

Article

Experimenting with Urban–Rural Partnerships for Sustainable Sanitation in India: Learning from Practice

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Abstract: Local government partnerships for producing services are ubiquitous in many countries. However, the approach has rarely been applied in India—likely owing to a history of centralized planning and independent urban and rural governance systems. Nonetheless, the country’s transforming sanitation landscape could benefit from intergovernmental partnerships for scaling services with speed and efficiency. The ongoing national sanitation program has espoused the approach in theory but the body of practice to support its wide deployment is sparse. This paper critically reviews one of the first experiments with the approach for producing sanitation services in the Dhenkanal district, Odisha, India. We ask the question: what can Dhenkanal’s case tell us about the challenges and opportunities for delivering sanitation services through local-level intergovernmental urban–rural partnerships in India? As part of our practice research, we supported the district government pilot the approach. The data, consultations, and observations underpinning the experiment form the basis of our insights. We find that the urban–rural partnership increased access to sanitation services among rural households within a short period, lowered service charges, and clarified institutional responsibilities. The experiment highlighted issues relating to planning, responsibility, accountability, and financing that need tackling in order to strengthen the model going forward. We recommend that evolving a definitive model(s) of intergovernmental partnerships would require experimenting with the approach in diverse institutional contexts and granting governments the flexibility to recreate and renegotiate the form of the partnership.

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Keywords: intermunicipal cooperation; India; urban–rural partnership; sanitation; faecal sludge management; wastewater management; local governance; local government partnership

1. Introduction

India’s sanitation landscape is undergoing a rapid transformation. In 2012, India was home to a population of 2.5 billion that lacked access to improved sanitation [1]. The incumbent national government launched a large-scale program, the *Swachh Bharat Mission* (SBM), to eliminate open defecation in 2014. The program aimed to provide subsidized toilets to households lacking a toilet—a whopping 67% of all rural households and 13% of all urban households, as revealed by the Census of India in 2011. The program has reportedly enabled the construction of 110 million and 6 million new rural and urban toilets, respectively, to date [2,3]. The low and slow availability of centralized sewerage systems in urban India and their infeasibility in rural India result in a high national dependence on on-site sanitation systems (Figure 1). The increase in the number of toilets without a commensurate expansion of sewerage systems has increased the dependence significantly [4].

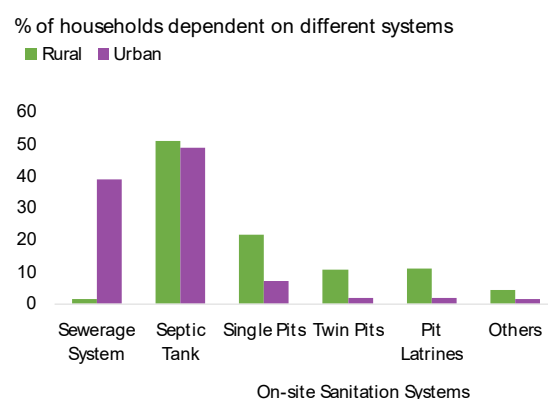


Figure 1. Dependence on different systems for managing wastewater.

On-site sanitation systems prevalent in India produce the need for faecal sludge management (FSM) systems, i.e., systems to ensure the evacuation and conveyance of faecal waste from on-site sanitation systems and its treatment and disposal (or recycle) off-site. Faecal waste accumulating in septic tanks and single pits must be emptied periodically and conveyed via emptying vehicles (typically vacuum trucks). The evacuated waste must be treated at facilities, such as a Faecal Sludge Treatment Plant (FSTP) before disposal. Over time, the proliferation of centralized sewerage systems may diminish the need for FSM in the bigger cities. However, low-density small towns and peri-urban and rural settlements require FSM to be able to achieve ‘safely managed sanitation’ in accordance with the Sustainable Development Goal 6 [5]. The challenge of ensuring proper FSM is not unique to India; developing countries across Asia and Africa confront it [6]. What may distinguish India is the sheer scale of the challenge: developing FSM systems to serve more than 255,000 *gram panchayats*, or rural local bodies, and upwards of 4000 cities and towns. It begs the question: how to scale-up sanitation services across India with speed and efficiency?

Local government partnerships for the efficient production of services are common in several countries, including the United States of America (USA) and many more in Europe [7–11]. Commonly framed as ‘intermunicipal cooperation’, local government partnerships present an opportunity to achieve economies of scale for small local governments, especially when the alternatives of region-scale privatisation and political consolidation (e.g., in the form of metropolitan government) are infeasible or undesirable. Higher standards for services and raised citizen expectations are also proposed as imperatives for intermunicipal cooperation [12]. Cooperation can also help surmount the limitations of individual capacity and action in solving problems, such as environmental pollution, that transcend administrative boundaries. It can be formal or informal, hierarchy-based or network-based, or somewhere in the middle. For example, in the USA, cooperation can occur informally through councils of government that lack legal standing or, at its most formal, take the form of special districts for single functions (e.g., education, transport, etc.). Formal inter-municipal cooperation is also effectuated through ‘empowered’ counties that deliver services to all or a majority of the municipalities within their borders [7].

In contrast to its ubiquity in many countries, India has rarely applied the approach of intergovernmental partnership to produce services so far. A possible reason is that the production of many services, including sanitation, is effectuated through national programs (such as SBM). It may be that the phenomenon provides a weak incentive for local governments to partner and cooperate since national programs: (1) are bifurcated along the urban–rural divide, (2) predetermine local-level solutions, and (3) allocate financing to local governments individually. Nonetheless, in a new precedent, the national government espoused the approach of intergovernmental urban–rural partnerships (at the local level) for sanitation service delivery in 2021. The ongoing phase (2020–2025 in rural and

2021–2026 in urban) of SBM targets increasing the levels of wastewater management in both urban and rural India. The national government noted that many cities and towns already possess wastewater management systems (in the form of both FSTPs and the conventional sewage treatment plants) and that many more have such systems upcoming. It accordingly recommended that urban local governments in these cases extend their services to the neighbouring *gram panchayats* (vide its letter S-18011/6/2021-SBM-DDWS dated 14 September 2021).

The national-level mainstreaming of the intergovernmental partnership approach could be a step in the right direction. An early understanding of the challenges associated with its implementation could help evaluate its suitability and trajectory, specific to the Indian context. Towards this goal, in this paper, we discuss one of the first Indian experiments with an intergovernmental urban–rural partnership at the local level. The experiment of concern—predating the national mainstreaming—is situated in Dhenkanal district in the Indian state of Odisha. Under the experiment, the district utilized the urban–rural partnership approach to produce sanitation services for rural households.

In the following sections, we discuss our experience of supporting the government(s) conceptualize and implement a pilot model of urban–rural partnership in the Dhenkanal district. We ask the question: what can Dhenkanal’s case tell us about the challenges and opportunities for producing sanitation services via local-level intergovernmental urban–rural partnerships in India? Since the case we discuss is the first-of-its-kind in India, the present paper may serve as a pioneering contribution to the body of work on urban–rural partnerships in India. We hope that it would also provide a jumping-off point for further research on, and experimentation with, the approach in India and regions with a similar institutional context and sanitation-related issues.

2. Background

2.1. Methods and Materials

The present paper is based on the authors’ practice research on urban–rural partnerships in the Dhenkanal district of Odisha. The authors supported the district-level and local-level governments develop an experimental urban–rural partnership that would allow rural households to access sanitation services via urban infrastructural systems. The authors’ direct participation in the entire process from the ideation and development of the partnership model to its implementation (during the period 2019–2021) has informed the paper. Over the course of the process, we interacted with and consulted officials of:

- The district government, or ‘District Administration’ (as it is called in India);
- The urban local government;
- The rural local governments, or ‘*gram panchayats*’, shortlisted for forming the partnership with the urban local government(s).

The process commenced with an assessment of the sanitation landscape in the Dhenkanal district (Figure 2). To inform the assessment, we conducted a sample survey of 1000 rural households and structured interviews with political leaders, or *sarpanch(s)*, of eight rural local governments in 2020. The findings of the survey are discussed in the authors’ previous work [13,14]. A variety of secondary data also informed the assessment and later steps of the process. It included:

- Geospatial data relating to administrative boundaries and the road networks;
- Demographic data from the Census of India 2011;
- Transactional data relating to emptying services and records of FSTP utilization from the urban local government (2019–2020).

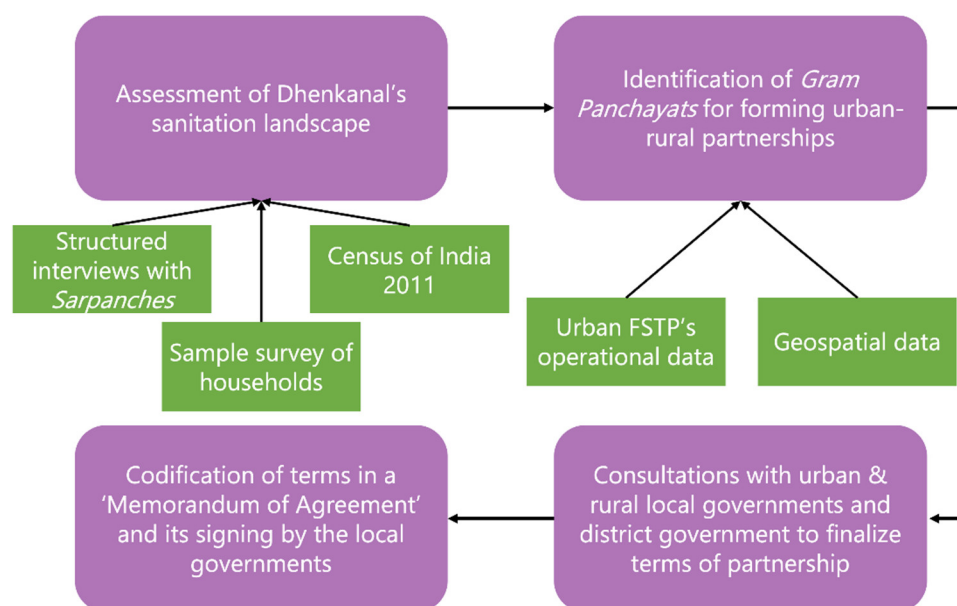


Figure 2. Process of developing the urban–rural partnership.

The assessment was followed by analysis to identify the gram panchayats that were good fits for the urban–rural partnership. We presented the preliminary results of the analysis to the district administration and the relevant local governments for review. The local governments held further consultations to develop the terms of the partnership, including inter alia mechanisms for coordination, tariff design, and roles and responsibilities. On finalization of the terms, the urban local government and 17 *gram panchayats* signed a Memorandum of Agreement (MoA) to codify their partnership for service delivery on 28 December 2020. The signing was soon followed by multiple Information, Education, and Communication (IEC) campaigns aimed at raising awareness about services among rural households.

In addition to the communication with different government representatives, our direct and indirect observations of how the entire process unfolded forms an important basis of the paper. Complementing our practice research, we reviewed literature on more mature implementations of intergovernmental partnership to develop an understanding of what forms the partnerships can take (Figure 3). Our intent in doing so was to relate the findings from the Dhenkanal district to other cases. Given the paucity of its implementation in India, we relied primarily on literature discussing the European experience. The findings from our analysis discussed in Section 4 cluster around three main pillars: planning, responsibility and accountability, and financing.

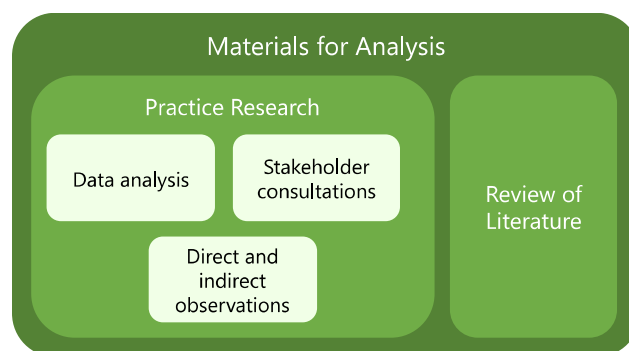


Figure 3. Materials forming the basis of analysis.

2.2. Site of Enquiry

Dhenkanal is one of the 30 districts in the coastal state of Odisha in India (Figure 4). A district in India is an administrative division at the state level and comprises multiple urban and rural local bodies. The Dhenkanal district has 216 local bodies—four urban local bodies, viz., the eponymous Dhenkanal, Bhuban, Hindol, and Kamkhyanagar, and 212 *gram panchayats*. These 212 *gram panchayats* cumulatively house 1237 villages. Only 9% of the district's total population of approximately 1.2 million resides in towns and the vast majority of 91% in *gram panchayats*. The four towns are small and do not exhibit urban primacy; the largest among the four, the Dhenkanal municipality, houses a population of about 67,000. Overall, the district is spread out over an area of 4452 square kilometres and has a population density of 268 persons per square kilometres.

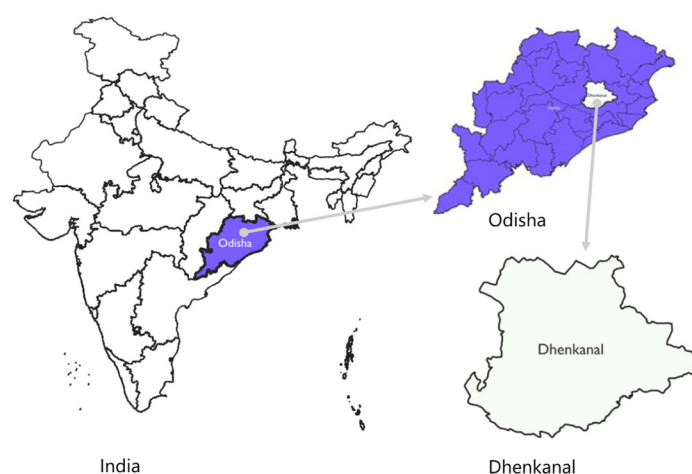


Figure 4. Site of enquiry.

The Dhenkanal municipality in the district is one of the first small towns in the country to develop an urban FSM system. The municipality's FSM system became operational in October 2018 under a pilot project focused on urban FSM called Project Nirmal. The authors' organisation had served as a knowledge partner for Project Nirmal. Under Project Nirmal, the municipality undertook town-level sanitation planning, procured emptying vehicles, and constructed a nature-based FSTP. It also systematized recordkeeping of the continuous operational data generated by the FSM system.

Following the implementation of SBM during 2014–2019, the share of rural households in the district with an individual toilet climbed from 18% to a purported 100%. Addressing the lack of proper systems for managing faecal waste beyond the toilets emerged as an important issue at the end of the program. The high share of rural population in the district lent the issue especially high importance. The second and ongoing phase of SBM also created an external imperative to solve for rural sanitation, and the Odisha Rural Sanitation Policy, issued in 2020, provided further impetus.

The availability of a functional and determinable FSM system, as well as the scope of the rural sanitation challenge made the Dhenkanal district a suitable site for piloting the approach. We discussed the pilot with the Dhenkanal's district administration and later worked with the Dhenkanal municipality and its neighbouring rural local governments to implement it.

3. Overview of Key Concepts

3.1. Local Governance in India

Most of India's population resides in rural areas, although the share has been declining steadily over time (~89% in 1901 to ~69% in 2011). As per the Local Government Directory 2021, rural and urban areas in the country comprise a little over 255,000 and 4700

local governments, respectively [15]. Local governments in India are tasked with the central role in “the provision of public services, the creation and maintenance of local public goods, and the planning and implemental of developmental activities and programs” [16]. They are part of a multi-tiered governance structure that is vertically bifurcated along the urban–rural divide. The main tiers are: national or central, state, district, and local, where the district provides a singular point of convergence between urban and rural governance.

At the national level, the Ministry of Housing and Urban Affairs steers all aspects of urban development, including sanitation and wastewater management. On the other hand, the responsibility for rural development is split between the Ministry of Rural Development and the Ministry of Jal Shakti; here, the latter administers programmes for improving rural sanitation. State-level administrations similarly house separate urban and rural departments. In Odisha’s case, these are the Housing and Urban Development Department and the (rural) Panchayati Raj and Drinking Water Department.

Until the passage of the 73rd and 74th amendments in 1992, the Indian Constitution recognized states as the only official subnational units. The two amendments together accorded urban and rural local governments constitutional status [16]. The objective of the amendments was “decentralization and enduring popular participation in planning, management, and delivery of civic services” [17]. Schedule XI and XII of the Indian Constitution defined the scope of responsibilities of rural and urban local governments, respectively. The two schedules placed sanitation squarely within the purview of the local government (Figure 5). Further, the amendments directed the states to devolve powers and resources to local governments to allow the latter to fulfil their new responsibilities [16]. Article 243ZD of the 74th amendment also mandated the creation of District Planning Committees (DPCs) that would create district-level integrated development plans by consolidating plans developed by all the urban and rural local governments in a district. DPCs, at least in theory, have been tasked with identifying and facilitating joint development of projects that are of common interest to urban and rural local governments [18].

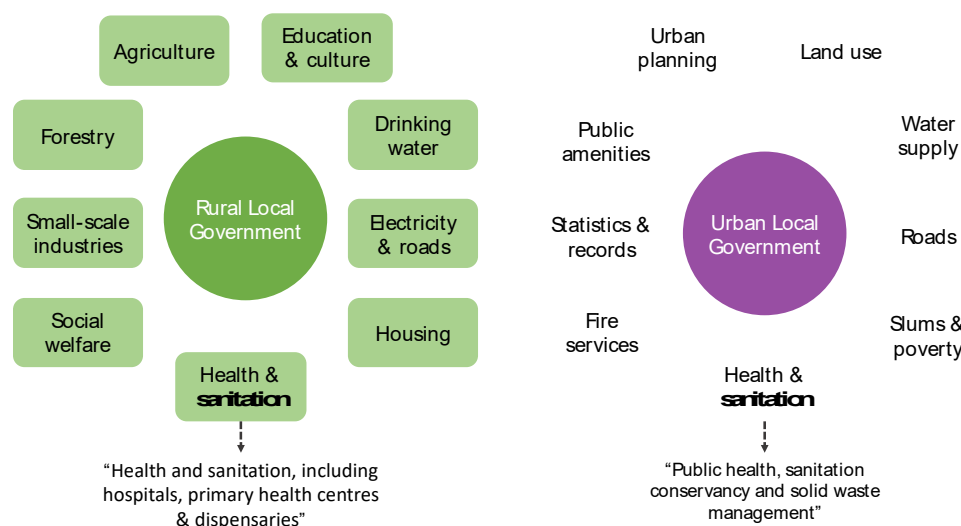


Figure 5. Indicative list of responsibilities of rural and urban local governments as per Schedule XI and XII of the Indian Constitution.

Despite its strong legal underpinnings, decentralization has been erratic in India. Studies conducted in the aftermath of the amendments observed a resistance to administrative and fiscal decentralization within rural governance. The functions for rural local governments may have been broadly specified as per the schedules, but an unclear definition of responsibilities and lack of resources for their fulfilment have inhibited local action and ownership over outcomes [16,19]. Rural local governments have played a limited role in planning, instead serving as local-level implementing agencies for programs and

schemes determined and designed at the national and state levels [16]. Urban local governments purportedly confront similar challenges; state-level departments and parastatal agencies can diminish the urban local government's role in planning and, sometimes, even in the management of infrastructure and services [20]. Similarly, DPCs are absent or non-functional in most states; where they do function, they have failed at enabling urban–rural linkages and developing integrated plans [16,18]. Arguably, with local governments playing only a limited role in planning (if at all), the role of DPCs as an aggregator of local-level plans naturally diminishes too.

3.2. Sanitation in India

In the decades following independence, governance and developmental planning in India had been highly centralized [21]. Planning occurred via five-year plans that the national government's 'Planning Commission' developed and that the states were responsible for implementing. Sanitation has been articulated as an issue of national importance since the issue of the first five-year plan (1951–1956). The first plan recommended either one of individual or shared toilets, both preferably water-borne, for different types of urban housing and sanitary latrines for rural housing. Without being specific, it also emphasized the importance of “arrangements for the disposal of sewage” in relation to the latter. However, the national focus on sanitation culminated into a program only with the Central Rural Sanitation Programme (CRSP) in 1986. Subsequent efforts to improve sanitation have been channelled through large-scale national programmes underwritten by a mix of national and state-level financing.

Over several decades, successive programmes have targeted furthering access to toilets among rural households. The underlying principle of the programmes has oscillated from supply-driven and subsidized toilet construction to that which is community-led and demand-driven. Nonetheless, the spate of programs had reported low success in the past. Factors cited for toilet disuse include poor quality construction, fear of pit overflowing, and lack of knowledge about maintenance [22]. The latest programme, SBM, brought an explicit focus on Information, Education, and Communication (IEC) like its recent predecessors, but many old issues appear to persist; rural households in Odisha have cited the small size and subsequent filling up of pits as a reason to not use toilets regularly [13,23].

Regardless, in its ongoing second phase (2020–2025), SBM has shifted the focus from the construction of toilets to the safe and complete management of faecal waste beyond toilets. FSM has emerged as an important option in this regard given the high prevalence of septic tanks and single pits in rural areas, as previously noted. The recent global mainstreaming of FSM as a lower-cost alternative to sewerage systems in specific urban settings has also led to its greater acceptance in urban India [24,25]. The concomitant emergence of the two phenomenon—an increased need for FSM in rural areas and its increased adoption in urban—has produced a kind of convergence between urban and rural sanitation.

3.3. Intermunicipal Cooperation

The varied models of intermunicipal cooperation arise under differing contexts of national institutional histories, socio-techno-economic landscapes, local bodies' sizes and competencies, and goals. Four different models of intermunicipal cooperation have been proposed: (1) quasi-regional governments, (2) planning forums, (3) service delivery organisations, and (4) service delivery agreements [12]. Each model presents unique opportunities and challenges, and although it is debatable whether cooperation can sustain efficiency gains in the long run, it has been shown to at least able to improve service coverage and quality by overcoming scale-related obstacles [7,26,27]. In addition, an intensifying focus on urban sustainability and transition in recent times has provided a new impetus for shared urban governance [28].

4. Results

4.1. Planning

The main question for planning was how to size the extended service area for the urban FSM system. In the present case, it translated to: how many and which *gram panchayats* are apt for forming a partnership with the Dhenkanal municipality. We first considered supply-side constraints. Given that service delivery to the additional rural households had to utilize the existing urban FSM systems, the ability of the system to cater to additional households was one obvious factor. Although an FSM system, in general, is more modular than a centralised sewerage system, the costs of augmenting capacity may not always be insignificant. The municipality was amenable to expanding the vehicle fleet but increasing the capacity of an FSTP, requiring capital financing and land, was deemed infeasible. As a result, the available spare capacity of the FSTP provided a hard constraint for determining the service area.

A second important factor we considered on the supply side was the average distance of the gram panchayat from the urban local body. The delivery of services entails a round-trip of the emptying vehicle and fuel has shown to be the largest cost driver of emptying services [29,30]. Even if the FSTP had infinite capacity, the exorbitant costs of longer trips would constrain the service area that is economically feasible to serve. Therefore, the identification of the suitable *gram panchayats* had to strike the right balance between the two factors.

The FSTP in the Dhenkanal municipality has a capacity of 27 kilolitres per day. Approximately 50% of the capacity (daily average) was being utilized in the first two years of its operation, with no clear year-to-year rise in utilization. Equally importantly, the records showed that the urban local body had been serving requests from rural households outside its periphery since before the commencement of the pilot. The arrangement was informal, market-led, and imposed a service charge on rural households that was 1.5–2 times of that paid by urban household per roundtrip of the vehicle. Over the period of January 2019 to February 2020, rural households constituted 13% of all households served. The relative share of the types of on-site sanitation systems emptied differed between urban and rural households (Figure 6). Overall, the analysis did establish that the FSTP in the Dhenkanal municipality was well-suited to serving rural households in addition to the urban jurisdiction.

Types of systems emptied

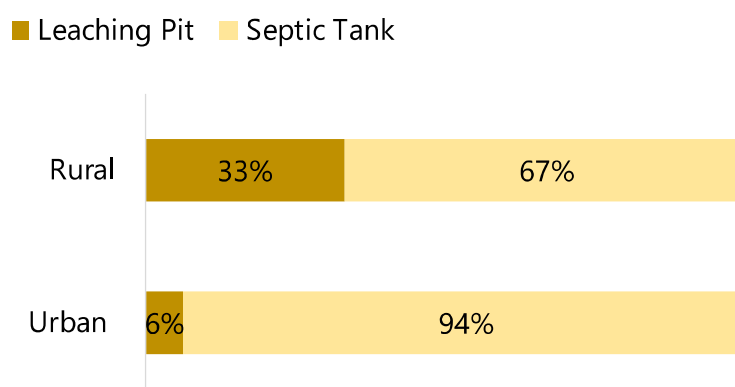


Figure 6. Relative share of different types of on-site sanitation systems emptied.

Once the magnitude of supply was established, we aimed to match it with the demand for services based on the household survey. The household survey presented three important considerations:

- The majority of households owned on-site sanitation systems (viz., septic tanks and single pits) that would require FSM over their lifetime of operation;
- A significant share of households that had emptied their on-site sanitation systems in the past reported utilizing the cheaper (almost by 50% on average) but unsafe alternative of manual emptying of the system.

The characteristics of on-site sanitation systems revealed by the survey helped estimate the number of rural households that would fit within the available spare capacity. We started with an initial arbitrary radius of 10 km and listed all *gram panchayats* falling within the perimeter. Based on the number of circumscribed rural households, the type of and characteristics of on-site sanitation systems, and the reported trends in toilet usage, we estimated that the FSTP had just enough spare capacity to serve the *gram panchayats* falling within 10 km for the next five years [31]. However, determining which *gram panchayats* ‘fell within 10 km’ was not straightforward.

Unlike most urban local bodies, *gram panchayats* lack a single unified landmass bound by an unbroken perimeter. One or more villages constitute a *gram panchayat*, and one or more hamlets constitute a village. The different villages and hamlets can abut each other or be separated by large tracts of land (Figure 7). Of these villages, one of the villages—generally the largest—houses the rural local government’s office and serves as the seat of the administration. The distance of a single village or hamlet from the urban local body can be greater or lesser than the average distance between the rural local body as a whole and the urban local body.

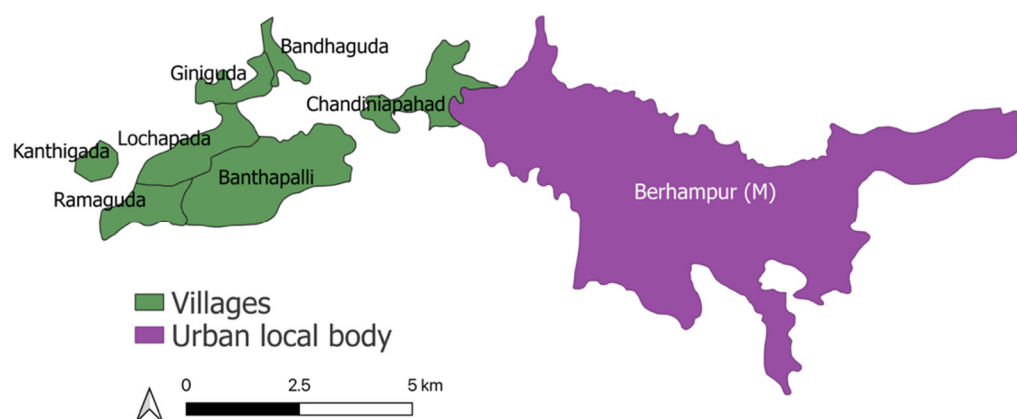


Figure 7. An example of a gram panchayat, Banthapalli (Ganjam district) with non-contiguous villages.

Therefore, we had to establish an unambiguous criterion to when a *gram panchayat* can be said to meet the distance threshold. What happens when some villages of the *gram panchayat* qualify for an urban–rural partnership by falling within the threshold and some do not? Does a *gram panchayat* only qualify if all of its constituent villages qualify? Or does it qualify if a certain proportion of its villages, e.g., 50%, 75%, etc., qualify? Should the urban local body serve the entire *gram panchayat* even if one of the villages qualifies for an urban–rural partnership? These questions may appear of minor consequence but were important to consider for ensuring the long-term viability of the urban–rural partnership for three main reasons.

First, the *gram panchayat* is accountable for all the villages in its jurisdiction regardless of the distance. Although an urban–rural partnership is not the only approach to serving rural households, it is faster than the alternative of building greenfield rural FSM systems from the ground up. If only the villages individually qualifying are served under the urban–rural partnership, the remaining would be left relying on the status quo of no services or unreliable services in the short term. The *gram panchayats* could find explaining the

resulting institutionally sanctioned unequal access to services difficult to justify to their jurisdictions.

Second, as previously noted, fuel is shown to be the largest cost driver of emptying services. Therefore, failing to predict how much distance the emptying vehicles would need to travel to serve a particular rural local body with reasonable accuracy could lead to a misestimation of operating costs and a failure in setting tariffs that help achieve cost recovery.

Third, the novelty of FSM as a concept in rural India has meant that *gram panchayats* have limited initial capacities for its management. The discourse on increasing access to toilets is not new to rural India owing to the long history of national sanitation programs focused on increasing access to toilets in rural areas. However, the issue of how to manage faecal waste safely beyond the toilet in the absence of centralized sewerage systems gained mainstream traction only over the last decade in India and globally [13,24,32]. Expectedly, *gram panchayats* are still learning about FSM. Therefore, holding them responsible for managing multiple FSM models within a single jurisdiction could make strenuous and unsustainable demands on their still-developing capacities.

4.2. Responsibility and Accountability

The fact that accountability improves the quality of services and increases citizen welfare is well-established [33,34]. In rural India, the *sarpanch* and their team of ward members are the politically accountable functionaries of the local rural government and are empowered to steer development in the jurisdiction they serve. However, the urban–rural partnership complicates the lines of accountability. Although rural citizens receive services from the urban local government, they cannot hold it accountable. They can hold only their own local government accountable, but rural local governments cannot, in turn, seek accountability from their urban counterparts under conventional rules of governance.

A Memorandum of Agreement (MoA) codified the terms of the urban–rural partnership early on, but later experience shows that an MoA may not be enough. As noted earlier, the MoA signed by the urban and local governments specified their roles and responsibilities at the broadest level of detail, which was enough to get the partnership off the ground. It responds to questions such as: Who will deliver services? Who will set prices? Who will pay for services? Who will maintain records? It specifies who will do what but not what processes or standards to adopt while doing something. For example, it states that “any dispute or disagreement.... shall be settled through mutual consultations and negotiations”. However, in this case, the inherent form of urban–rural partnership set up a differential in leverage that could result in unfair decision-making and resource allocation. The MoA, in its existing form, does not address or correct the power imbalance.

Many other similar questions emerged. For example, if rural households are denied services despite the urban–rural partnership, who do they hold to account—the rural local government or the urban? If the quality of services delivered to rural households is poor or inferior to that received by urban households, can rural households or their local government hold the urban local government accountable? How do we define poor? What happens when the ‘Project Review Committees’ (set under the MoA and comprising all project partners, including representatives from different tiers of government) expire? Under what rules of engagement do the urban and rural governments convene to “coordinate and address issues and facilitate smooth delivery of FSM services” like the MoA requires? If urban and rural local governments are in dispute, who arbitrates?

4.3. Financing

Urban–rural partnerships are known to produce efficiency gains. In the present case, utilising spare capacities of existing infrastructure for the partnership has helped rural local governments avoid the expenditure resulting from the development of greenfield rural FSM systems. However, who benefits from these gains? Currently, the fee charged for emptying services only reflects the operational costs of providing the services. The

tariff design does not account for the capital cost of vehicles or the capital and operating cost of treatment facilities. Whatever resultant charge urban households pay, rural households pay a distance surcharge in addition to it—although the surcharge is 50% lower than what it was before the formalization of the partnership. It was lowered because of the consultations between the urban local government and the participating *gram panchayats*, where the latter advocated for more affordable service charges.

From the point of cost recovery, the surcharge is logical. Still, it results in rural households paying more for the same level of service as their urban counterparts, despite typically earning lower incomes [35,36]. At the time of writing, rural households pay the base fee and surcharge in full and do not benefit from any subsidies. Since neither rural nor urban households pay for the recovery of capital infrastructure and assets, is it okay for the government to capture all the capital savings resulting from urban–rural partnerships? Or should the government utilise a part of the savings to subsidise the services for rural households at large? Alternatively, if the government is okay with underwriting all the capital expenditure (to an extent), leaving households to only defray operational costs, is an approach that lowers operational costs preferable over one limiting capital costs, like that of urban–rural partnerships?

Considering the former case, since expenditure on fuel is the biggest cost driver of emptying services, minimising the average travel distance over the service area might lead to lower operational costs. Therefore, if the government(s) continues to absorb capital expenditure fully, rural households could receive services at a lower fee if all rural local governments but those abutting the town or city developed their own cluster-level FSM systems (at the level of clusters to reach the optimal scale) (Figure 8). However, in the present case, the sizing of the mixed urban–rural service area only factored in the availability of infrastructure and the cost of providing services to the service provider. It presupposed that rural households could afford the services and would be willing to pay for them, no matter the distance surcharge and the total service fee.

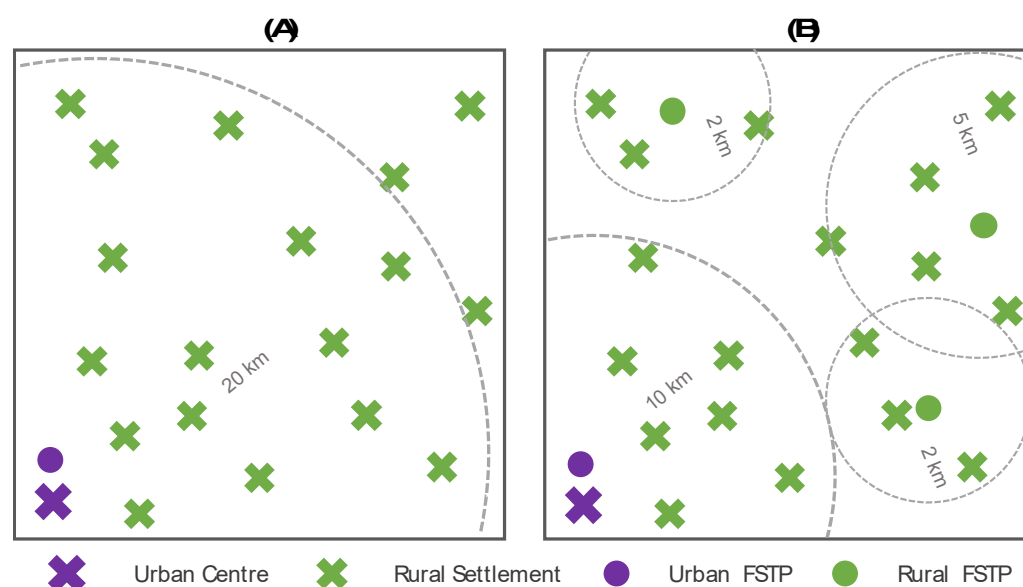


Figure 8. Two representative clustering regimes: (A) all gram panchayats within 20 km of a city or town clustered together for urban–rural partnership (B) smaller groups of gram panchayats clustered for urban–rural and rural–rural partnerships.

5. Discussion

5.1. Planning

The informal delivery of services by the urban local body to rural households even before the development of a formal intergovernmental urban–rural partnership evinced the role of the market. The phenomenon underscored that service relationships transcending administrative boundaries can emerge at the behest of market forces. Previous research has documented how similar trans-boundary relationships have emerged between small-scale independent service providers and farm owners within sanitation ecosystems of south India [37]. However, it was also clear that the informal arrangement produced negative externalities. The price for the service unilaterally determined by the urban local body rendered the service inaccessible for the share of the rural households that instead relied on manual emptying. The latter was reportedly cheaper on average, but has proved itself fatally dangerous to the lives of the service providers [38]. The formalization of the urban–rural partnership and service delivery arrangements brought down the service charge for the rural households and was accompanied by awareness-building about service availability. Therefore, at the very least, the partnership—serving as a direct government intervention—helped target the negative externalities that a market for services can produce.

In transitioning out of the market approach into one based on systematic intergovernmental partnership, the flexibility of the market had to be compromised for achieving viability. Before the partnership the municipality served rural households up to distances of 20 km, but the threshold was reduced to 10 km as part of the formalization. The motivation for defining a fixed, albeit reduced, service area was to create predictability on both the supply and demand sides. Not determining how long an FSTP can serve the increased service population created the risk that infrastructure would fail in the future or that rural households would be left stranded as demand outpaces supply. Even if augmenting the capacity of FSTPs was an option, without systematic monitoring, only a system failure would have augured the need for it if supply and demand had not been matched at the outset.

More generally, the present case represents only a limited set of opportunities for urban–rural partnerships. In the Dhenkanal district, the FSM system had been operational for an year at the time the pilot was conceptualized. It was only retrospectively that the urban–rural partnership was formalized based on the available spare capacity of urban infrastructure. Cases where an FSM system is still in the ideation or planning stages could benefit from the existing research on identifying optimal regional service areas and infrastructure locations to create service systems that are truly co-created by two or more local governments [39,40].

5.2. Responsibility and Accountability

In holding up Dhenkanal's case against the four models of intermunicipal cooperation proposed by research, the urban–rural partnership in the district most closely resembled a 'service delivery agreement'. Under 'service delivery agreement', "participating local governments enter a formal agreement to cooperate in the delivery of services without establishing a joint standing organization" and "one of the partners, frequently the largest municipality, renders and sells services to other partners" [12]. However, at present, the MoA between the urban local government and the *gram panchayat* only broadly sets out the terms of such a 'service delivery agreement'. It is not a comprehensive articulation of roles and responsibilities of the two governments and inadequately comments on issues, such as periodic reviews, service level benchmarks, grievance reporting and redressal, and dispute resolution. Moreover, it obfuscates the routes of accountability.

Past research has identified the 'short' and the 'long' routes of accountability [41]. The short route enforces direct accountability between the citizen and the service provider by allowing the former to 'vote with their feet'. When the government itself is a service

provider, the short, if slow, route can still emerge in the form of political accountability over a longer time period (the years between consecutive election cycles). When the urban local government was informally serving rural households, it viewed the act as an optional practice that could help protect public goods, and not as a profit-making enterprise. Therefore, even if rural households had ‘voted with their feet’, the urban FSM system could have been indifferent to a shrinking rural base. At any rate, before or after the formal intergovernmental partnership, the urban local government is not politically accountable to rural households.

Under the partnership, the weak short route has transformed to a weak long route. Rural households can hold the officials of the gram panchayat that helped form or manage the partnership politically accountable. However, if the intergovernmental partnership does not meaningfully enable the gram panchayat to hold the urban local government accountable, accountability reaches an impasse. Since the urban–rural partnership is framed as an agreement and not a contract, in its current form, it does not equip *gram panchayats* with any real leverage to hold its urban counterpart accountable for poor performance. Previous research discusses the implications of poor accountability. It emphasizes that monitoring cooperative agreements—same as private contracts—is necessary for maintaining the economic benefits of intermunicipal cooperation [7].

5.3. Financing

The consultations held between the urban local government and the *gram panchayats* proved effective in lowering the price of services for rural households. However, the negotiation occurred with the eventual formalization of the partnership as a foregone conclusion. As discussed in Section 5.1, the process determining the service area aimed at matching supply with theoretical demand. It did not consider whether an urban–rural partnership was the most cost-effective way to serve the specific *gram panchayat*. A consideration of issues of financing at different levels, e.g., in determining both the macro-level approach and the micro-level operation financing, would be important as urban–rural partnerships go from controlled pilots to wider deployment.

Secondly, in Dhenkanal’s case the *gram panchayats’* concerns regarding affordability caused the lowering of the price. Still, the logic of charging rural households what urban households pay plus a surcharge was not questioned. Models such as tax equalization provide a credible alternative to consider. In places such as the United States, an equalization rate is applied to municipalities to determine a fairer distribution of tax burden [42]. Tariff designing for FSM could similarly consider the prosperity of the different local bodies and index the fee to it. More generally, with an increase in the size of the service area and greater utilization of infrastructure, operating costs per service request could be expected to go down. Although variable operating costs would commensurately increase, fixed operating costs, such as the driver’s monthly wages or routine maintenance checks, would now be distributed over more service requests. The resultant lowering of the fixed operating costs per trip could reduce the total operational costs of the emptying services (provided factors such as higher wear-and-tear due to higher utilization do not offset it). If it does, the service charge for urban households would come down, as would the base fee that rural households need to pay. Therefore, the urban–rural partnership in the present case hints at the need for rate rebasing.

6. Conclusions

In the present paper, we analysed the issues observed in a novel experiment with urban–rural local government partnership in India. The impetus for the experiment was the emergence of a common pathway, viz. FSM, for achieving ‘safely managed sanitation’ in parts of urban and rural India. Our experience in the Dhenkanal district showed that the ‘producer’ local government, the Dhenkanal municipality, in our case, was already convinced of transcending rigid administrative boundaries to deliver services. However, on its own, the resulting market-mode for service delivery produced failures.

We noted that shifting from the market-mode to a formal urban–rural partnership helped target issues such as unaffordability and subsequent reliance on inferior and unsafe services that are symptomatic of the market’s deficiencies. The shift lowered the cost of services for rural households and compelled rural local government to target awareness-building about service availability among households as an explicit goal. The partnership approach was also faster to implement compared to the pace of development of greenfield FSM systems in our specific case. Given that the acquisition of land is the common rate-determining step for infrastructure development in urban and rural India alike, the partnership approach could offer the benefit of speed to settings such as the Dhenkanal district with underutilized infrastructure. Although not discussed in the present paper, the further implementation of the approach with other local governments in the Dhenkanal district and the neighbouring Angul district hint at its replicability. However, we cannot remark on the nature and magnitude of any scale-related efficiency gains that may have materialized since that was not within the scope of the present study. Future research could tackle this aspect.

Coming to specific issues relating to implementation, we noted that in the present setting where such speedy urban–rural partnerships are in option, a system-level analysis that explicitly accounts for the costs of service delivery to households could help determine the most sustainable approach—whether an urban–rural retrospective partnership, a rural–rural partnership for greenfield development, or something else. Since most urban and rural local governments are still in the planning phase, proactive co-creation of sanitation service delivery systems by rural and local governments could be an important area for future research. Further practice research could also explore which mechanisms are best suited for establishing clear pathways for accountability under different forms of intergovernmental partnerships. It could also evaluate if the financial sustainability and affordability of services under the partnership could benefit from application of concepts such as equalization and rate rebasing.

We conclude that both urban and rural India are striving to achieve ‘safely managed sanitation’ and the similarity of their infrastructural pathways is being increasingly recognized. The alignment presents an opportunity to evaluate what regional-level sanitation and wastewater management could look like in India. The present case – with its specific set of institutional and infrastructural contexts – provides one specific example. Since past research highlights how institutional histories are key determinants of the forms of the partnership, we believe that more experiments in different types of districts and states could help evolve the optimal baseline model of intergovernmental partnerships in India (Figure 9). As a result, from the outset the processes of forming, formalising, and managing partnerships would also benefit from the flexibility to re-create and renegotiate the model in a collaborative, transparent, and fair manner.

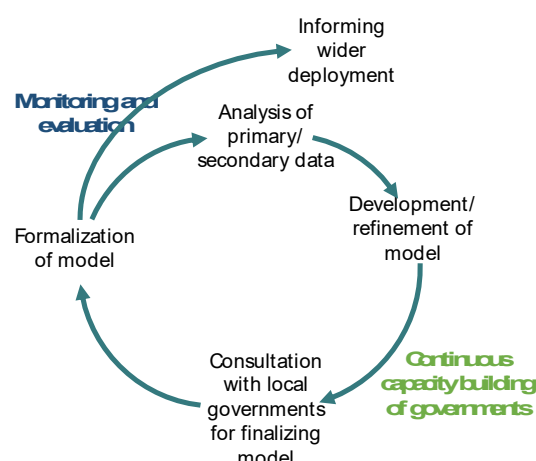


Figure 9. Proposed process cycle adopted for evolving the most contextually apt model for inter-governmental urban–rural partnerships.

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