation, of both providing access to basic sanitation for those currently lacking that, and improving the collection and treatment of wastewater. Governance is identified as a crucial factor affecting the way in which these challenges can be met.	Local governance	Latin America: Brazil; Colombia; Peru	http://www.irc.nl/page/44907
Yes	Toubkiss, Jérémie	Financing sanitation in sub-Saharan cities : a local challenge	The paper states that the two main challenges of financing sanitation are: setting up financial tools that stimulate household investments for on-site sanitation facilities and anticipating the financing of ongoing maintenance and operation. Toubkiss says that a "sanitation surcharge" on existing water services appears to be one of the most effective examples of a "sustainable local financial tool for sanitation".	Finance	Africa	http://www.irc.nl/page/45283
Yes	Winter, K.; A. Spiegel; K. Carden; N. Armitage; E. Kruger; N. Dyani and N. Mngqibisi	Stakeholder participation in greywater management in South African shack settlements	This paper argues that effective community-level solutions to wastewater management depend on the establishment of partnerships and trust amongst all stakeholders, and it documents the challenges faced in creating these co-operative relationships in the settlements studied.	Urban dynamics	South Africa	http://www.irc.nl/page/44909


LATER IN THE AFTERNOON AT THE CHIEFS OFFICE.
THANK YOU ALL FOR THE EFFORTS YOU HAVE PUT IN TODAY. THIS IS OUR HOME, OUR CHILDRENS HOME SO LET US LEAD BY EXAMPLE, SO THEY MAY ADOPT A HYGIENIC ATTITUDE. THANK YOU.
EVERYBODY GOES HOME HAPPY ,CHALLENGED AND INSPIRED TOWARDS BETTER SANITATION AND HYGIENE AROUND THEM.
WE SHOULD BE DOING THIS EVERY NOW AND THEN.
YES I AGREE,MAMA ATIENO.
.....MMMMMMM.....A BREATH OF FRESH AIR AND CLEANLINESS..EVERYWHERE!
LETS STAY CLEAN AND WE WILL BE HEALTHY AND HAPPY AS A FAMILY.
THE END

Sanitation Services for the Urban Poor

With the urban population now surpassing rural population, redressing the problems of poor urban sanitation has become one of the most urgent and challenging tasks in the WASH sector. Achieving sustainable sanitation services for the urban poor gives impetus to a better quality of life and when brought to scale, has great potential to transform societies and advance economies. If left unaddressed however, human development and growth are restricted and the debilitating effects are felt most acutely in areas where populations are growing fastest – that is, in urban slums.

This book brings together some of the most advanced thinking and indeed potential ways forward in tackling these issues. It is based on papers and discussions presented during the IRC Symposium 2008, *Sanitation for the Urban Poor: Partnerships and Governance*, held in Delft, The Netherlands, at the close of the International Year of Sanitation in 2008. Hosted by IRC International Water and Sanitation Centre, the symposium brought together 80 practitioners, analysts and policy makers from around the world with an interest in sharing their experiences, insights and proposals for addressing these challenges. This publication comprises a selection of papers from the symposium and is accompanied by a DVD containing papers and video interviews conducted with participants.

With a Foreword written by Sir Fazle Hasan Abed, Chairperson of BRAC, this book is essential reading for anyone with an interest in understanding the problems of urban sanitation; learning about examples of best practice and building comprehension of the requirements for positively transforming the situation in future.

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