Review Paper

A systematic assessment of the pro-poor reach of development bank investments in urban sanitation

P. Hutchings, M. Johns, D. Jornet, C. Scott and Z. Van den Bossche

ABSTRACT

This paper presents an assessment of development banks' investment in urban sanitation between 2010 and 2017. It reveals an overall increase in investment, yet this falls short of bridging the significant financing gap in the sector. The paper also assesses the major areas of investment to show that, on the infrastructure side, 20 times more money is invested in sewerage than faecal sludge management, while on the enabling environment side, institutional capacity building is the most financed area. Using a new pro-poor assessment tool, an appraisal was made of the extent to which the investments were pro-poor. This analysis indicates that over half of investments, where an assessment could be made, were considered to be pro-poor, yet the use of the assessment tool reflects a lack of information within development bank reporting on the pro-poor nature of investments. Going forward, improving how development banks report on the pro-poor character of their investments would be a useful step for helping the sector assess the effectiveness of investments. The paper concludes by arguing that, despite progress, development banks should be even more ambitious in seeking to support pro-poor urban sanitation investments if the world is to overcome the urban sanitation challenge.

Key words | development bank, finance, pro-poor, urban sanitation

P. Hutchings (corresponding author)
Cranfield University,
Vincent Building (1st Floor), Cranfield, Bedfordshire MK43 0AL,
UK
E-mail: *p.t.hutchings@cranfield.ac.uk*

M. Johns
Cranfield University,
15709 Point Monroe Drive NE, Bainbridge Island, WA 98110,
USA

D. Jornet
Cranfield University,
21 Chemin des Virgiles, Res. Varoises 12bis, Ste Maxime 83120,
France

C. Scott
Cranfield University,
47A Barbauld Road, London N16 0RT,
UK

Z. Van den Bossche
Cranfield University,
19 Rue des Masnuy, Jurbise 7050,
Belgium

INTRODUCTION

Today, around four billion people live in cities and another 2.5 billion people will join them by 2050; 90% of these will be in Africa and Asia (United Nations 2016). Ensuring this population has adequate access to basic services like water, energy and sanitation represents the primary development challenge of the 21st century (Sclar *et al.* 2005). Arguably, the provision of sanitation represents the most intractable element of that challenge as it is estimated that there are still 2.2 billion urban people without a safely managed sanitation service, defined as one in which excreta is safely treated and/or disposed of off-site (WHO-UNICEF 2017). 674 million live without a basic sanitation service, meaning they do not have a facility that hygienically separates faeces from human contact (WHO-UNICEF 2017). Those living in South Asia and sub-Saharan Africa make up 63% of those without that basic level of service and, across those regions, 60 million people still openly defecate in cities (WHO-UNICEF 2017). Urban citizens living in close proximity to one another are particularly vulnerable to the health burden of poor sanitation (McMichael 2000), while

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poor sanitation has costs in terms of well-being (Bisung & Elliott 2017), reduced economic productivity (Hutton 2013) and physical security (Lee 2017).

Despite the clear benefits of improving urban sanitation coverage and standards, there are significant barriers. A common challenge is a lack of secure land tenure that can preclude citizens gaining rights to basic services (McGranahan 2015), while the congested nature of cities limits the provision of sanitation services due to limited space for facilities and supporting infrastructure (McGranahan 2015). Delivering sanitation in such a context is made significantly harder by the financial capital constraints that the most needy urban municipalities and authorities operate within (Andersson *et al.* 2016). The financing needs for urban sanitation are significant: it is estimated that just the capital finance needed to extend water and sanitation services to meet the Sustainable Development Goals (SDGs) is $1.7 trillion up until 2030, with urban sanitation making up 44% of these costs (Hutton & Varughese 2016). Current investment levels would need to triple to meet global need. The poorest countries of the world, especially those in sub-Saharan Africa and South Asia, are in most need of assistance if they are to overcome this financing gap.

Despite discussion about an era of 'innovative development finance' and the rise of non-conventional donors (Mawdsley *et al.* 2014), the world's development banks remain some of the best placed and resourced institutions to help bridge that gap. Multilateral and bilateral development banks, such as the World Bank, Asian Development Bank (ADB) and African Development Bank, provided US $313 billion to low and middle-income countries between 2010 and 2014 with US$83 billion (27%) allocated to the water and sanitation sector (OECD 2017a, 2017b). Unlike commercial banks, development banks have a mandate to finance projects that address human development challenges, like urban sanitation. For example, the World Bank's mission is to end extreme poverty and promote shared prosperity, while the African Development Bank is committed to spurring sustainable economic development and social progress and, in all cases (at least of those development banks covered in this paper), they have committed to supporting the SDG agenda. That mandate means that they should support investments for the poorest segments of populations and, although such investments will still be assessed for economic viability, the explicit emphasis on advancing human development stands them apart from their commercial banking colleagues.

In the context of the urban sanitation financing gap, this paper sets out to examine the extent to which development banks meet their mandate for advancing urban sanitation for the urban poor. To do that, the paper reviews development bank investments in urban sanitation projects from the establishment of the Millennium Development Goals (MDGs) in 2000 to 2017 in two regions with the largest sanitation needs in the world – South Asia and sub-Saharan Africa (with these regions defined as per the World Bank regional country lists). By development bank investments we mean those normally concessional loans (depending on country income status) to a government institution, often large in magnitude (>$20 m), given over a long timeframe (5+ years) and supported by technical assistance. The paper delivers an assessment of trends and patterns in such investments and discusses some of the major gaps in reporting in this area. This contribution provides a novel analysis that will be useful for development banks, governments, researchers and other stakeholders, as they seek to assess the sector's performance for the world's poor and pick strategies that may deliver greater impact over the long term. The paper delivers on that agenda by first examining the concept and measurement of 'pro-poor sanitation', a term which is now widely used in the water and sanitation sector (WatSan) but vaguely defined (dos Santos & Gupta 2017). A description of the review process is then given before the results and discussion are presented.

HOW CAN PRO-POOR URBAN SANITATION BE ASSESSED?

This section clarifies how the researchers approach the problem of assessing whether investments are pro-poor. An ideal approach would be to come to an agreed definition of 'the poor', then measure the distribution of outcomes and impacts from a sanitation intervention over time and across populations. In the best case scenario, these data would be available through associated *ex post* evaluation reports from the programmes and institutions. The researchers found that while it was common practice to present

ex post evaluations of projects, the level of data and information presented in these was not sufficient to make such judgements in this way. Even if data were available, there would remain significant challenges, including ensuring that any evaluations are robustly implemented and comparable when trying to synthesise data. More fundamentally, there is also the issue of clarifying who constitutes 'the poor' as many definitions of poverty exist: people can be defined as poor if they live under a nationally defined poverty line, or if they earn less than the current globally defined poverty line, or by various other measures such as their daily calorie intake (for a review of measuring global poverty see: World Bank 2017b). This leads to a related challenge that those defined as poor also changes over time, for example, during the implementation phase of a project. All this means that even if data were available, assessments of what constitutes pro-poor sanitation is a difficult task.

The only study the authors came across which attempts to make a similar assessment is the Newborne *et al.* (2012) study into development bank investments in four utilities in Ghana, Tanzania and Burkina Faso. That work involves a detailed case study approach involving interviews, focus groups and a desk study providing a narrative of pro-poor ambition and project delivery and, while that study provides useful insight (as discussed later in this paper), the methods used are not appropriate for a review study. An alternative approach is therefore required that enables researchers to assess a much wider number of investments in a consistent fashion. For that purpose it is useful to examine what 'pro-poorness' means within the sanitation sector. The idea of being 'pro-poor' was first propagated within development contexts during the 1970s to explain policies that reduced economic inequality. It is now common for governments in developing countries to ascribe to pro-poor strategies in national development plans. For example, the Government of Bangladesh is committed to promoting a pro-poor macro-economic environment and pro-poor infrastructure development (IMF 2012). Focusing on how pro-poorness is understood in the WatSan sector, Dos Santos & Gupta (2017, p. 24) argue that the sector has 'embraced the "pro-poor" concept as an alternative way to deliver services to the poor in line with the minimum international standards for improved WatSan facilities'. Here, the notion that pro-poor is an 'alternative', or better way, of delivering sanitation is considered pertinent.

Due to the failure of the sector to serve so many people with sanitation, especially the poorest in urban areas, 'pro-poor sanitation' stresses the need for changes in the way authorities and municipalities seek to serve the poorest. In practice, this materialises into sanitation policies and programmes that are characterised by one or more of the following features: '(i) pro-poor tariffs and financing mechanisms for service improvement, (ii) institutional arrangements to improve services to the urban poor, (iii) pro-poor transaction design (including regulation and monitoring), (iv) advocacy and communications regarding the urban poor, and (v) consumer voice and civil society engagement' (Cross & Morel 2005, p. 3). Relatedly, there are particular forms of infrastructure that are recognised as being pro-poor, such as communal toilets in slums, although it should be noted that these are not considered basic services under the SDG monitoring (WHO-UNICEF 2017). Such features and infrastructures are often championed by specialist 'pro-poor' units within broader water and sanitation programmes or institutions. It should be noted that although this suggests a need for specialist provision for the poor, there is a new focus on 'citywide inclusive sanitation' which intends to avoid putting the poor into a specialist provision box and, rather, promote an approach in which the poor are served as part of a citywide strategy (Banana *et al.* 2015; World Bank 2017a).

Nonetheless, an approach to assessing the pro-poorness of urban sanitation investments can still usefully be built from an understanding of what are considered pro-poor programme and infrastructure design features. For the purpose of a review, this also has the advantage of significantly expanding the number of investments that can be assessed, as such information is readily available in project plans and non-economically disaggregated evaluation reports. Based on that logic, the researchers characterised key sanitation project and infrastructure design features and then developed an approach for assessing whether these features could be classified as either pro-poor, not pro-poor or unknown. This process involved deliberative and iterative engagement with a number of sanitation sector professionals and led to the development of a new assessment tool which became labelled as the 'pro-poor sanitation analytical decision tree' and an associated decision protocol. In total, that covered 13 possible components of an investment in urban sanitation with these divided between

infrastructure investments (wastewater treatment; sewerage; faecal sludge management (FSM) services; public toilets; communal toilets; household toilets) and what were called enabling environment investments (policy change; institutional capacity building; pro-poor unit; community capacity building; private sector support – FSM services; private sector support for toilets; and behavioural change) (see Table 1 for a definition of each).

For each category a decision pathway was developed (see Figure 1) that would lead to a classification of the investment as either pro-poor or not. Some investments were considered pro-poor by definition, such as community capacity building, as these initiatives are invariably delivered in the poorest communities and such activities are widely understood as part of the 'pro-poor sanitation paradigm'. Yet, in many cases, whether an investment is pro-poor or not depends on the context of a particular project. For example, taking one project such as the Kerala Sustainable Urban Development Project (Asian Development Bank 2017) just on the infrastructure side, the project involved spend on wastewater treatment, sewerage, FSM and public toilets. Each project component would be assessed independently with a specified set of questions from the protocol for each area. Focusing on sewerage as an example, the first consideration is the area served by the sewerage network ('Network area') and, so, if geographically poor areas are not served, the investment cannot be considered pro-poor. However, if geographically poor areas are served, the affordability of the service needs to be considered to determine if the investment is pro-poor. When assessing affordability, questions we focused on were whether users were expected to make payments, whether these payment means were appropriate and whether there was special consideration of less advantaged parts of the population. However, following that basic approach – which is further clarified below – the tool was used as a basis for assessing the pro-poor character of development bank investments in urban sanitation from 2000 to 2017. The results from that exercise are reported on later in the paper following further clarification on the review process in the next section.

Table 1 | Definitions of investment areas in urban sanitation

Investment area	Definition
Infrastructure	
Wastewater treatment	Centralised or decentralised treatment of human waste from both sewerage and on-site sanitation
Sewerage	Network infrastructure that conveys human waste
FSM services	Management system that collects and transports human waste from on-site sanitation
Household toilet	Toilet used privately by one household
Communal toilet	Toilet used by an agreed group of people
Public toilet	Toilet used by the public (for free, or for a fee), including schools and market places
Enabling environment	
Policy change	A change in governmental law, policy or regulation
Institutional capacity building	The development and strengthening of institutional skills, instincts, abilities, processes and resources, specifically public institutions that deliver WatSan services
Pro-poor unit	Institutional department/unit mandated to address the needs of the poorest of the population served by the institution, specifically of a service provider (municipality, water utility) that delivers WatSan services
Community capacity building	The development and strengthening of community skills, instincts, abilities, processes and resources, specifically related to the provision of WatSan
Private sector FSM services	Private sector suppliers of faecal sludge management (collection, transportation and/or treatment)
Private sector support for toilets	Support for private sector suppliers or management of toilets (private, communal or public)
Behaviour change	The transformation or modification of human behaviour, specifically related to water, sanitation and hygiene

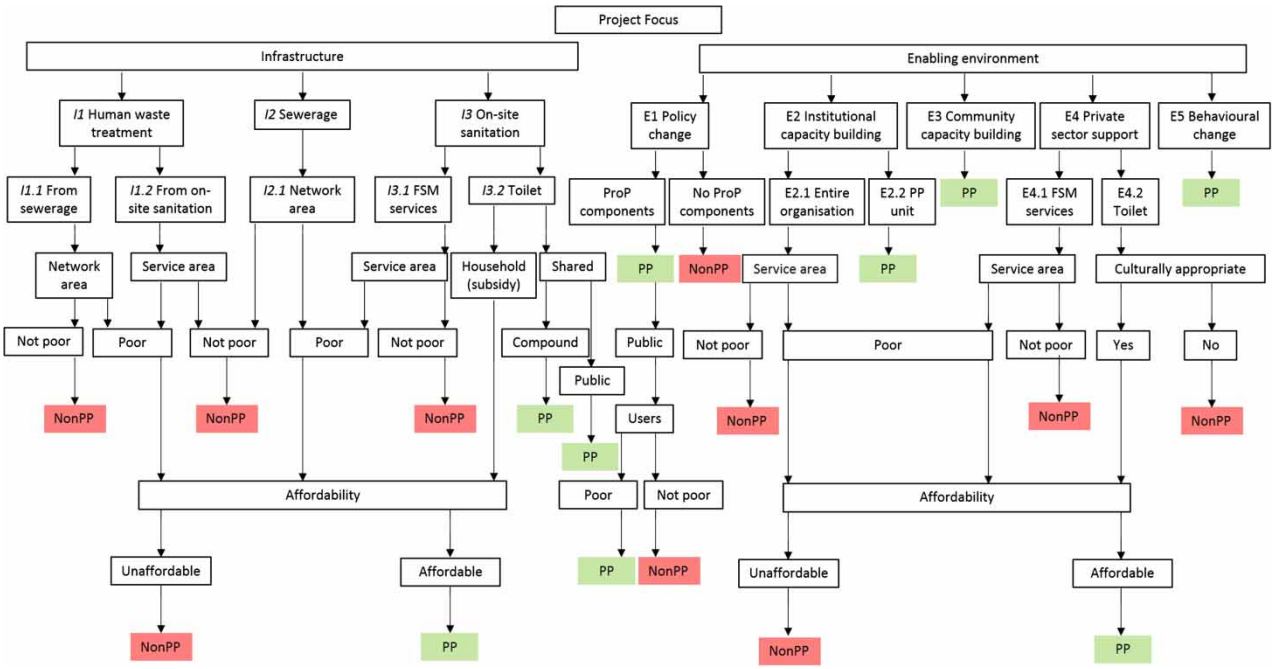

Figure 1 | Analytical decision tree for assessing the pro-poor character of urban sanitation investments.

ADAPTING A SYSTEMATIC REVIEW APPROACH

To find relevant development bank financed urban sanitation projects to analyse, the project used the search techniques from the systematic review method (Petticrew & Roberts 2006). Taking into account that information on such development bank financing was fragmented and found largely in grey literature we used a variety of sources, including academic journal databases as well as bank websites and other grey literature sources. The review focused only on the most major multi-lateral and bi-lateral international banks: ADB, African Development Bank Group (AfDB), European Bank for Reconstruction and Development (EBRD), European Investment Bank (EIB), Japan Bank for International Cooperation (JBIC), Japan International Cooperation Agency (JICA), KfW Development Bank (KfW) and World Bank (WB). The scope of the study was for projects in 2000 or after as the MDGs were agreed upon in September 2000 and so the date range allows the MDGs to take effect, and to see how the separation of safe drinking water supply and basic sanitation targets influenced investments in the sector.

A search protocol was developed focusing on sub-Saharan Africa and South Asia, and a number of key words (e.g., sanitation, urban development, drainage, and solid waste). The initial search yielded more than 4,000 documents, with the exact figures for each search engine and bank shown in Table 2. Through a number of search-narrowing iterations, the number of projects that were deemed appropriate for further analysis was eventually reduced to 138. Data from each project were then recorded in a central database. To enable fair comparison, all financial data were recorded as reported, and then inflated to 2016 and converted to US dollars using the 2016 average currency exchange rate.

The documents for each project were then reviewed and the analytical decision tree was used to analyse the extent to which different components of that project could be judged as being pro-poor in character or not. To promote consistency in this procedure, an application protocol was developed and a peer review process was instigated so that a project previously reviewed by one researcher was then also assessed by another. Although there were small differences in some judgements, these were not deemed to alter the overall data findings, and no adjustments were made.

Table 2 | Document search results by bank

Bank/Search engine	Initial search[a]	Number of project documents[b]	Number of projects to analyse[c]
Google Scholar (English)	1,000[d]	0	0
Google Scholar (French)	40	0	0
EBSCO	14	0	0
Scopus	432	0	0
ADB	97	49	36
AfDB	254	45	39
EBRD	0	0	0
EIB	30	13	9
JBIC	0	0	0
JICA	1,873	6	3
KfW	344	12	6
WB	174	128	45
TOTAL	4,258	253	138

[a]Number of documents that appeared during our initial search before reading any of the documents.
[b]Number of projects we narrowed down using our initial search criteria of urban sanitation, which included drainage and solid waste management, as well as emergency documents.
[c]Number of unique projects that were used for the analysis phase following final checks of quality and appropriateness.
[d]Although 43,400 documents appeared in the search, only the first 1,000 documents were able to be viewed.

This led to the development of a database that, where available, contained investment amounts in US dollars (USD) for each of the 138 projects, an overview of the project components of each project including, where available, investment amounts in USD, and a judgement of whether each of those project components was pro-poor or not as per the analytical decision tree.

The final database was then analysed to identify key trends along six different themes – time, region, bank, gross domestic product (GDP), the human development index (HDI) and sanitation access. For each of the sub-populations within each theme, the total project budget and final project spend, among others, were summed and analysed using basic descriptive statistics. Noting the inclusion of the subjective assessment data, and the reality that the sources of data were predominately from the grey literature, it was not considered appropriate to incorporate higher-level statistical analysis, such as the forms of inferential statistics that are often applied during the meta-analysis stages of systematic reviews. Yet, the strength of the study comes from bringing together the financial investments as reported by the bank and the subjective assessment of pro-poorness as per the analytical decision tree, enabling the creation of a novel database that allows for the first time, as far as the researchers are aware, an assessment of the extent to which development bank investments in urban sanitation since 2000 have been pro-poor.

OVERVIEW OF DEVELOPMENT BANK INVESTMENTS IN URBAN SANITATION

This section presents the findings from the review process starting with a summary of the major characteristics of the sample. Of the 138 projects analysed, it was possible to identify an initial budget for 134 projects (that is, including all contributions from banks and the host government). This totalled US$20.3 billion, with an average budget of US$151.7 million per project. The budgeted bank contribution was known for 128 projects and totalled US$14.0 billion (70% of the total budget and US$109.7 million per project). For the 43 projects with a known final spend, US$7.2 billion was spent (an 18% overspend), with an average of US$168.4 million. It was possible to determine the final bank contribution for 42 projects, which was a total of US$4.0 billion (an 8% overspend) with an average of US$96.2 million. For the 126 projects with a known project duration, projects were expected to last 72 months. Where provided, the average money per beneficiary at the project level was intended to be US$132 (for 58 projects), with the average money per sanitation beneficiary estimated to be US$33 (for 38 projects). These data are summarised in Table 3, which also shows the high variance in the dataset (final column). In practice, this reflects the diversity of projects that development banks support, ranging from modest investments in small-scale pilot projects to citywide urban development programmes.

Out of 134 project budgets, 61 have a specified urban sanitation budget, whereas the rest has sanitation as a subcomponent of a larger budget line, usually involving water supply but sometimes solid waste and related areas. Looking at trends across the period, it was possible to conclude that both the overall budgets of projects that include sanitation, as well as the urban sanitation budget, have increased, the

Table 3 | Total money spent, bank money spent, project length and money spent per beneficiary (US$ 2016)

Investment category	Number of projects	Total (US$ millions unless noted)	Average (US$ millions unless noted)	Standard deviation (US$ millions unless noted)
Total budget	138	20,334	152	184
Bank budget	128	14,040	110	111
Sanitation budget	61	1,945	32	45
Final total spend	43	7,242	168	271
Final bank spend	42	4,040	96	104
Sanitation final spend	13	226	17	34
Project length	126	–	71.8 months	31.7 months
Total budget per beneficiary	58	–	$132 per beneficiary	$132 per beneficiary
Sanitation budget per sanitation beneficiary	38	–	$33 per sanitation beneficiary	$61 per sanitation beneficiary

latter being from $1.65 billion (2000–2004) to $2.45 billion (2005–2010) to $4.03 billion (2010 onwards). This indicates an increase in the importance placed on spending for urban sanitation over the period. Although, interestingly, the budget per project has fallen from $150 million (2000–2004) to $136 million (2005–2010) to $126 million (2010 onwards), which suggests a greater spread of projects. There were noticeable trends in the magnitude of investments by the major investment banks (WB, AfDB and ADB). As shown in Figure 2, the more recent the project start date, the higher the banks' inflation-adjusted spend in both urban sanitation and other sectors. Comparing different banks, the amount of AfDB investments have most dramatically increased over the 2000 to 2017 period. Their

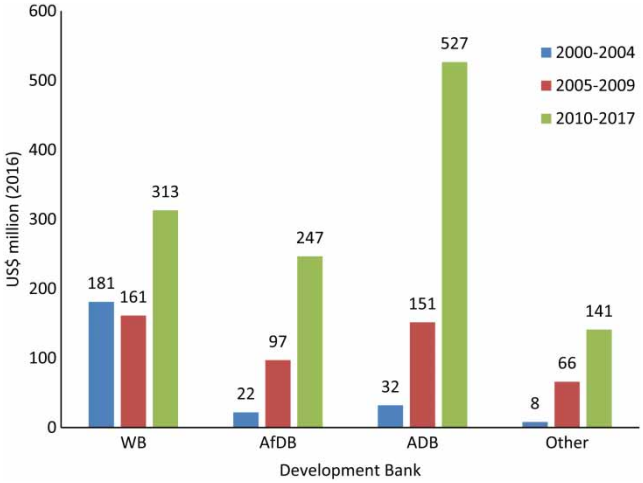

Figure 2 | Total urban sanitation investment over time per major development bank ($n = 61$).

total investment into projects where the urban sanitation component budget is known was US$60.1 million in 2000 to 2004 (three projects), versus US$1.1 billion in investments since 2010 (14 projects). The WB and the ADB also follow that trend, but with a smaller gradient. For the other banks (JICA, EIB and KfW), as the number of projects with a known budget split is low, the sums have been collated together. They are still represented in Figure 3 to show the comparison to the three main banks. The overall trend of increased investment could be explained by the political pressures generated by the MDGs, as perhaps an awareness of specific goals due in 2015 led to more investment in urban sanitation in more recent years.

Focusing on different investment areas, the most common across all projects was institutional capacity building (76% of projects) followed by public toilets (58%), sewerage (57%) and wastewater treatment (54%) (see Figure 3). The areas of investment in proportional terms remained broadly stable across the time period. Regional differences were found in investment areas across the projects though. Investments in sewerage were more likely in the two wealthiest regions of the study, South Asia and Southern Africa, but West Africa had the highest proportion of projects with wastewater investments. Development bank financing was more likely to be used for public toilets in East, West and Central Africa, compared to the other regions. In all regions, institutional capacity building was by far the most common area for investment on the enabling environment side. Community capacity building was the next most regular investment area in West and East Africa,

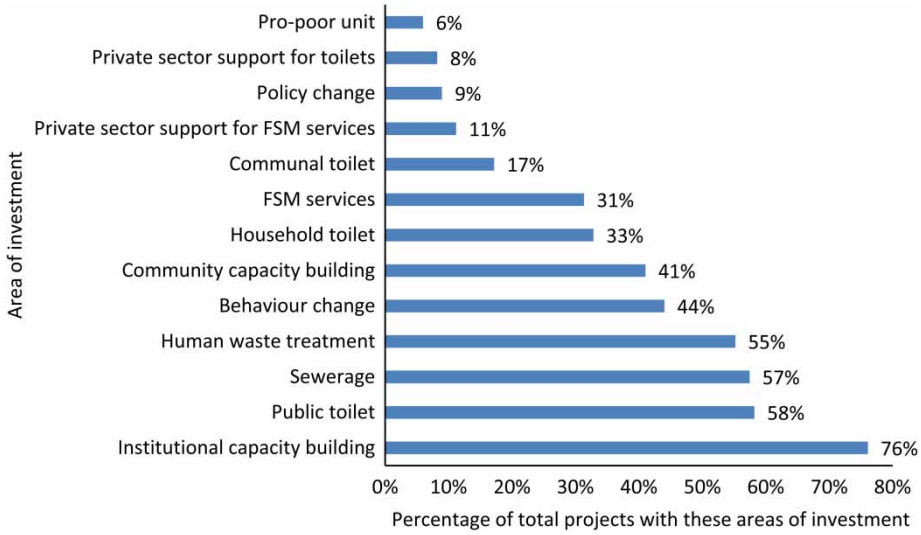

Figure 3 | Areas of project investments in urban sanitation ($n = 136$; each project can have >1 investment area).

while behavioural change was also common in all regions apart from Central Africa. A couple of noteworthy areas of low investment on the enabling environment side were private sector development for FSM and toilets, despite these being key topics of focus in recent sanitation research.

In attempting to assess the pro-poor character of investments, one of the major overarching findings was, too often, there was an extremely limited level of detail in project reports on specific pro-poor performance indicators or assessments of distributional outcomes across populations. However, when taking our approach to assessing the pro-poor character of project design, it was still possible to assess 134 out of 138 project documents to support a classification of at least part of their investment as pro-poor or not pro-poor, but often this was only a partial assessment of the investment. In a best case scenario, detailed logframes, or similar planning frameworks, provided a sufficient level of transparency to use the decision tree to assess the pro-poor reach of an investment in urban sanitation, particularly when planned activities were accompanied with budget and beneficiary detail. It was therefore possible for some projects to assess the extent of investment going into different components and make inferences about whether that investment was pro-poor or not. Table 4 shows a summary of these data which are broken down to project components (which were often multiple per project) as this was the level at which the pro-poor assessment was made.

In total, across all areas where an assessment could be made and was supported by project budgetary information, US$1,895 million (55% of total) was considered pro-poor, US$810 million (24% of total) not pro-poor and US$651 (19% of total) unknown. Proportionally, investments in the enabling environment were more likely to be considered pro-poor (59% of total), while infrastructure investments were slightly less likely to be pro-poor (54% of total). Overall, the biggest areas for investment in terms of absolute investment were, respectively, sewerage, institutional capacity building and wastewater treatment. On the infrastructure side, despite being the biggest area of investment, sewerage investments are the least likely to be pro-poor with US$715 million (49%) of investments not pro-poor against US$691 million (48%) that were considered pro-poor. Also, on the infrastructure side, perhaps surprisingly, investment in wastewater treatment was more likely to be considered pro-poor than not (US$461 million, or 63%, against US$279 million, or 38%). More expectedly, investments in FSM services were also much more likely to be considered pro-poor than not ($41 million, or 61%, against $2 million, or 3%). In terms of proportionality, however, the most pro-poor category of investment was household toilets, with all investments in these considered to be pro-poor. The largest area of investment on the enabling environment side was in institutional capacity building, with nearly US$600 million (64%) considered pro-poor against

Table 4 | Levels of pro-poor, non-pro-poor and unknown investment into different project areas across whole sample (US$ 2016)

Investment area	Pro-poor (US$ millions)	Non-pro-poor (US$ millions)	Unknown (US$ millions)
Infrastructure			
Wastewater treatment	$432	$25	$279
Sewerage	$691	$715	$47
Faecal sludge management (FSM) services	$41	$2	$24
Household toilet	$92	$0	$0
Communal toilet	–	–	–
Public toilet	$17	$0	$4
Enabling environment			
Policy change	$10	$0	$6
Institutional capacity building	$588	$69	$268
Pro-poor unit	–	–	–
Community capacity building	$13	$0	$22
Private sector FSM services	–	–	–
Private sector support for toilets	–	–	–
Behaviour change	$10	$0	$0
All areas combined			
$1,895	$810	$651	

US$268 million (29%) which was not. For a number of categories, budgets were not available at the required level of granulation to allocate budgets (communal toilets, private sector FSM services or private sector toilets), meaning it was not possible to make any inferences about these investments. It is also noted that the pro-poor assessment tool is a necessarily subjective device based on interpretation of the pro-poor quality of project design principles and, as such, the data should be treated as indicative of trends rather than as absolute. However, in the context of limited assessments in this area, we believe the analysis and tool itself still constitute a valuable contribution to debates regarding the financing of urban sanitation.

WHAT WE KNOW AND DO NOT KNOW ABOUT DEVELOPMENT BANK INVESTMENT IN URBAN SANITATION

This review reinforces the ideas of a growing prioritisation of sanitation in the development sector. Building on consultation with a series of sector experts, Hueso (2016) argues that sanitation was an undervalued and under-prioritised area in the early MDG period but has since become a priority area. All the banks covered in this study had higher allocated budgets for urban sanitation in the 2010–2017 period than in the period after the MDGs were established (2000–2004), and the percentage of total project spend dedicated to urban sanitation grew from an average of 15% in the 2000–2004 period to 30% after 2010. In interpreting these figures it is important to clarify that we cannot be sure of the extent to which these findings are accounted for by higher actual spending or more granulated labelling of investments, as many of the earlier projects reported water and sanitation budgets together rather than in separate categories, making it difficult to assess the level of spending in this area. Broader evidence indicates growing total investment within the water and sanitation sector across the MDG period – for example, the latest GLAAS report shows national budgets for WASH are increasing by an average of 4.7% above inflation (WHO 2017), although it is important to remember that this higher level of investment remains significantly below what is needed to deliver the SDGs (Hutton & Varughese 2016). The evidence from this review, alongside broader research,

would suggest that development banks are now spending more on urban sanitation than ever before.

The review also helps us understand what the development banks are investing money in. Across all projects the most common area of investment was not an infrastructural element but rather institutional capacity building with 76% of projects involving this area. Broader evidence shows that in 1980 only 1% of World Bank projects involved an institutional capacity building element but by 2010 between 50% and 65% of its projects included it (Andrews 2013). The 'good governance' agenda that has driven such a trend is clearly strong within the urban sanitation sector, however, institutional capacity building remains a rather vague and broad term that can cover a range of activities. It can mean, among other things, training or related activities to improve skills, a focus on improving organisational procedures and processes, an attempt to build new relationships within a sector or simply providing space for hard-worked professionals to focus on a new challenge. Without more effective unpacking of such activities, it is difficult to assess whether certain strategies are more likely to promote success or not. Given both the frequency and scale of investment in institutional capacity building, it is time the sector becomes better at differentiating and specifying activities under this label.

On the infrastructural side, we know that pro-poor sanitation strategies have been linked with particular types of technology, such as simplified sewers (Paterson *et al.* 2007). This study suggests that more than half of projects include investments in three infrastructural categories: public toilets, sewerage and wastewater treatment. Sewerage and wastewater treatment are by far the biggest areas in terms of total financial investment, but these areas are also the ones in which there is greatest ambiguity over the value of investments for the poor. The latest SDG baseline report reminds us that nearly half the people with at least basic sanitation are served via on-site sanitation (WHO-UNICEF 2017) and it is estimated that, globally, at least 1.8 billion people now need FSM services (Berendes *et al.* 2017). Both these facts point to the necessity of significantly expanding and upgrading FSM services, yet this review indicates that development bank investment in this area is over 20 times lower than sewers. Relatedly, wastewater treatment becomes more important in the context of the more comprehensive ambition of the SDGs towards safely managed sanitation. Yet, the extent to which such investments are the most cost-effective in terms of serving the poor remains doubtful, unless they are appropriately linked into broader FSM systems.

Through the review, we also made inferences about the pro-poor nature of a significant amount of development bank investments, with our estimates suggesting that more than half of investments (56%) were pro-poor. Focusing on what our results say about performance in this area, without a benchmark to compare to, it is difficult to assess whether our estimates reflect good or bad performance. Yet, considering the development banks' explicit mandate to fund services for the public good, we believe that they could be even more ambitious than this in seeking to deliver investments for the poor. In making this statement, we are aware that development banks are 'only lenders' and must work with governments that have the political and legislative mandate to shape investments. It is accepted that these governments have many legitimate investment needs that may not necessarily involve serving the poor. Yet we believe being pro-poor is not merely a technical exercise but is an inherently political endeavour (Gutierrez 2007) and, as such, we suggest development banks cannot avoid this politicisation. Instead, they should explicitly embrace it within their investments, driving investment in fundamental services for those most in need. There is a fine balance to strike as tensions can emerge due to the limited purchasing power of the poor which means that there is often a trade-off for service providers between delivering services that are affordable and generating a sustainable revenue base. One route forward is for development banks to use their power as lenders to try to reshape the situation by building a more positive relationship between viability and the borrowers' performance in terms of serving the poor. This can be delivered through pro-active conditionality as part of investments as well as regulatory arrangements that reward pro-poor activities.

The Newborne *et al.* (2012) study highlighted that despite emphasis on pro-poorness in the rhetoric and even design of the four projects it investigated, there were no requirements to assess pro-poor measures in project evaluation leading to such matters being de-prioritised during implementation. This points to a need to develop better pro-poor indicators and measures (a potentially difficult task) and for lenders to routinely and robustly use them to evaluate projects and inform future lending decisions. Stepping back, part of this difficulty stems from a broader problem in the lack of

consistency in defining and measuring pro-poorness within the sector. A first step to tackling this would be for the major development bank lenders and governments to make agreed definitions and measurements which became industry-standards. It is likely that part of the challenge is not merely apathy towards the poor but a lack of understanding about what this slippery concept actually means, which means lenders and service providers will continue to treat it as a 'nice-to-have' rather than a fundamental performance indicator like the more universally understood ones related to financial and technical performance. In rounding off the discussion, we are encouraged that the WASH sector is now paying greater attention to financing sources beyond ODA-led investments, with new emphases on promoting 'blended financing models' involving public finance and commercial finance. However, as the sector seeks to involve more commercial finance, we believe there will be an even stronger role for development banks and associated aid actors to robustly promote the pro-poor agenda in their lending, and so developing more widely recognised indicators and reporting systems connected to this agenda will grow in importance.

CONCLUSION

As the world becomes increasingly urban, there are billions of people living with inadequate sanitation, with the majority of these concentrated in South Asia and sub-Saharan Africa. There are no easy solutions, but increasing the availability and effectiveness of development bank finance is one route to help governments ease the current state of affairs. Within this context, this review has provided a novel overview of the magnitude and diversity of development bank investments in urban sanitation over the period from 2000 to 2017. It showed that there has been increasing investment in urban sanitation from the start of the MDGs to the present day, with all the major investment banks covered in this study having grown their investment over that period. This is a positive finding that reflects the growing political prioritisation of urban sanitation following years of relative neglect, yet, it should be remembered that the magnitude of investments reported in this research will not bridge the financing gap that exists.

The review also assessed what were the most common and well-financed areas of investment, with this indicating that, on the enabling environment side, institutional capacity building was by far the most common and well-financed area. This reflects broader trends in development programmes that focus on getting the enabling environment right. Although considering the scale of investment going into this area, we consider that it has become an underspecified term that can cover many different activities. Further specification in this area would promote greater transparency and understanding about investment in the enabling environment aspects of urban sanitation. On the infrastructure side, more finance was invested in sewers than any other area. Given that on-site sanitation is the most common form of improved sanitation in South Asia and sub-Saharan Africa (WHO-UNICEF 2017), the amount of finance going into FSM services is extremely limited in comparison, being less than one-twentieth of the investment in sewers. We predict that this balance is likely to shift over the SDG period as FSM becomes a more recognised solution for achieving safely managed sanitation in cities across regions such as South Asia and sub-Saharan Africa.

Finally, the paper made assessments about the extent to which development bank investments were pro-poor or not. For this purpose, a novel pro-poor sanitation assessment tool was designed and applied that enabled us to make inferences about investments. We believe the design and approach of the tool may prove useful for our researchers considering how to make such assessments, but it is a reflection about the lack of specific pro-poor performance indicators within development bank reporting procedures. Going forward, improving how development banks report on the pro-poor character of their investment would be a useful step for assessing the effectiveness of investments, but for now, our assessment provides an initial benchmark that development banks are more often than not investing in pro-poor sanitation. Despite this relative success, we urge these organisations to redouble their efforts and promote even more pro-poor investment as contemporary efforts are falling short of the transformational change that is needed if we are to overcome the urban sanitation crisis.

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REFERENCES

Andersson, K., Dickin, S. & Rosemarin, A. 2016 Towards 'sustainable' sanitation: challenges and opportunities in urban areas. *Sustainability* **8** (12), 1289. https://doi.org/10.3390/su8121289.

Andrews, M. 2013 *The Limits of Institutional Reform in Development: Changing Rules for Realistic Solutions,* 1st edn. Cambridge University Press, New York.

Asian Development Bank 2017 *Kerala Sustainable Urban Development Project | Asian Development Bank*. Retrieved February 8, 2018, from https://www.adb.org/projects/documents/kerala-sustainable-urban-development-project-1.

Banana, E., Chitekwe-Biti, B. & Walnycki, A. 2015 Co-producing inclusive city-wide sanitation strategies: lessons from Chinhoyi, Zimbabwe. *Environment and Urbanization* **27** (1), 35–54. https://doi.org/10.1177/0956247815569683.

Berendes, D. M., Sumner, T. A. & Brown, J. M. 2017 Safely managed sanitation for all means fecal sludge management for at least 1.8 billion people in low and middle income countries. *Environmental Science & Technology* **51** (5), 3074–3083. https://doi.org/10.1021/acs.est.6b06019.

Bisung, E. & Elliott, S. J. 2017 Psychosocial impacts of the lack of access to water and sanitation in low- and middle-income countries: a scoping review. *Journal of Water and Health* **15** (1), 17–30. Retrieved from http://jwh.iwaponline.com/content/15/1/17.

Cross, P. & Morel, A. 2005 Pro-poor strategies for urban water supply and sanitation services delivery in Africa. *Water Science and Technology* **51** (8), 51–57.

dos Santos, R. & Gupta, J. 2017 Pro-poor water and sanitation: operationalising inclusive discourses to benefit the poor. *Current Opinion in Environmental Sustainability* **24**, 30–35. https://doi.org/10.1016/j.cosust.2017.01.004.

Gutierrez, E. 2007 Delivering pro-poor water and sanitation services: the technical and political challenges in Malawi and Zambia. *Geoforum* **38** (5), 886–900. https://doi.org/10.1016/j.geoforum.2005.09.010.

Hueso, A. 2016 Is 'access to adequate and equitable sanitation' for all by 2030 achievable? Perspectives from sector experts on what needs to change to realise the Sustainable Development Goal. *Journal of Water Sanitation and Hygiene for Development* **6** (4), Retrieved from http://washdev.iwaponline.com/content/6/4/650.

Hutton, G. 2013 Global costs and benefits of reaching universal coverage of sanitation and drinking-water supply. *Journal of Water and Health* **11** (1), 1–12. https://doi.org/10.2166/wh.2012.105.

Hutton, G. & Varughese, M. 2016 *The Costs of Meeting the 2030 Sustainable Development Goal Targets on Drinking Water, Sanitation, and Hygiene*. Water and Sanitation Program, World Bank, Washington, DC. Retrieved from http://www.worldbank.org/en/topic/water/publication/the-costs-of-meeting-the-2030-sustainable-development-goal-targets-on-drinking-water-sanitation-and-hygiene?CID=WAT_TT_Water_EN_EXT.

IMF 2012 *Bangladesh: Poverty Reduction Strategy Paper*. Washington, DC. Retrieved from http://www.imf.org.

Lee, J. Y. 2017 Informing women and improving sanitation: evidence from rural India. *Journal of Rural Studies* **55**, 203–215. https://doi.org/10.1016/J.JRURSTUD.2017.07.012.

Mawdsley, E., Savage, L. & Kim, S.-M. 2014 A 'post-aid world'? Paradigm shift in foreign aid and development cooperation at the 2011 Busan High Level Forum. *The Geographical Journal* **180** (1), 27–38. https://doi.org/10.1111/j.1475-4959.2012.00490.x.

McGranahan, G. 2015 Realizing the right to sanitation in deprived urban communities: meeting the challenges of collective action, coproduction, affordability, and housing tenure. *World Development* **68**, 242–253. https://doi.org/10.1016/j.worlddev.2014.12.008.

McMichael, A. J. 2000 The urban environment and health in a world of increasing globalization: issues for developing countries. *Bulletin of the World Health Organization* **78** (9), 1117–1126. Retrieved from http://www.ncbi.nlm.nih.gov/pubmed/11019460.

Newborne, P., Tucker, J. & Bayliss, K. 2012 *Strengthening pro-Poor Targeting of Investments by African Utilities in Urban Water and Sanitation – the Role of the International Development Association of the World Bank*. London. Retrieved from https://www.odi.org/publications/6397-strengthening-pro-poor-targeting-investments-african-utilities-urban-water-and-sanitation-role.

OECD 2017a *Aid to the Water and Sanitation Sector*. Organisation for Economic Co-operation and Development, Paris, France. Retrieved April 30, 2017, from www.oecd.org/dac/stats/water-relatedaid.htm.

OECD 2017b *Table 6 – Official Development Finance to Developing Countries*. Organisation for Economic Co-operation and Development, Paris, France.

Paterson, C., Mara, D. & Curtis, T. 2007 Pro-poor sanitation technologies. *Geoforum* **38** (5), 901–907. https://doi.org/10.1016/j.geoforum.2006.08.006.

Petticrew, M. & Roberts, H. (eds) 2006 *Systematic Reviews in the Social Sciences: A Practical Guide.* Blackwell Publishing Ltd, Oxford, UK. https://doi.org/10.1002/9780470754887.

Sclar, E. D., Garau, P. & Carolini, G. 2005 The 21st century health challenges of slums and cities. *The Lancet* **365**, 901–903. https://doi.org/10.1016/S0140-6736(05)71049-7.

United Nations 2016 *Population Density and Urbanization*. Retrieved April 20, 2016, from http://unstats.un.org/unsd/demographic/sconcerns/densurb/densurbmethods.htm.

WHO 2017 *UN-Water Global Analysis and Assessment of Sanitation and Drinking-Water*. World Health Organisation, Geneva, Switzerland. Retrieved from http://apps.who.int/iris/bitstream/10665/254999/1/9789241512190-eng.pdf?ua=1.

WHO-UNICEF 2017 *Progress on Drinking Water, Sanitation and Hygiene: 2017, Update and SDG Baseline*. New York, USA.

World Bank 2017a *Citywide Inclusive Sanitation: A Call to Action*. Washington, DC, USA. Retrieved from http://pubdocs.worldbank.org/en/589771503512867370/Citywide-Inclusive-Sanitation.pdf.

World Bank 2017b *Monitoring Global Poverty Report of the Commission on Global Poverty Monitoring Global Poverty: Report of the Commission on Global Poverty Advises the World Bank on the Measurement and Monitoring of Global Poverty in two Areas*. Washington, DC, USA. Retrieved from https://openknowledge.worldbank.org/bitstream/handle/10986/25141/9781464809613.pdf.

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