

Building towards a future in which urban sanitation “leaves no one behind”

Diana Mitlin

1. Satterthwaite, David, Diana Mitlin and Sheridan Bartlett (2015), “Key sanitation issues: commitments, coverage, choice, context, co-production, costs, capital, city-wide coverage”, *Environment and Urbanization* Brief 31, 6 pages, available at <http://pubs.iied.org/10745IIED.html?s=EUB>.

2. The term “slum” usually has derogatory connotations and can suggest that a settlement needs replacement or can legitimate the eviction of its residents. However, it is a difficult term to avoid for at least three reasons. First, some networks of neighbourhood organizations choose to identify themselves with a positive use of the term, partly to neutralize these negative connotations; one of the most successful is the National Slum Dwellers Federation in India. Second, the only global estimates for housing deficiencies, collected by the United Nations, are for what they term “slums”. And third, in some nations, there are advantages for residents of informal settlements if their settlement is recognized officially as a “slum”; indeed, the residents may lobby to get their settlement classified as a “notified slum”. Where the term is used in this journal, it refers to settlements characterized by at least some of the following features: a lack of formal recognition on the part of local government of the settlement and its residents; the absence of secure tenure for residents; inadequacies in provision for infrastructure and services; overcrowded and sub-standard dwellings; and location on land less than suitable for occupation. For a discussion of more precise ways to classify the range of housing sub-markets through which those with limited incomes buy, rent or build accommodation, see *Environment and Urbanization* Vol 1, No 2 (1989), available at <http://eau.sagepub.com/content/1/2.toc>.

SUMMARY: Plans to improve access to sanitation in towns and cities of the global South are hampered by multiple challenges. One is a lack of reliable information. In particular, global and national-level data often diverge from data on particular settlements, collected by inhabitants of those settlements themselves. Local data highlight the inadequacy of living conditions – and in so doing evidence the difficulties in securing improvements. Another challenge lies in the setting of standards around acceptable sanitation. At a global level, for instance, shared sanitation is not considered part of “improved” sanitation. Yet the reality for many low-income urban populations is that communal sanitation can be hygienic, cost-effective and locally acceptable.

The difficulties in reaching a consensus around data and standards point to the importance of diverse approaches to increasing and improving sanitation, including considering both on-site and off-site solutions. They also highlight how crucial it is for the planning and implementation of all such solutions to be inclusive of those often missing from global debates, such as the low-income urban groups that cannot afford substantial sanitation spending. Financial and political commitments, drawing on the circumstances and approaches articulated by low-income groups themselves, will be key to securing a future in which everyone has access to the sanitation they need.

This Brief draws on the second *Environment and Urbanization* issue on sanitation this year. This issue, like the one published in April 2015, documents both the importance of sanitation for households’ well-being, dignity, and good health and the scale of sanitation need. The April Brief⁽¹⁾ also offered a comprehensive review of the lack of progress that has been made and argued that interventions that are sensitive to the specificities of local situations and acceptable to local people are going to be key to progress. And it highlighted some of the critical factors that need to be considered if sanitation improvements at scale are to be achieved.

This Brief highlights key findings from the papers in the October 2015 issue of *Environment and Urbanization*. And it makes some suggestions in light of the UN Summit in September 2015 that agreed on the Sustainable Development Goals (SDGs), which pledge to “leave no one behind”. Two goals are particularly relevant: Goal 6.2 with its general commitment to provide sanitation and Goal 11.1 with its commitment to upgrade informal settlements (slums⁽²⁾) with basic services (Box 1).

BOX 1	Global sanitation commitments of the SDGs
<p>6.2 By 2030, achieve access to adequate and equitable sanitation and hygiene for all and end open defecation, paying special attention to the needs of women and girls and those in vulnerable situations</p> <p>11.1 By 2030, ensure access for all to adequate, safe and affordable housing and basic services and upgrade slums</p> <p>See also: 6.b Support and strengthen the participation of local communities in improving water and sanitation management</p>	

This Brief draws on the Editorial in the October 2015 issue of *Environment & Urbanization* on “Sanitation and drainage in cities”. E&U Briefs are funded by UK aid from the UK government’s Department for International Development and allow the Journal’s main findings to reach a wider audience; however, the views expressed do not necessarily reflect the views of the UK government.



3. UNICEF and WHO (2015), *Progress of Sanitation and Drinking Water: 2015 Update and MDG Assessment*, UNICEF and World Health Organization, Geneva.

4. See reference 3, page 14.

5. This does not refer to the location of the toilet, but to solutions where the disposal of faecal matter is then managed on-site rather than through a piped sewerage system.

6. Iossifova, Deljana (2015), "Everyday practices of sanitation under uneven urban development in contemporary Shanghai", *Environment and Urbanization* Vol 27, No 2, pages 541–554.

7. O'Keefe, Mark, Christoph Lüthi, Innocent Kamara Tumwebaze and Robert Tobias (2015), "Opportunities and limits to market-driven sanitation services: evidence from urban informal settlements in East Africa", *Environment and Urbanization* Vol 27, No 2, pages 421–440.

8. Wankhade, Kavita (2015), "Urban sanitation in India: key shifts in the national policy frame", *Environment and Urbanization* Vol 27, No 2, pages 555–572.

9. Gupta, Namita and Rajiv Gupta (2015), "Solid waste management and sustainable cities in India: the case of Chandigarh", *Environment and Urbanization* Vol 27, No 2, pages 573–588.

10. Das, Priyam (2015), "The urban sanitation conundrum: what can community-managed programmes in India unravel?", *Environment and Urbanization* Vol 27, No 2, pages 505–524.

11. Scott, Pippa, Andrew Cotton and M Sohal (2015), "Using tenure to build a "sanitation cityscape": narrowing decisions for targeted sanitation interventions", *Environment and Urbanization* Vol 27, No 2, pages 389–406.

12. Kennedy-Walker, Ruth, Jaime M Amezaga and Charlotte A Paterson (2015), "The role of power, politics and history in achieving sanitation service provision in informal urban environments: a case study of Lusaka, Zambia", *Environment and Urbanization* Vol 27, No 2, pages 489–504.

13. The website of the data collection work of Shack/Slum Dwellers International demonstrates community efforts to challenge poor practices: <http://www.knowyourcity.info/map.php#/app/ui/world>.

14. Pastore, Maria Chiara (2015), "Reworking the relation between sanitation and the city in Dar es Salaam, Tanzania", *Environment and Urbanization* Vol 27, No 2, pages 473–488.

These commitments provide reason for hope – but we know that progress will depend on knowledge about what to do, political commitment to do it and our collective ambition to stay the course. What do articles published in *Environment and Urbanization* and the more general literature add to our understanding on this front?

I. WHAT DO THE DATA TELL US?

A first comment is that we should not believe figures that we hear about sanitation. The Joint Monitoring Programme, or JMP,⁽³⁾ tells us that 82 per cent of the urban population have access to improved sanitation, and that another 11 per cent share sanitation that is otherwise improved.⁽⁴⁾ The JMP reports that in sub-Saharan Africa, 40 per cent of the urban population use improved sanitation. The figure is 67 per cent in southern Asia, and 63 per cent in India.

These figures still appear to be high according to the research reported in this and the previous issue of *Environment and Urbanization*. A key reason may be that some authors consider the problem of faecal waste management alongside the issue of toilet adequacy – and hence raise consistent concerns about the quality of "on-site"⁽⁵⁾ sanitation and the risks to health of those living in dense residential settlements unserved by piped sewerage systems. They also elaborate other reasons that access to safe sanitation is severely lacking.

In China, for example, aggregated figures across the nation do not help us to understand significant differences between regions on the coast and inland. Open defecation in urban areas doubled between 1990 and 2008 because the needs of the lowest-income and most disadvantaged groups such as migrants have not been addressed.⁽⁶⁾

In East Africa, only 1 per cent of households in Kampala and 25 per cent of households in Nairobi are connected to sewers; the rest depend on on-site sanitation or open defecation.⁽⁷⁾

In India, one-third of urban households are connected to a sewer, while others use septic tanks, pit latrines or other forms of on-site sanitation.⁽⁸⁾ Especially in smaller towns, where there is very little capacity to treat waste, less than 10 per cent of waste may be safely managed. Waste management is one of the most pressing planning issues facing India.⁽⁹⁾ Also illustrative of the Indian context are needs in two towns in Madhya Pradesh, a state where 20 per cent of urban households are connected to sewers; most in the state use septic tanks and 22 per cent report open defecation.⁽¹⁰⁾

Many towns and cities face a combination of challenges. Particularly difficult circumstances are seen in Dakar, Senegal, where there is a high water table but 73 per cent of households have on-site sanitation.⁽¹¹⁾

And in Lusaka, Zambia, 10–20 per cent of households are connected to a sewer; other households are dependent on on-site sanitation.⁽¹²⁾

The JMP has previously argued that many forms of on-site sanitation are safe and hence fall into the category of "improved". But its latest report recognizes that providing sanitation at scale requires a consideration of faecal management – something that earlier reporting mechanisms have ignored. Consideration of the safe separation of faecal waste also requires information about residential densities. This is still not considered by the JMP, and this requires urgent attention if the goal of universal access to sanitation is to be meaningful.

The discrepancy between the global figures and the information about specific locations may be due to a multitude of factors, and it may be that the global summary does not misrepresent the available data on the situation faced by urban residents in the global South. However, the data themselves are problematic and reflect a lack of accuracy on the part of those collecting data on living conditions, particularly the situation in informal settlements. And this may reflect that critical information is still not being recorded. This suggests that we need to look again at data collection, particularly in informal settlements.⁽¹³⁾

II. STANDARDS SET BY WHOM?

Whatever the starting point is, the question of standards is never far away. The SDGs make significant commitments. Achieving them is going to require accurate reporting – and that requires some agreements on standards of adequacy. Sewered systems cover a tiny proportion of urban dwellers in much of Africa and Asia. While the private and public costs of different systems have to be taken into consideration, there is a need for flexible solutions – involving both on-site and off-site management of faecal waste, as well as community, shared and individual toilets. For instance, safe and effective water management in Dar es Salaam is likely to require both on-site and off-site components such as wells and pipes.⁽¹⁴⁾ Dealing successfully with sanitation needs will require a multitude of approaches.

But in their local context, we have to recognize that standards have been as much about defining exclusion as about supporting improvements. In Shanghai, elderly people may face the social stigma associated with traditional latrines. Their lack of modern sanitation can mean that

15. See reference 6.

16. Patel, Sheela and the SPARC team (2015), "The 20-year sanitation partnership of Mumbai and the Indian Alliance", *Environment and Urbanization* Vol 27, No 1, pages 55–72.

17. For a collection of papers on documentation and mapping led by low-income urban communities, see *Environment and Urbanization* (2012), "Mapping, surveying and enumerating informal settlements", Vol 24, No 1, available at <http://eau.sagepub.com/content/24/1.toc>.

18. See reference 13; also see the special issue of *Environment and Urbanization* produced by Shack/Slum Dwellers International: *Environment and Urbanization* (2001), "Civil society in action – transforming opportunities for the urban poor", Vol 13, No 2, available at <http://eau.sagepub.com/content/13/2.toc>.

19. Pephrah, Dorothy, Kelly K Baker, Christine Moe, Katharine Robb, Nii Wellington, Habib Yakubu and Clair Null (2015), "Public toilets and their customers in low-income Accra, Ghana", *Environment and Urbanization* Vol 27, No 2, pages 589–604.

20. See reference 10, page 521.

21. McFarlane, Colin and Renu Desai (2015), "Sites of entitlement: claim, negotiation and struggle in Mumbai", *Environment and Urbanization* Vol 27, No 2, pages 441–454.

22. See reference 8.

23. Hasan, Arif (2008), "Financing the sanitation programme of the Orangi Pilot Project – Research and Training Institute in Pakistan", *Environment and Urbanization* Vol 20, No 1, pages 109–119.

24. See reference 7; also see reference 10.

25. See reference 16.

grandparents are no longer visited and sons do not have brides. Further, prejudice against migrants is rationalized with reference to their sanitary habits.⁽¹⁵⁾

The JMP report itself, in its separate reporting of shared sanitation, demonstrates how standards change over time. The monitoring team is questioning its own definitions, which currently exclude shared sanitation from the category of improved sanitation. Papers published in recent issues of *Environment and Urbanization* suggest a re-categorization, with some shared sanitation being included as improved. This is suggested because it is acceptable to the users. The category of shared sanitation is now being considered by the JMP as potentially adequate.

However, the JMP seems to consider a restriction on the numbers sharing toilets, and this would still mean that all public or community blocks are defined as unimproved. In Mumbai's dense informal settlements, community-managed sanitation blocks are effective in addressing needs, and are all that is practical in the current context.⁽¹⁶⁾ Massive investment in sewers, for example, and housing upgrading might provide sanitation to residents of Mumbai's Dharavi settlement, but this is likely to be associated with the displacement of the lowest-income households, the loss of their livelihoods and disruption to social networks.

Moving forward is going to require a much more nuanced approach. Global standards may be helpful to global monitoring but they may also be very misleading. Risks can be minimized if the SDG monitoring is itself participatory, setting global standards through a consultative process,⁽¹⁷⁾ and recognizing that towns and cities have to decide what works for them, and how improvements can be achieved. The organization of residents of informal settlements that has taken place through the networks of Shack/Slum Dwellers International is an opportunity for global development institutions to rethink their approach to setting standards.⁽¹⁸⁾

III. FINANCE – FROM WHERE AND FOR WHAT?

Finance for investment in sanitation is key. In April 2015 we argued that there is an urgent need to rethink finance if local, national and international processes are to be able to support sanitation at the scale required. We recognized the contribution of domestic resources – and this was very much a part of the recent discussions at the Third International Conference on Financing for Development in Addis Ababa in July 2015.

But as important as the scale of finance is the nature of the sanitation investments to which they are directed. Investments need to be appropriate, affordable, locally owned and in many cases progressive, with a systematic capacity for further incremental improvement.

Finance is likely to be from multiple sources – grants, loans, internal cross-subsidies, and user charges.

If we are going to achieve universal coverage, the problem of the very limited capacity to pay of the lowest-income households has to be given centre stage. There is abundant evidence of multiple ways in which the lowest-income households are excluded. Such households are often made up of tenants and recent migrants – research in Accra, Ghana identified these groups as some of those most likely to depend on public toilets.⁽¹⁹⁾ Despite all previous research and the platitudes that accompany much of it, and despite the reality that dividing sanitation costs by household is the simplest of calculations, it remains evident that too many efforts to improve sanitation do not consider what contribution is affordable for the lowest-income households. As reported for one low-income settlement in Gwalior, India, households explained that 83 per cent of their income is taken up by food expenditure. In these circumstances, paying for sanitation is always going to be difficult. Thus, "Where cost recovery is the key driver for community-managed sanitation projects, the goal of universal service provision becomes elusive."⁽²⁰⁾

The same study shows that higher-income households (in Indore, India) faced few of these difficulties and these households were able to make their required contributions. Sanitation providers may also be willing to support inclusion – as demonstrated by the successful struggle of a women's group to keep user charges in one Mumbai informal settlement at Rp. 1 rather than Rp. 2.⁽²¹⁾

The relative costs of on-site and off-site services can be assessed, suggesting that the former are cheaper overall but the latter are cheaper for households as part of the infrastructure costs are subsidized by the state.⁽²²⁾ It is difficult to draw simple conclusions here. Results suggest that many factors determine cost and system design is one of these, as the experiences of the Orangi Pilot Project have shown so clearly.⁽²³⁾ Another factor is the cost of capital and the time period over which these investments are to be repaid, i.e. interest rates.

One reason why there has been inadequate emphasis on inclusive financing strategies is that toilets have been considered as private goods.⁽²⁴⁾ In an urban context, where sewers fulfil at least some of the criteria for being a public good, that makes little sense. Moreover, the externalities associated with sanitation in dense residential areas – and for the city as a whole – are very significant. And sanitation cannot be privately consumed in dense urban settlements where dwellings are too small to include a toilet.⁽²⁵⁾ Recognizing the inherently public nature of sanitation also makes sense as the health benefits

26. Genser, Bernd, Agostino Strina, Lenaldo A dos Santos, Carlos A T Teles, Matildes S Prado, Sandy Cairncross and Mauricio L Barreto (2008), "Impact of a city-wide sanitation intervention in a large urban centre on social, environmental and behavioural determinants of childhood diarrhoea: analysis of two cohort studies", *International Journal of Epidemiology* Vol 37, No 4, pages 831–840.

27. See reference 10.

28. Adegun, Olumuyiwa Bayode (2015), "State-led versus community-initiated: stormwater drainage and informal settlement intervention in Johannesburg, South Africa", *Environment and Urbanization* Vol 20, No 1, pages 407–420.

29. See reference 12.

30. See reference 7.

31. See reference 10.

32. See reference 21.

33. See reference 21.

34. See reference 8.

35. Payne, Geoffrey, Alain Durand-Lasserre and Carole Rakodi (2009), "The limits of land titling and home ownership", *Environment and Urbanization* Vol 21, No 2, pages 443–462.

36. See reference 6.

of sanitation cannot be secured by one household acting alone; these benefits are only secured if a high proportion of the nearby households also secure access to sanitation.⁽²⁶⁾ And once faecal sludge management is associated with sanitation, as it has to be in an urban context where it cannot be assumed that on-site provision will enable the safe storage and processing of waste, then it is clear that sanitation is a public concern.

IV. POLITICAL COMMITMENT IS KEY

There is increasing recognition of the importance of politics in determining the scale of basic services and social provisioning and the rules by which access is secured. Decentralization in the global South was embraced in the 1990s and was meant to catalyse improvements in governance – with new forms of community participation and local ownership.⁽²⁷⁾ However, whatever the original intention, in most nations, outcomes have been disappointing.

In the absence of state action to address sanitation needs, there has been a multitude of private, household and community provision. What is evident is that in most urban contexts, individual citizens can achieve little on their own; to achieve scale, they need to work in collaboration with their governments. At the same time, in the conditions that prevail in much of the global South, there is little that states can achieve if they do not collaborate with their own citizens.

State-led and community-led approaches to drainage in informal settlements around Johannesburg, located in a country whose investment capacity is considerably greater than in much of the global South, were characterized by divergent policies and practices of city and provincial governments, and the mixed response of residents – in part because some of them are unlikely to benefit from improvements.⁽²⁸⁾ Contradictory legislation compounds the difficulties in moving forward in flood protection. Other problems are poorly defined legal and regulatory frameworks – although it is the paucity of rules rather than the contradiction between them that is the problem in Lusaka.⁽²⁹⁾ Transition may bring further difficulties; the changes in Kenyan local government systems are blurring local government roles and responsibilities and creating further difficulties in addressing sanitation needs.⁽³⁰⁾

Even when communities are working in partnership with local government, they still face difficulties and can be overwhelmed.⁽³¹⁾ Enabling environments and champions within government are needed to make such partnership work. But there are no simple answers. While certain authors emphasize that the major impediments are social and institutional rather than technological – and this is a familiar refrain in the broader literature – it does not mean that they are easy to address. Simplicity cannot help here – and we need to start by recognizing that solutions need to be diverse and contingent on local circumstances and opportunities if they are to work effectively.⁽³²⁾

While there are no simple answers, there are tested processes that seem to offer a chance of success. Progress, again, seems to lie in supporting diverse solutions. Private providers frequently have an important contribution to make, especially for higher-income households. For the lowest-income households, there is a need for organized communities to work with local government and/or utilities in ways that build collaboration and that allow for learning and iterative development. Co-production is likely to be the way forward – with joint ownership, joint financing and joint management of different parts of the sanitation system. What is viewed as legitimate has a significant influence on progress.⁽³³⁾ We hope that the adoption of the SDGs will succeed in legitimizing demands for support to improve sanitation across the income continuum.

V. THINK HOLISTICALLY AND BEYOND SANITATION

It is evident from papers in *Environment and Urbanization* that there has been too little attention to faecal sludge management. One reason may be the Millennium Development Goal (MDG) on sanitation, which has been limited in scope and does not include faecal sludge management. It is important to make sure action on global goals addresses rather than exacerbates the lack of access to basic services in many towns and cities of the global South.⁽³⁴⁾

What is also evident, especially for those living on sites with insecure tenure, and for tenants, is that tenure issues are central to sanitation options. This does not necessarily mean that formalization of tenure is the answer; indeed, given that a high proportion of households are tenants, this cannot be the case. We know that different contexts produce different responses and provide incentives for different kinds of behaviour.⁽³⁵⁾ However, what is clear is that the more control households have over the assets that are created, the more likely it is that solutions will address their needs.

The environment also matters. It matters in part because it influences the challenges that solutions will have to face. The increased likelihood of extreme weather events related to climate change makes the need for settlement drainage even more acute, and means that designs for solutions such as pit latrines have to minimize the risk of contamination during periods of flooding.

But the environment can also help to contribute solutions, such as the historic practice in China of recycling human waste with collection carts up until the 1960s.⁽³⁶⁾ While excreta collection stations

37. See reference 7; also see Uddin, Sayed Mohammad Nazim, Zifu Li, Ibrahim B Mahmood, Jean Lapegue, Jan Franklin Adamowski, Pier Francesco Donati, Elisabeth Maria Huba, Heinz-Peter Mang, Buyanbaatar Avirmed and Shikun Cheng (2015), "Evaluation of a closed-loop sanitation system in a cold climate: a case from peri-urban areas of Mongolia", *Environment and Urbanization* Vol 27, No 2, pages 455–472.

38. See reference 7.

39. See reference 12.

40. See reference 11.

41. See reference 21.

42. See reference 10.

remain up to the present day, there has been a gradual "decoupling" of human waste and plant and animal production. More recent experiences with eco-sanitation show that we are seeking to recapture this more positive relationship with the environment in sanitation provision.⁽³⁷⁾ However, while the Sanergy social enterprise model is appreciated by its customers for its cleanliness, and while it has been successful as a source of income for at least some of its operators, there are concerns about the commercial potential of this model. Moreover, the costs associated with the required capital investment and maintenance in the case of eco-sanitation and/or access to Sanergy's pay-per-use model of sanitation provision limit the relevance for the lowest-income households.⁽³⁸⁾

VI. SCALE CHANGES THINGS

It is evident that the importance of the city scale is increasingly being recognized as critical to improved outcomes, with a number of recent projects exploring city-wide interventions. There is much ongoing work related to scaling up neighbourhood improvements, and in "looking down" from the city to the local in efforts to increase the quantity of provision.

From the perspective of scale, insights emerge. City-wide sanitation requires engagement with the dual issues of latrine design and faecal sludge management. This is demonstrated at the local level in an exploration of how Lusaka can develop locally appropriate and decentralized solutions for the treatment of faecal sludge generated in informal settlements.⁽³⁹⁾ And a discussion of frameworks that can support improvements in Dakar highlights that it is only with this shift in scale that it is possible to understand the challenges – i.e. who is left out, what becomes of the waste – and so begin to address them.⁽⁴⁰⁾

However, securing sanitation improvements at scale is not simple – and nor is it easy.⁽⁴¹⁾ National policy in India has been seeking city-wide interventions since 2008.⁽⁴²⁾ Progress has been limited – at least in part because funds and capacities are lacking. Recognizing the importance of scale may change perspective but it does not immediately bring results.

What is evident is that past commitments can and have made a difference – especially if there is the understanding that progress in sanitation requires a sophisticated knowledge of the local context and projects owned by those who are intended to benefit. Contextual knowledge, with innovation and flexibility in crafting solutions and determination to secure progress, emerge as necessary conditions. And a key first step will be establishing the monitoring framework required to inform the world about SDG implementation.

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Human Settlements Group
International Institute for Environment and Development (IIED)
80–86 Gray’s Inn Road, London WC1X 8NH, UK
E-mail: humans@iied.org Website: <http://www.iied.org/group/human-settlements>
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