RESEARCH REPORT

Triggering Increased City-Level Public Finance for Pro-Poor Sanitation Improvements

The Role of Political Economy and Fiscal Instruments

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I. Introduction

In 2010, the United Nations General Assembly resolved that access to potable water and effective sanitation are human rights (UN Resolution 64/292). Beyond questions of basic rights, water and sanitation play an important role in public health, schooling, and employment. Though access to safe water and sanitation is generally improving in rural areas around the globe, recent evidence from the Joint Monitoring Program of UNICEF and the World Health Organization indicates that the number of urban dwellers depending on unsafe water and unimproved sanitation is rising. A recent UN-Habitat report (2011) estimates that 62 percent of urban Africans live in slums, where limited services and high public health burdens reflect the failure of urban governments to meet the needs of their constituents. As the world in general, and sub-Saharan Africa in particular (UN-Habitat 2011), continues to shift from a predominantly rural to a predominantly urban population, the role of urban governments in providing adequate water and sanitation services will continue to expand. Against this background, it is increasingly important to understand the fiscal and political constraints urban governments face in providing water and sanitation services.

The goal of this background paper is to provide a general framework for understanding the political economy and fiscal determinants of sanitation service provision by urban local governments. The paper will review existing literature to begin answering several questions: what do we expect to influence spending on local sanitation? Do different fiscal instruments have an impact on expenditure levels? Do increased local revenues lead to increased expenditures over the long term? What role do different stakeholders play in determining expenditure levels? The paper first briefly looks at the role of political factors in constraining local expenditure decisions. Having established the political context for sanitation finance, the paper then turns to a more in-depth review of the fiscal determinants of service delivery expenditures.

2. Political-Economy Determinants of Local Service Delivery Funding

Local service delivery funding is typically driven by a number of factors, including fiscal as well as political determinants. This section will briefly review the literature as it pertains to three general political-economic factors: electoral dynamics, including access to information and challenges to collective action; non-electoral political factors, including local elite capture of funds and services; and the impact of intergovernmental systems and decisions by actors external to the municipal context. These three kinds of factors influence the discretionary political space available to local decision makers in terms of allocating public resources.

2a. Electoral Dynamics

Since our overarching interest is to trigger increased city-level public finance for pro-poor sanitation improvements, we will focus our analysis on city-level governments. Most urban local bodies operate as elected local governments, with direct election of municipal assemblies and/or executives who are responsible for proposing, debating, and enacting decisions on behalf of their constituents, including annual budgets. The nature of local political arrangements has an impact on local expenditure choices, and it is important to understand how such electoral details play out in providing politicians with incentives to spend public funds on one service or another.

PUBLIC CHOICE THEORY AND THE MEDIAN VOTER MODEL

The literature on how local politicians represent the public interest within their jurisdictions goes back well over 50 years. Within the public choice literature, the median voter model is the leading model of how electoral politics affect public choice. Downs (1957; in Rosen 2005) shows that in an ideal representative democracy based on single-member constituencies, politicians will adopt policies that represent the views of the median voter (i.e., the voter closest to the middle of a given political spectrum, when ranked with all other voters). By advocating for the preferences and positions held by the median voter, politicians can edge out competitors whose positions are less widely supported.

The direct implication of the median voter model is that the median voter's demand for services carries the day within the local government jurisdiction. If the median voter demands better sanitation services (reflecting the demands of the majority of voters), then better sanitation services are likely to be prioritized by the locally elected political leadership. This begs the question whether households

without access to proper sanitation—or the number of households exposed to the potential health impacts of inadequate public sanitation—constitute a majority of the local electorate. If so, the low priority given to public sanitation in many cities in African and Asia would be explainable based on basic electoral motives. If not, at least three other electoral factors may be relevant in explaining sanitation service provision: the multidimensional nature of policy preferences, access to information, and challenges to collective action.

MULTIDIMENSIONAL NATURE OF POLICY PREFERENCES

One shortcoming of the median-voter model is that it assumes that voters can be ranked or ordered along a single axis of preference. In reality, however, voters may hold multidimensional policy preferences. For instance, it may be the case that the median voter would prefer more money be spent on public sanitation, but that he or she prioritizes this sector below money spent on education, and votes on that basis instead. When the public does vote on the basis of service-delivery performance, evidence suggests that the visibility of the service plays an important role in voting behavior. Public services that are more visible and public in nature—such as road infrastructure—are more attractive to local politicians than services like sanitation, where the benefit to many residents is likely to be less visible and less direct (Batley and Harris 2014; Mani and Mukand 2007; McLoughlin 2014).

ACCESS TO INFORMATION

One key assumption of the median voter model is that voters are well-informed about the spending situation and about the spending choices available at the local level. After all, voters are only able to assess the effectiveness of local officials in responding to the community's needs when they are aware of the current level of local spending on sanitation and the cost of different public sanitation options.

In reality, voters often lack access to key information about public expenditures and the cost of service delivery. Keefer and Khemani (2005) include *incomplete information* as a key element of their typology of political market imperfections. Concerns over access to information are not limited to academic circles: the recent passage of Right to Information legislation in many developing nations (see Government of India 2005) reflects growing political acknowledgement of the role of informational asymmetry in governance.

The transition from legislation to implementation regarding the right to information may prove challenging, particularly at the local level. Whether because of citizen illiteracy, bureaucratically limited access to reliable information, or limited media provision of information, voters may find it difficult to obtain accurate information about politicians' performance track record in service delivery. Ban, Das

Gupta, and Rao (2008) show that in many villages, knowledge of who is responsible for providing sanitation services is limited. They further find that in villages with limited knowledge of who is responsible for providing sanitation services or of the linkages between sanitation and public health, sanitation services are predominantly provided to the political elite.[1]

In contexts where accurate data on actual service delivery is difficult to come by, even educated and resourceful advocates for sanitation provision may find it difficult to demand better service delivery performance. A recent study of sanitation finance in several African countries found that, in many urban environments, policy makers were unable to provide accurate information about sanitation coverage or expenditures (Trémolet 2013). A recent study by the International Budget Partnership found substantial variation across countries (including Brazil, Indonesia, and Tanzania) in the degree to which local researchers were provided access to basic local budget information (International Budget Partnership 2013). In fact, in Tanzania, virtually all local governments failed to provide access to public budget documents when requested. It is difficult to imagine that even a well-resourced local community-based organization would have greater success obtaining the information needed to ascertain how well a politician has attended to the sanitation needs of its community.

CHALLENGES TO COLLECTIVE ACTION

Another key factor affecting the electoral dynamics of local expenditures and service provision is the existence of barriers to collective action (Keefer and Khemani 2005; Wild et al. 2012). Olson's (1965) pioneering work on collective action shows that collective decision-making mechanisms may not produce the results desired by voters as the distance between the voter and the decision-maker increases. Two such challenges to collective action are of interest to this background paper: elements of the local political system that may inhibit collective action and the sanitation sector-specific concern of limited political visibility and appeal.

Characteristics of local electoral systems may constitute barriers to collective action. For instance, ethnically driven voting patterns may prevent representative democratic institutions from being effective. While many narratives of African electoral politics attribute poor public sector outcomes to ethnically driven voting patterns (Easterly and Levine 1997), there is also evidence that ethnicity is not an insurmountable barrier to collective action. In a survey of 16 African countries and 81 ethnic groups, Conroy-Krutz (2009) finds that though ethnicity is a strong predictor of vote choice, education, urbanization, and political institutions such as proportional representation are correlated with partisanship that goes beyond ethnicity. Similarly, Resnick (2012) finds that real and credible differences in party platforms are better predictors than ethnicity in urban elections in Zambia.

The design of electoral systems may also deter collective action. Evidence from Brazil (Desposato 2006) suggests that overly flexible party systems allow politicians to change parties freely, making it difficult for citizens to easily link party policy platforms with specific politicians. In Maputo, on the other hand, city assembly members are selected from party lists without a system for geographical representation. Assembly members may therefore have some incentive to advocate for the urban poor generally, but any given low-income area will not have a single dedicated representative within the municipal legislative body.

The sanitation sector in particular is vulnerable to another challenge to collective action: relatively limited visibility and political appeal.[2] Politicians attempt to maximize the impact of their decisions in terms of winning the approval of their constituents. The direct benefits of providing public sanitation improvements are highly localized and are not visible to the majority of the population, and therefore may not win politicians much in the way of political support. Despite the academically well-understood positive public health externalities of widespread sanitation provision, not all urban dwellers and politicians are aware of the importance of sanitation. Combined with the limited visibility of sanitation-related expenditures, there is little political appeal in campaigning for increased sanitation expenditures, especially when other elements of urban infrastructure (such as roads) are in high demand. In a cross country study, Shiffman (2007) shows that the political appeal of public health issues (e.g., maternal health) can be increased by creating unified policy communities, engaging political entrepreneurs, providing clear policy alternatives, and using other advocacy methods.

2b. Non-Electoral Political Factors and Local Elite Capture

The difficulty of organizing large groups of people to act together for their common interest through elected representatives opens up space for smaller, well-informed special-interest groups to influence policy for their own benefit. As part of their decision-making processes, elected politicians may be influenced by factors other than the interests of their constituents. To the extent that non-electoral political dynamics create space for political logrolling and open windows for corruption and the misuse of funds, such local political factors can push local political leaders to take positions against the interests of their constituents. In developing economies, the main risk is that local government decision-making processes could be captured by local elites.

There is evidence from India that in environments with limited information on service delivery, political and economic elites can capture local decision-making processes to ensure that projects and expenditures benefit particularly well-connected parts of municipalities (Ban, Das Gupta, and Rao

2008). Evidence from Ecuador suggests that elite capture is also of particular concern in highly unequal communities (Araujo et al. 2008)—a troubling finding in light of the inequality common in many developing-country urban areas. Darmawan and Klasen (2012) further find that inequality-driven differences in the allocation of community development projects in Indonesia (including sanitation projects) were only ameliorated when local elites involved in project management shared many social characteristics with the low-income community.

Political capture can also have an effect on the share of funds that reach their intended beneficiaries. By 1989, in part as a result of colonial-era restrictions on local revenue sources, municipal councils in Accra and Kumasi, Ghana, derived a significant portion of their own-source revenues from public toilet fees. Through several attempts at privatization of the toilets, the facilities eventually became a political asset to be assigned to allies of municipal or national politicians, who frequently stole the resulting funds (Ayee and Crook 2003).

Though data are limited in the water and sanitation sector, substantial evidence from the education sector (e.g., Reinikka and Svensson 2004) and health sector (e.g., Avelino et al. 2013) shows that large portions of funds intended for service provision can be captured by government officials in the space between central allocation and local expenditure. Recent evidence shows that adopting participatory budgeting and locally responsive service monitoring institutions can mitigate the impact of misallocation and corruption (Avelino et al. 2013; Goncalves 2014).

2c. Intergovernmental Institutional Factors

It is easier for residents to hold government officials accountable when it is clear who is responsible for the provision of a public service and how the service is financed. Although sanitation is decidedly a local affair, the responsibility for providing sanitation services is commonly fragmented among multiple municipal (as well as regional and even central) offices, departments, and ministries. In Maputo, for example, as many as seven public sector entities play a role in different aspects of sanitation service provision and regulation, in addition to private sector entities and community-based organizations.

Rather than a technical problem, the fragmentation of institutional responsibilities and the unclear assignment of functional responsibilities is often a symptom of a deeper problem, namely, a weak intergovernmental framework. Eaton and Schroeder (2010) argue that while national politicians are keen to pay lip service to the concept of decentralization, in many countries, central governments are reluctant—for political and institutional reasons—to actually delegate real power and resources to the

subnational level. As a result, it is common for decentralization to be pursued in an incomplete and imbalanced manner, with the legal responsibility for sanitation and other local services decentralized to the local level, while control over financial resources and other key elements of sectoral service provision (such as control over human resources) is retained at the central level.

A good example of the gap between de jure (legal) and de facto (actual) functional responsibilities is provided by Sierra Leone, where local councils have been assigned the legal responsibility to provide for water provision, but local councils do not control sector staffing or capital development. The partial devolution of this function has generated substantial accountability gaps at the local council level, notably between the local council (the locally elected representatives legally responsible for service provision) and the water sector staff (who continue to be appointed and managed by the central government). Given the fragmented institutional responsibilities, it is unsurprising that many local council administrative teams in Sierra Leone are simply unaware of the level of service coverage within their jurisdiction, and have little authority to request such information from water sector workers (Edwards et al. 2014). Lack of clarity about who is actually responsible for the provision of public services makes it difficult for citizens to know who is responsible for service delivery and makes it virtually impossible to monitor how public funds are spent to achieve service delivery results.

3. Impact of Local and Intergovernmental Fiscal Structure on Local Sanitation Expenditures

While local political dynamics are important in local service delivery funding decisions, local fiscal dynamics also play a role in determining how public funds are allocated. In particular, the way in which local sanitation infrastructure and services are funded has an important impact on the level of local sanitation expenditures.

The standard introduction to sanitation finance is often presented by way of the "three Ts of sanitation finance"; namely, *tariffs*, *taxes*, and *transfers*. While this is a useful device for introducing the basics of sanitation finance, discussions of sanitation finance sometimes lump together central and local taxes under "taxes," while "transfers" are considered to be international (rather than intergovernmental) transfers, thus downplaying important intergovernmental dynamics within countries.

Nuanced discussions of sanitation finance recognize that different problems within sanitation need to be dealt with at different government levels: whereas residents benefit directly from local

wastewater *collection*, (a private good), the *treatment* of wastewater is essentially a public good with public (environmental) benefits. Further, because access to sanitation is a human right, ensuring provision of sanitation services to the urban poor constitutes a redistributive function rather than a direct service to the beneficiaries. Whereas tariffs or local taxes can serve as a mechanism for local beneficiaries to pay for some or all of the direct benefits received from publicly provided sewer systems and local sanitation services, national budget funds may subsidize at least a part of local wastewater treatment and the pro-poor provision of urban sanitation services in order to ensure a balance between costs and benefits (for example, see Hamid and Narayana, n.d.).

Empirical evidence about whether and how the structure of sanitation finance affects the level and performance of sanitation expenditures is limited. The dearth of empirical research is no doubt due to the scarcity of (local) expenditure data on sanitation for most localities and countries. Unlike education or health finances, the IMF classification system (as well as the OECD classification) treats sanitation as a secondary or tertiary functional category and lumps sanitation together with other public expenditures. In many municipal budgets in Africa and Asia (and even central-level public-expenditure reports), sanitation spending is frequently lumped into one or more different functional expenditure categories, whether solid waste management, public works, water, or (public) health expenditures.[3]

While the empirical literature on the fiscal determinants of sanitation spending is limited, the broader public-finance literature suggests that the fiscal structure within which local governments operate has an impact on local service delivery decisions. The majority of the research on fiscal impact has been explored in the context of different local services (health, education, solid waste management), but the general lessons from this literature may be equally relevant to the provision of local sanitation services. Some key concepts and issues have been empirically explored in greater depth specifically in the context of the sanitation sector, such as the willingness to pay for sanitation services and the incidence of sanitation spending (i.e., the impact of regressive versus progressive finance modalities).

Our discussion of the fiscal determinants of local sanitation spending focuses on four financing modalities. First, we discuss the practice of funding sanitation infrastructure and services from property taxes and other general revenues. Second, we consider funding sanitation provision from user fees and earmarked revenues, including piped–water surcharges and property tax surcharges. Third, we deal with the role of intergovernmental grants by local governments. Finally, we briefly discuss nonlocal funding of public sanitation services: what is the impact of central governments, donor agencies, and international foundations working around local governments in their quest to improve urban sanitation?

Before we explore these different funding modalities, we briefly explore the general discussion in the public-finance literature surrounding the factors that determine variations in municipal spending levels.

3a. Empirical Research on the Determinants of Local Government Spending

An important empirical challenge—relevant for a deeper understanding of local sanitation expenditures as well as for other local sectoral expenditures—is to identify the factors that determine how much local governments or municipalities spend, both in total as well as on different sectoral activities.

There is a relatively well-developed empirical literature that addresses this question. The seminal papers in this literature are those by Borcherding and Deacon (1972) and Bergstrom and Goodman (1973), although empirical evidence continues to be collected in this stream of research.[4] The majority of this research considers municipal (or more generally, local) government spending in developed countries (particularly the United States, but also Canada, Finland, Portugal, and others). Although a limited number of empirical studies are available on the determinants and performance of local expenditures in developing economies (such as in Brazil, China, India, and South Africa), the relevant empirical literature is still largely based on experiences in developed economies.[5]

The current state of the relevant public-finance literature is summarized by Gebremariam and Gebremedhin (2006). As a general rule, the available empirical studies that analyze the determinants of local government spending find that local public spending is driven by the preferences of local voters and taxpayers and by the local fiscal structure. Both findings are consistent with public-choice theory, which suggests that spending is driven in part by the preferences of local voters and taxpayers. Another important finding from these studies (to the extent that they break down municipal expenditures by sector or type) is that the impact of voter and taxpayer preferences varies considerably by sector, so those preferences not only affect the total amount of local expenditures, but also the composition of expenditures.

Gebremariam and Gebremedhin (2006) report that results from various studies show that the income elasticity of local public expenditure is positive and significant, whereas estimates of tax price elasticity are negative and significant. However, some local services tend to be more income-responsive than other services. Population size, density, and the demographic composition of the local population also have an effect, although this tends to vary by the type of local expenditure. For instance, an increase in the proportion of the old and the young in a community leads to increased spending on

health, housing, and social security (Gebremariam and Gebremedhin 2006, p. 7). A caution that bears repeating is that the available empirical results are largely based on developed economies, so that these conclusions cannot necessarily be generalized to countries in Africa and Asia.

Another empirical finding (again, based on US local-government data) is that there tends to be a spatial relationship in local expenditure decisions: local governments tend to account for spending levels in adjacent local jurisdictions as they make their spending decisions (Gebremariam and Gebremedhin 2006). Of course, the impact of spatial proximity on local expenditure decisions may differ in developing countries.

In a cross-country analysis, Wolf (2009) finds that decentralization is associated with better access to water and sanitation in rural areas, which might reflect better targeting and accountability at the local level, as well as the availability of small-scale technical solutions.

With regard to fiscal instruments, the main focus in this stream of empirical research is on differential impact between transfers and OSR. One common finding is that increases in transfers tend to increase local expenditures, although the size of the impact is typically less than proportional: for every dollar of transfers provided to a local government, expenditures may increase by less than one dollar.[6] Similarly, increases in one local tax (e.g., property tax) generally do not result in a major increase in individual types of local expenditures. For instance, in China, all things being equal, a one-Yuan increase in a city government's own revenue per capita increases that government's per capita spending on infrastructure by about 0.272 Yuan (Yu et al. 2011). It is likely that the majority of these resources are spent on road infrastructure, with a much smaller portion of this infrastructure funding dedicated to sanitation infrastructure.

While the empirical literature is helpful in understanding general dynamics of the determinants of local government expenditures, this stream of research does not answer many specific questions about what drives detailed local decision-making on local sanitation expenditures in developing countries. For this we need to turn to a more in-depth discussion of the different funding approaches: taxes, tariffs, transfers, and borrowing.

3b. Funding Sanitation from General Municipal Revenues (i.e., taxes)

The first approach to funding local sanitation expenditures is to treat sanitation as a regular local expenditure, and thus to fund sanitation through the municipal budget from local property taxes and other general revenues. In our discussion, we do not consider local sanitation spending that is funded

from central government revenues to fall into this category; instead, we discuss local sanitation spending funded from intergovernmental fiscal transfers in a separate section below.

Who funds sanitation from general municipal revenues? Funding sanitation from municipal general revenues appears to be the default approach for funding sanitation infrastructure and services in most developing countries. This is especially true for secondary or tertiary cities without sewer systems. For instance, while sanitation provision in Dar es Salaam, Tanzania, and Dhaka, Bangladesh, is the responsibility of centrally controlled water and sanitation authorities and is predominantly funded through tariffs, the provision of sewer and non-sewer sanitation infrastructure in secondary cities in Tanzania and Bangladesh is the responsibility of municipal or town authorities, which have no dedicated funding stream for this responsibility and thus fund sanitation from general municipal resources.

This funding approach is much less common in OECD countries, where (as discussed in section 3c below) a variety of sewer tariffs (or alternative, earmarked sewer taxes) are a much more common approach to sanitation finance.

Advantages and disadvantages of this funding approach. The main advantage of relying on general municipal revenues for funding sanitation infrastructure and services is the simplicity of the approach. Funding sanitation from the general revenue account requires no additional public financial management systems or efforts. Given the limited administrative capacity of many smaller urban local governments in developing countries, this is an important consideration in perpetuating this funding approach.

The simplicity of this approach, however, comes with an important disadvantage. In many least-developed countries, property taxes and general revenues are first and foremost used to fund the operating cost of the local government administration. Whatever revenue space is available after local administrative expenditures becomes a common pool to be divided among many competing local political priorities, with no obvious reason for sanitation to carry a greater priority than other important urban services. The lack of segmentation or earmarking of the common resource pool results in the local budget being fragmented and stretched in too many different ways as each local department acts to claim its "fair" part of the limited resources. As a result, few (if any) local services receive adequate funding from local own-source revenues. Sanitation does not appear to be an exception in this regard.

Local sanitation is at a distinct disadvantage in another regard: while several municipal services have their own departments, and thus their own departmental budgets, sanitation is often provided by a sub-department, which reduces its visibility in local government budgets. Assuming that municipal officials "measure what they treasure," the revealed preference of municipal leaders in Sub-Saharan

Africa suggests that public sanitation is typically not their leading concern. In fact, Trémolet and colleagues (2013) note that in a sample of eighteen municipalities in Sub-Saharan Africa, contacted municipal officials were generally not able to provide figures on financing allocated to sanitation, reflecting the fact that public spending on sanitation is not actively tracked in most cities under review. A previous analysis of sanitation expenditures in Temeke (one of the three municipalities in Tanzania) suggests that municipal sanitation expenditures in Temeke account for only 0.3 percent of its budget (Trémolet and Binder 2013).[7]

General local taxes as a funding source for local sanitation. There are several reasons why in most countries, it is unlikely that local taxes will form a sustainable funding source for local sanitation expenditures. This is especially true for the capital investments required for increasing access to urban sanitation.

First, to the extent that local taxes are based on the "benefits principle" (the principle that local taxes should be levied in proportion to the benefit that taxpayers receive from local services), it is unlikely that the urban poor themselves are able to contribute sufficiently through general taxes to cover the cost of public sanitation provision because of their low income status. Further, as poor urban dwellers tend to live in informally settled areas and to work in the informal sector, they largely tend to avoid the urban tax net. Even urban residents who live above the poverty line are often relatively poor, thus limiting the ability of local revenues to be collected in sufficient volume to fund and cross-subsidize local public services.[8]

Further, there is typically only limited scope for financing redistributive activities and cross-subsidization with local taxes (Musgrave and Musgrave 1973). McLure and Martinez-Vazquez (2004) note that for several reasons the responsibility for financing redistributive activities is commonly assigned primarily to central governments. These reasons include the fact that subnational attempts at redistribution are likely to distort the geographic allocation of economic resources and may ultimately not be successful. If local redistributive policies are imposed by locally elected officials and funded from own-source revenues in excess of the degree of redistribution demanded by local taxpayers themselves, local voters and taxpayers will vote against such policies. If unsuccessful at the ballot box, wealthier local taxpayers may "vote with their feet" by moving out of local jurisdictions that tax them for redistributive purposes in excess of the benefits provided (Tiebout 1956).[9]

This does not mean that there is no role whatsoever for locally led redistributive policies. A case can be made for assigning some role in redistribution to subnational governments (for instance, through cross-subsidization of local services) because taxpayers' concern for the poor may be largely focused on

those who reside in the same community (Dahlby 2001; Martinez-Vazquez 2013). As noted in box 1, however, the "demand" (or willingness to pay) for such local redistribution is likely to be limited in the case of rapidly expanding urban areas in developing countries, where the social compact between new and established residents is likely to be weak.

BOX 1

Funding Local Redistribution from Local Taxes

It is possible to engage in locally funded redistributive policies to the extent that local taxpayers are willing to pay for such redistribution as part of an (implicit or explicit) local social compact, or to the degree that wealthier urban taxpayers are simply unable to avoid the additional tax burden.[a] Under ideal conditions, cities would borrow the financial resources for new infrastructure requirements (typically driven by an expanding urban population) and pay off these infrastructure loans over time using tax revenues gained from the new households.

Such a scenario, however, may be impossible if newcomers to urban areas largely consist of poor households that are unlikely to contribute to the local tax base in the near future. If newcomers or poor residents are not likely to contribute to local revenues, reliance on local taxes for the funding of new local (sanitation) infrastructure would essentially require municipalities to tax existing wealthier residents to pay for the new infrastructure to be developed for the benefit of others (newcomers). At the same time, however, the social compact required for local residents to voluntarily cross-subsidize local services is likely to be weaker in rapidly expanding urban areas than in more stable urban areas with more moderate population growth.

[a] Although local taxpayers in developing countries are less likely to "vote with their feet," they are more likely to be able to avoid or evade the local tax burden through other means.

Another—often ignored—reason why general local revenues are unlikely to form a sustainable source for adequate sanitation finance (or for any other municipal priority, for that matter) is the fact that local revenues are simply difficult to collect. For political as well as technical reasons, the central government level often assigns itself most—if not all—productive taxes and revenue sources. Local governments are rarely assigned any highly productive taxes. Instead, it is common for local governments to be assigned numerous low-yield local taxes, some of which may even cost more to

collect than the revenue they generate. Even the property tax, which forms the mainstay of general revenues in higher-income countries, is not an easy tax to collect in many developing countries.[10]

The revenue potential of many urban local governments is limited by a range of challenges in the assignment and collection of local government revenues in developing countries, even in urban areas with considerable economic activity (box 2). Factors limiting municipal own-source revenue collections in Africa include the low willingness of local taxpayers to voluntarily pay local taxes; the fact that the property tax (which is typically the single-largest local tax) is commonly rated as the most unpopular tax instrument; the relatively high cost of collection of local taxes; the weak tax handle and the absence of effective (and cost-effective) enforcement options; frequent central political pressure not to strictly enforce local revenues, (political interference in tax collection, especially in election years); and limited local political will to pursue local revenue sources, especially in light of less politically painful alternative funding sources, such as grants or support from development partners.

BOX 2

Challenges in Municipal Revenue Collection

For a combination of technical and political reasons, local government revenues are rarely easy to collect. Municipalities in Mozambique are assigned a variety of revenue sources, including a poll tax, a local property tax, property transfer taxes, and various nontax revenue sources (such as market fees). In terms of the per capita revenue yield and the share of local resources, Mozambican municipalities compare well to other local governments in the region. However, an assessment of revenue potential in six municipalities revealed that unrealized tax potential—the share of tax that could be collected but is not—ranged from 50 percent to 99 percent of total revenue potential. While it is tempting to view this revenue gap as an easy opportunity for great improvement in own-source revenue collection, the large size of the gap and its stability over a number of years in a resource-strapped context indicate that—for a combination of technical, political, and intergovernmental reasons—increasing municipal revenue collection simply has not been possible (Boex et al. 2010).

Even the collection of local revenue that is theoretically easy to collect—such as market fees—can prove difficult in a context where accountability is secondary to central and local political objectives. In some municipalities in Uganda, collection of market fees has been contracted as a public-private partnership, as an attempt to circumvent the high cost of collection. Weaknesses in both the municipal procurement systems and the evaluation of revenue potential for market fees have led to substantial lost revenue. A study of several markets in rural Uganda revealed that private fee collectors frequently collected significantly more revenue than projected at the time their contract was awarded. The value of this lost revenue ranged from 25 percent to 74 percent of the total revenue collected at each market. In the most extreme case, the market fee contract was undervalued by approximately 970 percent. (Iversen et al. 2006).

Given the overall limitations to the amount of local fiscal space that can be created by increasing general revenues at the local level, it is unlikely that general local revenues offer substantial potential for a significant increase in local sanitation finance in the future. Perhaps the most fundamental disadvantage of funding pro-poor sanitation improvements with general revenue sources (taxes) is that, by definition, these revenues are not earmarked. As noted in section 2, there are a number of political-economy factors (including lack of discretion, incentives, and accountability mechanisms) that result in local political leaders rarely facing substantial electoral or non-electoral pressures to prioritize spending on local sanitation. This is true for spending on large-scale sanitation infrastructure, as well as

for local spending on smaller-scale public sanitation facilities, and even for spending on recurrent sanitation services.

As a result, we can only expect a small percentage of un-earmarked local own-source revenues to be set aside for sanitation. Even if we are able to identify new revenue sources that would result in a major increase in municipal revenues,[11] in light of municipalities' propensity to only allocate a very small portion of own-source revenues (if any) for local sanitation infrastructure and services, it is unlikely that local sanitation expenditures would increase in a meaningful way.

3c. Funding Sanitation from Tariffs (User Charges) and Earmarked Revenues

Globally, the most common approach to funding local sanitation expenditures is financing generated by tariffs or user charges. This is particularly true for cities served by sewerage systems. Urban areas served by sewer systems frequently have an earmarked sewer charge, which is often collected either together with the property tax or as a surcharge on water fees.

Before proceeding, we will explain how public-finance economists distinguish between a tax on one hand and a tariff (or user charge) on the other hand. The two conceptual differences typically noted between a tax and a non-tax revenue source are that (1) paying a tax is obligatory, whereas a tariff or user fee can be avoided (in principle) by the consumer; and (2) there is no quid pro quo ("this for that") involved in taxation, whereas a tariff or user fee is explicitly based on a fee-for-service or exchange principle.[12]

Residential wastewater fees and tariffs for sewered systems are often structured as a fixed lump sum amount or flat rate (sometimes based on the type of residential structure) or as a volumetric tariff based on the level of water consumption. If only a flat rate is applied, no water metering is required, and the fee is easily collected together with the property tax. To the extent that wastewater charges are set to vary with water consumption, it may be easier to collect the wastewater fee together with the water bill.[13]

In our view, the exact manner in which a tariff or user charge is computed is not necessarily a defining feature of a tariff, although it is generally necessary (and considered a good practice) for the level of the tariff to be related either to the cost of service provision or to the benefits received by the user (International Monetary Fund 2001).[14] However, it is not unusual for tariff structures for water and sanitation to be designed to allow for cross-subsidization between wealthier and poorer taxpayers. Such a design scheme typically entails setting the normal tariff rate somewhat above the marginal cost

of provision, while charging households below a certain income threshold a reduced tariff for the same service.[15] Despite divergence in tariff structures and cross-subsidization, one would still consider such a revenue instrument a tariff (rather than as a combination of a tariff and a tax).[16]

Regardless of how the tariff is calculated or collected, the quid pro quo involved requires that the revenues from these sources are earmarked or set aside for the routine and operation and maintenance of the sewer system and to cover the replacement cost of capital. Depending on the prevailing local public financial management arrangement, the revenues collected from this fee or charge may be retained by the relevant water and sewer authority if the revenues are collected by them in the first place. Alternatively, if these revenues are collected by municipal revenue collectors (for instance, together with property taxes), they may be retained in the municipal budget but earmarked for a dedicated purpose or transferred into a dedicated municipal account.[17]

Sanitation charges and user fees are not limited to sewer charges. In addition to recurrent sewer charges to fund the ongoing maintenance and replacement cost of the existing sewer system, many local governments charge a one-time connection fee (typically charged to the developer) to cover the cost of connecting a building to the sewer system. In the United States and Europe, this fee is typically set to fully cover the cost of connecting new homes and structures to the sewer network. Similarly, it is not unusual for communal toilets and public sanitation facilities to charge a user fee that covers the operation and maintenance of such facilities.[18] Finally, in the few cities where fecal sludge treatment plants exist, tariffs are also collected through tipping and emptying charges imposed on sludge emptying trucks.

In urban areas that follow the "sites and services" approach to peri-urban development—providing rental plots to poor newcomers to discourage the formation of informal settlement areas—the cost of private or public sanitation facilities is sometimes included in the site rent or in the lease (or purchase) price of plots.[19]

The distinction between tariffs and earmarked sanitation revenues. Although the distinction is often not explicitly made, there is a fine but important line between sanitation tariffs and earmarked sanitation taxes.[20] As noted in box 3, many local governments around the world collect sewer charges—along with either the local property tax or local water fees—as an obligatory payment. To the extent that sewer charges are inextricably linked to the collection of water fees or property taxes, the payment of sewer charges become de facto (or sometimes even, de jure) unavoidable. This means that when such sanitation charges are strictly judged on their compulsory nature, virtually all sewer and sanitation charges are actually earmarked sanitation taxes rather than tariffs or user charges.

Although this distinction may sound trivial, it has an important implication for the link between costs and benefits in service delivery: as soon as the sewer charge is made an obligatory payment and cannot be avoided (even when the value of the corresponding service is less than the value of the charge, or in fact, when the service is not provided at all), the quid pro quo involved in the collection of a user fee becomes meaningless as well. Although an earmarked revenue source thus continues to provide a dedicated source of funding for its intended purpose, in the absence of its nature as a voluntary payment, the pressure on the service provider to ensure value-for-money in service provision disappears.

Who uses earmarked revenues and user fees for sanitation? Cities with sewer networks typically rely on earmarked revenues or user fees (box 3). This means that sanitation charges or tariffs are the predominant approach for sanitation funding in developed countries, while cities without sewers are much less likely to systematically rely on earmarked revenue sources for local sanitation expenditures. Nonetheless, the financing successes of sewer-based sanitation systems provide important lessons for non-sewered sanitation.

BOX 3

Sewer Charges: Some International Experiences

Households in the Netherlands pay for sewerage and wastewater treatment through two different mechanisms: residents pay a sewer charge to the municipality and a wastewater-treatment charge to the water board. The sewer charge funds the maintenance and eventual replacement of the sewerage system. (In practice, many municipalities engage in borrowing to pay for major infrastructure investments, so the sewer charge is used to repay these loans.) In most cases, the sewer charge is a separate revenue instrument, although it is commonly collected together with the municipal property tax. The charge can be a fixed amount per residential unit, based on the number of occupants, or determined in proportion to water usage. In a few municipalities, the sewer charge is fully folded into the municipal property tax. The wastewater-treatment charge is based on the occupancy of the residence.

In the seven-county metropolitan area of Minneapolis-St. Paul (in Minnesota, United States), the Metropolitan Council is a regional agency that provides essential metropolitan services to the region, including the collection and treatment of wastewater. Within the seven-county metropolitan area, there are 105 local governments or communities that are the customers (primary users) of the urban wastewater system. They are billed by the Metropolitan Council's Environmental Services Department at a wholesale rate. In turn, each community bills property owners—residential, industrial, and commercial users—for wastewater collection and treatment. Most communities base their wastewater charges on metered water consumption. However, different communities in the Twin Cities area use different rate structures for charging residential customers: 26 communities use flat rates;[a] 10 use a uniform rate (i.e., uniform price per gallon); 47 use a base and a uniform rate; 11 use a base and an increasing block rate; none use a base and a declining block rate; 7 use an increasing block rate; and 1 uses a declining block rate; while 3 do not charge residential wastewater rates. State law guides the cost allocation among the communities served by the Metropolitan Council.

[a]The flat rate for residential customers is a fixed dollar amount for each residential unit, regardless of use. It is generally structured on several assumptions: that volume varies little among single-family houses; that system access or availability is the principal consideration in costs; that revenue from flat rates is more predictable than revenue from volume-based rates; and that a flat-rate system is easier to administer. Also, flat rates are charged where water use is not metered.

Sources: Stichting RioNed (2013); Dutch Ministry of Infrastructure and Environment (2014); Metropolitan Council Environmental Services (2012).

Advantages and disadvantages of tariffs and earmarked taxes as a sanitation funding approach. In contrast to the use of general local revenues to fund local sanitation expenditures, the main advantage of wastewater tariffs and other user fees is that reliance on these revenue instruments earmarks (or "hypothecates") a particular revenue stream for local sanitation expenditures. As such, the earmarking or hypothecation of revenues for a specific purpose (sanitation) avoids the "fragmentation of the common resource pool" problem and results in a stable and protected funding source for urban sanitation, no matter who manages the resources.

Another advantage of using tariffs to fund sanitation (particularly in sewered systems) is the strong revenue handle provided by collecting wastewater revenues together with either the property tax or the water bill. By linking wastewater tariffs to an existing, well-collected local revenue source (whether the property tax or the water bill), the cost of collection is considerably reduced and the rate of voluntary compliance is substantially increased. From a collection viewpoint, the fact that the surcharge is identifiable as separate from the base tax is an added bonus, making the higher combined rate more acceptable to the consumer. (As is discussed in greater detail below, this advantage is not unique to tariffs: an earmarked surtax on any well-collected local revenue source offers the potential for increased fiscal space for local priorities.)

There are arguably other potential benefits of tariffs or tariff-like (earmarked) local revenue sources. An often-mentioned governance benefit is that local residents are more likely to hold local officials accountable for delivering services when they contribute to a particular service through a user fee. For instance, Hoffman (n.d.) finds that in South Africa, greater reliance on user fees increases the performance of municipal services.[21] However, the empirical literature on user fees seems to be unresolved on this issue and has not identified what particular feature(s) of user fees might make them more efficient than general revenue sources.[22]

An additional potential benefit of (waste)water tariffs and tariff-like earmarked revenues—if the tariff is charged in some proportion to the volume of water used—is that the tariff may serve as a marginal-cost pricing mechanism. As a result, such tariffs more closely adhere to the "benefits principle" of local taxation, while potentially encouraging optimal use of water resources by discouraging excessive consumption through the pricing mechanism.[23] Even without cross-subsidization, consumption-based tariffs tend to be more progressive than flat-rate sanitation charges, as wealthier households tend to contribute more than poorer households under consumption-based tariffs.[24]

Despite the conceptual advantages of tariffs as a funding source for sanitation expenditures, a major challenge in the application of tariffs or user fees for sanitation in developing countries is low

ability and willingness to pay for sanitation (Fujita et al. 2005; Whittington 1992). To varying degrees, this is true both for sewered sanitation systems and non-sewered or public sanitation infrastructure and services. The consumers' limited ability and willingness to pay limits the rates that can be charged, so full recovery of operation and maintenance costs (let alone of the replacement cost of capital) is seldom possible in low-income countries. In addition to low willingness to pay, it is not unusual for political and institutional pressures to keep tariffs artificially low, thereby failing to reach cost-recovery.[25]

An additional disadvantage of reliance on tariffs and user fees in low-income country contexts is that there is an inverse relationship between the level of the tariff or user fee and the suitability of tariffs as a revenue instrument. After all, lower user fees, particularly for non-sewered public sanitation solutions, mean that the administrative cost of collecting tariffs or user fees is relatively high compared to the total amount of revenue being collected. This points back to the importance of a solid "revenue handle" and efficient revenue administration in identifying a suitable local revenue source.

A final point is that, although cross-subsidization using tariffs is possible by charging wealthier households more than lower-income households (either a higher nominal amount or a higher rate),[26] given generally low willingness to pay and difficulties with local revenue collection and enforcement, cross-subsidization of sanitation for the urban poor from higher tariffs on the wealthy is less likely to create significant revenue space in low-income countries.

Tariffs and earmarked revenue as a potential sustainable funding source of local sanitation expenditures. The preceding synopsis on the advantages and disadvantages of sanitation tariffs downplays an important point regarding tariff-based funding of sewered sanitation systems: it is important to recall that many sewer charges are actually not tariffs or user fees at all. Instead, many sewer charges are actually earmarked local taxes explicitly set aside for local sanitation provision. Although "sewer charges" are often successfully collected, the collection of such sewer charges is not successful *because* they are tariffs.

Instead, sewer charges successfully generate sufficient revenue for sanitation because they are a hypothecated (earmarked) revenue source and because their collection is linked to a well-collected local revenue source. It does not seem to matter much whether there is actually a direct and proportionate quid pro quo involved in the collection of the sewer charges.[27] As such, it appears irrelevant whether the revenue source the sanitation charge is tied to is a tax or a tariff in its own right, as long as it is well-collected. Further considerations in selecting the base are the acceptability of the

surtax or surcharge by the revenue collection agent, and the acceptability to the consumer of tying the tax or charge to the particular revenue base.

Thus, the solution to the weak revenue yield of possible sanitation tariffs (or tariff-like earmarked sanitation surtaxes) is not to pursue tariffs per se, but to focus on identifying tax revenues or surtaxes that are politically acceptable, where the local government has some revenue handle, and which can be earmarked—in part or in full—for the purpose of funding sanitation. As such, one financing option is to impose a surtax on water. Indeed, Burkina Faso has achieved more progress than most countries in Sub-Saharan Africa through its policy of adding a sanitation services levy on all water bills since 1985 (WSP/ONEA 2004). It should be noted that this levy is actually not a sanitation tariff, but a surtax: all recipients of piped water must pay this surtax, whether they have sewer access or not (hence, the tax is essentially unavoidable and there is no quid pro quo).[28]

In principle, introducing a surtax on, or earmarking a percentage of, any existing local revenue source (such as the local property tax) for the purpose of improving public sanitation could have an equal—or possibly even greater—impact on sanitation spending than collecting a new sanitation tariff or fee. In principle, the surtax could even be imposed on a central government revenue source, which would then be collected by the central revenue agent together with the underlying revenue source, and disbursed to the local government authority.[29]

It should be noted that introducing a surtax has strong political implications of its own. Most local executives or mayors would resist the introduction of an earmarked tax if it meant lowering the tax rate imposed on the same tax base for the non-earmarked portion of the revenue source. For the introduction of the surtax to be politically acceptable, there must be sufficient political support among the local government's leadership (as well as among its constituents, to the extent that local electoral and political pressures are relevant). This presumes at a minimum that a clear "Wicksellian link" is created between the surtax or surcharge on one hand, and the expected benefits on the other hand (Bird and Slack 2013). In the absence of sufficient local political will to introduce such a surtax, it may in fact be reasonable for central governments to require municipalities to impose a sanitation surtax at a specific level if sanitation provision is deemed to be an essential local service that should be provided equitably.

While this is an appropriate technical solution for funneling greater resources to sanitation as a local priority expenditure, there are clear political and institutional obstacles to this potential solution: while the introduction of user fees is often seen as a potentially efficiency-enhancing reform, there is often some degree of resistance to the introduction of earmarked taxes, as they isolate revenues from

the control of politicians and can be used by policymakers to mask increases in total government spending (Crowley and Hoffer 2012; Worstall 2010).[30] Even when centrally imposed, it is possible that local implementation of the tax will be inadequate unless properly implemented by champions within the local administration and clearly supported by influential local constituents.

The fact that there are relatively few examples of local sanitation surtaxes in developing economies (like the example of Burkina Faso noted above) suggests there is general aversion at the local level to the use of hypothecated taxes for this purpose.

In fact, the earmarking of revenue sources is relatively rare in public finance around the world. Perhaps the most common example of revenue earmarking is the earmarking of excise taxes on fuel for the purpose of road maintenance through road funds. Another example (albeit somewhat less widespread) is the earmarking of revenues from tobacco taxes for health expenditures. Other examples include gambling or lottery revenues, which in some countries and states are sometimes set aside for educational purposes, and taxes on plastic bags, which are sometimes earmarked for local environment initiatives. A general conclusion from the literature on revenue earmarking is that the practice is relatively rare; the adoption of earmarked revenues tends to be highly political, and most stakeholders—other than the beneficiaries of the earmark—tend to oppose such earmarks.

3d. The Role of Intergovernmental Fiscal Transfers or Grants (i.e., transfers)

In addition to the equity-based arguments in support of universal access to sanitation (inclusiveness, human dignity, and human rights), there are strong health, environmental, and livelihood reasons to promote universal access to urban sanitation. For instance, in cities in Europe and the United States in the second half of the 19th century and the first decades of the 20th century, the outbreak of cholera was an important driving force for ensuring investments in sewer networks as well as public bath houses (Purcell 2013).

When there are equity reasons or inter-jurisdictional spillovers involved in the provision of a service, public finance theory suggests that central governments have an important role in financing the delivery of publicly provided services. Since there is a strong equity argument in support of universal sanitation access as well as a positive (health) spillover effect of urban sanitation spending onto society at large, there is a strong argument for central governments to fund sanitation provision for the poor. Central government funding for pro-poor sanitation can be achieved in one of two ways: through the provision of grants to (urban) local governments (which in turn are assigned responsibility for ensuring

the provision of local sanitation), or by central governments directly funding and providing local sanitation infrastructure in urban areas.[31] The latter mechanism is discussed in greater detail in section 3e below.

Who uses intergovernmental fiscal transfers to fund sanitation? In numerous countries where local governments are responsible for local sanitation, intergovernmental fiscal transfers are provided to the local level to fund the development of local sanitation infrastructure. In some countries, central-local grants are provided that are specifically targeted at urban sanitation. For instance, under the Clean Water Act, local governments and communities in the United States are eligible to receive targeted federal grants for sanitation improvements and wastewater systems (US Environmental Protection Agency 1997).[32] To the extent that such earmarked grants exist in developing countries, they are often supported by international donor agencies. For instance, Indonesia's community-based sanitation system (SANIMAS) was initially funded by AusAid and the World Bank Water and Sanitation Programme through grants to local governments for community-based sanitation provision (Ismawati 2010). Since 2010, SANIMAS has been supported through the government budget's regular capital grant system's Special Allocation Fund for Community-Based Environmental Sanitation (Mungkasa 2010).

One element of SANIMAS, as well as many other targeted sanitation grants, is that the grant requires co-funding by local governments from local own-source revenues. Such a matching requirement ensures local government ownership over the resulting infrastructure and provides an incentive for local governments to spend a larger share of own-source revenues on sanitation for the urban poor.

In other countries, local sanitation is funded by earmarking a portion of the local capital development grant specifically for sanitation. For instance, in Bangladesh, the government earmarks 10 percent of the Annual Development Program grant provided to sub-districts (Upazilas) for sanitation purposes (Zamil 2012).

In many countries, however, intergovernmental fiscal transfers (or capital development grants) are provided in an unconditional (un-earmarked) manner, which allows local governments to prioritize local investments across a spectrum of local public services. Examples of such unconditional grants include Ghana's District Assemblies Common Fund, Kenya's erstwhile Local Authorities Transfer Fund, Mozambique's Local Investment Initiatives Fund, Tanzania's Local Government Development Grant, and South Africa's Equitable Shares. Since these grants are, in principle, unconditional, local governments are free to determine the priorities on which these resources are spent. This means that

unlike the earmarked grants noted above, there is no guarantee that development resources are spent on sanitation for the poor.

Although Equitable Shares grants are provided on an unconditional basis in South Africa, the design of the grants provides explicit encouragement for local governments to spend a portion of their allocations on pro-poor sanitation. In the formula-based calculation, each local government is provided 275 Rand (about $27) for every household below a minimum income threshold to provide free basic services. This allotment includes $7 per household that is informally set aside for pro-poor sanitation (National Treasury 2013). Although this allocation is not binding, it does ensure that each local government has resources explicitly available for this purpose. Failure to use these resources for their pro-poor purpose comes with some local political risks.

Advantages and disadvantages of intergovernmental fiscal transfers as a sanitation funding approach. Intergovernmental grants are often the primary mechanism for funding local government expenditures. In developing countries, it is not unusual for 80 to 90 percent of local government spending to be funded from intergovernmental grants. Even in urban areas, which typically have a substantial economic base, it is common for 50 to 70 percent of spending to be funded from intergovernmental fiscal transfers.

An important advantage of intergovernmental fiscal transfers is that they restore the vertical fiscal imbalances that are prevalent in most countries. Vertical fiscal balance is said to exist when the functions assigned to each level of government are balanced with the (own-source and grant) resources assigned to each level. Since central governments have a tendency to centralize tax revenues, whereas service delivery responsibilities—including that of providing sanitation—are frequently decentralized, transfers are often required to ensure vertical fiscal balance.

Another potential advantage of intergovernmental fiscal grants is that they distribute resources fairly across the national territory. This typically means that formula-based grants allocate resources where expenditure needs are higher, which is typically in rural areas. Although one could argue that it is inequitable or even inefficient for a grant system to provide relatively wealthy urban areas with intergovernmental fiscal transfers, there is also a basic fairness argument (or a "net fiscal incidence" argument) to be for allocating grants to urban areas. If one looks at the distribution of the tax burden across countries, residents and businesses in urban areas often pay the lion's share of central government taxes, much of which are then transferred to rural areas by the central government to deliver (pro-poor) public services in rural areas. It would then only be fair to urban taxpayers—having already been taxed by the central government for the provision of pro-poor services—that pro-poor

urban services such as sanitation for the urban poor should also be funded from central government taxes in the form of transfers to their local governments.

Another potential advantage of reliance on earmarked intergovernmental grants is that such grants have the potential to have a reasonably large impact on sanitation spending. Although it is unlikely that local governments will increase sanitation spending by one dollar for every dollar received in sanitation grants, studies on the determinants of urban spending (discussed in section 3a) nonetheless suggest that most of the money provided for specific purposes through grants "sticks where it hits." Naturally, when unconditional or loosely earmarked grants are provided, the share of the grant that is actually used for specific investments is greatly reduced.

Reliance on intergovernmental fiscal transfers has some disadvantages. First, reliance on central transfers makes local governments more dependent and may reduce their accountability to their own constituents. In addition, it can be difficult for local governments to manage a variety of earmarked funding streams, each with its own set of requirements. It can be equally difficult for the central government to monitor local level use of the grant. For instance, although the Upazila Annual Development Program (ADP) block grant in Bangladesh requires that a specific share is spent on sanitation, there is no regular report which aggregates the spending of ADP by sector. As such, it is unknown how much of the grant is actually spent on sanitation. This is a common problem across devolved local government systems.

Intergovernmental fiscal transfers as a potential sustainable funding source for local sanitation expenditures. Intergovernmental fiscal transfers should be a permanent feature of any well-designed system of intergovernmental fiscal relations. Indeed, most central government budgets earmark funds to make grants to local governments. The biggest challenge in providing a sanitation grant as a sustainable funding source for local sanitation expenditures is not fiscal or administrative, but political.

In virtually all countries, vertical and horizontal allocation of grant resources is a highly political affair (Boex and Martinez-Vazquez 2004). Perhaps the biggest institutional element in determining the structure of a country's grant system is the divide between ministries of local government on one hand, and sector ministries on the other hand.[33] Whereas ministries of local government typically champion unconditional grants to be provided to local governments under their stewardship, line ministries are typically more hesitant to provide sectoral grants to local government entities. Instead, line ministries are often much more keen to implement local development projects themselves. To the extent that central line ministries are able to capture these resources for themselves, the de facto role of local governments in providing local sanitation improvements is greatly reduced (box 4).

BOX 4

De Jure Versus De Facto Assignment of Functional Responsibilities

In many countries, the legal responsibility for providing urban sanitation and other urban services is assigned to local government authorities. However, this does not necessarily mean that urban local governments actually have control over the political, administrative, and fiscal instruments necessary to provide local sanitation services in a responsive manner. Eaton and Schroeder (2010) argue that even when central authorities "talk the talk" on decentralization (by legally devolving functions to local authorities), they have an incentive to effectively retain control over the functions by retaining one of more of the dimensions of decentralization (political, administrative, or fiscal decentralization).

A recent study of urban service in South Asia, for instance, revealed that even when urban local governments are legally assigned urban service delivery functions, the degree to which these functions are factually (de facto) assigned to them often falls short.[a] Based on a five-point indicator constructed to measure the actual degree of functional assignment, a sample of South Asian cities received an average score of 3.2 on a five-point scale across four urban services (solid waste management, water, urban roads, and public transportation). Cities in South Asia were shown to have limited administrative control over the services they were legally assigned to provide within their jurisdictions (with a score of 2.0 out of 5.0 on the administrative control indicator). In addition, local participation and accountability mechanisms for these services were generally found to be weak (2.5 out of 5.0).

[a] For instance, see Boex, Lane, and Yao (2013) for a discussion on urban service delivery in South Asia.

3e. Interventions of Central Government, Donor Agencies, and Foundations in Local Sanitation

The effectiveness with which local governments are able to perform their service delivery functions depends largely on the effectiveness of the policy framework within which urban local governments operate and on how much (political, administrative, and fiscal) leeway they are given by national governments (Cities Alliance 2013; Urban Institute 2014). In many developing countries, the role of urban local governments in urban service delivery is weaker today than it was half a century ago.[34]

Whether real or perceived, this weakness has resulted in a situation where central governments frequently bypass local governments when they seek solutions to local service delivery challenges. In many countries, the responsibility for water and sanitation provision in large cities is assigned to a semi-

autonomous public authority which is ultimately responsible to a central line ministry rather than to the relevant urban local government. Although there is little or no evidence that this organizational structure ensures greater accountability or effectiveness,[35] such arrangements perpetuate situations in which local governments themselves cannot build the capacity to take responsibility for local service delivery.[36]

Similarly, many international donor agencies and foundations bypass the local government level when they seek to improve local sanitation infrastructure and services. To the extent that resources for these functions flow around—rather than through—the local government budget, this reduces the incentive for municipalities to get their budgets in order and to ensure transparent inclusion of sanitation finances in the local budget.

Even when local governments are formally assigned responsibility for sanitation provision, weak local fiscal discretion and the limited amount of financial resources that local governments often have at their disposal (relative to their functions) frequently undermine their effectiveness. Since local government revenues are generally inadequate for providing capital infrastructure and since local government borrowing is often not a prudent option for funding investments in infrastructure, capital grants provided by central governments and international donors—if any—tend to be the main funding source for pro-poor infrastructure. Low-interest loans or grants from bilateral or multilateral donors typically flow from the ministry of finance to central line ministries (such as the ministry of water or the ministry of urban development) and not to the local government or local administrative authority in charge of sanitation. Similarly, it is not unusual for sanitation grants from donor agencies and international foundations to be funneled to unelected NGOs or community groups rather than to local governments. In both instances, the local government's role is reduced to that of an agent or, more typically, a spectator in the performance of its own local functions. The de facto bypassing of urban local governments in urban services is a common problem (not just in sanitation), and is destructive to local initiative and local responsibility (Boex, Lane, and Yao 2013). As a result, local sanitation finance in many countries is stuck in a vicious cycle of weak urban or local governance and the bypassing of local government authorities in the delivery of urban services.

4. Concluding Remarks

To arrive at an appropriate financing solution for local sanitation services, it is important to return to the reasons why the public sector is involved in this function in the first place. Access to sanitation is critical to human development—improving health, dignity, education, and livelihoods. In addition, there are important environmental aspects and inter-jurisdictional spillovers that should be taken into account. Although sanitation infrastructure and services are fundamentally local in nature, the improvement of access to sanitation is not just a local but a *global* development goal.

If this is the case, and if local governments—given their political constraints and the limited revenue sources assigned to them—do not provide universal access to sanitation, then central governments and their partners in the global donor community should not only "talk the talk" about improving pro-poor sanitation facilities and services, but also "walk the walk" by putting in place targeted funding modalities (either in the form of intergovernmental fiscal transfers or by mandating earmarked local taxes to fund local sanitation) that will encourage and support local governments to take on this function.

Given the fact that the cost of providing universal access to sanitation is relatively small (either when specified as a percent of a country's national budget, when specified as a share of Millennium Development Goal–focused donor spending in a country, or when compared with spending on health and education Millennium Development Goals), attaining progress on pro-poor urban sanitation should not be seen predominantly as a resource problem, but rather, as a vertical governance failure. This stalemate will persist as long as donor agencies and central governments expect local governments to provide pro-poor sanitation services without creating the political, administrative, and fiscal preconditions (discretion, incentives, and accountability mechanisms) to encourage local government leaders to prioritize spending on local sanitation improvements.

Short of a strategy that advocates for the complete decentralization of all aspects of key urban services (including the political, administrative, and fiscal aspects of urban service delivery), incremental steps can be taken to either strengthen the role of the local level as a responsive provider of sanitation services, or to directly advocate for increased city-level public finance for pro-poor sanitation improvements. Among others, these steps include the following:

- Providing political incentives for local political leaders to prioritize public sanitation.
- Strengthening institutional and budgetary coherence within the sanitation sector.
- Promoting or supporting widespread provision of information about the importance of sanitation, and on local responsibility for providing sanitation services.

- Providing local political leaders (and the public) with access to specific technical knowledge that may be missing: available fiscal tools, accurate current costs and coverage of sanitation, and marginal cost of improvement.
- Building support for local sanitation improvements through local public advocacy, including by informing the policy debate: for instance, how many families can access public sanitation for the same cost of building a bridge?
- Removing the obstacles to local action by providing (or advocating for the provision of) conditional or unconditional grants that are explicitly designated for sanitation, similar to the Equitable Shares Allocation in South Africa.
- Ensuring greater resource availability for local sanitation by advocating for central governments to impose earmarked local revenue sources to fund local sanitation.

Advocating for any of these preconditions will be challenging, particularly in environments where resources and political will are limited. To the extent that such advocacy is informed by a clear understanding of local politics and targeted at key decision-makers, however, it may be possible to reform local sanitation provision in such a way that those who most need sanitation gain access to it.

Notes

1. There is also evidence that politicians are aware of the importance of access to information in voting patterns. A study of New Deal public investments in the United States shows that counties with greater radio penetration (and, presumably, greater access to information on New Deal investments) received significantly more funding than other counties, even after controlling for high unemployment and other variables (Stromberg 2004).
2. The link between sanitation priority and voting behavior weakens the incentive for public officials to allocate money for sanitation, except perhaps during high-profile, high-visibility times or situations (e.g., in the run-up to elections, or after a major relevant event or catastrophe). Evidence suggests that governments increase spending on public services before elections (Schuknecht 1998; Shi and Svensson 2006), presumably to influence the outcome of that election, which can weaken the relationship between consistent governance performance and voter preferences.
3. A further complication is that spending on sanitation covers a wide range of spending activities, which are different in the way in which "finance should follow function." These activities range from the provision of public sanitation facilities and subsidies to private sanitation facilities to different types of wastewater collection (investment in sewer systems, connection of homes to sewer mains, procurement and operation of pump trucks), and the investment in—and operation of—wastewater treatment facilities.
4. A shortcoming of the available public-finance literature is that the empirical analyses focus exclusively on local government expenditures and typically do not take into account any local spending that is being done by deconcentrated local bodies or parastatal organizations (such as local water and sanitation authorities) that are not under the control of local governments.
5. Recent studies in this areas include Gadenne (2012), Mahabir (2012), Monkam (2011), and Yu, Zhan, Li and Zheng (2011).
6. For instance, Gebremariam and Gebremedhin (2006) find that the level of direct federal government expenditure and grants (DFEG) has a statistically significant effect on the level of local public expenditures; the estimated coefficient on DFEG is 0.20. This finding suggests that local governments treat intergovernmental fiscal transfers as fungible, and lower their tax burden in response to the receipt of greater transfer resources. The fact that some money "sticks where it hits" is known as the "flypaper effect." The exact size of the impact of any transfer scheme on (total or sectoral) local government spending depends on the nature of the transfer scheme, including, for instance, whether the grant is a matching grant or a lump-sum grant, and the degree to which the grant resources are earmarked for a specific function or activity.
7. This percentage excludes sanitation spending by central government agencies and donor-funded projects, which circumvent the municipal budget.
8. Because of the high level of poverty and the economic structure of developing economies, revenue sources in these countries tend to be highly centralized and skewed toward certain types of taxes, such as taxes on international trade. Individual income taxes (which can be collected in a progressive manner) and other personal taxes tend to be less dominant. Revenue decentralization to the local level tends to be considerably less in developed economies than in industrialized economies (United Cities and Local Governments 2010).
9. The concepts presented by Musgrave and Tiebout rely heavily on mobility of factors of production and of people for their results. When households and resources are less than perfectly mobile, (which is often the case, especially in developing economies), there may be more latitude for subnational policies to redistribute income than in the Musgrave model (McLure and Martinez-Vazquez, 2004).
10. In addition to the revenue issues noted below, property tax collection problems unique to developing countries include weaknesses with land and property registration, which often remains a central function; difficulties with the mass valuation of properties because of the much smaller number of arms-length sales of properties and homes; the inability to have property taxes withheld by mortgage banks; and the social unacceptability of evictions.
11. Kaganova (2012) argues that revenues from better urban land (asset) management are considerably underutilized. This point is also noted by Trémolet and colleagues (2013).

12. See the International Monetary Fund (2001) report for a more detailed discussion on the classification of tax and nontax revenues.

13. Volumetric wastewater tariffs or sewerage rates can be proportional to consumption (linear tariffs), can increase with consumption (so-called increasing-block tariffs), or can decrease with consumption (decreasing-block tariffs).

14. By setting user fees equal to the marginal cost of provision, the costing of locally provided services simulates market pricing. This may result in a more efficient allocation of public resources. Setting the price or user fee lower than the marginal cost could result in over-utilization of the publicly provided good, whereas setting the user fee higher than the marginal cost would, in principle, result in under-provision.

15. It should be noted that it is possible to engage in cross-subsidization of local service provision only to the extent that the marginal benefit of a public service (as reflected by willingness to pay) exceeds the marginal cost of providing the service for wealthier households. Since user fees are, in principle, voluntary (in exchange for the service to be provided), the amount of the user fee should not be set in excess of the benefit provided to the consumer.

16. Norman, Daryanani, and Peal (2013) have a slightly different interpretation of the line between tariffs and surtaxes (levies). They consider the amount charged to each consumer that directly relates to services delivered to that consumer to be a sanitation service charge, and the amount charged that is not directly related to services delivered to be a sanitation levy or tax.

17. When the wastewater charge is fully folded into the property tax without explicitly earmarking any portion of the expanded property tax for sanitation (which is sometimes the case, even in developed economies), it technically loses its dedicated or earmarked status and should be considered a general revenue source (as discussed above).

18. For instance, see the example of the financing of communal toilets in Maputo, Mozambique (Water & Sanitation for the Urban Poor 2011).

19. Although the "sites and services" approach is generally believed to have failed, some urban areas are experimenting with related approaches, which could be termed "sites with some services" or "sites without services." For example, some of the formal in-migrant areas in Windhoek, Namibia, follow this approach.

20. As already noted, the line drawn here between tariffs and earmarked sanitation revenues is slightly different from the one drawn by Norman, Daryanani, and Peal (2013).

21. Monkam (2011), who also analyzes the performance of public services in South Africa, does not find that user fees have a direct effect on urban service delivery performance. Instead, she finds that the number of households or consumer units receiving free water and sanitation in local municipalities (funded from the Equitable Shares—South Africa's equalization grant-) is also important in improving local efficiency.

22. Although we did not find any research that specifically addresses this question directly, there is no indication (based largely on evidence in developed economies) that there are any practical economic differences between a flat per-household sanitation charge (easily collected with the property tax) or a user fee that is based on water consumption, which is more easily collected together with the piped-water supply charge. For instance, the nature of the sanitation charge is not likely to spur households to reduce or increase water consumption.

23. The impact of marginal-cost pricing on optimal resource allocations should not be under- or overestimated. The marginal-cost pricing argument is much stronger for water usage than it is for sanitation. As noted in box 3, in developed countries, it is common for local governments to use either a flat-rate sanitation tariff or a volumetric tariff. The fact that both options are actively used by jurisdictions in close proximity to each other may suggest that the costs and benefits of using volume-based sanitation tariffs are closely balanced.

24. However, for a tariff to be truly progressive, a wealthier household would have to pay not just a higher amount but a higher *percentage* of its income charges. It is also important for household metering regimes to consider that poorer households may have more people living in a single dwelling.

25. This challenge does not equally impact locally collected taxes, as there is no formal quid pro quo involved in local taxation. One of the difficulties of tariffs related to sanitation is for the public to understand what services will be delivered, and to ensure that services are actually delivered up to the promised standard.

26. Progressivity in sanitation charges can be achieved by tying the level of the tariff to water consumption. The net fiscal incidence of sanitation finance, however, depends not only on how (and how much) tariffs are collected, but also on how the proceeds are used. For instance, merely charging a sanitation tariff based on water consumption does not necessarily result in progressivity or cross-subsidization if the proceeds of the charge are redirected to support better sanitation services for wealthier households or neighborhoods.

27. Providing a service that is beneficial to the user or taxpayer may improve willingness to pay or voluntary tax compliance. However, in the absence of collection and enforcement efforts, in most cases, providing valuable public services is not a sufficient incentive for users or taxpayers to voluntarily pay local taxes or fees.

28. In fact, the surcharge revenues in Burkina Faso are directly transferred to a dedicated sanitation account, without the intervention of central government, from which they are largely spent on sanitation promotion rather than on sanitation provision.

29. Such piggy-back taxation is not unusual at the state and local levels in the United States, with local governments frequently given the ability to add a local option sales tax or even a local option income tax along with the state-collected sales or income tax. As long as the local government has control over the rate of the surtax, the surtax should be considered a local tax. If the local government has no control over the rate of such a tax, the instrument essentially takes on the form of derivation-based revenue-sharing, which is considered a form of intergovernmental fiscal transfer.

30. Since we are operating on the thesis, however, that local government leaders will underspend on sanitation when making budgetary allocations from general revenues (as they do not take into account the social benefits and the externalities for broader society), if our objective is to achieve improved access to sanitation infrastructure, then isolating revenues from the control of politicians for this purpose and allowing policymakers to mask increases in total government spending is exactly the intent (JNNURM n.d.).

31. As noted above, an alternative is for the central government to earmark specific local revenue sources for the funding of sanitation provision, which local governments are required to collect and set aside for sanitation provision. Although the revenue is earmarked centrally, this approach would still require a considerable degree of buy-in from the local level.

32. Congress passed an amendment of the act in 1987 which largely abolished wastewater construction grants and replaced them with a system of subsidized loans through a state-level revolving fund. However, targeted grants for sanitation continue to persist.

33. To the extent that local sanitation also falls under the ministry of local government (in its capacity as a sector ministry), there may even be this dichotomy within the ministry itself. For instance, in Bangladesh, there is a degree of tension between the Local Government Division—which is the champion for decentralization—and the Local Government Engineering Department and the Public Health Engineering Department, which typically prefer to implement projects in a more top-down manner in accordance with their own mandates.

34. For instance, see Hicks (1961) for a description of the roles, responsibilities, and finances of local governments across the British Commonwealth in the late 1950s.

35. To the extent that centrally controlled parastatal authorities are more effective, it is likely that this effectiveness is caused by the fact that their parent line ministries are typically strong champions for them at the central government level, giving such authorities direct access to borrowing and central government subsidies.

36. Without downplaying the need for further capacity strengthening at the local level, the capacity argument is often convenient cover for central government agencies that are happy to retain centralized control over local services and the related financial resources.

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