Performance-based Contracting in Sanitation Delivery

Sujatha Srinivasan

12/7/2014

Funding for this white paper was provided by the Bill & Melinda Gates Foundation. The findings and conclusions contained in the paper are those of the author(s) and do not necessarily represent the views of the Bill & Melinda Gates Foundation or of the institution with which the author(s) are associated.

Table of Contents

Abstract

Continued progress in sanitation requires stronger, more focused efforts that are oriented towards achieving tangible results (improved access) yielding sustainable impacts (improved quality of public health and environment). With governments and donor institutions directing substantial investments to realize better outcomes in sanitation, there is also an express need for clarity on how the available funds should be utilized and who would benefit most from these funds. Outcome oriented approaches to sanitation delivery are particularly necessary in today's global context where there is a growing recognition of the scale of demand for improved sanitation and its social multiplier effects on environment and human health. This paper discusses the preconditions for improving the effectiveness of performance based approaches in sanitation service delivery. These preconditions or capabilities in the institutional and project level environment contribute to better contract design and implementation and a higher probability of achieving sanitation related goals.

Introduction

Globally, 2.5 billion people do not have access to improved sanitation[1] facilities and 15% continue to defecate in the open – a practice that has serious public health and environmental implications. Although over 1.9 billion people have gained access to improved sanitation facilities since 1990, the Millennium Development Goal sanitation target to increase the proportion of people with access to improved facilities from 51% in 1990 to 75% by 2015 is projected to be missed, by at least half a billion people (UNICEF/WHO, 2012) (MDG2013, 2013).

India's progress in sanitation shows a similar trend. More than 53% of households (urban and rural) lack improved toilets within their premises (Census 2011, GoI).[2] About 51% or 626 million people in the country defecate in the open, constituting 60% of the world's total open defecation. According to the JMP report, India will achieve the MDG sanitation target only by 2054, if special strategies are not adopted immediately to speed up the progress.

The recently launched Swachh Bharat Mission reaffirms the magnitude of the sanitation challenge in the country. As in the earlier GoI policy and reform initiatives targeting sanitation, the SBM also commits substantial public outlays to achieve its policy and programmatic objectives. With governments and donor institutions directing substantial investments to realize better outcomes in the sector[3], there is an express need for clarity on how the available funds should be utilized and who would benefit most from these funds.

[1] According to WHO/UNICEF Joint Monitoring Programme for Water Supply and Sanitation, an improved sanitation facility is one that hygienically separates human excreta from human contact (includes flush/pour flush (to piped sewer system, septic tank, pit latrine), ventilated improved pit latrine, pit latrine with slab, and composting toilet)

[2] Almost 25% urban households do not have toilets within their premises in states such as Bihar, Jharkhand, Odisha, Chhattisgarh, Madhya Pradesh, Maharashtra and Tamil Nadu

[3] According to UN MDG Report 2013, net disbursements from developed to developing countries was $126 billion in 2012

It is in this context that performance or results based approaches to sanitation delivery that link funding more closely to results assume particular significance. Such approaches offer a positive way to measure the effectiveness of public sector interventions and investments in achieving the desired sector outcomes (Pearson, 2011). Administered through well-structured contractual arrangements that tightly link project funding and incentives to service provider performance, these approaches offer a promising mechanism to fast track achievement of desired results and longer-term impacts in the sanitation sector.

Paper objective

This paper is motivated with the question of what are certain preconditions for improving the effectiveness of performance-based contracting approaches in sanitation service delivery. Performance agreements in service provision assume various forms ranging from Output-based Aid to contractual agreements between different hierarchies of governments or different service delivery arms of the government or to legal agreements between public entities and private companies depending on the degree of privatization of services. For purposes of this paper, the term performance agreements will denote contractual agreements that govern privately delivered public services. In other words, agreements between public agencies who are responsible for service delivery and private companies who assume responsibility for certain components of service delivery but who have to be regulated by the public agency owing to the "public good" nature of basic public services[4].

The sanitation status quo

In the vast majority of developing countries, the delivery of sanitation systems in urban areas falls markedly short of recommended standards (MDG2013, 2013). Lack of prioritization emerges as the key issue for this poor performance, with prevailing institutional frameworks – in the form of public policies, regulations, planning, budgeting and resource mapping – not focusing on improved sanitation provision. Roles and responsibilities of public functionaries are subsumed under the delivery of city-level mandates with respect to sectors such as health, water supply or education, where the social and economic gains or losses are readily visible. Lack of clarity on which public agency is responsible for service delivery functions (planning, execution, operations and maintenance) or service supervision functions (economic and environmental regulation, monitoring, and enforcement) leads to diffused accountability. (WHO/UNICEF, 2006)

Often times, even well-intentioned projects in the water and sanitation sector fail to achieve the desired goals and outcomes despite adequate funding because they are conceived and structured without reference to a detailed, outcome-oriented strategy or plan and are implemented in a multi-stakeholder environment where conflicting incentives influence the service delivery process. Particularly in the case of sanitation, large public and private investments made in off-site and on-site sanitation solutions are seldom backed by strong institutional and regulatory frameworks at the critical stages of operations, maintenance and monitoring, thereby allowing service deficiencies to persist.

[4] Social, environmental, consumer protection and safety objectives associated with the provision of these services

Further, lack of long-range planning is manifest when cities direct more of their resources towards expanding networked services where cost recovery is neither understood nor achieved rather than promoting more sustainable, less expensive alternatives to wastewater management. The assumption that cities might eventually shift to networked solutions dampens focus on off-site solutions. This stifles innovation and investments into off-site solutions and encourages suboptimal markets for these solutions, keeping their costs high and competition low. At the same time, high construction costs of networked solutions and planning issues associated with densely populated urban areas disincentivize and delay their investments. (GoI, 2011) While cities deliberate over their strategies, service deficiencies in the form of demand-supply mismatches in installed capacity of transport and treatment proliferate.

This leads to the next critical issue of awareness on the linkages between poor sanitation, environment and public health and the need for treatment and safe disposal. Deficiencies across the sanitation value chain – particularly, transport, treatment and disposal – carry with them adverse environmental implications in the form of surface and ground water contamination. (GoI, 2011) On the demand side, the consequences are illnesses and deaths through diarrhea and other water-borne diseases and economic costs (productivity and income loss) associated with poor health. On the supply-side, the consequences involve increased cost of water supply owing to contamination of available natural water sources and increased public health related expenditure. (Tyagi)

While these sector issues relate to the broader environment and health, progress is still insufficient on basic MDG sanitation areas such as demand creation and safe collection. This is reflected in poor service coverage and last-mile delivery issues with respect to toilet access and high prevalence of open defecation, particularly in urban areas with unauthorized settlements. (UNICEF/WHO, 2012)

Beyond this, a range of other systemic deficiencies are evident: poor operations and maintenance, insufficient tariff and cost recovery mechanisms, absence of demand-supply incentives to adopt improved practices, absence of governance tools in the form of performance goals, standards, metrics, targets, and monitoring and enforcement procedures. Where private sector is involved, on the one hand, limitations in checks and balances (e.g. absence of monitoring protocols, penalties, capacity and guidelines to award and manage projects involving private sector) not only lead to an unfair market place for private players but also encourage underinvestment by the private sector. On the other, supply-side ambiguities such as inequitable risk-reward allocations, inflexible concession terms, etc. create barriers to entry for private sector participation and scalability in service delivery.

These operational and institutional failures not only truncate the useful life of public assets but fail to produce the desired benefits for the core stakeholders in the sanitation delivery process, namely the users. In particular, the impact weighs heavily upon the poor among the users, who are most dependent upon improved public sanitation services, but are ill-able to sidestep these failures or pay for better services.

In short, the issues and challenges afflicting the sector speak to the growing importance of improving efficiency and effectiveness in sanitation service delivery and call for adoption of delivery mechanisms

such as performance agreements that incorporate performance principles to drive better sector outcomes.

> "A performance-based contract is one that focuses on the outputs, quality and outcomes of service provision and may tie at least a portion of a contractor's payment as well as any contract extension or renewal to their achievement" (Martin, 2005)
>
> "Result based aid and Result based financing schemes both involve contractual arrangements between a principal and an agent and involve the transfer of funds in exchange for the delivery of specified results" (Pearson, Johnson, & Ellison, 2010)

What are Performance Agreements?

Performance agreements in the public sector are a formalized contractual arrangement that articulates the terms and conditions of the particular partnership between different entities involved in public service delivery.

The broader intent of performance contracting approaches is to realize better service outcomes. To this end, performance agreements are designed to focus on goals and results that speak to improved service quality, efficiency and effectiveness and deliver outputs that contribute to the overall achievement of an outcome. (Robinson) (Mihaiu, Opreana, & Cristescu, 2010) (Burger & Hawkesworth, 2011)

Against this premise of an increased focus on results, *outputs* and *outcomes* as performance concepts[5] (Robinson) become central to the discussion and design of performance agreements. Performance literature defines inputs as the resources used, outputs as results achieved and outcomes as the benefits or impacts. Agreements use performance information in the form of output/outcome-oriented performance targets and indicators to drive efficiency[6] and effectiveness[7] in service delivery. Providers are then monitored and held accountable for outputs or where possible, outcomes and remunerated on progress against agreed-upon targets/service results.

Agreements are optimal when providers implicitly assume responsibility for efficiencies (time and cost) and are held accountable for it, while the public entity steers the focus on service effectiveness and tailor incentives that encourage providers to meet or exceed their targets. Well-structured performance agreements offer a favorable environment for the delivery of public services since they exhibit stronger service orientation, adopt market-oriented principles in the management of services, and drive accountability in service delivery. (Agrawal, 2009)

Performance Agreements vs. Traditional contracts

Traditional contracts focus their attention on inputs or activities, i.e. resources/procedures/processes for delivering a service or creating an asset. These contracts are limited by the fact that inputs or activities do not automatically guarantee desired results. To illustrate with an example in the sanitation sector, for a project involving construction and maintenance of a wastewater treatment plant or a public toilet, traditional contracts will measure performance on the basis of resources used (amount of labour

[5] Results chain literature defines outputs as the products or good or services that result from a specific sector intervention (or project) and outcomes as the intended impact or change brought about by the outputs. Inputs and activities are the resources and processes that used to generate the desired outputs and outcomes.
[6] Relationship between results achieved (outputs) and resources used (inputs)
[7] Extent to which results (outputs) deliver the desired benefits (outcomes)

and equipment used to build a wastewater treatment plant/ public toilet). Such an approach will distort the perception of project success since these measures do not speak to the quality, usage or reliability of services that are in fact the desired results in sanitation projects. That is not to say that traditional contracts do not attempt to deliver results, just that their focus on input parameters may at times dilute the effectiveness of results.

Performance agreements represent a positive shift in the manner in which public investments are prioritized and managed as they tend to focus on outcomes or outputs**.** The public entity disburses resources not against individual expenditures or activities but against demonstrated and verifiable results largely within the control of the provider. Examples of appropriate output/outcome performance measures in water and sanitation projects include adequacy and quality of wastewater treated, improvements in revenue water indicating reduction in leakage losses, and quantity of wastewater that is recycled and reused, health and environmental benefits attributable to improved sanitation, etc. Construction of public/community toilets per se, though indicative of outputs that speak to improved coverage and safe collection and is likely to discourage open defecation, need not necessarily be outcome oriented. Outcomes or benefits are realized only if there are mechanisms in place to ensure sustained quality and adequate waste disposal such that the larger behavioral and environmental concerns stand addressed.

Elements, Essentials of Performance Agreements

The question of what constitutes optimal performance agreements is informed considerably by academic research and more importantly, through empirical evidence on contracts implemented across the world (Petrie, 2002). Lessons from international best practices have helped improve the robustness and flexibility of agreements and the institutional environment in which they are administered. What follows is a brief summary of key factors[8] that govern the design and effectiveness of performance-based contracts and how they can be applied in the sanitation context.

Role of regulation

Appropriate legal and policy frameworks[9] are particularly important in the sanitation sector owing to the public good nature of the service. While laws cannot be overly prescriptive, comprehensive regulations are necessary to safeguard equity, public health, technical and environmental quality and tariff rationality. Regulations are most effective when: 1) regulatory functions and enforcement mechanisms are entrusted with public agencies that are best suited to perform them, 2) adequate monitoring and enforcement mechanisms exist and are observed. In sanitation for example, public environment agencies/authorities are most suited to prescribe effluent discharge standards while operational agencies (utilities) are best suited to guide and monitor technical standards, tariff structures, cross-subsidies and pro-poor policies. Private players have limited economic incentive to ensure environmental or product safety. Hence, regulations would have to be adequately backed-up with

[8] Most of these factors find mention in performance contracting literature and case studies of contracts executed globally

[9] The legal framework for sanitation in most countries constitutes a broad set of laws, regulations, bye-laws and policies. The responsibility for sanitation provision entrusted to sub-national governments. Public health acts and bye-laws address issues relating to sanitation and hygiene, while water and environmental acts cover aspects such as rights to water and sanitation and protection of surface and groundwater resources from pollution by sewage and other effluents.

enforcement mechanisms to safeguard environmental or product quality and to ensure that public and private resources are not subject to abuse. (Groom, Halpern, & Ehrhardt, 2006)

Effective environmental regulations require identifying wastewater emissions that are harmful to environment and health and developing targets and strategies to reduce the emissions to acceptable levels.

Domestic and non-domestic effluents must be distinguished and regulations must include: 1) effluents that are discharged into the network, 2) treated effluents discharged into the environment, 3) reuse of sludge and water.

Safety regulations relating to technical standards on collection, transport and treatment solutions also help safeguard the quality of physical assets. Safety regulations and norms for sanitary workers are also critical owing to the health risks associated with handling septage and sewage.

Environmental regulation must also address demand side issues, mandating homeowners to adopt suitable wastewater treatment solutions (septic tanks or decentralized systems or sewer network connection).

Stringent environmental regulations are particularly important where wastewater is largely handled through on-site systems and service challenges are predominantly in the form of how responsibly homeowners maintain their treatment systems and how effectively service providers handle the emptied waste (Groom, Halpern, & Ehrhardt, 2006). Most developing countries appear to lack a comprehensive approach to on-site waste management, with very limited demand or supply side regulations and policies. Homeowners are not mandated on the frequencies for desludging. Private providers, who typically offer desludging services, do not always require licenses or permits to operate. Safety regulations that govern manual vs. mechanized emptying or environmental regulations on disposal are either absent or disregarded. (Chowdhry & Kone, 2012)The ensuing risks to public health and environment are stark, necessitating strong regulatory and enforcement mechanisms for on-site systems.

Economic regulation for on-site systems can be limited to regulatory oversight (e.g. capping user fees) as competitive provider markets are capable of driving reasonable costs of service to customers. Economic regulation plays a greater role in centralized wastewater systems because of the monopoly nature of these services and need for cost recovery through fiscal instruments (taxes, user charges) (Groom, Halpern, & Ehrhardt, 2006).

Regulation can also create a demand for services and facilitate an ambient institutional environment for private participation. This is observed in the case of Malaysia where regulating scheduled desludging not only had environmental benefits but also guaranteed a demand for services which is essential for private participation.

As regards equity objectives of sanitation delivery, performance arrangements are capable of accomplishing sector goals on universal coverage and equity. However, any pro-poor provisions within these agreements can be effectual only if there is a contractual mandate for service provision in low income areas along with clear-cut implementation strategies. Further, regulatory barriers relating to pro-poor provision need to be removed (e.g. waiver of land title requirement for service access, pricing flexibilities on the demand-side to enhance service adoption and use, emphasis on cost recovery preferably through appropriate tariffs/user charges as opposed to subsidies). And importantly, the incentive structure must be consistent with service mandates and implementation barriers typically observed in low-income areas.

Obligatory due diligence

Due diligence[10] in the project planning and contract design stages lays an important foundation for the success of performance agreements (ADB, 2011). Rigorous baseline information on the nature of the service area[11] and extent of service deficiencies can help ensure that target-setting is realistic and achievable and the performance management process is smooth. A reliable baseline will help avoid time and cost overruns during implementation and will minimize transaction costs stemming from project renegotiations and redesign. Knowledge of prevailing service deficiencies can help factor equity considerations into the design of performance agreements.

Due diligence also involves evaluating the nature of demand and willingness to pay for services and factoring these considerations into decision-making. For instance, if a utility is looking to expand networked sanitation services into an area where residents already use non-networked options, willingness to connect to the network might be low, particularly if it involves a connection fee from the user. This places the network expansion investments at risk if the utility relies on these fees for capex recovery. Service challenges such as these are particularly likely in low income areas where demand for service improvements and the willingness to pay for them is heterogeneous.

Another critical element is the identification of risks that are most relevant to the sector and project scope and understanding which contracting party is best able to manage them (IBRD/IDA/WorldBank, 2012). Risks can then be allocated at the time of contract design using well-defined risk frameworks, with the mutual agreement of contracting parties. The intent of equitable risk allocation is to minimize internal and external project risks that are likely to arise during the development and operations stages of the project, bearing adverse consequences on project outputs and outcomes. In sanitation, environmental risks at the design, construction and operations stages must be given particular considerations as they have a bearing on service outcomes relating to public health and environmental quality. For instance, leaching systems are often bypassed at the time of septic tank construction owing to space considerations and effluents are discharged directly into open drains. This practice carries significant public health risks and contamination of surface water.

Table 1 Allocating risks in performance contracts

Type of risk	Description	Who should manage	
		Public	Private
Design and Construction	Time and cost escalations from engineering, design failure, faulty construction techniques, construction delays		✓
Financial	Cost escalations arising from poor financial structuring		✓
Environmental	Economic and social costs associated with adverse environmental impact from the project		✓
Demand/Revenue	Reduced revenues due to lower demand than planned for	✓	✓
Operations	Cost escalations at the time of project operations		✓
Performance	Time and cost overruns associated with failure to meet agreed-upon service levels		✓
Regulatory	Costs associated with regulatory/political changes	✓	

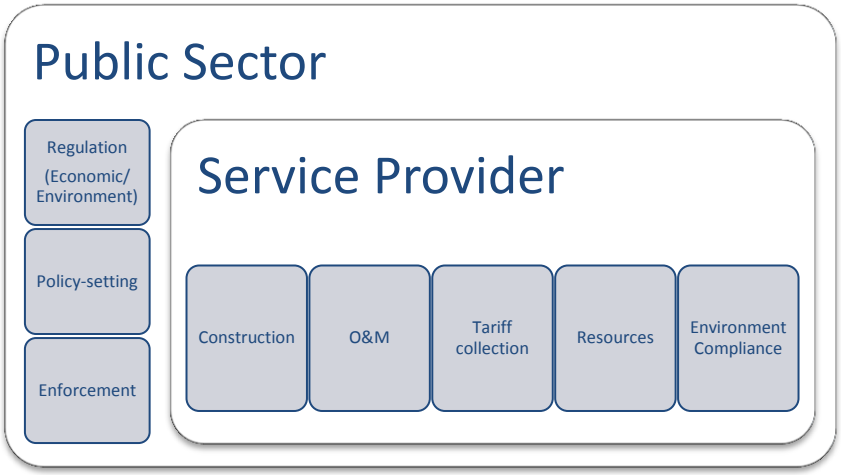
[10] Establishing the baseline demand vs. current supply, improvements needed, service area where the improvements are sought, identification of risks, technical and financial feasibility, planning for external factors

[11] In square kilometers, population, number of households, demand patterns, existing levels of service

Separating roles and responsibilities

Ambiguities in roles and responsibilities present a major obstacle to service delivery as overlapping roles dilute accountability and overlapping responsibilities drive operational inefficiencies. Role separation and clarity allows contracting parties to focus on only the functions they are responsible for and fosters an environment of better performance oversight and accountability (Agrawal, 2009). Typically, operational functions are delinked from regulatory (regulation, oversight, enforcement) functions and allocated to the provider while the public sector retains regulatory functions. Clarity in responsibilities and functions helps contracting parties to deploy their resources optimally[12], towards efforts that yield the maximum benefits in terms of desired outputs.

Figure 1 Mapping Roles and Responsibilities



Achieving role clarity also involves a reasonable level of negotiation and transparency between the contracting parties. This process of negotiation clarifies the expectations and challenges on either side, enhances consensus in goals and project scope, and contributes to the overall acceptance and effectiveness of the agreement.

Performance measurement and management

Selecting performance measures

Performance indicators are central to the discourse on performance contracting as they offer a quantifiable measure on project progress. Indicators relating to outputs or outcomes[13] (where possible) are most valuable because they directly relate to the project's objectives.

Indicators are best selected within the context of the overall project scope and service expectations. For instance, in asset creation projects (such as laying of water or sewer networks, construction of treatment plants), where high design and construction risks carry a consequence of time and cost overruns, indicators on service standards (e.g. time taken to achieve 24*7 household water connections, time taken to lay unit length of pipeline, average cost per unit length of pipeline, water pressure compliance in service area, rate of pumping failures, man-power costs per unit of network, total costs per unit of treatment, revenue improvement in service area) are best suited to measure project

[12] Encourages resource efficiencies

[13] Performance indicators which measure project performance differ from impact indicators which measure sector outcomes. The difference lies in how closely can project performance be linked to broader outcomes and how readily can they be quantified.

progress and pinpoint reasons for time and cost escalations and address if the required service levels are being met.

On the contrary, for operations and maintenance contracts, where performance risk relating to service quality is higher, output quality indicators (e.g. treated sludge quality tests that comply with requirements, response time to household complaints, quality of treated wastewater discharged into the environment, odor-free public toilets) are likely to be more relevant since they speak to user and service responsiveness. Performance indicators must be designed such that they clearly represent project-level actions and are unaffected by external factors (Robinson).

Increasingly, performance agreements are adopting customer service indicators (e.g. response time to customer complaints) as a measure of service (output) quality recognizing that customer satisfaction is integral to the service goals that the public entity is trying to achieve. A high volume of customer complaints is a good indicator of service gaps and customer deficiencies and reflects strongly on provider performance.

Table 2 Linking Indicators to Results and Benefits in Sanitation delivery

Construction and Maintenance of Sewage Network and Treatment Plants	
Outcome indicator	▪ Improved groundwater and surface water quality ▪ Equity provisions in service delivery ▪ Volume of treated effluent reused ▪ Percentage of bio-solids reused
Output quantity indicator	▪ Length of sewage network laid (not including house connection branches) ▪ Volume of sewage collected (domestic vs. industrial) ▪ Volume of wastewater treated ▪ Number of households served
Output quality indicator	▪ Frequency and duration of sewer blockages and spills ▪ Response time for network repairs/maintenance (sewer blockages/spills) ▪ Response time to customer complaints ▪ Quality compliance of discharged wastewater (meeting treatment/discharge standards)
Output efficiency indicator	▪ Unit cost of wastewater treatment (per customer, per kl. volume) ▪ Operating costs for transport & treatment (per household, per kl. Volume) ▪ Improved collection of sewage charges
Input	▪ Quantity of materials/chemicals used ▪ Reduction in primary cost drivers (savings in electricity consumption owing to energy efficiency interventions)
Construction and Maintenance of Public/Community Toilets	
Outcome indicator	▪ Reduction in open defecation in surrounding areas ▪ Improved statistics on community health linked to sanitation related illnesses
Output quantity indicator	▪ Number of facilities for women, disabled, children ▪ Number of users served
Output quality indicator	▪ User satisfaction rate ▪ Response time for O&M issues

	▪ Ease of access and use by disabled ▪ Fulfilment of considerations with respect to privacy, safety, ventilation, lighting, general maintenance
Input/activity indicator	▪ Amount of cleaning material used ▪ Number of cleaning personnel employed ▪ Number of times facility is cleaned ▪ Salaries of cleaners/caretakers ▪ Resource efficiency interventions undertaken (e.g. installation of solar panels, sharing of cleaning personnel)
Septage Management Facilities	
Outcome indicator	▪ Extent of reuse of treated sludge/bio-solids ▪ Equity considerations in service delivery
Output quantity indicator	▪ Adherence to scheduled desludging frequencies ▪ Volume of septage collected and disposed
Output quality indicator	▪ Adherence to safe, environmental standards with respect to septage dumping ▪ Adherence to prescribed technical solutions for septage treatment ▪ Customer responsiveness/satisfaction
Output efficiency indicator	▪ Number of households served per emptying truck ▪ Average unit cost of emptying (e.g. Operating cost per kl collected, operating cost per household) ▪ Use of technologies to improve fuel efficiencies of emptying trucks ▪ Average revenue per truck
Input/activity indicator	▪ Number of emptying trucks ▪ Size and capacity of trucks used ▪ Average cost of emptying truck ▪ Number of trips made per day ▪ Use of mechanical trucks for disposal

Performance targets and standards as quality and efficiency drivers

Once the requisite performance attributes of a contracted service are understood, performance targets or service standards then serve as the tool to orient service provider resources to intended project results. This leads to better management and facilitates ex post accountability. Service standards are the quality control benchmark against which actual performance can be measured. These are appropriate in instances where service improvement can be achieved immediately and not incrementally (e.g. Response time to sewer blocks can be measured against a service standard of say 4 hours). Targets are the levels of performance desired over a reliable baseline or a prescribed standard at various time periods of the project and serve as milestones for incremental service improvements. They can be set for inputs, activities, outputs and outcomes but output and outcome targets are most suited to steer a project towards desired goals.

Targets must strive to capture all dimensions of performance (customer orientation, quantity, quality and efficiency in service required from the service provider and sought by the user) such that a tight link continues to exist between project goals, deployed resources, activities and project expectations in the form of outputs/outcomes. The scope of the project, reliability of baseline and project risks must guide

the design of targets. For projects involving physical outputs such as assets created, output quantity targets (e.g. Percentage increase of pipelines per unit of time by xx date, average monthly volume of wastewater treated to volume collected) must be balanced with output quality standards (e.g. Percentage of leakage loss reduction in xx duration). In projects where there exists a direct interface with the consumer, the desired levels of service can relate to service quality and customer satisfaction. Setting realistic and achievable standards and targets not only drives project effectiveness by retaining the focus on goals, but also encourages cost and service efficiencies.

Performance monitoring for greater accountability

Monitoring[14] and reporting mechanisms[15] foster transparency in operations and drive provider accountability. Performance agreements function well when there is a reasonable, reliable degree of information on which providers and public entities can base their actions (Robinson). A detailed reporting mechanism facilitates this information flow between the contracting parties and helps in decision-making. This information can serve as a management tool that helps: 1) provider to understand and improve upon operational performance, and 2) public officials to review project progress against performance targets and assess the nature of performance (project level) gaps and service (sector level) gaps that require attention. Strong reporting systems are necessary for improved accountability, as provider incentives to perform is diluted in the absence of such systems.

As users are the primary beneficiary of services, obtaining user feedback on services received is an important way to tighten monitoring and drive accountability. This can be achieved in the form of city-level public grievance systems or project level surveys to assess user satisfaction. Particularly in the case of projects that face a lot of initial resistance, it is necessary to promote a culture of transparency and public acceptance by disseminating information on project goals and progress. This not only encourages greater citizen oversight of provider operations but also ensures that the benefits realized from the project are understood and accepted. Public awareness and oversight must be particularly encouraged on the quality aspects of sanitation projects because of the inherent risks to the environment and public health. Reporting mechanisms are more robust when they include indicators relating to customer satisfaction (number of customer complaints received, complaints addressed in a time-bound manner, etc.). This information clarifies the service orientation of the provider and also sheds more light into the nature and severity of performance deficiencies in provider operations.

Table 3 Unbundling Performance Management

Public Sector	• Set Performance Measures (Indicators/Targets) • Set Review Process/Requirements (Reporting information/frequency/format) • Facilitate Citizen Monitoring Mechanisms • Link Payments to Performance • Ensure Monitoring and Compliance • Use Performance Information in decision-making

[14] Provider is usually monitored on key performance attributes/indicators and progress achieved against pre-defined targets

[15] Performance review process requires detailing out reporting formats and frequencies on project progress followed up with appropriate monitoring mechanisms

Service Provider	• Focus resources towards achievement of Performance Targets • Adopt strategies to optimize operational efficiencies • Gather Performance Information • Report information • Use information to improve operational performance
Performance Data	• Output/Outcome Focus • Represents various aspects of performance - Output quantity, quality, timeliness, costs, efficiency, reliability • Customer satisfaction metrics • Cost-effective • Comparable to service benchmarks

How incentives impact outcomes

Performance incentives play an important role in aligning provider actions with the desired project goals as the broader aim behind the incentive mechanism is to improve the quality, efficiency and overall value of services delivered (Petrie, 2002). Performance fees or incentives reward providers directly for their achievement of performance targets. When these targets are linked to desired service results and benefits, appropriate incentive structures motivate providers to carry out service improvements that are in line with service goals.

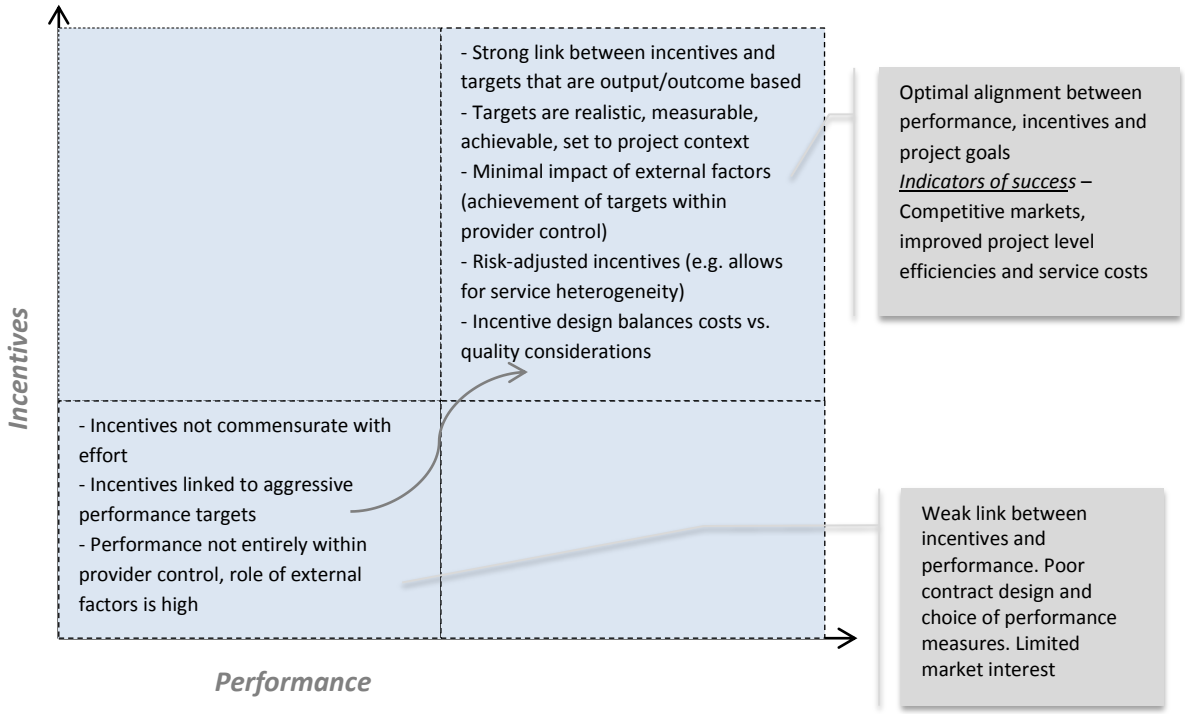
Pay-for-performance gained wide popularity in the health sector as a means to achieve high-quality care and better health benefits for patients. Representing a positive shift from traditional fee-based systems which rewarded providers for inputs in the form of volume and complexity of services that providers offer, pay-for-performance directed the focus towards quality by emphasizing performance categories such as patient experience and health benefits realized. While performance incentives have yielded the desired results in areas within provider control (e.g. carrying out blood tests for diabetes), evidence on the overall effectiveness of incentives on patient health outcomes appears inconclusive nor does it seem clear whether incentives are able to successfully balance considerations relating to quality, costs and efficiency. (Miller & Babiarz, 2013) (James, 2012) (Ryan & Werner, 2013) This is largely due to challenges on how to effectively structure incentive mechanisms to balance provider behavior against desired outcomes. For example, when provider performance and incentives are linked to lower patient readmission rates, this can disincentivize providers from catering to low-income patients who are likely to require readmissions (owing to factors such as low nutrition levels and poor access to medications and medical facilities) (James, 2012).

Structuring performance incentives thus requires a careful evaluation of a program's service intent and good contract design to have the maximum impact on outcomes. Incentives must also seek to balance cost and quality requirements and not exhibit "perverse effects" tendencies, where incentives that focus on costs lead to compromises in quality. If outcomes are more influenced by external factors (such as user behavior or policy barrier) than by provider performance, it becomes difficult to justify why incentives should be linked to outcomes as they fall outside the provider purview. Incentives must also factor in aspects relating to heterogeneity in services required from the provider. For example, where service requirements span a heterogeneous population with varying levels of service deficiencies or

willingness to pay, the burden of additional effort or cross-subsidy can serve as a disincentive for private providers and contract design needs to address this effectively.

When seeking private participation in service delivery, incentives are also market-driven. In Malaysia, when the mandatory requirement for scheduled desludging was removed and prices were capped for private service providers, user demand for desludging automatically dropped not only carrying environment impacts but also limiting the financial incentives and business viability of private providers (Chowdhry & Kone, 2012). In this case, the incentive mechanism is not only delinked from provider performance but is not even conducive to private participation. A careful evaluation of market factors is therefore needed to understand what kind of incentives (both demand and supply side) can ensure optimal private participation and performance.

It is therefore necessary to understand the project context, planned and unplanned risks prior to establishing a link between incentives and provider performance.



Capabilities and Drivers for Optimal Outcomes across the Sanitation Value Chain

INSTITUTIONAL	Policy frameworks to promote access to improved sanitation Pro-poor policies to ensure equity in access Standards for Design and Construction of Toilets Guidelines to engage private sector in public/community toilet construction/maintenance (e.g. model concession agreements, performance indicators)	Policy frameworks to promote access to improved sanitation Technical standards and guidelines for design, construction and maintenance of storage vaults/pits/septic tanks Mandatory licenses, permits for providers involved in design and construction of onsite systems Environmental regulations and enforcement mechanisms governing operations and maintenance of onsite systems Regulations mandating periodic desludging by homeowner Safety regulations governing labor safety during repairs and maintenance.	Mandatory licenses, permits for providers involved in emptying and transportation Environmental regulations governing safe emptying and transport of both septage/sewage Technical standards for sewer pipelines, suction machines for cleaning pits/tanks/sewers/manholes, vacuum trucks for septage emptying/transport Standard operating procedures for desludging and transport Economic regulation governing tariff/user fees for emptying and transport services Safety regulations governing labor safety during repairs, maintenance, desludging. Regulations governing manual vs. mechanical emptying, cleaning of manholes	Technical standards for design and construction of treatment plants (sewerage and fecal sludge treatment) Prescribe treatment technologies, suitability to context, operational requirements, limitations and risks Environmental regulations identifying wastewater emissions that are harmful to environment Economic regulation governing tariff/user fees for sewerage/septage management	Environmental regulations and discharge standards Technical standards for reuse of treated effluent – treated wastewater and biosolids
DUE DILIGENCE	Availability of reliable baseline on household access Planning for public/community facilities based on demand-supply gap analysis Establish demand and willingness to pay for both public and community	Reliable baseline information on number of residential, commercial and institutions with onsite systems and connections to sewer networks Baseline on size, age and capacity of pits and septic tanks Baseline and historical trends on usage patterns, volume of fecal sludge generated, septage	For onsite management, service area baseline on- - Type of latrine and waste disposal option - Market size - Volume of sludge generated - Household emptying frequency - Willingness to pay for emptying and transport services - Number of pits/tanks that can be accessed by providers - Number of public and private	Establish desired effluent quality (this will drive selection of treatment technology) Establish wastewater characteristics within service area (concentration, flow rate, toxins) that Establish land availability (variable depending on treatment process)	Identify location (land, water bodies) for disposal of treated effluents Establish demand for treated wastewater, biosolids, biogas Establish potential for reuse - carry out costs vs. benefits analysis of reuse operations

	toilets Establish user needs, particularly for community/shared toilets construction to ensure sustained use Risk framework for public/community facilities: - Demand, Design, Construction, Maintenance, Performance – Private - Delays in Land and Utility connections, Regulatory – Public	characteristics, emptying frequencies Environmental and Operational risks and compliance - Homeowner Monitoring and oversight – Public sector	trucks in the city - Truck capacities - Capex and Omex cost drivers for emptying and transport - Operational challenges such as poor truck access space, long distances to dump sites, local availability of vehicles, spare parts, service personnel - Investment requirement estimates - Technical and financial feasibility of services Offsite systems - Technical and financial feasibility of construction and maintenance of networked systems (population trends, demand) - Willingness to pay for network connections, potential for cost recovery Risks are inherent across – design, construction, O&M, Performance, and Environment. Risk management to be done within project context and service arrangement with provider	Availability of resources (power, water, land, skilled manpower) Potential for reuse of water, biogas generation Identification of potential risks within project context (e.g. land acquisition delays, design failures, construction delays, Performance failures) and allow for equitable sharing of risks	
PERFORMANCE	Performance of public/community facilities to be measured on the basis of quality of construction and maintenance Indicators to relate to output quality (e.g. availability of water, electricity, lack of odor, adequate ventilation, well-maintained infrastructure – doors, water closets, floor, sink, etc.), customer satisfaction with aspects such as quality, safety,	Performance relates to quality of construction and ongoing maintenance	Performance relates to output quality and efficiency and positive environmental outcomes Indicative performance measures are provided in Table 2 Performance incentives and penalties to be linked to performance measures on output quality (environmental quality, customer complaints, incidences of sewage/septage leakages/spills)	Performance relates to output quality and environmental compliance Performance levels can vary depending on whether treated effluent will be reused or discharged into water bodies Indicative performance measures are provided in Table 2 Performance incentives and penalties to be linked to output quality and efficiency	Performance relates to output quality and environmental compliance Indicative performance measures are provided in Table 2

	privacy and reliability of service If facility discharges into onsite systems, O&M performance must account for regular desludging Performance incentives - Guaranteed cost recovery and profit mechanisms - Penalties and contract termination for non-compliance				
FINANCIAL	Costs to be borne by households for household level access. For public/community toilets: - Local government budgets - User charges - Advertising - Cross-subsidy mechanisms between high demand/high income public areas with high demand/low income community areas	Costs for construction and maintenance to be borne by households For low-income groups, explore alternate financing strategies such as payments by installment, part subsidies, microfinance, etc.	For offsite systems, capex is typically met through public finances (grants/loans). Limited cost recovery is achieved through connection fees and tariff collected as part of water & sewerage or property taxes Onsite systems are typically serviced by private providers. Financial viability is critical to secure provider participation and performance. - Cost recovery through user fees - Access to financing mechanisms for truck sourcing/fleet expansion - Adoption of strategies to reduce operating costs (e.g. setting up transfer stations to reduce fuel costs) - Tariff linked to consumption of water - Demand-side incentives to encourage periodic desludging	Capex typically met through public finances (grants/loans). Limited cost recovery through tariffs. Potential for cost recovery through sale of treated wastewater Payment guarantees	
ACCOUNTABILITY	Specifically in the case of public/community toilets, Public sector - Provide land, facilitate	Public sector - Regulation, oversight and enforcement responsibilities - Ensure compliance with planning/technical norms during design and	Public sector - Regulation (economic/environmental) - Enforcement - Stipulate methods and locations of transport	Public sector - Regulation (economic/environmental) - Monitor operational efficiencies, service standards and	Public sector - Regulation (environmental) - Enforcement - Locations for disposal

	utility connections (water supply, sewerage, electricity) - Periodic monitoring of facilities and enforcement against standards during construction and maintenance stages - Encourages user monitoring through grievance systems, user feedback surveys Provider - Responsible for design, construction and maintenance - Uphold maintenance standards - Gather and report user feedback	construction - Monitor periodicity of desludging, O&M and necessary clearances for the same - Carry out periodic monitoring of environmental quality - Levy penalties for tank deficiencies and failure to adhere to desludging requirements Homeowner - Assume responsibility for pit/tank maintenance - Obtain necessary environmental clearances	- Provide transfer stations, treatment plants - Facilitate citizen and third party monitoring mechanisms to ensure safe transport and disposal - Promote competition - Remove disincentives for private participation (e.g. levy of tipping fees at dumping points) - Penalties for non-compliance Provider - Responsible for service provision (emptying, transport, repairs, maintenance) - Controls resource requirements and deployment - Adhere to technical, environmental and operational standards in service provision	environmental quality compliance - Land acquisition - Facilitate third party monitoring Provider - Responsible for design, construction and maintenance - Controls resources, choice of technology - Adheres to technical, environmental and operational standards	Provider - Adheres to disposal requirements

Concluding remarks

Performance based approaches are intended to play an important role in making public service delivery more results-oriented. While they do hold promise and merit to this end within the sanitation sector, evidence suggests the need for a measured approach in their adoption and use.

Performance approaches are likely to work better when there is: 1) clarity in service goals, 2) clear and measurable results in line with the goals, 3) role of external factors (such as user behavior) is minimal on results, and 4) incentive mechanisms are consistent with goals and desired results. However, empirical evidence shows that agreements are seldom that straightforward; complexities in performance management are more the norm. Developing institutional capacities to design, procure, manage and monitor performance agreements is an important way of managing complexities during implementation. The capabilities for a stronger institutional and project level environment that are discussed in this paper, while not intended to guarantee desired outcomes, offer a cohesive set of abilities and actions that can be undertaken by contracting parties in order to accelerate results and progress in the sanitation sector.

In conclusion, introducing a performance perspective to sanitation service delivery will undoubtedly offer good benefits in terms of improved sector results and outcomes and improved effectiveness of public investments. The contract preconditions and principles discussed in the paper offer a framework for better contract design and implementation and a higher probability of achieving sanitation related goals. Taking into consideration the characteristics of the project and the demands and challenges of the local context are critical to better application and efficacy of these features.

Bibliography

ADB. (2011). *Tool kit for public-private partnerships in urban water supply for the State of Maharashtra, India.* Mandaluyong City, Philippines: Asian Development Bank.

Agrawal, P. C. (2009). *Enhancing Water Services through Performance Agreements.* Water and Sanitation Program, The World Bank.

Burger, P., & Hawkesworth, I. (2011). How to attain value for money: Comparing PPP and Traditional Infrastructure Public Procurement. *OECD Journal on Budgeting*, 1-56.

Chowdhry, S., & Kone, D. (2012). *Business Analysis of Fecal Sludge Management: Emptying and Transportation Services in Africa and Asia.* The Bill and Melinda Gates Foundation.

Colin, J., & Nijssen, S. (2007). *Public Toilets in Urban India: Doing Business Differently.* Water and Sanitation Program.

GHMC-CDP. (2011). *Hyderabad-City Development Plan Chapter V Basic Services to the Urban Poor.* Hyderabad: Greater Hyderabad Municipal Corporation.

Gnaneshwar, P. V. (n.d.). *Fund Your City - A Public-Private Partnership Initiative of Greater Hyderabad Municipal Corporation for Urban Infrastructure Development.* Hyderabad: Regional Centre for Urban and Environmental Studies, Osmania University.

GoAPCircular. (2012, November). *GoAP-CDMA Circular Roc. No. 15306/2005/H3, dated 14/11/2012*. Retrieved February 2014, from Commissioner & Director of Municipal Administration: http://www.cdma.gov.in/CDMA/Initiatives/pdfs/open%20defecation%20and%20urination.pdf

GoAP-MEPMA-USHA. (n.d.). *Mission for Elimination of Poverty in Municipal Areas, GoAP*. Retrieved 02 2014, from Mission for Elimination of Poverty in Municipal Areas, GoAP: http://www.apmepma.gov.in/getInfo.do?dt=2&oId=54

GoAP-PPPCell. (2014, 02). *PPP Cell Finance Department, Government of Andhra Pradesh*. Retrieved 02 2014, from https://ppp.cgg.gov.in/ProjectDisplay.aspx

GoI, W. G. (2011). *Report of the Working Group on Urban and Industrial Water Supply and Sanitation for the Twelfth Five Year Plan (2012-17).* New Delhi: Planning Commission, Government of India.

GoI-DEA. (2011). *PPP Projects Status Report July 2011.* Department of Economic Affairs, Ministry of Finance, Government of India.

GoI-MoUD. (n.d.). *Handbook on Service Level Benchmarking.* Ministry of Urban Development, Government of India.

Groom, E., Halpern, J., & Ehrhardt, D. (2006). *Explanatory Notes on Key Topics in the Regulation of Water and Sanitation Services.* World Bank.

IBRD/IDA/WorldBank. (2012). *Public Private Partnerships Reference Guide.* World Bank Institute, PPIAF.

James, J. (2012). *Health Policy Brief: Pay-for-Performance.* Health Affairs.

Komives, K. (n.d.). *Designing Pro-poor Water and Sewer Concessions: Early Lessons from Bolivia.* http://web.mit.edu/urbanupgrading/waterandsanitation/resources/pdf-files/Komives-Bolivia.pdf.

Kothandaraman, P., & Vishwanathan, V. (2007). *Sulabh International: A Movement to Liberate Scavengers by Implementing a Low-cost, Safe Sanitation System.* New York: United Nations Development Programme.

Martin, L. L. (2005). Performance-Based Contracting for Human Services: Does It Work? *Administration in Social Work*, 63-77.

MDG2013. (2013). *The Millennium Development Goals Report.* New York: United Nations.

Mihaiu, D. M., Opreana, A., & Cristescu, M. P. (2010). Efficiency, Effectiveness and Performance of the Public Sector. *Romanian Journal of Economic Forecasting*, 132-146.

Miller, G., & Babiarz, K. S. (2013). *Pay for Performance Incentives in Low and Middle Income Country Health Programs.* Cambridge, MA: National Bureau of Economic Research.

MSWMRules2000. (n.d.). *Ministry of Environment and Forests.* Retrieved 2 2014, from http://envfor.nic.in/legis/hsm/mswmhr.html

Norman, G. (2011). *When are community and public toilets an appropriate option?* Water and Sanitation for the Urban Poor.

Pearson, M. (2011). *Results based aid and results based financing: What are they? Have they delivered results? .* DFID.

Pearson, M., Johnson, M., & Ellison, R. (2010). *Review of major Results Based Aid (RBA) and Results Based Financing (RBF) schemes.* London: DFID Human Development Resource Centre.

Petrie, M. (2002). A Framework for Public Sector Performance Contracting. *OECD*, 117-153.

Robinson, M. (n.d.). *Performance Budgeting.* Clear Regional Centers for Learning on Evaluation and Results.

Ryan, A., & Werner, R. (2013). *Doubts about Pay-for-Performance in Health Care.* Harvard Business Review Blog Network.

Tremolet, S. (2012). *Identifying the Potential for Results-Based Financing for Sanitation.* Water and Sanitation Program.

Tyagi, A. (n.d.). *The Economic Impacts of Inadequate Sanitation in India.* New Delhi: Water and Sanitation Program.

UNDP. (n.d.). *Manila , Philippines, Water/Wastewater Improvements, Case Study.* UNDP.

UNICEF/WHO. (2012). *Progress on Drinking Water and Sanitation.* UNICEF, WHO.

WHO/UNICEF. (2006). *Meeting the MDG Drinking Water and Sanitation Target.* World Health Organization and UNICEF.

WorldBank. (2014). *Running Water in India's Cities: A Review of Five Recent Public-Private Partner Initiatives.* Water and Sanitation Program, World Bank.