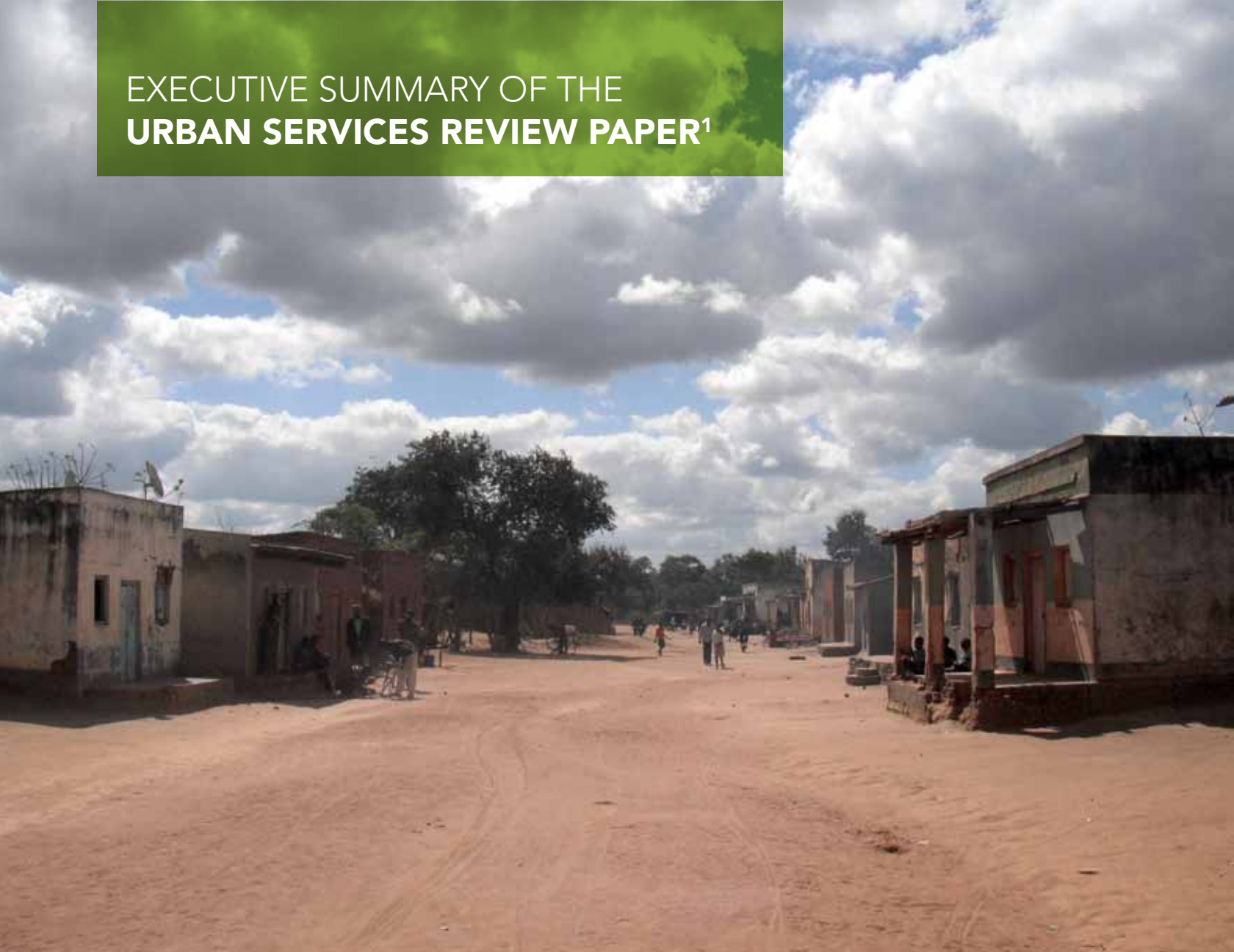
EXECUTIVE SUMMARY OF THE **URBAN SERVICES REVIEW PAPER**[1]



1 BACKGROUND

Access to safe water and sanitation is essential for health, security, livelihoods, and quality of life. Inadequate access to safe water and exposure to pathogens due to the poor treatment of solid waste leads to adverse health consequences, including diarrheal disease. Diarrhoea is responsible for an estimated 21 percent of under-five mortality in developing countries–2.5 million deaths per year, and over 4 percent of the world's disease burden. However, the developing world–particularly Asia and Africa–is lagging in water and sanitation coverage. Nearly 2.4 billion people are expected to remain without access to proper sanitation in 2015.

While the problem of inadequate access to water and sanitation exists in both rural and urban areas, the problem is particularly pressing in cities. With internal migration, cities are where an increasing proportion of the poor live. In the last three decades, growth in urban populations in developing countries exceeded that of rural areas three-fold. In 2007, there were already more people living in cities than in rural areas.

The water, sanitation, and hygiene infrastructure of many cities is stressed beyond capacity, and infrastructure investments have not kept pace with rapid and unplanned urbanisation. While large infrastructure overhaul–if and when it is possible–has great potential benefits, various public finance, planning, budgetary, and institutional impediments limit how much can be achieved in the short run through large-scale investment alone.

In this context, the strategic focus of J-PAL's Urban Services Initiative (USI) will be to design or identify, and rigorously test innovative micro- and medium-scale solutions to the problem of inadequate access to water, sanitation, and hygiene (WSH) for the urban poor in Asia and Africa.

While there is a vast literature addressing the impact of access to improved WSH services on health outcomes, there is surprisingly little rigorous evidence on interventions that effectively and sustainably improve access to WSH services for the urban poor. Given this, the emphasis of the research conducted under USI will be on *how*, rather than *whether*; taking the potential impacts of improved WSH access largely as a given, the question that will be asked is: *How can we achieve better urban services outcomes, access, and coverage*?

[1]For the complete list of citations and references, please refer to the full version of the Urban Services Review Paper at http://www.povertyactionlab.org/publication/improving-access-urban-services-poor

EXECUTIVE SUMMARY OF THE **URBAN SERVICES REVIEW PAPER**[1]

2 BARRIERS PREVENTING IMPROVEMENTS IN WATER, SANITATION AND HYGIENE

To address the problem of achieving greater coverage, a first step is to identify the barriers to innovation and implementation of improved water and sanitation. USI identifies three key barriers:

a. Insufficient supply: Building water and sanitation infrastructure is costly and may involve numerous technical, bureaucratic, and legal constraints–particularly in the developing world. There may be smaller-scale, off-grid, innovative supply solutions, but realizing those solutions requires clever innovations in design of contracts, pricing policies, and market development.

b. Insufficient demand: Even in places where a water and sanitation network exists and it is technically feasible to connect to it, there may be limited demand for those services. Willingness-to-pay may be low, different people's demand may be inter-linked, and the presence of transient or migrant populations creates complications when community-level solutions are required.

c. Institutional constraints: Centralized supply solutions may not be sustainable or even possible if regional and local government, or local non-governmental or community-based organisations are not involved to facilitate implementation. Coordination problems can arise when the sanitation or water infrastructure is shared and must be jointly maintained.

3 FOUR KEY AREAS OF RESEARCH

a. Consumers' willingness to pay

Improving delivery of WSH services will require identifying the barriers to adopting new products, technologies, and solutions. Estimating the underlying factors that affect demand can inform pricing policy, shed light on the role of credit, information gaps, and other determinants of technology adoption.

So far, the evidence on consumers' willingness to pay is mixed. While some studies show surprisingly low willingness to pay for clean water, there is some evidence that the poor are willing to pay for the convenience of in-home piped water, or to switch from using arsenic-contaminated water, or to travel longer distances to access clean water. More research is needed to identify household characteristics that affect willingness to pay.

It is likely that people exhibit low willingness to pay for WSH services because they do not fully understand its value over their current options, or may underestimate the health costs. Programs such as Community-Led Total Sanitation (CLTS) respond to this perceived lack of information. There is some evidence that households respond to information campaigns on benefits of water quality or hand washing, but more research is needed to understand the conditions in which information really makes a difference.

Recent evidence from studies on improved cookstoves, bednets, and in-home water connections shows that even when households understand the health benefits of a new technology, their primary concerns are more about other attributes of the technology such as convenience or comfort. There may thus be value in better understanding of consumer preferences, and "bundling" product amenities in optimal ways to encourage the take up of new WSH technologies.

Another factor affecting consumer demand may be small bureaucratic hurdles related to accessing WSH services. A study in Morocco suggests that households are much more likely to take up a water connection when they are given at-home administrative assistance. More evidence is needed to understand if bureaucratic hurdles are indeed a significant barrier.

EXECUTIVE SUMMARY OF THE **URBAN SERVICES REVIEW PAPER**[1]

In cases where willingness to pay is still low, it may be cost-effective and economically efficient to subsidize take-up, given the potential negative externality effects of waterborne diseases on the local community. There is inconclusive evidence on whether people who are willing to pay less for a service may also be less likely to use it or if not paying for something makes it less desirable. Devising "smart subsidies" that account for economic efficiency and/or psychological considerations is a promising area of research.

Some WSH products require non-negligible up-front fixed costs for adoption. Studies with bednets and in-home piped water connections have shown that ability to pay may hinge on access to credit or savings. There is room for additional research on these issues, especially in urban settings with very different employment conditions and cash flow situations.

The economics of sanitation and trash management can be very different for business models that rely on revenues from re-use and recycling of waste, as compared to just user charges. There is little evidence on sustainable business models in this realm. More research is needed both on technologies that can more effectively turn waste into something valuable, as well as on innovations in financial, marketing or industrial organization that can better support entrepreneurs in this space.

Finally, willingness to pay may also be affected by disparities between how much the technology is valued by the end user, and how much it is valued by the person in the household in charge of making purchasing decisions. A growing literature indicates that not only preferences, but tolerance to varying price levels may also vary with gender. More research is required to better understand these mechanisms in the context of WSH services, and to determine the combinations of prices and other interventions that would ensure optimal take-up.

KEY OPEN QUESTIONS

-What are the underlying factors that affect demand of WSH services for the urban poor? How can we use these insights to inform and design pricing policies, discounts or subsidies, and marketing techniques?

-What household characteristics affect the willingness to pay for WSH services, especially sanitation services?

-Under what conditions do information campaigns that explain the benefits of improved WSH facilities really make a difference?

-How can we "bundle" products to encourage take-up of new WSH technologies? What bundles best capture consumer's preferences?

-Do bureaucratic hurdles pose a significant barrier to access of WSH services? If so, what exactly is the source of the problem: is the problem real? Or is it only a perception? Do these costs, perceived or real, lead households to procrastinate?

-Can "smart subsidies" that account for economic efficiency (including negative effects on others) and/or psychological considerations encourage better take up?

-Do subsidized services that have proven to be effective in rural areas (e.g. free, point-of-collection chlorine dispenser systems combined with a local promoter) work in urban areas too?

-Does access to credit or savings affect take-up of WSH products with non-negligible up-front fixed costs? How does this relationship vary for urban settings with different employment conditions and cash flow situations?

-Are there better technologies to convert trash or solid waste into something valuable that can subsidize the cost of waste management services for consumers? How can we support entrepreneurs to mobilize these technologies, and create sustainable business ventures?

-What are the linkages between prices of WSH products, different implicit costs for household members, intra-household resource allocation, and preferences for take up? What combination of prices and other interventions would increase take up?

b. Coordination failure and collective action problems

Due to strong linkages between different households' decisions, coordination failures pose a serious challenge to implementing community-level solutions such as community sanitation centers, garbage collection or even regular maintenance of drainage. Even when new solutions are implemented, they may not be sustained if no one takes responsibility for maintenance tasks. While there is evidence that community sanitation facilities are usually poorly maintained, very little is known about the specific obstacles to collective action, and how to solve them.

Some interventions, like Community Led Total Sanitation (CLTS), adopt a "big push" approach encompassing the entire community. This gets around the problem of individual households not having an incentive to adopt a WSH solution. But these interventions have so far mostly been confined to rural areas. There is a wide literature on the subject of technology diffusion through social networks, yet there is not enough evidence on the most effective ways to use social networks for the purpose of diffusing new innovations.

What characteristics about a group make them less likely to coordinate? There is some empirical research on the effect of group size, for example; specifically, if large groups are more prone to coordination problems than smaller groups. However, the evidence has been mixed. Another important group characteristic is within-group diversity. New urban areas may be very heterogeneous–both ethnically and in terms of wealth distribution. They may face a constant influx of new migrants. There is some evidence that increased heterogeneity leads to less cooperation, but it would be useful to know what types of heterogeneity are most relevant.

Solutions to coordination problems require that institutions be designed to incentivize cooperative behavior within that group. While some empirical studies have tried identifying institutional characteristics that are successful in solving coordination failures, by and large, rigorous research in this area is sparse. The "industrial organization" of facilities is a promising area of research, and could cover topics such as optimizing management systems (private versus community managed), pricing schemes, and rules for access.

Finally, if governments opt for the private management of urban services, there is little evidence to guide them. For example, should procurement contracts be auctioned, and if so, through what type of auction? Research is also needed to determine how governments can enhance competition in public procurement auctions in the WSH sector, and whether competition is sufficient for efficiency.

KEY OPEN QUESTIONS

-What are the specific obstacles to collective action on community-level solutions to WSH services in urban areas? How best can we counter these problems?

- What are the most effective ways to diffuse WSH innovations through social networks?

-How does group size affect a community's ability to work together?

-Do different kinds of within-group diversity affect coordination differently? Do they lead to different outcomes in pubic goods provision?

-What characteristics and features of institutions can help or hinder group coordination problems?

-What are the optimal mechanisms through which governments can efficiently procure WSH services from the private sector? Should procurement contracts be auctioned, and if so, through what type of auction? How can we enhance competition during procurement?

EXECUTIVE SUMMARY OF THE **URBAN SERVICES REVIEW PAPER**[1]

c. Institutional and legal issues

Adoption of a new technology for water and sanitation sometimes involves large investments that require local institutional and legal arrangements. Slum dwellers often live in houses with insecure property rights. This could weaken their incentive to make long-term capital investments or to use their property as collateral to secure loans for capital investments. More research is needed the effects of land titling on WSH investments, and optimal ways to provide property rights.

A related issue is that individual recipients of land rights in slums may sell their land rights to more affluent city residents, exacerbating the growth of slums. Policymakers are investigating alternate tenure forms and there are some innovations (such as the Community Land Trust model in Kenya) emerging, but rigorous evidence on their impact is missing.

The sharing of information on service quality is another institutional factor that could encourage providers to improve quality. Current evidence on such programs is mixed, and often depends on the dimensions that the service providers are required to report on. More careful design and research of such programs is needed.

KEY OPEN QUESTIONS

-What are the effects of providing secure property rights (e.g. land titling) to slum dwellers on WSH investments?

-Are there any alternative tenure arrangements that are effective in providing secure property rights to slum dwellers while preventing them from selling these rights off in the market?

-When and how does sharing information about service quality induce service providers to improve that quality?

d. Political economy and public finance issues

For larger scale solutions to WSH challenges, local or central government participation is key. This is where issues related to accountability of elected representatives to the urban poor–who often form a sizable voting bloc–and public finance become relevant.

Voters may not be well-informed about the responsibilities of their representatives or those representatives' performance in office. Evidence shows that voter mobilization and information campaigns can potentially solve this problem, but little is known on how politicians respond in return. Further, there is some evidence from rural India showing that rules that affect the identity of elected representatives (e.g. quotas) also affect what they choose to invest in. There is no corresponding evidence for urban areas.

Building centralized water and sanitation infrastructure is costly, further complicated by the complementary nature of water and sanitation provision: many of the safest sanitation improvements require adequate water supply. How to mobilize public resources (through revenue generation, taxation, innovations in pricing, cross-subsidization, and so forth) to overcome the public finance challenges may be a fruitful area of inquiry for USI-funded projects.

KEY OPEN QUESTIONS

-What are the mechanisms of vote buying and its implications for the quality of publicly-provided WSH services?

-How can urban voters in poor neighborhoods be effectively mobilized to demand accountability of their representatives, and how do the representatives respond in return?

-Do rules that affect the identity of elected representatives (e.g. quotas) in poor urban areas also affect what they choose to invest in?

-How can government programs, budgets, and taxation systems be adapted to overcome public finance challenges and enable better provision of WSH services?