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Comment

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Sustainable cost recovery principles can drive equitable, ongoing funding of critical urban sanitation services

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This Comment critiques current urban sanitation financing discourse and proposes sustainable cost recovery principles as a framework for more constructive conversations. The way we talk about financing matters, and a better conversation can lead to better outcomes. We contend that framing discussions around sustainable cost recovery principles can foster fairer, more sustainable financing arrangements that acknowledge sanitation as a critical public good while ensuring service provider viability and user affordability.

Efforts to meet Sustainable Development Goal 6 sanitation targets and achieve citywide inclusive service delivery are stymied by a widely bemoaned lack of funding and finance. While shortfalls in financing undoubtedly constrain progress, so too does the quality of financing discourse. This Comment contends that a different conversation is needed about what societies consider fair and sustainable in terms of financing urban sanitation. We identify three problems with current discussions and propose the principles of sustainable cost recovery as constructive pillars around which to coalesce.

Three issues with current conversations

Current conversations about financing urban sanitation are constrained by three inter-connected issues: a preoccupation with the financing gap, a search for novel financing solutions, and consequentially losing sight of where and by whom costs are borne.

First, the mismatch between available funds and required investment —the finance gap—is commonly cited as a key constraint on progressing citywide services[1,2]. This 'gap talk' is undeniably important. Articulating both the scale and nature of investment needs serves a crucial advocacy purpose, ensuring urban sanitation is on the agenda in finance discussions at national and international forums. However, gap talk risks overshading more nuanced, critical discussions. It can drive a simplistic—and overly optimistic—focus on identifying investment sources that may not live up to expectations, as has been seen with blended finance discourse[3]. Gap talk also privileges particular perspectives over others with its implicit positioning of substantial investments as the singular entry point for a solution. It means that less attention is given to using finance from multiple sources in the best possible ways, an issue that has been raised in recent sector discussions[4]. A focus on large-scale investments (that better fit repayable financing approaches) also means that household financial contributions are overshadowed as we look to bigger contributors (development agencies, private sector and governments).

A second impediment to constructive financing discourse is a tendency to focus on the latest fashion in silver bullet financing solutions, with discussions commonly shaped by the newest or loudest idea about how to set up innovative financial arrangements between actors. There is an implicit belief that through financial innovation, we can address all the structural financing challenges of urban sanitation. A historical perspective on financing ideas reveals clear trends, with a privatisation push in the 1980s evolving to utility corporatization, before public–private partnerships, blended finance and impact bonds took centre stage in more recent decades. While each of these financial innovations has driven progress in some contexts, they tend to lead to tunnel vision, cherry-picking the segment where a particular financing mechanism applies and inadvertently overlooking the broader service system and realisation of the human right for all over the long term. As asserted by the OECD, there is a proliferation of actors focused on viability gap financing at the transaction level, which fails to incentivise higher operational standards and sustained revenues[2].

For example, a focus on business models for sludge emptying services has overshadowed systems perspectives that consider financing and cost-sharing across the service chain over its lifecycle[5]. Similarly, the preoccupation with blended finance may set unrealistic expectations given water-related investments form a minor share of private investment in infrastructure[2,6]. Blended finance requires mature management arrangements and oversight. Ultimately, the private sector will need to recover its investments plus a profit in a blended finance arrangement, something which is not always part of shorter-term discussions[7].

Finally, urban sanitation is plagued by persistent inequalities in how the lifecycle costs of a safely managed full sanitation chain (a public good) are shared, an issue that financing debates could engage with more centrally and constructively. Questions of who pays for what, and when, and whether, as a society, we consider this fair can be overshadowed by a focus on the total finance gap or by analyses that report on overall total costs and benefits with less attention to their distribution. Yet inequalities in cost sharing and related inequalities in service delivery are evident. Centralised systems have been shown to benefit wealthier urban areas[8]. A multi-country review of subsidies across water supply and sanitation found that 56% of subsidies were captured by the wealthiest 20% of the population, with only 6% reaching the poorest quintile[9]. For urban areas characterised by onsite systems, household investments in containment and transport represent a large portion of total service systems costs[5,10], and these households often also bear the externalities of inadequate sanitation, such as living near polluted waterways. While citywide inclusive sanitation approaches advance a mosaic of service delivery models with a view to ensuring services are delivered to the most vulnerable groups[11], onsite systems have been shown to be as expensive as networked options when operated safely and

cannot be considered a low-cost alternative, as has often been claimed[12]. So-called low-cost sanitation tends to shift the burden to households, the environment and/or public health.

How can sustainable cost recovery help? Principles and terminology

We argue that urban sanitation financing is ultimately about what society considers fair and sustainable financial arrangements for covering the full (safely managed) sanitation chain – which comprises both private and public economic goods—and propose 'sustainable cost recovery' concepts as constructive scaffolding for that conversation. Sustainable cost recovery was advanced as a helpful concept for the water sector in 2003 when the Camdessus World Panel on Financing Water Infrastructure connected the phrase to ideas of life-cycle costing, individual affordability and predictable use of public budgets[13]. The central distinguishing characteristic of *sustainable* cost recovery, when compared with the concept of *full* cost recovery, is an acknowledgement that tariffs alone will invariably be insufficient to support the financial viability of all services. This statement applies irrespective of economic development status, as characterised by the OECD[14]: "Even in the most developed countries, covering costs solely on the basis of tariffs may not take sufficient account of the burden this would place on the poorest consumers, or of the merit or public goods character of some WSS services, particularly sanitation".

The Camdessus Panel and subsequent OECD reports identify three principles of sustainable cost recovery: (1) an appropriate mix of tariffs, taxes and transfers to finance recurrent and capital costs, and to leverage other forms of financing, (2) predictability of public subsidies to facilitate investment (planning), and (3) tariff policies that are affordable to all, including the poorest, while ensuring the financial sustainability of service providers. We characterise these principles in short form as an appropriate mix of the 3Ts (tariffs, taxes and transfers), predictable public investment, and taking account of multiple cost perspectives (who pays what and when)[13,14].

Water sector discourse has taken up the idea of sustainable cost recovery[15]. The reality that full cost recovery is infeasible and that public finance in some form will be required to ensure equality and leave no one behind is now mainstream. Each of the sustainable cost recovery principles has shaped conversations in particular sub-sectors, most notably urban water supply[15–17]. However, in urban sanitation—where the service chain and actor landscape is more complex—systematic engagement with the three principles has yet to occur. In the following section, we share ideas about how each of these principles might inform urban sanitation financing discussions. While none will 'solve' urban sanitation financing—an unrealistic expectation for complex situations—the principles can prompt new thinking and identification of pathways to progress urban sanitation financing in constructive directions.

Putting principles to work

Principle 1: An appropriate mix of 3Ts. Applying the first principle—ensuring an appropriate mix of tariffs, taxes and transfers—requires thinking through the different Ts across the service chain, including who pays for what, how and when. A key word in this principle is *appropriate*, which asks what society considers fair in terms of cost and risk sharing, service levels and potential externalities (e.g., for the environment)—all of which are shaped by values and subject to political manoeuvring. When putting this principle into practice, complexities and potential cost-sharing inequities characteristic of sanitation (compared with water service delivery) need to be accounted for. An analysis of direct user payments, for example, needs to consider the entire chain as well as lifecycle costs. In many cities, direct user payments for networked systems (made up of connection fees and tariffs) are incommensurate with investments of households who build an onsite system and pay for frequent desludging, as illustrated in Fig. 1. As the overall cleanliness of the environment is a public good, and thus everybody's benefit, it could be a question whether funds from the premises with networked connection should cover part of the costs of frequent emptying in a particular city.

Striving for an appropriate mix of finance may include accessing unconventional financial streams, so long as these are predictable and lasting. While none offer easy or complete solutions, awareness of potential finance streams can move cities toward viable longer-term arrangements. Examples include making use of tax streams beyond sanitation, such as occurs in Accra, where a 1% levy applied to petroleum products is invested in the capital construction of faecal sludge treatment plans (C. Akwaah-Adjei, 2023, personal communication), or in Jhenaidah where a sanitation tax linked to the housing tax was used to fund expansion of sludge treatment work[18]. In Jakarta, the service provider Perumda Paljaya secures revenue from a mix of tariff sources beyond sanitation, including hazardous waste management, revenue from commercial buildings and making routine services (e.g. laboratory analysis, de-clogging) available for private hire (A. Indiyani, 2023, personal communication). Similarly, there are opportunities to access finance from diverse sectors by demonstrating the co-benefits of integrated sanitation and conservation activities[19]. More generally, the Green Climate Fund is promoting a paradigm shift that defines non-conventional water sources, such as reused/recycled water, as a new asset class eligible for enabling credit enhancement[20].

Beyond the 3T's, there have been high expectations of revenues coming from a so-called fourth T of 'trade'[21] through commercialisation of re-use products from sludge, such as compost or briquettes. More recently, expectations have grown for potential revenues from carbon credits[22]. While part of the picture, in practice, the share of costs covered by this kind of additional revenue stream is relatively small[5,23], so it must not be presented as a panacea. Nevertheless, given the need for a combination of financing solutions and the multiple co-benefits aligned with sanitation's public good purpose, they should be considered as part of the mix.

Principle 2: Predictable public investment. The second principle—ensuring predictable public investment—contrasts with the current practice of public funding for sanitation, which is often ad-hoc and reactive, primarily covering operational gaps or repairing infrastructure. While these gap-oriented subsidies can inadvertently incentivize poor performance, this should not lead to the conclusion that public funding is unjustified. In fact, public subsidies are central to the concept of sustainable cost recovery, which acknowledges that full cost recovery is often unrealistic. While affirming the importance of a diverse range of finance sources, public investment must be central given the public and merit good characteristics of sanitation, and as an important market enabler[24]. Predictability in public funding is crucial for strategic management of sanitation services, adequate maintenance and renewal, and strengthened accountability for quality service provision. Government budget financing (beyond user contributions such as connection and usage charges) is common in high-income countries and can facilitate alignment of sanitation investment with related policy priorities in public health, equality and environmental sustainability[7].

Acknowledging the well-recognised challenges of securing government budget financing in resource-constrained and politically unpredictable contexts[7], the importance of public investment as well as the need for predictability must remain core to financing discourse. However, this can only be done effectively if we couple it to the public good nature of safely managed sanitation, the costs to society of doing nothing and a greater focus on good performance.

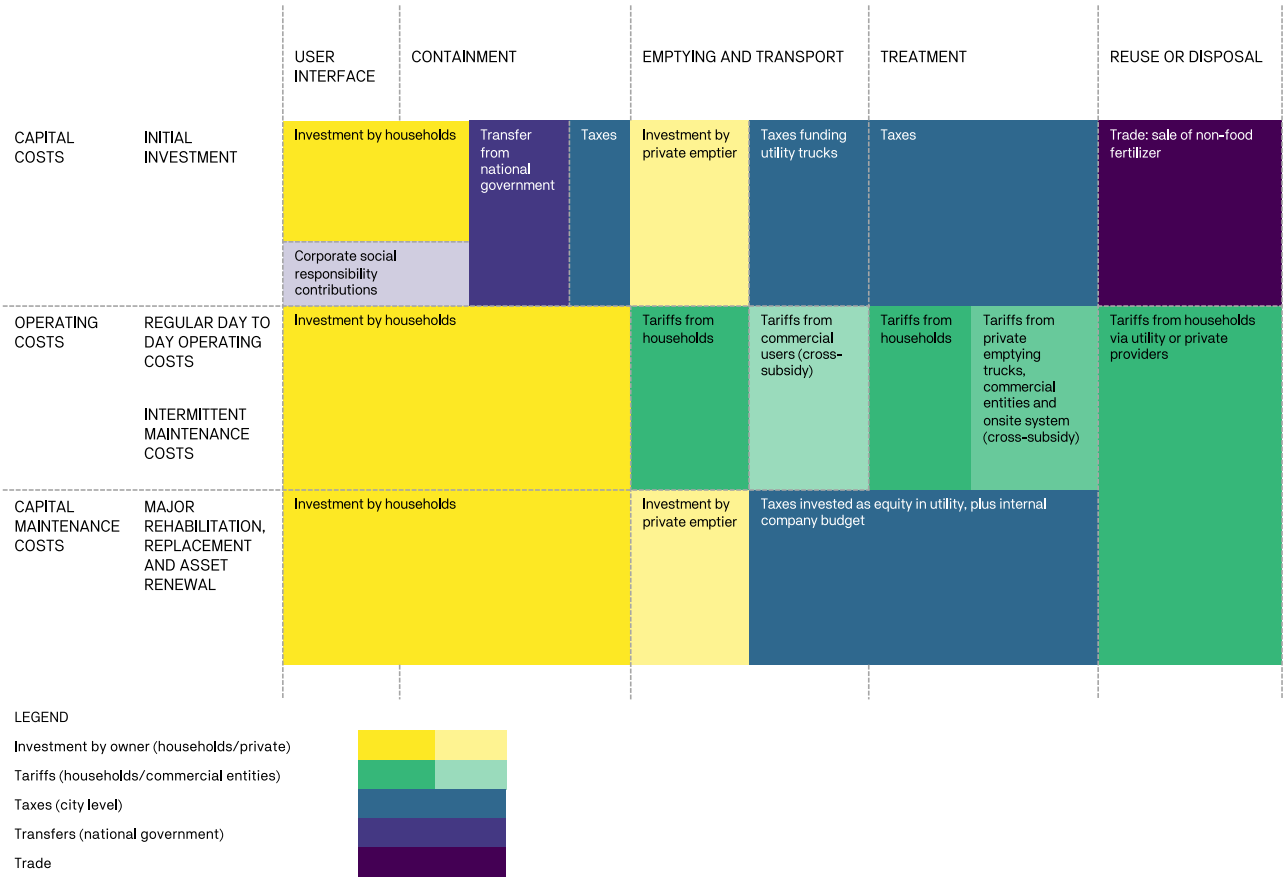

Fig. 1 | It is important to determine who pays what over the life-cycle of the entire service chain, and whether this is fair and sustainable. Illustrative example based on Jakarta's onsite service system (with thanks to A. Indiyani).

In spite of all the known difficulties, there are also examples of where a sanitation budget line was included in the local government budget, or where certain tax revenues were ring-fenced for sanitation. For example, in Ghana, 12% of district-level Internally Generated Funds are ringfenced for sanitation services (C. Akwaah-Adjei, 2023, personal communication). Another model is committed transfers of funds from national budgets to city authorities or service providers. In Dakar, for example, the urban sanitation utility receives a national government transfer covering 30% of its operations[25]. While the Dakar example is not perfect, and proposed budgets are not always received by the service authority[25], such examples provide a demonstration of sustainable cost recovery principles in action that can inform learning and future application.

Principle 3: Considering cost perspectives to ensure affordability and sustainability. The third principle of sustainable cost recovery—which articulates the dual aims of user affordability and service provider viability over the long term—requires a systems view that accounts for multiple cost perspectives. Taking account of multiple cost perspectives means analysing how costs are borne by different actors over service lifecycles and how this can be adjusted to achieve affordability and viability for all. Enacting this principle requires that cost assessments use a sufficiently wide system boundary such that all nodes of the sanitation service chain and all relevant actors are considered[5]. This is in contrast to focusing only on particular nodes of the service chain, or particular actor perspectives rather than taking a whole-of-society view. A recent multi-country analysis of patterns in the sources of urban sanitation finance across the service chain revealed little support for emptying and transport—with households bearing those costs—and high reliance on donors or concessional loans for financing treatment[25]. Rather than focusing on costs and viability for particular actors (e.g. business models for private desludging services or financial arrangements for treatment operators) it is critical to assess who pays for what, when, and how arrangements must be balanced to ensure both affordability and viability for all actors in the 'system'. Including the household perspective in system-wide, whole-of-society analyses are particularly critical given that households bear high costs and externalities in areas characterised by onsite systems.

Affordability and service provider viability are not fully objective criteria and require a broader values-informed conversation about what a society considers acceptable in terms of cost burden for different groups, service levels and pollution or public health implications. There are tools and approaches that support engagement with multiple cost perspectives and examples of considered cost-sharing in action. Tools such as EquiServe[26], which maps service costs and revenues against outcomes of equity, safety and sustainability, can illuminate tensions between affordability and viability and inform conversations towards improved arrangements. The Perumda Paljaya experience, as noted above, exemplifies a utility striving for both viability and affordability by drawing on commercial customer charges and other diverse revenue sources to subsidise household services

(A. Indiyani, 2023, personal communication). Scheduled desludging approaches, which have been implemented in the Indian cities of Wai and Sinnar, similarly show how service providers can manage cost sharing by using property taxes to finance affordable scheduled desludging services[27].

Concluding remarks

In the same way that technical terminology can either hinder or advance progress in achieving safely managed sanitation[28], the use of consistent, principles-based concepts about financing can catalyse more constructive discourse and action. In this Comment, we have proposed the principles of sustainable cost recovery as pillars around which the sector can convene. Sustainable cost recovery principles are sufficiently flexible for contextualised approaches while offering signposts that reinforce the nature of urban sanitation as a public good and service dependent on the persistence of financially viable service providers and appropriately resourced regulators or authorities. A sector tendency towards dogmatic approaches to financing[10] can be overcome by convening conversations more constructively about the most effective ways to mix sources of finance, to advocate for predictable public investment, and to strive for the equally critical outcomes of viability and affordability. Ultimately, urban sanitation financing must be shaped by what a society considers to be both sustainable over the long term and fair for all users, providers and the environment. Sustainable cost recovery principles can drive a better conversation towards this end.

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N.C. led the writing of the manuscript based on insights from all authors. J.W. and A.K. critically reviewed drafts and contributed to writing the manuscript. R.M. provided a critical review of drafts. All authors read and approved the final manuscript.

Competing interests

The authors declare no competing interests.

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