

**Scaling up Rural Sanitation and Hygiene in Pakistan**

# **Sindh Service Delivery Assessment**

A decision-making tool for  
transforming funds into  
improved services

June 2016

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# Abbreviations and Acronyms

<b>ADP</b>	Annual Development Plan	<b>NWQMP</b>	National Water Quality Monitoring Programme
<b>CAPEX</b>	capital expenditure	<b>O&amp;M</b>	Operations and maintenance
<b>CBO</b>	Community Based Organizations	<b>ODF</b>	Open Defecation Free
<b>CLTS</b>	Community-Led Total Sanitation	<b>P&amp;DD</b>	Planning and Development Department
<b>DFID</b>	Department for International Development	<b>OPEX</b>	operations expenditure
<b>DHS</b>	Demographic and Health Survey (USAID)	<b>PCO</b>	Pakistan Census Organisation
<b>EPA</b>	Environmental Protection Agency	<b>PCRWR</b>	Pakistan Council of Research in Water Resources
<b>FY</b>	Financial Year	<b>PFC</b>	Provincial Finance Commission
<b>GPCD</b>	gallons per capita per day	<b>PHED</b>	Public Health Engineering Department
<b>GDP</b>	Gross Domestic Product	<b>PIHS</b>	Pakistan Integrated Household Survey
<b>HTPD</b>	Housing and Town Planning Department	<b>PRSP</b>	Poverty Reduction Strategy Paper
<b>IRSA</b>	Indus River System Authority	<b>PSLMS</b>	Pakistan Social and Living Standards Measurement Survey
<b>JICA</b>	Japan International Cooperation Agency	<b>PSP</b>	Private Sector Participation
<b>JMP</b>	Joint Monitoring Programme (UNICEF/WHO)	<b>RDD</b>	Rural Development Department
<b>KMC</b>	Karachi Metropolitan Corporation	<b>RSH</b>	Rural Sanitation and Hygiene
<b>KWSB</b>	Karachi Water and Sanitation Board	<b>RWS</b>	Rural Water Supply
<b>LGA</b>	Local Government Act	<b>SAP</b>	Social Action Program
<b>LGD</b>	Local Government Department	<b>SCIP</b>	Sindh Cities Improvement Program
<b>LGO</b>	Local Government Ordinance	<b>SDA</b>	Service Delivery Assessment
<b>LHW</b>	Lady Health Worker	<b>SDG</b>	Sustainable Development Goal
<b>M&amp;E</b>	Monitoring and Evaluation	<b>SIMS</b>	Sector Information and Monitoring System
<b>MDG</b>	Millennium Development Goal	<b>SKAA</b>	Sindh Katchi Abadis Authority
<b>M&amp;R</b>	Maintenance and Rehabilitation	<b>SSS</b>	Saaf Suthro Sindh
<b>MGD</b>	million gallons a day	<b>SWAP</b>	Sector Wide Approach
<b>MICS</b>	Multiple-Indicator Cluster Survey (UNICEF)	<b>TMA</b>	Tehsil Municipal Administration
<b>MIS</b>	Management Information System	<b>TDS</b>	Total Dissolved Solids
<b>MoE</b>	Ministry of Environment	<b>ULC</b>	Urban Local Council
<b>MSDP</b>	Municipal Services Development Program (USAID)	<b>UNICEF</b>	United Nations Children's Fund
<b>MTBF</b>	Medium-Term Budgetary Framework	<b>USAID</b>	United States Agency for International Development
<b>MTDF</b>	Medium Term Development Framework	<b>USH</b>	Urban Sanitation and Hygiene
<b>NDWP</b>	National Drinking Water Policy	<b>UWS</b>	Urban Water Supply
<b>NFC</b>	National Finance Commission	<b>W&amp;S</b>	Works and Services
<b>NGO</b>	Nongovernmental organization	<b>WASA</b>	Water and Sanitation Agency
<b>NRW</b>	Non-Revenue Water	<b>WHO</b>	World Health Organization
<b>NSP</b>	Nutrition Sector Program	<b>WSP</b>	Water and Sanitation Program
<b>NSUSC</b>	North Sindh Urban Services Corporation	<b>WSS</b>	Water and Sanitation Services

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# Strategic Overview

The narrative of Sindh is closely tied to the river that gives it its name. Nowhere more than in Sindh is there a stronger argument for a holistic approach to water resource management. The Indus Basin Irrigation System (IBIS) is the lifeblood of the province, with a 79 percent dependence on surface water for drinking water supply; the fortune of the water supply and sanitation sector is inextricably linked to it.

Data limitations, inconsistencies (definitional and other), and reliability issues posed severe constraints in the analysis for this Service Delivery Assessment (SDA). In the absence of readily available and consolidated data on population, coverage, unit costs, and Operation and Maintenance (O&M), this study has relied on a range of assumptions and extrapolations. The 1991 Pakistan Integrated Household Survey (PIHS) baseline data for coverage from which trends are extrapolated remain questionable in their reliability, particularly given definitional inconsistencies (and in the case of sanitation, these data were rejected by the World Health Organization (WHO)/UNICEF Joint Monitoring Programme or JMP). In the absence of a recent census, population figures in Pakistan are by necessity extrapolated. The precise figures generated through the SDA analysis thus need to be treated with some caution but, importantly, reflect broad trends and provide critical insights to the state of the sector.

Water supply coverage in the province stands at 84 percent for rural water supply and 91 percent for urban water supply; these are fairly high figures and the level of coverage is positive.<sup>1</sup> However, projecting trends, it is unlikely that a target (albeit ambitious) of universal coverage by 2025 will be achieved for either subsector.<sup>2</sup> Overview statistics mask serious rural-urban disparities, and the bias introduced by

the metropolis Karachi. Disaggregating each subsector, urban sanitation fares well, with coverage at 97.5 percent, indicating the Millennium Development Goal (MDG) target of 89 percent has been met. Projecting the trajectory, the target of universal coverage will be met in advance of 2025. The rural sanitation subsector is, however, struggling and notably neglected. Currently, at 54.5 percent, coverage is only expected to rise to 76.3 percent in 2025, falling far short of the target. Data on Open Defecation Free (ODF) districts are not available, but it is likely that none of the province's 24 districts are ODF. Till recently, attempts to develop approaches critical to encouraging uptake of latrines in a subsidy-free environment were limited.<sup>3</sup>

The study finds that these achievements need to be viewed with considerable caution. Serious structural issues threaten to negate these gains in the immediate future. There is a high dependence on private providers and self-provision where state systems are failing due to growing populations. This remains unregulated, and multiple actors serve as providers with minimal coordination or adherence to standards and regulations. Yet, without the presence of private providers and self-provision, sector performance would be significantly weaker.

Public sector infrastructure is aging, and without significant investment in rehabilitation and O&M, a large percentage of rural schemes will fail (58 percent of rural schemes are already dysfunctional for various reasons, while a large number will fall into disrepair in the near future). Urban infrastructure is also in serious need of rehabilitation and expansion. Thus, some of the gains in coverage will, in effect, be reversed as infrastructure reaches the end of its design life or falls into disrepair.

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<sup>1</sup> The Sindh Millennium Development Goal (MDG) report indicates that, overall, for water supply, the MDG target of 93 percent has been met, which demonstrates some inconsistencies in definitions and data from various surveys.

<sup>2</sup> Rural water supply is expected to increase to 89 percent and urban water supply shows a surprising declining trend and will reduce to 90.6 percent.

<sup>3</sup> Since the study, a summary of the key findings of the Multi-indicator Cluster Survey 2014 findings were released and received in January 2016. These broad findings have been referred to in the subsector footnotes with preliminary analysis, although in the absence of the detailed report, it was not possible or desirable to revise the detailed analysis of the study. The overall trends and conclusions of the study hold.

Coverage figures also need to be viewed in the context of the grave water quality issues, virtual lack of treatment of sewage and wastewater in a heavily industrialized province, and serious contamination of water bodies and sources. Solid waste collection, which was not covered in detail in this study, is reportedly only 34 percent overall and virtually absent in rural areas, which has impact on the functionality of sanitation infrastructure, and can result in contamination of water bodies. There is no sanitary landfill in the province.

Sindh's lower riparian status exposes it to critical issues of water availability. Pakistan is a highly water stressed country and reduced water flows in the lower Indus have stretched water availability and increased saltwater intrusion. Inadequate drainage has resulted in widespread waterlogging and salinity (with nearly a fifth of the canal command affected). This affects both drinking water and sewerage/drainage systems. The high level of environmental degradation has had serious economic and social consequences. This is compounded by the weak environmental management of a significant urban sector; of about 486 million gallon per day (MGD) of sewage generated by Karachi and Hyderabad alone, a mere 65 MGD is treated, the remaining being discharged raw into water bodies (with reportedly only 1 percent of wastewater treated outside of the two main cities).

Further, the province is vulnerable to natural disasters; the annual floods of 2010, 2011 and 2012 resulted in widespread loss to water and sanitation infrastructure, and contamination of water sources. The importance of disaster response, risk mitigation and adaptation in the face of climate change challenges is particularly high for Sindh.

An important feature of Sindh's demography is the high level of urbanization. The provincial urban population has increased four-fold since 1951, making it Pakistan's most urbanized province. Karachi holds the bulk of the urban population, followed by Hyderabad, and then other secondary cities. By 2025 the urban population is projected to increase to over 50 percent. This places demands on services and water resources. An accompanying high level of industrialization also places significant demand on water resources and, as highlighted above, contributes to environmental degradation.

Against this backdrop, any approach to the sector which is not water resource management based, cannot be tenable.

An important weakness lies in the lack of separation of the roles of water production, asset holding and service delivery/management. The situation is exacerbated by the lack of an independent 'regulator'. There is a critical disconnect between those who create assets and those who manage assets, and asset creation is in general supply driven. This stands in the way of overall water resource management efforts. The traditional notion that sociocultural factors limit the ability of the sector to recover costs (this in turn limits the attractiveness of the sector for private equity) remains unchallenged. This is despite the fact that in reality consumers are paying very large sums for accessing services. There are technical challenges to the delivery of water and sanitation services in Sindh, which demand more innovative approaches, beyond the traditional spectrum of service delivery by departments or communities.

With shrinking water resources reducing per capita availability, and serious water quality issues widely prevalent in the province (apart from common bacteriological contamination, there are issues with arsenic and fluoride contamination of groundwater), the need for a broader perspective has assumed critical proportions. While the constitution of certain provincial committees does reflect the need to take a multisector approach; structural issues result in this not translating into functional coordination in the execution of business.

The 18th Constitutional Amendment has been the defining feature in the governance of the province in the past few years. The transition has not been complete, many areas exist where there is lack of clarity in the federal-provincial equation. Importantly, the national drivers in relation to policy formulation lost impetus with the devolution of power. Even while water and sanitation had always been a provincial subject, the policy process being enabled from the center lost momentum. Neither water supply nor sanitation, in Sindh, is guided by a policy umbrella. The Sindh Sanitation Strategy has been in place since 2011, but is poorly adhered to. Positive developments include the revision of a draft Sanitation Policy – but this remains to be approved. Policies and strategies need recasting in the light of the Local Government Act (LGA) 2013.

The lack of elected local governments since 2009, and political prevarication on the institutional design of local government

(finally culminating in the enactment of the LGA 2013), has left the sector rudderless. There has been distinct impact on service delivery, particularly for the rural sector, which has fallen through the cracks. The lack of stability, which has emanated from shifts in governance models has been debilitating for the sector.

At the provincial level, sector-planning frameworks are weak. While medium-term financing frameworks exist, these are reportedly not operationally used. There is no sector-wide approach, or multi-year planning and budgeting initiative. At present, the 2025 target has yet to be internalized at the provincial level; broad targets and goals have yet to translate into planning efforts on how these are to be achieved. De facto, the planning horizon is limited to the Annual Development Plan (ADP) – and here too imperatives are frequently driven through political push factors rather than sector needs. The wide array of sector agencies continues to operate in silos; till recently, a number of agencies had been integrated within the Local Government Department (LGD) but have, once again, been divided into separate departments (notably the Public Health Engineering Department or PHED). This highlights the need for an institutional review to determine how best to attain functional coordination and rationalize service delivery.

The weak capacity to plan is, in part, due to serious gaps in the availability of relevant data, and there is a critical need to review sector metrics. Without definitional consistency, clear targets and unified sources of data, sector planning is virtually impossible. Discourse on a sector Management Information System (MIS) has remained rhetoric, both at a national and provincial level.

Weak governance has also remained a defining feature in the province. Sector decision-making is heavily politicized and fraught with poor governance and mismanagement. In these scenarios, there is limited incentive to induce a culture of performance and evidence-based decision-making.

The issue of equity is a fundamental one; tools to ensure equitable access and use of resources remain limited. The Government of Sindh has a commitment to reach its poorest and most vulnerable citizens, and the absence of planning in this regard is a matter of concern. While the Provincial

Finance Commission (PFC) was in place, there was some broad consideration of equity in distribution of finances to the districts. In its absence, there is no explicit tool to ensure this, though reportedly some consideration is given to levels of development in onward distribution of funds. At the local level, there is virtually no consideration to issues of equity. Without a geo-referenced database of assets, and limited data available, it becomes difficult to plan along this axis. The LGA 2013 does, in theory, revive the PFC but there are few mechanisms to plan for equity at the sub district level.

Service delivery is spread across a very wide range of actors; many outside the public sector, particularly in Karachi. Till recently, under the purview of LGD, the Rural Development Department (RDD), PHED and two Water and Sanitation Authorities (WASAs) cover rural areas and the two large cities. PHED and RDD now constitute an independent department. The North Sindh Urban Services Corporation (NSUSC), a regional utility, covers a number of secondary cities in Northern Sindh. Town/Taluka Municipal Administrations (TMAs) hold responsibility for O&M. Community engagement is limited and, in rural areas, schemes are departmentally managed. Self-provision is common in rural areas while, in urban areas, a host of private providers and actors (housing societies, Cantonments, and so on) enter the picture. There are serious issues in both the rural and urban management paradigms; in the two large cities, utility performance is weak and obstructed by lack of autonomy of the utility and a weak customer focus. In rural areas, the lack of community/Community Based Organizations (CBOs) or small-scale private sector engagement in management is a serious flaw.

Overall, weak capacities and the lack of performance-based management frameworks also limit the sector. Further, the inability to raise tariffs to recover costs, and poor cost recoveries force all municipal entities to rely heavily on large annual subsidies. Own source revenues are limited, and the new LGA does not delegate much financial authority.

The study finds that the sector is under-invested; neither recurrent nor capital budgets are adequate, as demonstrated by the high ability to spend monies allocated. The annual deficit for capital expenditures (CAPEX) is in the range of US\$160 million, and annual O&M estimates are approximately

<sup>4</sup> This includes the specific requirements for Karachi, where Karachi Water and Sewerage Board OPEX estimates are in the range of US\$132 million annually.

US\$237 million.<sup>4</sup> Operational expense (OPEX) figures as a percentage of CAPEX requirements are high (approximately 40 percent) demonstrating the fragile state of the sector and high levels of operational subsidy. Rural sanitation is the least invested in subsector, and lack of community engagement has meant that operational costs for the rural water sector are higher than they should be. Significantly, there have been few attempts to engage with the private sector through public-private partnerships, or through incentives – this is a serious gap, which is constraining the sector in keeping up with demand.

In general, the quality of service delivered is assessed as poor. Limited recourse for customers, institutional fragmentation, piecemeal and heavily politicized planning efforts with little cohesion, and heavy and misdirected subsidies mark the sector, and negate sustainability.

There are, however, several glimmers of hope. Both the Government of Sindh and donors are channeling resources to the sector.<sup>5</sup> Sindh has been home to Pakistan's first experiment with a regional utility. The NSUSC experience now offers lessons. Its experience with inculcating a more customer-focused and performance-based culture has had positive elements. In sanitation, the Saaf Suthro Sindh (SSS)<sup>6</sup> initiative is taking a more integrated approach, bringing together health and nutrition and rural sanitation. It is also looking at improving monitoring mechanisms and coordinating sector planning. The formulation of District ODF Plans by the multi stakeholder District ODF committees, chaired by the Deputy Commissioners and supported by the Health and LG departments and local nongovernmental organizations (NGOs) is a key feature of SSS programs. The recently approved US\$31 million World

Bank/Department for International Development (DFID) funding will provide necessary impetus to the rural sanitation subsector. While not fully realized, there is thinking on desalination plants, and, through a special initiative, reverse osmosis plants are being installed through the province.

The establishment of the Urban Unit is also a very positive step towards building the data and analysis which are crucial for deepening the understanding of sector-wide issues, and developing innovative approaches to addressing them. The Urban Unit is also assisting the provincial government in updating the draft Rural Sanitation Policy to align it with provincial needs and aspirations in the light of the new LGA.

While each individual initiative will go some way to addressing sector needs, it is only structural reform which will have a wider impact on the sector. Rationalizing and aligning institutions, enabling the sector to plan with a medium to long term horizon, building in coordination mechanisms, ensuring access to sector data, regulating the sector, taking a wider water resource management perspective, and factoring in equity and sustainability – are all key to improving sector performance.

As Pakistan and the province of Sindh (as mandated by law) move towards newly elected local governments, there is a window of opportunity for reform. The time is opportune for taking a hard look at the serious structural issues, which beset the sector, and demonstrating commitment to providing the people of Sindh with their basic right to clean water and a healthy environment.

This SDA has been produced in collaboration with the Government of Sindh and other stakeholders.

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<sup>5</sup> Note: investments in the K-IV and S-III schemes, the Asian Development Bank's Sindh Cities Improvement Investment Program, United States Agency for International Development's Monitoring Support Project and recent donor contributions to Saaf Suthro Sindh.

<sup>6</sup> With the new local government system in place now, the SSS program has to be modified to suit the current and emerging institutional and financing arrangements.



## Agreed priority actions to tackle these challenges, and ensure finance is effectively turned into services, are:

### Priority actions for the Institutional Framework

- Urgently constitute a water and sanitation task-force based on the SDA Subcommittee/Steering Committee to prioritize actionable recommendations and initiate follow-up actions.
- Carry out a province-wide stakeholder analysis to map and document the multiple stakeholders in the sector and their current roles (as mandated and de facto) by May 2016.
- Review the incentive structure in the system to mitigate the supply driven capital investment focus; as part of this devise mechanisms for the private sector, communities and CBOs to participate and manage assets with legal cover.
- Reach institutional clarity within the sector to align the sector, rationalize mandates and address historical issues of fragmentation. Develop a consensus based framework by June 2016 to segregate roles and responsibilities: (i) regulator; (ii) policy formulation (including broader water issues and integrated water management); (iii) service provision (water assets and O&M).
- Ensure a regulatory body is created by June 2016. The watchdog body will require sustained policy and financial support. It will provide for a long-term sector perspective with regulatory functions to cover: (i) compliance with environmental regulations and monitoring of water quality; (ii) surface water use and groundwater abstraction; (iii) tariff setting; (iv) providers' performance; (v) rationalization of competing uses of water; (vi) protection of customer interests.
- Review the service cadres engaged in sector service delivery (at all levels) with a view to developing a coherent service cadre for the sector by FY2017. Assess existing capacities and human resources needs for: (i) strategic planning and management; (ii) engineering and technical; (iii) financial management; (iv) urban management; (v) social/community development/customer focus.
- Improve sector governance through various measures including e-procurement, ensuring market-based rate structures which are standardized and regularly updated for civil works in Water and Sanitation Services (WSS) bids, and introducing mandatory design and supervision by consultants of civil works contracts above a threshold, and so on.
- Codify in policy the role of elected representatives in relation to WSS investments, the supporting role of the administrative and technical arms of local governments and line departments, the roles of communities and CBOs and the potential roles of the private sector.

### Priority actions for Financing and Its Implementation

- Policy frameworks should be reviewed to cover the critical issue of cost-recovery, both for capital investments and O&M. Where subsidies are to be provided, these should be targeted and explicitly stated.
- High levels of advocacy within Government of Sindh to ensure that the required investment levels for each subsector are tapped from within provincial resources. Lobby and obtain approvals for a minimum percentage annual budget allocation for the water and sanitation sector. Where necessary, lobby for donor support to cover critical investment shortfalls.
- Initiate demand-based budgeting, responsive to identify and rationalized needs, based on clear mandates and jurisdictions between key sector institutions (WASAs, Public Health Engineering Departments (PHEDs) and TMAs).
- Support for advocacy with provincial government and selected donors to tap additional projects and funding for new and existing water and sanitation initiatives

### Priority actions for Sector Monitoring and Evaluation

- Mandate the Karachi Water and Sanitation Board (KWSB), NSUSC, WASAs, PHED and TMAs to generate sector funding from markets and other sources.
- Promote public private partnerships in water and sanitation through a clear policy, enabling environment and targeted marketing campaign.
- Immediate attention on comprehensive financial information management, including consolidated annual data collection and reporting with a particular focus on subsector allocations and expenditure tracking.
- Prioritize and fast-track the development of a Sector Information Management System (SIMS). Agreement on the principles of management of the SIMS, integration with planning processes and sustained resourcing needs to be urgently reached.
- Definitional consistency and harmonization between the macro-sources of data (Multi-indicator Cluster Survey (MICS), Pakistan Living Standards Measurement Survey (PSLMS), Demographic and Health Survey (DHS), Census, and so on), which will also allow for triangulation and a better understanding of coverage and equity. The indicators should be defined with the longer-term perspective of monitoring outcomes and adjusted to the Sustainable Development Goals (SDGs).
- Review departmental and existing systems of monitoring (at all tiers of government) in 2016. Determine capacity needs and where to strengthen existing structures for better and more systematic generation of information, in relation to physical assets, financial management and service delivery/customer focus. Third party audits and performance monitoring to be systematically carried out and built into the work-plans of oversight bodies and the regulator.
- Develop a Monitoring Cell in the LGD to bring together data from the various departments in its purview in a cohesive form to allow for planning.
- Geo-reference databases and asset registries to allow for spatial analysis.
- Put in place mechanisms to monitor the significant self and private provision (through collaborative mechanisms with the private sector).

### Priority actions for Rural Water Supply

- Rehabilitation of nonfunctioning schemes verified as demand-based.
- Accepting communities' and small scale service providers' role in rural water supply management, especially for simple to operate systems.
- Agree on and ensure recovery of operational costs to ensure sustainable O&M of built assets.
- Significant increases and equitable distribution of budgetary allocations (capital/recurring expenditures) from the provincial/federal government to ensure current level of coverage is sustained.
- Clear segregation of roles and responsibilities for policy, regulation and service provision supplemented by support for subsector coordination and planning.

### Priority actions for Urban Water Supply

- Ensure urgent reform of urban utilities including KWSB, NSUSC and WASAs and TMAs with a view to introduce needed autonomy and structural changes covering performance-based systems; full authority for tariff setting and adjustment; hiring and firing; as well as raising of finances to ensure effective service provision.
- An institutional reform plan for urban municipal services should be developed and approved by the provincial government in 2016-17. This should begin with the constitution of functional, representative and independent boards for all urban utilities.
- Starting with FY 2016-17, a mandatory doubling of the subsector budget allocations (capital/recurring expenditures) should be ensured.
- Major water supply projects such as K-IV should be fully funded and efforts made to ensure completion in the next two years.
- A crash program for mapping and rehabilitation of all fit for repair, dysfunctional urban water schemes should be urgently initiated.
- Immediate quality mapping of all urban water supply schemes should be ensured with a view to plan and implement a Sindh Drinking Water Quality Improvement Plan across Sindh.
- Public awareness campaigns on water and health issues should be promoted with the help of nongovernmental bodies, educational institutions and mass media. This should be an on-going year round campaign with dedicated budgets in the public sector.
- Promotion of public-private partnership models for urban service provision, collection and maintenance and rehabilitation should be piloted and results assessed in 2016-17.
- Capacity building in areas of planning, Monitoring and Evaluation, asset management, regulation and financial management is a high need across all utilities.
- Advocacy with the federal government and selected donors to ensure that the CAPEX gap identified by the SDA is fully covered and the Vision 2025 targets are met.
- Clear segregation of roles and responsibilities for policy, regulation and service provision should be reflected in the institutional reform plan for the subsector.
- Systems for need based planning and investment provision should be ensured through policy and verifiable protocols that are open to public scrutiny.
- Quarterly multi-stakeholder review forums should be established and made mandatory for all utility companies and municipal service providers.
- Advocacy with selected donors to plan, design and fund new sub-sector projects for Sindh. The Water and Sanitation Program (WSP) can play a key role with the provision of complementary technical assistance and other support.

### Priority actions for Rural Sanitation and Hygiene

- The existing institutions of sanitation service delivery in rural areas (for example, District/Union Councils/PHED) as per the Sindh Local Government Act 2013 are not oriented to and geared to the challenges of civic engagement/ education behavior change, and so on. They have serious capacity issues. The policy requires that a separate division of environmental health and sanitation should be established within LGD having at least two environmental health technicians per union council. Such a department will in future accumulate a mandate for addressing vulnerable practices and emerging challenges such as dengue control, Ebola/H1N1 type outbreaks, indoor air pollution control, climate-change adaption for water and sanitation services, and so on.
- In the interim period, a Sindh Sanitation Task Force, comprised of Health, LGD, RDD, PHED, Education department and other key stakeholders may be created which is mirrored at the district and subdistrict levels to collaboratively address the complex and ever looming challenges of climate induced disasters and environmental sanitation risks.
- Mobilization of necessary Government of Sindh, local government, health and donor resources for implementation of the SSS program. The SSS provides a clear multi-sectoral roadmap for achieving the ODF Sindh goal by 2020.

## Priority actions for Urban Sanitation

- Medium- and longer-term planning for the sub-sector should be urgently ensured with inputs from all urban sector players. In addition, a regulatory system of subsector coordination and multi-stakeholder inputs and oversight should be initiated.
- Clear segregation of roles and responsibilities for policy, regulation and service provision should be ensured and all service providers including the KWSB/WASAs/NSUSC and others, suitably restructured as part of the broader institutional reform plan for the subsector; the reform recommendations contained in the Karachi Master Plan could provide one basis for initiating change. In addition, updated studies could be commissioned.
- Urgently ensure the needed autonomy within the large urban players with a focus on the introduction of performance-based systems; regular tariff adjustments to meet cost of service provision; hiring and firing; and raising of finances to ensure effective service provision.
- Urgent mapping of urban sanitation priorities with a focus on smaller cities and towns of Sindh that show signs of long and continuing neglect. As an output, a five-year business plan should be developed, adequately resourced and closely monitored.
- Expedite and enhance resource allocations for S-III (in Karachi) and other sewage treatment projects (across Sindh) whose delay can seriously impact on the urban environment and the health of all residents.
- Build public awareness and institutional capacities for enforcement of environmental laws and regulations.
- Starting with FY 2016-17, an annual doubling of the subsector budget allocations (capital/recurring expenditures) should be ensured.
- Budget shortfalls for the subsector should be ensured from the federal government and selected donors to ensure that the CAPEX gap identified by the SDA is fully covered.
- Advocacy with selected donors to plan, design and fund new subsector projects for Sindh.

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# 1. Introduction

## KEY POINTS

- The Service Delivery Assessment will help the government weigh their own service delivery pathways for turning scarce finances into water supply and sanitation services.
- The assessment provided an opportunity to reconsider the institutional setting, investments, and define provincial primacies after the 18th amendment.

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The Water and Sanitation Program (WSP) has undertaken a series of assessments in the region to better understand the impediments to effective, efficient and equitable service delivery, and enable governments to accelerate progress towards the Millennium Development Goals (MDGs). With the passage of MDG targets, these exercises are now looking onwards toward the forthcoming Sustainable Development Goals (SDGs). The analytical tools were developed in Africa and widely used across Africa, Latin America and East Asia to better understand enabling factors and bottlenecks in the sector.

WSP is currently supporting governments in Bangladesh, India and Pakistan in undertaking these assessments: at the national level in Bangladesh, state level in India and provincial level in Pakistan.

The Government of Sindh is the second provincial government in Pakistan to undertake the Service Delivery Assessment (SDA). The timing of the SDA coincides with the enactment of the Local Government Act (LGA) 2013, which reframes the institutional landscape. The SDA provides an opportunity to reassess the broader institutional landscape and investments and determine provincial priorities. The SDA has taken place over the period of

September 2014 through to May 2015, and has involved an extensive process of consultation and data gathering with the Government of Sindh and other key stakeholders.

The analysis fundamentally aims to help governments assess their own service delivery pathways for turning scarce finances into water supply and sanitation services in each of four subsectors; rural and urban water supply, and rural and urban hygiene and sanitation. The SDA has three key components: a review of past policies, institutional architecture and coverage; a costing model to assess the adequacy of current and projected future allocations; and a scorecard which uses traffic-lighting to diagnose specific bottlenecks in key thematic areas and determine policy and strategic recommendations for sector reform.

This report presents the key findings of the exercise based on the development of the scorecard and costing model. It attempts to analyze past trends and current status of the sector, to understand whether future targets and goals can be achieved beyond the MDGs. Specifically, it attempts to understand which elements of the service delivery pathway are particularly weak, and what needs to be done to accelerate progress in the sector. Priority recommendations have been highlighted for each area of analysis.

## 2. Sector Overview: Coverage and Finance Trends

### KEY POINTS

- Definitional issues hinder clear consensus on coverage estimates for the water and sanitation.
- Weak sector monitoring is a barrier to assessing the coverage, whereas different assessment tools administered by diverse players present information at different administrative levels (national, provincial and district).

### Coverage: Assessing Progress

Over the past years, the dialog on coverage of water and sanitation has been in the context of the MDGs, and/or national and provincial targets, though these have tended to be ambitious. Water and sanitation has always been the remit of the provinces, but the federal role has further been redefined and scaled back, following the 18th Constitutional Amendment. The SDGs are as yet awaited, and it is not yet clear which tiers of government will hold prime responsibility for tracking and ensuring conformity to these. In Sindh, there are no provincial sector targets, and there is no visioning or planning document, which could help guide the sector. In the absence of this, the federal government's Vision 2025 becomes the salient guiding framework. This document calls for universal coverage for both water and sanitation by 2025. The SDGs will likely advocate for universal access by 2030, but this remains to be clarified in the coming months. The analysis in this report has, therefore, been based on the Vision 2025 targets. Should the revised Sindh Sanitation Strategy (2014) be passed, this contains a target of universal coverage by 2025. There is currently no similar target for water supply in Sindh, though the National Drinking Water Policy (NDWP) of 2009 advocates for full coverage by 2025.

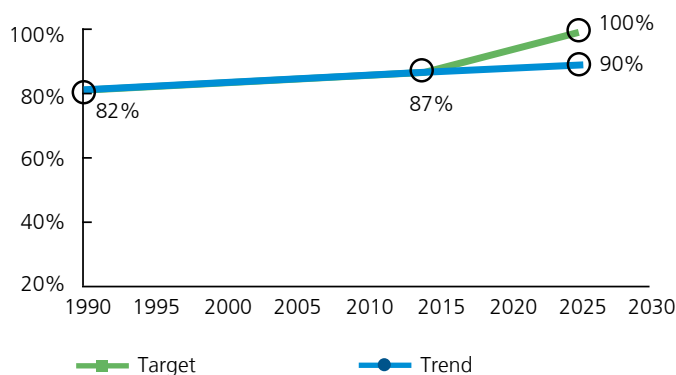
Clearly, it would be desirable for the province to review its goals and strategic objectives and determine provincial targets as a basis for planning and investment.

Definitional issues continue to plague the sector, across Pakistan, and this extends to Sindh. There are differences of opinion on what constitutes 'improved coverage,' and this confusion is reflected in the indicators used by the various household surveys. This notwithstanding, current trends indicate that the goal of universal coverage would be difficult to achieve for either water supply or sanitation, without bringing about radical changes in levels of investment and delivery of services.

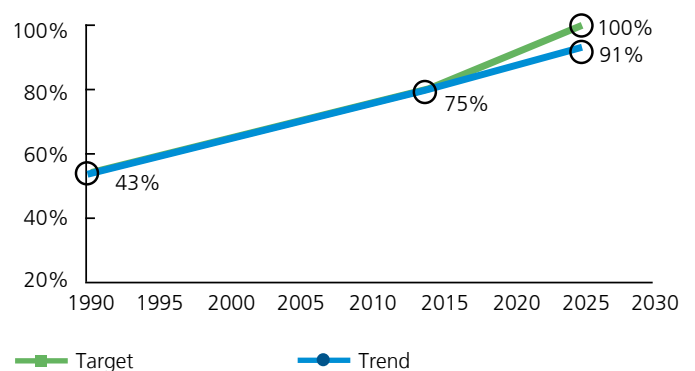
Against a backdrop of weak sector monitoring, household surveys, notably the Multi-indicator Cluster Surveys (MICS) and the Pakistan Living Standards Measurement Survey (PSLMS) become the key tools for measuring access. Both the MICS and PSLMS allow disaggregation to the district level for water and sanitation indicators (though the PSLMS loses granularity at the district level). A key issue in Sindh has been the delay in the release of the latest round of MICS. With the earlier round of MICS dating to 2007-08, analysis in this

FIGURE 1: PROGRESS IN COVERAGE

#### Water supply



#### Sanitation



report has been based on the PSLMS round of 2012-13 (the PSLMS is conducted in alternate years). This is unfortunate, given that the MICS 2014 contained a module on water quality and has a greater number of variables allowing analysis across income quintiles. It is also more consistent with the definitions used by the World Health Organization (WHO)/UNICEF Joint Monitoring Programme (JMP). The JMP only provides data at the national level.

The trends captured in Figure 1 are based on analysis of data from the Pakistan Integrated Household Survey (PIHS), 1991, the base year for MDG targets. Correcting for improved sources using the JMP guidelines, and the PSLMS data of 2012-13, the trends were extrapolated. For sanitation, the JMP does not accept the data from PIHS 1991 and, hence, Pakistan-level data from the JMP were used for Sindh. Clearly, there are problems with this approach but in the face of data limitations, few alternatives. Improved sources were considered as all flush latrines and 50 percent of non-flush latrines for the sanitation subsector. For water supply, in rural areas, sources included piped supply, hand pumps, motor pumps and dug wells. For dug wells, 50 percent were taken as an improved source.

Coverage in water supply stands at 87 percent and for sanitation at 75 percent. Projecting to 2025, what is significant is that, based on current trends, water supply will increase only to 90 percent, falling short of the target. Sanitation will also fall short of the target at 91 percent, but there has been a greater rate of increase in coverage, starting from a low base of 43 percent in 1991. It is important to understand the stagnation in the water supply sector, as

well as the definitional challenges when capturing access to improved sanitation facilities.

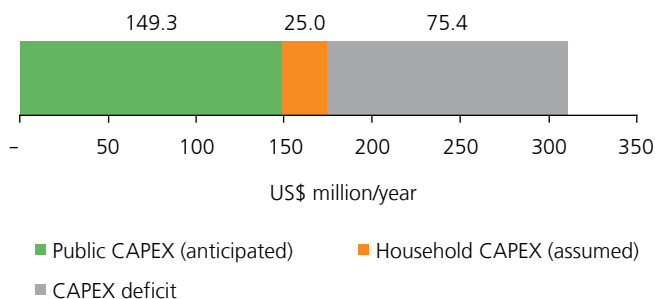
Critically, these trends mask strong rural-urban variations and the bias introduced by the metropolis Karachi. They also mask significant issues of water quality, which are prevalent throughout Sindh (generally no treatment is provided in urban areas, and there are also serious issues of contamination in rural areas). A 2014 Pakistan Council of Research in Water Resources (PCRWR) study in two districts of Sindh found 68 percent of the water samples were unsafe for drinking purposes. Interestingly, the Sindh MDG Report of 2011 shows the drinking water supply coverage target of 93 percent as having been attained. This is indicative of definitional variations, when describing an improved source of water.

Disaggregating the data, rural water access is currently 84 percent, and is expected to rise to 89 percent in 2025. Urban water coverage is currently 91 percent, surprisingly showing a minor decline from the base of 91.9 percent in 1991. It is expected to further decline to 90.6 percent by 2025. This could be indicative of the inability of services to cope with growing urban populations; there are large gaps in supply and demand in all urban areas, particularly Karachi. Additionally, severe institutional weaknesses, leakages and aging infrastructure further undermine urban water supply. Achieving the last ‘decile’ of coverage is known to be difficult globally, and Sindh is no exception.

Sanitation coverage, when unbundled, stands at 54.5 percent for rural sanitation, increasing reasonably fast but from

**FIGURE 2: REQUIRED VERSUS ANTICIPATED PUBLIC INVESTMENT**

**Water supply**



**Sanitation**

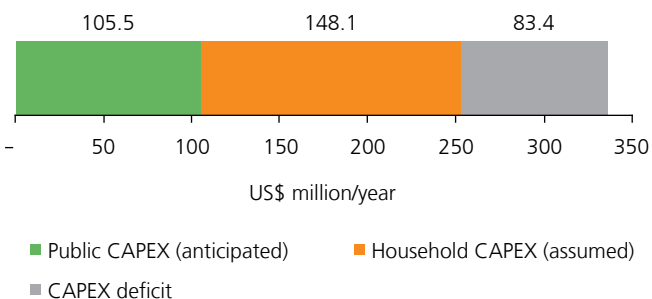


TABLE 1: COVERAGE AND INVESTMENT FIGURES

	Coverage			Population requiring access '000/year	CAPEX requirements		Anticipated public CAPEX			Assumed household CAPEX	Deficit
	1990	2014	2025		Total	Public	Domestic	External	Total		
	%	%	%		US\$ million/year						
Rural water supply	73%	84%	100%	1,017	122	64	45	19	64	12	46
Urban water supply	92%	91%	100%	1,063	128	86	57	28	86	13	29
<b>Water supply total</b>	<b>82%</b>	<b>87%</b>	<b>100%</b>	<b>2,080</b>	<b>250</b>	<b>149</b>	<b>102</b>	<b>47</b>	<b>149</b>	<b>25</b>	<b>75</b>
Rural sanitation	9%	55%	100%	1,656	157	33	21	13	33	94	29
Urban sanitation	78%	98%	100%	926	180	72	53	19	72	54	54
<b>Sanitation total</b>	<b>43%</b>	<b>75%</b>	<b>100%</b>	<b>2,582</b>	<b>337</b>	<b>106</b>	<b>74</b>	<b>32</b>	<b>106</b>	<b>148</b>	<b>83</b>

Note: Some rounding errors introduced.

a dangerously low base of 8.9 percent in 1991. It is only expected to increase to 76.3 percent in 2025, falling far short of the target of universal coverage. The Sindh MDG Report of 2011 struggles both with definitions and data in reporting on sanitation coverage, falling back on the MICS 2002-03 data.

With urban sanitation, correcting for what can be defined as improved sanitation, current coverage stands at 97.5 percent. This implies the MDG target of 89 percent has been achieved. Projecting forward, the target for universal coverage is also likely to be achieved. It is likely, however, that the Karachi factor influences these results. These findings also do not factor in that a bare 15-25 percent of sewage is treated, which would ultimately negate the benefits of improved coverage.

In sum, coverage figures are reasonably positive, even indicating that MDGs have been met in some subsectors, and this is laudable. However, the figures mask serious structural and quality issues, which would indicate that the current trajectory would not be sustained, and benefits could be negated in the not too distant future.

### Investment Requirements: Adequacy of Financing Trends

The SDA provides estimates of annual investments required to meet targets based on coverage data, unit costs, 'technology-mix' and technology lifespan. These investment

requirements are analyzed against existing commitments from the government and donors.

The results show that, to meet the universal coverage target of 2025, despite significant capital expenditure (CAPEX) contributions from households (particularly in sanitation), there are still worrying gaps in required annual investments. The gap is greater for sanitation than for water supply, particularly for rural sanitation which shows serious neglect and is severely under-invested in by the public sector. While the investment amounts required for rural sanitation are not high – given the expectation of household contribution – there has been inadequate investment in accompanying measures for 'software' and external 'hardware'.

Budgetary analysis indicates a CAPEX shortfall in Rural Water Supply (RWS) of US\$46 million/year and in Urban Water Supply (UWS) of US\$29 million/year. For sanitation, the shortfall is US\$29 million/year for rural sanitation and US\$54 million/year for urban sanitation. RWS is departmentally managed, and the figures indicate the state of disrepair of the sector.

Operations expenditure or Operation and Maintenance (O&M) expenditure (OPEX) is estimated at US\$12 million/year for RWS and US\$97 million/year for urban



areas.<sup>7</sup> Currently, OPEX in rural sanitation is limited to drains and street paving and, clearly, greater investments would be required to factor in the ‘software’ needed for health and hygiene promotion and community mobilization approaches. The OPEX requirements for rural sanitation are a modest US\$15 million/year but, for urban sanitation, the figure is far larger at US\$113 million/year. UWS and urban sanitation comprise the bulk of the required OPEX. The lack of community management or public-private models in the RWS subsector is a serious gap, and it is important to note that approximately 58 percent of schemes are dysfunctional. It is also worrying that the percentage of dysfunctional RWS schemes is highest in Sindh in relation to other provinces.

Investment expenditures take into account the need for expansion and rehabilitation of aging infrastructure. Many water supply schemes have outlived their useful life. OPEX

**TABLE 2: ANNUAL O&M, SDA ESTIMATES**

Subsector	O&M
	US\$ million/year
Rural water supply	12
Urban water supply	97
<b>Water supply total</b>	<b>109</b>
Rural sanitation	15
Urban sanitation	113
<b>Sanitation total</b>	<b>128</b>

takes into account water treatment and network maintenance, and the serious water quality issues in the province demonstrate the neglect on this front. Rural sanitation needs have been largely ignored, with an emphasis on street paving and drainage which is classified as ‘sanitation’. The need for mobilization and behavior change has been ignored, although the associated costs are small. The virtual lack of sewage treatment in urban sanitation points to a critical gap in investment. Lack of O&M results in the bulk of sanitation infrastructure in urban areas being dysfunctional and choked. With severe water shortages, there has been inadequate focus on desalination and other technologies. Declining water resources and contamination are likely to impact on investment requirements.

Sindh is a province in which both donor and household financing are not insignificant, given the gravity of issues in the sector. It is also a heavily industrialized province, in which insufficient progress has been made in mobilizing private sector financing. Where private provision and self-provision are common, models of public-private partnership could be taken to scale.

High utilization of recurrent and capital expenditures is indicative that the sector is seriously under-invested. Should this scenario continue, it is likely that any gains in coverage will be negated in the context of fast growing populations and rapid urbanization. As we move from the MDGs to a focus on sustainability, the need to invest adequately in a sector which underpins economic and social growth becomes ever more critical.

<sup>7</sup> Lack of data necessitated extrapolation of OPEX; for rural areas as 10 percent of CAPEX, and for urban areas based on actual Karachi Water and Sanitation Board expenditures extrapolated across urban areas.

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# 3. Reform Context

## KEY POINTS

- Devolution has not been realized on the ground and multiple players are active with duplicate roles

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The reform context in Sindh is framed by:

- i) The 18th Constitutional Amendment which has devolved power and, through the National Finance Commission (NFC), finances, to the provinces;
- ii) The institutional vacuum due to a political impasse that has deferred local body elections over the past years;
- iii) Sindh's lower riparian status and the exigencies of a dwindling water resource;
- iv) High levels of urbanization and industrialization and a high urban: rural poverty gap;
- v) The dominance of the metropolis Karachi; and
- vi) Severe issues of governance and capacity, which limit the demand for reform.

### Historical Context

Water and Sanitation Service (WSS) delivery in Pakistan has seen radical changes over the past decades, mirroring shifts in the national polity from centralized to decentralized paradigms. The sector has been characterized by the ascendancy of the Public Health Engineering Department (PHED), created initially to address the specialized technical needs of the sector, and later assuming the mantle of a service provider. Local Government Departments (LGDs), generally the legal owners of water and sanitation assets (other than in one million plus cities), have remained the weaker actor, and have suffered from serious capacity issues. This was not always the case; at one point, small-scale provision was a trademark of the LGDs and Rural Development Department (RDD), and they were reputed to deliver a high quality service at an appropriate service level for a large portion of the rural population.

A World Bank Technical Paper in 1989 (Pasha and McGarry)<sup>8</sup> identified the core issues for the sector as: (1)

the need for better links between the PHEDs, LGRs, RDDs and Health Departments; (2) the need for provincial sector investment plans; (3) greater investments in sanitation; (4) a minimum level of water supply coverage for all; (5) an assessment of funding needs for basic sanitation and drainage; (6) increased private sector participation (PSP); and (7) tapping community resources, user management and financing of schemes. Two-and-a-half decades on, most of these recommendations remain alarmingly relevant.

Under the Social Action Program (SAP) of the 1990s, principal reforms related to developing a unified policy, which stipulated beneficiary engagement in the management of the sector while also strengthening institutional capacity to deliver the service. The reforms were not believed to be successful; capacity to engage with communities was low, the drive to achieve targets resulted in virtual 'dumping' of schemes on communities, and the present scenario with large numbers of schemes lying dysfunctional is part of that legacy. While poorly executed, this era of policy dialog did result in some awareness that the previous supply-driven model was not a sustainable one. However, neither this decade, nor the following decade of devolved governance under the Local Government Ordinance (LGO) 2001, resulted in complete reform of the sector – testimony to deeply entrenched interests which have resisted efforts towards reform.

The decade under the LGO 2001 saw the rural-urban divide abolished, and service delivery for the sector to be shifted to the Tehsil Municipal Administrations (TMAs), with technical advice from the newly deputed staff of a dissolved PHED. The reform team underestimated the degree of institutional resistance to these reforms, which ultimately reverted back to the old model for the water and sanitation sector.

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<sup>8</sup> H. Pasha and M. McGarry. Water Supply and Sanitation in Pakistan: Lessons from Experience. World Bank 1989.

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In Sindh, while guidelines for community participation do exist, this model has since reverted with the service provider managing schemes in rural areas. In rural areas, the provider remains PHED, with some provision by the RDD. In urban areas, the two WASAs (in Karachi and Hyderabad) and administrative wings of urban local councils in other areas are currently managing services. Once they are constructed, rural schemes are also managed by the TMAs. The highly technical nature of the sector has meant that non formal sector involvement has been limited, and technical capacities generally reside in the public sector. Despite rhetoric regarding private sector involvement, there has been minimal progress in this regard.

### The 18th Amendment and Local Government

The 18th Amendment abolished the concurrent legislative list and gave powers for the delivery of virtually all services to the provinces. While WSS has always been a provincial subject, policy drivers at the federal level lost impetus as a result. It is argued that the federal government does retain the constitutional right to ensure equity and harmony across the federating units as well as ensure adherence to international conventions that the Government of Pakistan is signatory to. There are articles of the constitution, which also confer the role of research and learning to the center. The Planning Commission and Ministry of Finance do have roles in approving provincial development programs and allocation of resources from federal to provincial levels.

This has coincidentally been a period where there is a hiatus post-2015 and MDGs, and the Poverty Reduction Strategy Paper (PRSP) framework does not appear to carry much weight. The drivers for reform and 'push' factors for attaining targets have thus diminished. The Federal Ministry of Environment (MoE), which had led the policy dialog for WSS, is now reduced to a Climate Change Division in the Cabinet Secretariat.

The post-18th Amendment scenario in Sindh has also been characterized by the inability to reach agreement on local government or hold local body elections. Political infighting, turf wars over the control of local governments, inability to agree on who redraws constituencies – all contributed to the impasse and have left an institutional vacuum. The 2012 LGA was challenged in court and withdrawn. Since,

the 2013 LGA has been enacted, although it remains incomplete in implementation in the absence of elected local governments. Local governments will hold responsibility for services but, in effect, the rural-urban divide has once again been instituted, and the Act signals a return to the LGO 1979. WSS has suffered in this period, with rural services in particular falling between the cracks, with no elected district governments in place.

It is not surprising that reforms in the sector have been difficult to entrench or even initiate against a national backdrop of instability, and waves of centralization and decentralization.

### Policies and Strategies in Sindh

Following the National Sanitation Policy of 1996 and the National Water Policy of 1999 (developed by the MoE), all provinces and special areas had initiated a process of policy formulation, with the national policies serving as a template. Progress varied across each province and special area. Sindh has yet to enact a policy, although a Sanitation Strategy was passed in 2011. A draft Municipal Water Act (2012) was prepared but never went further than the preliminary drafting.

The **Sanitation Strategy (2011)** focuses on access, affordability and developing services with a focus on poor and marginalized communities. Additional themes include leveraging technology and supporting PSP in the development and operation of services.

The **Sindh Solid Waste Management Board Act (2013)** gives the Board the right over solid waste-related issues across the province.

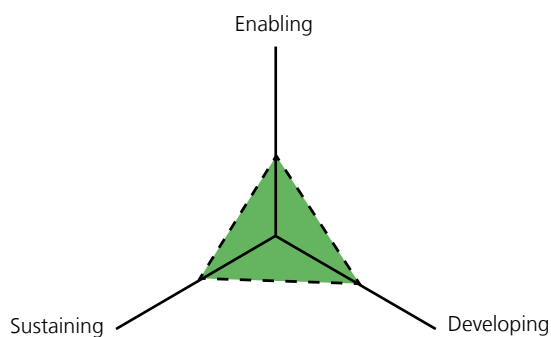
There is a **draft Sanitation Policy (2014)** which was recently revised. This stipulates private sector participation, but does not outline mechanisms for enabling this. It also stipulates universal coverage and an Open Defecation Free (ODF) environment by 2025.

The Federal Government has produced a visioning document, **Vision 2025**. The target for universal coverage enshrined in this document has served as a basis for the analysis in this SDA, in the absence of official Sindh-specific targets.

## Water Resources

Sindh is a lower riparian province and has seen marked declines in the water available to it over the years. Further, some 79 percent of its population is dependent on surface water for drinking water purposes. Under conditions of high water stress, it is incumbent on the Government of Sindh to adopt a holistic approach to water management within a regulatory framework. This is important because: (1) of the dependence on surface water; (2) high industrial demands; (3) mixed/competing uses of water; and (4) severe water quality issues across the province. Unbridled use of the resource with little regulation or planning can have grave consequences for the province. This requires coordination of the policy frameworks for agriculture, industry and water supply and sanitation, and a regulator to ensure adherence.

**FIGURE 3: AVERAGE SCORECARD RESULTS FOR ENABLING, SUSTAINING AND DEVELOPING SERVICE DELIVERY**



The historical narrative serves as a backdrop to the serious structural issues the sector faces, which have been explored in detail using the SDA Scorecard, an assessment tool that provides a snapshot of the reform process and bottlenecks along the service delivery pathway. The SDA Scorecard assesses the building blocks of service delivery, which relate to three key areas; (i) enabling services; (ii) developing services; and (iii) sustaining services. Each building block is assessed through specific indicators, which are scored from 1 to 3.

Figure 3 shows the average scores for the three main groupings along the service delivery pathway.

The scores suggest serious weaknesses both in enabling and sustaining services, with a slight emphasis on developing. With both upstream and downstream weaknesses, the developmental pathway would also intuitively be compromised.

The report assesses the institutional framework, and financing for and Monitoring and Evaluation (M&E) of the sector, before examining each subsector in detail. Indicators have been extracted from the scorecard and are presented at the start of each subsector chapter. Overall results would indicate that fundamental weaknesses stem from the lack of a clear policy environment. Associated planning and budgeting processes remain weak, thus undermining the ‘enabling’ pillar of the pathway. Weaknesses in maintenance and expansion also undermine the ‘sustaining’ dimension of the pathway across sectors. The thematic area of ‘development’ is strengthened by high utilization of funds, which is, however, also indicative of severe under-financing of the sector, and the development building blocks in rural sanitation remain extremely weak.

**TABLE 3: KEY DATES IN THE REFORM OF THE SECTOR**

Year	Event
1993-2002	Social Action Program and Uniform Policy
1996	National Sanitation Policy
1999	National Drinking Water Supply Policy
2001	Devolution Program and Local Government Ordinance 2001- delegation of responsibility to TMAs
2009	Local Government Ordinance legal cover lapses
2011	18th Constitutional Amendment (decentralizing to provinces)
2011	Sindh Sanitation Strategy
2013	Sindh Local Government Act 2013
<b>2014</b>	Sindh Solid Waste Management Board Bill 2014
2014	Draft Sindh Sanitation Policy

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# 4 • Institutional Framework

## KEY POINTS

- A disconnect between the *de jure* and *de facto* institutional responsibilities in the sector has led to parallel discourses and coordination challenges
  - A clear sector roadmap required to rationalize the institutional settings and ensure clear incentives for operational efficiencies and effectiveness
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### Priority actions for the Institutional Framework

- Urgently constitute a Water and Sanitation ‘Task Force’ based on the SDA Subcommittee/Steering Committee to prioritize actionable recommendations and initiate follow-up actions.
- Carry out a province-wide stakeholder analysis to map and document the multiple stakeholders in the sector and their current roles (as mandated and *de facto*) by May 2016.
- Review the incentive structure in the system to mitigate the supply driven capital investment focus; as part of this, devise mechanisms for the private sector, communities and Community Based Organizations (CBOs) to participate and manage assets with legal cover.
- Reach institutional clarity within the sector to align the sector, rationalize mandates and address historical issues of fragmentation. Develop a consensus-based framework by December 2016 to segregate roles and responsibilities: (i) regulator; (ii) policy formulation (including broader water issues and integrated water management); (iii) service provision (water assets and O&M).
- Ensure a “regulatory body” is created by June 2016. The watchdog body will require sustained policy and financial support. It will provide for a long-term sector perspective with regulatory functions to cover: (i) compliance with environmental regulations and monitoring of water quality; (ii) surface water use and groundwater abstraction; (iii) tariff setting; (iv) providers’ performance; (v) rationalization of competing uses of water; and (vi) protection of customer interests.
- Review the service cadres engaged in sector service delivery (at all levels) with a view to developing a coherent service cadre for the sector by Financial Year (FY) 2017. Assess existing capacities and human resources needs for: (i) strategic planning and management; (ii) engineering and technical; (iii) financial management; (iv) urban management; and (v) social/community development/customer focus.
- Improve sector governance through various measures including e-procurement, ensuring market-based rate structures which are standardized and regularly updated for civil works in WSS tenders, and introducing mandatory design and supervision by consultants of civil works contracts above a threshold, and so on.
- Codify in policy the role of elected representatives in relation to WSS investments, the supporting role of the administrative and technical arms of local governments and line departments, the roles of communities and CBOs and the potential roles of the private sector.

The institutional architecture for water supply and sanitation in Sindh is characterized by a multiplicity of institutions, fragmentation of roles and responsibilities in the delivery of the service, severe capacity issues, poor governance, and a debilitating level of political interference. Importantly, the institutional vacuum which has followed the 18th

Constitutional Amendment and the dissolution of local governments has been particularly deleterious for the sector, and opportunities for institutional realignment and sector reform presented by the 18th Amendment and NFC have not yet been realized. Sindh is home to an important experiment in forming a regional utility (North Sindh Urban

Services Corporation – NSUSC), and has also been home to globally recognized sector initiatives in the non-formal sector which could provide institutional paradigms for partnerships (notably the Orangi Pilot Project Research and Training Institute has demonstrated community-based infrastructure at scale in partnership with the government: the Sindh Katchi Abadi Authority (SKAA)). While there has been some discussion on replicating the NSUSC experiment, this is yet to happen and the appetite for broader reforms addressing institutional misalignment seems to be limited.

The sector throughout Pakistan, and in Sindh, demonstrates a serious disconnect between *de jure* and *de facto* responsibilities which has led to a parallel discourse. As designed and legislated, local governments hold responsibility for service delivery and ownership of all assets in the sector (in urban areas with the two WASAs which report to the LGD). This was intended to ensure cohesion and institutional alignment. *De facto*, rural delivery is governed largely by the PHED (which is also contracted to provide urban infrastructure in small and medium towns). PHED is also the recipient of associated budgets and has remained the repository of technical expertise in the sector. The original role as a technical advisory body has thus been superseded and expanded. Strong sector players, weak local government capacities, and resistance by entrenched interests to change rendered the reforms and decentralization efforts emanating from the LGO 2001 ineffective for the sector. In urban areas, the range of actors is even greater, creating issues of coordination. With each agent operating in a silo, and no clear over-arching apex body with responsibility for planning and sector coordination, there is a degree of institutional chaos. There is broad agreement that the sector is in desperate need of a more cohesive and coordinated conceptual framework, which rationalizes the institutional system and also creates clear incentives for operational efficiencies and effectiveness.

Figure 4 shows progress in institutional reform as reflected in the scorecard, and broadly reflects institutional short-comings; scores are generally low, in particular for urban sanitation.

### Sector Actors

**LGD** till recently incorporated PHED, RDD and the Housing and Town Planning Department (HTPD). This is the line department for municipalities and the two WASAs (Karachi Water and Sanitation Board (KWSB) and

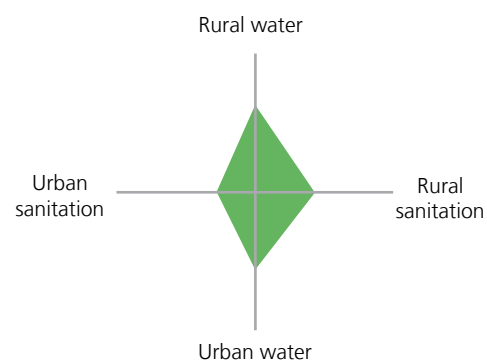
Hyderabad-WASA). The Karachi Metropolitan Corporation (KMC) also reports to it. This would suggest, in theory, a degree of institutional alignment but, in practice, there was little evidence of coordinated planning and monitoring. More recently PHED and RDD have been shifted to a separate line ministry.

**PHED** was responsible for all urban construction (except Karachi, Hyderabad and Sindh Cities Improvement Project (SCIP) areas), RWS and sanitation construction and major O&M of UWS and sanitation. However, over recent years, this role has been circumscribed, shifting PHED responsibilities more towards the rural subsector. The PHED is not responsible for O&M of urban schemes (which lies with urban councils on construction) but, in Sindh, has a mandate for O&M of rural schemes (water supply and drainage). Reportedly, performance is weak in terms of percentage of nonfunctional schemes (in relation to provinces/areas where CBOs have been delegated this function).

**Municipalities** are corporate bodies by act, and through TMAs are responsible for municipal services currently. They vary greatly in capacity, depending on size. Due to limited capacity to develop water and sanitation assets, support is provided through PHEDs for construction, while small scale/routine O&M functions remain their responsibility. They report to LGD.

The two WASAs, which are autonomous corporate bodies established by a provincial act, have a reporting line to the

**FIGURE 4: SCORECARD INDICATORS RELATING TO INSTITUTIONAL FRAMEWORK, WITH AVERAGE OF INDICATOR SCORES BY SUBSECTOR AND PEER-GROUP COMPARISON**



LGD. This includes KWSB and the Hyderabad-WASA, which is a directorate within the Hyderabad Development Authority. (There are two further directorates within it: a project directorate for a federal program and a Directorate for Water Supply and Sewerage under the Islamic Development Bank's Greater Hyderabad Sewerage Package.). Construction is undertaken through private contracting for the WASAs.

**Private sector utilities, NSUSC.** NSUSC is a regional utility (that is, it includes several municipalities over more than one district), and has been registered with the Securities and Exchange Commission in Pakistan. This has been created under the SCIP of the Asian Development Bank (ADB). The model has been gaining some momentum. However, while regional utilities for water supply, sanitation and solid waste were also being considered for central and southern Sindh, this has not yet materialized.

Other actors, such as **private housing colonies and Cantonments**, are responsible for their own provision but should be captured in the planning and monitoring of the sector, which is not presently the case. This places pressure on resources, which are also difficult to account for in sector data.

In Karachi, there are a host of **federal and other agencies**, which impact the sector, but again are not captured, in its planning, regulatory or monitoring mechanisms. This includes Pakistan Railways, Karachi Port Trust, housing and development authorities and others.

**Small-scale private sector providers** play a key role in Karachi and other parts of Sindh. The data on this are not adequately captured, but there is literature on the role of tankers and water vendors in Karachi. Some data are captured by MICS and indicate private provision is even more prevalent in rural areas than in urban ones.

**Self-provision by households** is widely prevalent in Sindh. According to the PSLMS 2010-11, at least 28 percent of households in urban areas and 86 percent of households in rural areas were receiving water through hand pumps, motor pumps, dug wells and other such sources. The MICS (2007-08) report indicates that 17 percent of households in urban areas and 92 percent of households in rural areas are not connected to a public sewer, and rely on their own

arrangements which may include septic tanks or open defecation.

**Nonsector actors** which are important to the Sindh scenario include irrigation authorities, the **Sindh Irrigation and Drainage Authority and the Sindh Environmental Protection Agency (EPA)**. The former becomes important because of the heavy reliance of the sector on surface water (a reported 79 percent of the population uses surface water), and the lower riparian position of Sindh, which makes it critical to manage a dwindling resource holistically. The latter is particularly important given the level of industrialization in Sindh. While the EPAs are not currently known for their strength in enforcement of regulations, their role in enforcing regulations related to industrial and other waste requires enhancement. It is also important to note the role of informal settlements or katchi abadis, under the ambit of SKAA, which holds responsibility for mapping, and enabling regularization and development in these areas.

Figure 5 provides an overview of sector agencies and their associated responsibilities under the current dispensation.

### Conceptual Framework for Service Provision

The conceptual framework assigns the state the responsibility for water and sanitation provision. This responsibility was interpreted in national (federal) drinking water and sanitation policies that provided a template for provincial policies. The national policy framework assigns responsibility for operating

**FIGURE 5: SECTOR AGENCIES AND THEIR RESPONSIBILITIES**



and maintaining rural assets in particular to communities; however, in Sindh, this is undertaken departmentally by the PHEDs.

National policies continue to provide the template for provincial policies, including in Sindh, although rural assets are not maintained by communities. In effect, there is a continuation of the *de facto* situation of some years, a more centralized mode of provision, while the province remains in a state of transition till newly elected local governments are in place.

The province consists of:

- 24 districts, 136 talukas, 1,271 union councils, and 7,585 villages/dehs;
- Two large cities (population 1-20 million); and
- 13 intermediate cities (population: 0.25-0.75 million).

### Local Government in Sindh and Sindh LGA 2013

The years since passage of the 18th Amendment have been marked by discord over local government in Sindh and the resulting vacuum reflects the polity of the province, marked by internecine struggles between the two ruling parties. The Sindh Peoples Local Government Act of 2012 was challenged in court and replaced by the Local Government Act (LGA) of 2013, which was passed by the provincial assembly and enacted on August 29, 2013. Based on the LGO of 1979, it concerns itself largely with municipal functions (and, in effect, represents a reversal of LGO 2001), and subordinates the local government to the provincial government. The local government tiers include:

- Metropolitan Corporation;
- District Municipal Corporations in Karachi;
- Municipal Corporations;
- District Councils;
- Town Committees; and
- Union Councils.

The local councils to be established will be bodies corporate. Karachi will include one Metropolitan Corporation, five District Municipal Corporations and one District Council for rural areas.

While the Act devolves key service delivery functions to the local governments, larger entities such as KWSB, Sindh

Building Control Authority, and so on, have been retained by the province.

The Act also includes provision of a Local Government Commission for administrative accountability, and the establishment of the Provincial Finance Commission (PFC).

Local government elections are yet to be held, though there has been a recent amendment to the Act (December 2014), giving the Election Commission of Pakistan the appellate authority for redrawing constituencies.

The political compromise had previously resulted in a *mélange* of the old ‘commissionerate’ (based on the sub provincial divisions) and township system. Currently, the LGA 2013 governs which structures will be in place but, in the absence of elected local governments, is incompletely implemented. There are three Municipal Corporations (Karachi, Hyderabad and Sukkur), some 20 Municipal Committees and 76-odd Town Committees. District Councils are not in place. It is inevitable that the vacillation and pendulum shifts in local governance, and accompanying institutional confusion, have had serious impact on service delivery.

### Planning and Regulation

**Under the conceptual framework:** The Federal Government under the Indus River System Authority (IRSA) Act retains **water resource management**. This is important in the context of rapid urbanization and reliance on depleting groundwater for bulk water supplies. It is also critical in a situation where there is high pressure on and competing demands for water resources, which must be managed sustainably, particularly in the face of climate change. For Sindh, water resource management considerations are paramount.

**Critically, at the provincial level, there is no regulator for the sector, and no one agency with responsibility for sector planning.**

### Drinking Water and Sanitation Planning remains with:

At the provincial level with LGD and RDD, and, *de facto*, PHED.

- Two WASAs in million plus cities;
- All other Urban Local Councils (ULCs) (Metropolitan Corporations, Municipal Corporations, Municipal Committees and Town Committees); and



- Zila Councils in rural areas – currently with TMAs and PHED.

(At present, the TMAs remain in place on the ground, though administratively managed in the absence of elected bodies.)

For one decade (2001-11) planning was moved to the regional and sub regional levels, that is, District and Tehsil. The reversal in the decentralization experiment actually began some years prior to 2011, when it was given a legal umbrella.

**City level planning is conducted by agencies other than those responsible for Works and Services (W&S) planning:** ULCs do have theoretical responsibility for preparing Annual Plans.

**WASAs prepare Annual Plans:** In addition, provincial departments prepare Outline Development Plans and Structure Plans in the case of ULCs and Development Authorities prepare city-wide plans in the case of WASAs.

While the mandates are present, capacities for planning effectively and executing plans have remained limited.

**Water and sanitation assets** continue to be owned by the state. In theory, these are owned by:

- WASAs,
- ULCs in non million plus cities; and
- Zila Councils (not currently in place).

**Water services management remains with:** WASAs in million plus cities which are meant to have a relatively more professional and better technical teams; and ULCs/TMAs in all other urban areas.

**PHED/TMAs in rural areas:** The absence of community management and engagement in planning and design of schemes is a serious area of concern and compromises sustainability.

### Financial Planning

**Financial flows in this model (post 18th Amendment):** The Federal Government disburses funds through the NFC to the provincial governments.

The provincial government's planning exercise places emphasis on capital expenditure planning and disbursement.

The provincial government disburses funds based on:

- Bureaucratic imperatives;
- Review of previous year budgets;
- Request from departments to present budgets; and
- Political demands.

There is a heavy weightage towards the political process, which determines sector allocations, and thereafter geographical allocations (previously through the PFC to districts, and currently apparently using similar criteria). However, there are formulae prevalent, which, to some extent, determine allocations in accordance with need/deprivation.

It is important to note that budgets are determined largely in the absence of:

- Policy financing plans (capital and/or O&M and/or human resources and/or systems);
- Determination of scenarios and projections for the planning horizon (technology options, financing options, service level options);
- Sector financing plans (capital and/or O&M); and
- Sector strategic plans (capital and/or O&M).

Importantly, while the political process is not inherently deleterious, it is notably not generally informed by the above considerations and limited by the lack of compiled data and planning information, which remain to be developed for the sector. All capital funds are routed through the LGD:

- WASA subsidies and capital budget transfers; and
- RWS sector.

In the new LGA, provincial control has been retained over a number of areas, and it is not clear to what extent ULCs will be able to raise funds from own source revenues.

As institutional interests in capital formation are greater than in O&M, the reform process has been unable to address the institutional fragmentation and political economy in the water and sanitation sector. An attempt, under LGO 2001, was made to integrate capital and O&M functions but this has not succeeded.

The key issue relates to the design of institutional arrangements, which are more geared towards the creation of capital infrastructure than accountable and customer-focused service provision. The current incentives in the system emphasize CAPEX, while human resources and finances for system O&M are sidelined. The impacts of this are most evident in the sanitation subsectors.

Figure 6 shows the sectors institutional architecture,<sup>9</sup> while Figure 7 demonstrates the critical ‘disconnect’ between planning, financing, execution and O&M.

### Critical Issues and Mitigating Factors

A number of critical issues and gaps are highlighted from the discussion above:

- The absence of an overall regulatory body for the sector;
- Lack of capacity for service provision (as opposed to asset formation);
- Weak demand responsiveness;
- Fragmented responsibilities with no clear accountabilities;
- No cohesive M&E system; and
- Lack of incentives and political will to improve operational efficiencies (Non-Revenue Water (NRW), tariff collection, staffing, and so on).

The ‘disconnect’ between capital expenditure and O&M responsibilities is an important one. This is reflected in:

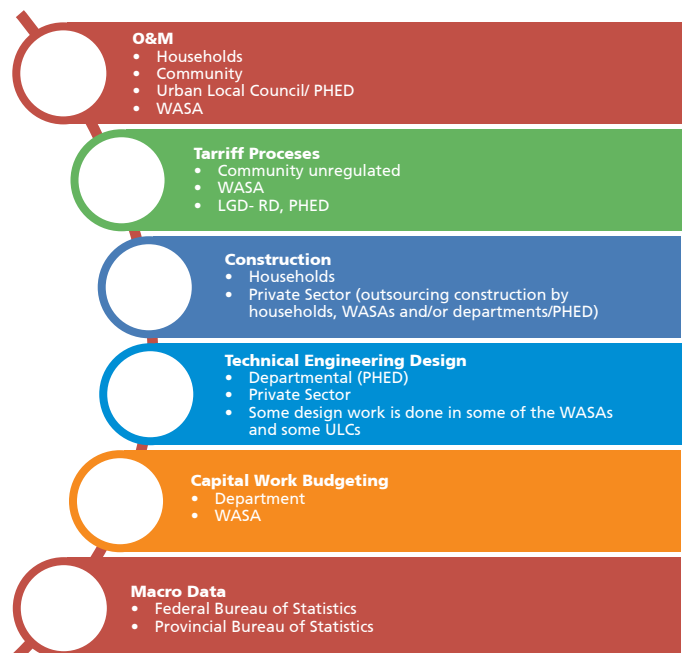
RWS sector, where TMAs and communities are held responsible for systems, which they do not have the capacity or resources to operate and maintain, and have had a limited role in identifying, designing and planning, with little legal cover for the community/CBO roles. While the community role in Sindh is not clearly articulated, weak or absent service delivery places the onus of supply in their hands.

UWS, where technically limited TMAs/ULCs have little option but to subcontract PHED for capital expenditure on their behalf, with the more powerful department driving the

capital expenditure decisions, at times with little consideration for O&M resources, and with service expansion overriding considerations for service sustainability and improvement.

While the institutional structure for water and sanitation in Sindh is currently plagued with structural and capacity issues, there are several new initiatives, which do hold promise. This includes the creation of the Urban Unit, which could provide the data and analysis to ensure better-informed decision-making and a deeper understanding of the sector. The need for a formally designed central repository for sector M&E, however, remains. The creation of the NSUSC and its potential replication also demonstrate ways of doing business differently. There are initiatives underway to improve geo-spatial planning (through United States Agency for International Development (USAID) support) and water quality monitoring (under the Saaf Suthro Sindh (SSS) initiative). All these need to be nurtured, but within a far better rationalized conceptual framework for the sector.

FIGURE 7: MISSING LINKS: O&M WITH CAPITAL PLANNING



<sup>9</sup> The PHE and RDD were merged into an independent line department following conclusion of the study.

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# 5 • Financing and its Implementation

## KEY POINTS

- Financial information management system lacks as consolidated annual data collection and reporting is not practiced by the provincial government.
  - Demand based budgeting and sector investment plan need to be structured to track the investments and gaps.
- 

### Priority actions for Financing and Its Implementation

- Policy frameworks should be reviewed to cover the critical issue of cost recovery; both for capital investments and O&M. Where subsidies are to be provided, these should be targeted and explicitly stated.
- High levels of advocacy within Government of Sindh to ensure that the required investment levels for each subsector are tapped from within “provincial” resources. Lobby and obtain approvals for a minimum percentage annual budget allocation for the W&S sector. Where necessary, lobby for federal support to cover critical investment shortfalls.
- Initiate demand-based budgeting, responsive to identify and rationalized needs, based on clear mandates and jurisdictions between key sector institutions (WASAs, PHEDs and TMAs).
- Support for advocacy with provincial government and selected donors to tap additional projects and funding for new and existing W&S initiatives.
- Mandate the KWSB, NSUSC, WASAs, PHED and TMAs to generate sector funding from markets and other sources.
- Promote public private partnerships in W&S through a clear policy, enabling environment and targeted marketing campaign.
- Immediate attention on comprehensive financial information management, including consolidated annual data collection and reporting with a particular focus on subsector allocations and expenditure tracking.

Sector financing and capacity to spend are critical indicators of sector performance. The assessment has reviewed the budgetary structure, adequacy of subsector budgets, and utilization under capital and recurrent heads. There are systemic issues on the budgetary front, in part related to the fragmentation of the sector, and in part due to the limitations of the planning and budgeting process. Without accurate consolidated figures for each subsector, it is difficult to determine the fiscal space for the sector.

The costing exercise for the SDA has, therefore, had to use a number of assumptions to determine sector-financing needs. Assumptions have also been made with regard to targets, as the absence of clear provincial targets by subsector (for example, in the RWS sector) makes it difficult to define financing requirements. Despite significant user and donor contributions within each subsector in Sindh, we find there

are still serious shortfalls, particularly for the rural and urban sanitation subsectors, but also worryingly for the RWS subsector. These weaknesses are reflected in Figure 8, which averages scorecard scores. Cumulatively, there is an annual sector investment requirement of over US\$550 million, about half of which is in shortfall. While users contribute significantly to sector financing, the ability of the sector to mobilize private sector financing has been limited, despite policy guidelines, which encourage this. As Pakistan’s most industrialized and urbanized province, the opportunity lost in not mobilizing private sector financing could be a significant one.

The sector has historically been an emotive one, where socio-religious considerations have stood in the way of generating adequate resources through cost-recovery, to allow for rehabilitation and expansion of deteriorating systems. In

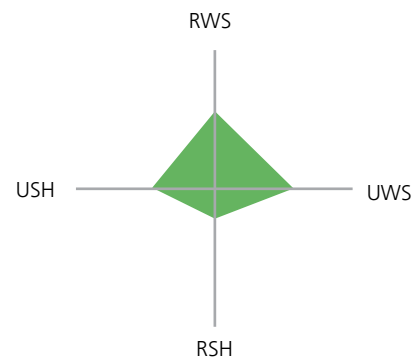
fact, the virtual absence of cost recovery also implies a heavy reliance on external resources and subsidies for even the bare minimum requirements of O&M. Incomes from tariffs have not been able to keep pace with rapidly rising expenditures, fuel charges and salaries.

Sindh suffers from weaknesses in the planning process; there is a gap in instruments for a medium- or long-term planning horizon. The Medium Term Development Framework (MTDF) of 2011-14 has remained a paper exercise, and not been operationalized. Further, even if followed, it is hardware biased, and shows block allocations, which do not enable an understanding of sector financing and needs. A planning instrument based on in-depth sector analysis across the various subsectors is lacking. Actual sector allocations are determined on the basis of political imperatives and power play, and competing demands from other segments of the Annual Development Program (ADP). Special initiatives and vertical programs, which bypass sector mechanisms, also add distortions to the sector.

The budget structure does not allow disaggregation of allocations and expenditures. There is no segregation of rural and urban budgets and expenditures in TMAs and PHED. Sanitation budgets typically amalgamate drainage, street paving, solid waste and other expenditures. Human excreta disposal and latrine coverage are not the substantive focus of sanitation budgets. Recurrent budgets are similarly hard to disaggregate across the subsectors. There is no consolidation of budget and expenditures for the four subsectors, with departmental reporting and reviews taking place in silos and on a project basis. While donor budgets are monitored rigorously, they do not often allow disaggregation of water supply and sanitation expenditures.

The plethora of sector agencies (WASAs, KWSB, NSUSC, LGD, PHED and Planning and Development Department (P&DD) operating in the sector without an effective apex body or platform to provide a sector perspective makes coordination difficult. While P&DD has the remit to consolidate across the range of sectors, lack of concrete instruments and resources does not allow it to do so. The lack of an effective sector-wide planning and budgeting framework, or instruments for tracking expenditures, thus has a serious impact on sector performance.

**FIGURE 8: SCORECARD INDICATORS RELATING TO FINANCING AND ITS IMPLEMENTATION, WITH AVERAGE OF INDICATOR SCORES BY SUBSECTOR AND PEER-GROUP COMPARISON**



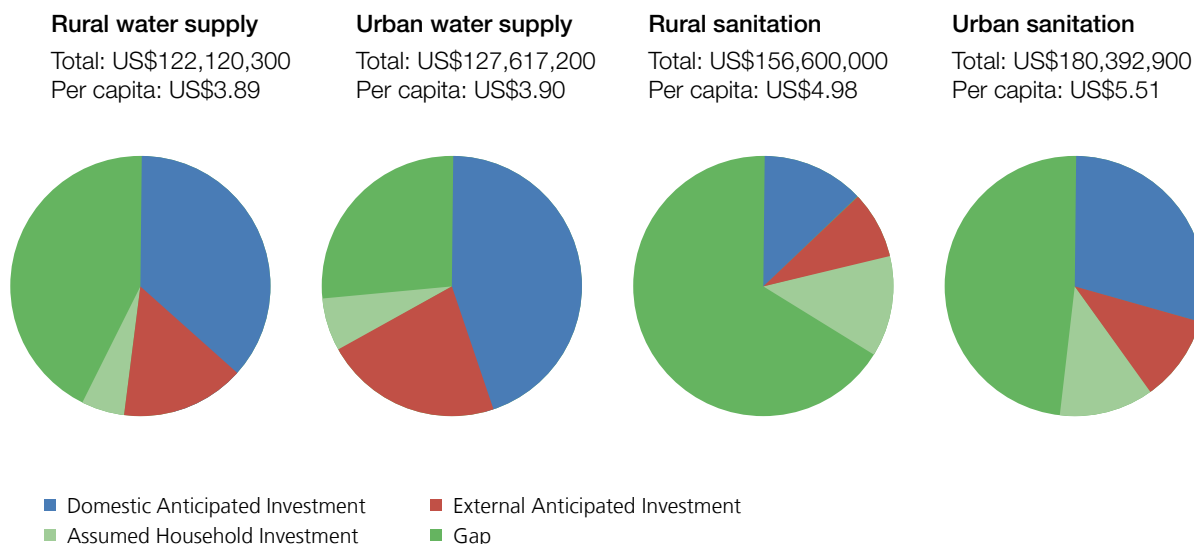
Note: RSH: Rural Sanitation and Hygiene; USH: Urban Sanitation and Hygiene

Previously, the PFC would, even if in a rudimentary manner, take into account issues of equity and regional disparities in its dispensation. With the abolition of this following the 18th Amendment, considerations of equity become less clear; although it is stated that allocations are made along similar lines, the basis for determination is not apparent. Without clear criteria for determining equity, the impact of financial allocations is questionable.

In examining the needs of the subsectors, the largest allocations are needed for the urban sanitation sector (US\$180 million/year), followed by the rural sanitation sector (US\$156 million/year). Urban and rural water supply requires US\$127 million/year and US\$122 million/year, respectively. Importantly, the financing gap for RWS is significantly larger than for UWS. The financing gaps for both rural and urban sanitation are significant. The extremely low domestic investment in rural sanitation is also evident, highlighting this as a sector in crisis. The relatively high user involvement in financing and self-provision points to a failure of the public sector to deliver adequately.

Sector institutions show good capacity to spend both capital and recurring budgets. However, this is misleading, as virtually every subsector is under-invested. This issue is compounded by the system of quarterly releases, which not only makes planning difficult, but frequently results in hasty and poorly executed expenditures. Annual releases typically

**FIGURE 9: OVERALL SUBSECTOR ANNUAL INVESTMENT AND PER CAPITA REQUIREMENTS AND THE CONTRIBUTION BY EACH ANTICIPATED SOURCE**



fall far short of allocations (50 percent on average), and there is continuing dependence on federal transfers through the National Finance Commission awards. The ability of Sindh, as of other provinces, to generate own-source revenue remains limited. In this scenario, budgets allocated to PHED, for example, can be a mere 15-20 percent of the demand, in the light of which high utilization is not surprising. Critical

schemes such as the K-IV mega water scheme barely received 3 percent of its total cost in FY2013-14.

In view of the dire financial situation, it becomes incumbent on the Government of Sindh to review sector planning and budgeting mechanisms to optimize the use of scarce resources.

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# 6. Sector Monitoring and Evaluation

## KEY POINTS

- Complexity in roles has resulted in convoluted tracking quality and level of services.
  - The sector lacks a regulator to ensure improved service delivery.
  - A sector level set of monitoring indicators needs to be developed and implemented.
- 

### Priority actions for Sector Monitoring and Evaluation

- Prioritize and fast track the development of a Sector Information and Management System (SIMS). Agreement on the principles of management of the SIMS, integration with planning processes and sustained resourcing needs to be urgently reached.
- Definitional consistency and harmonization between the macro-sources of data (MICS, PSLMS, Demographic and Health Survey (DHSO, Census, and so on), which will also allow for triangulation and a better understanding of coverage and equity. The indicators should be defined with the longer-term perspective of monitoring outcomes and adjusted to the SDGs.
- Review departmental and existing systems of monitoring (at all tiers of government) in 2016. Determine capacity needs and where to strengthen existing structures for better and more systematic generation of information, in relation to physical assets, financial management and service delivery/customer focus. Third party audits and performance monitoring to be systematically carried out and built into the work plans of oversight bodies and the regulator.
- Develop a Monitoring Cell in the LGD to bring together data from the various departments in its purview in a cohesive form to allow for planning.
- Geo-reference databases and asset registries to allow for spatial analysis.
- Put in place mechanisms to monitor the significant self and private provision (through collaborative mechanisms with the private sector).

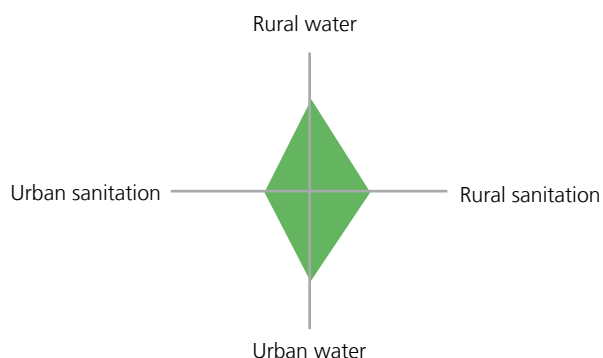
While the M&E architecture in Sindh is not dissimilar to that of other provinces and areas of Pakistan, structural weaknesses are further exacerbated by low levels of commitment to transparency and good governance, and heavy politicization of virtually all-administrative processes of government. In turn, weak capacity for M&E contributes to poor governance. In these circumstances, the demand for evidence to base decision-making on, and accountability for efficient and effective resource use, remains low. Political shortsightedness in turn does not encourage a long-term planning horizon, and is limited to expedient choices. With no elected local governments in place, there has been an institutional transition where service delivery in the sector has suffered, as has the

demand for accountability and data at lower tiers of government.

Despite enactment of the Sindh Freedom of Information Act in 2006, the regulatory regime that governs the right to information as a fundamental right, issues in both supply and demand for information have limited its effectiveness. In general M&E capacity, including performance management, is limited by poor data, lack of capacity to process/analyze the data, and limited demand for information.

Figure 10 indicates relatively low scores for all subsectors in relation to M&E, with sanitation faring worse than water supply.

**FIGURE 10: SCORECARD INDICATORS RELATING TO M&E, WITH AVERAGE OF INDICATOR SCORES BY SUBSECTOR AND PEER-GROUP COMPARISON**



Responsibilities for M&E are as fragmented as service delivery in the sector, and the lack of a robust SIMS obstructs efforts to effectively analyze the sector. Planning and performance measurement efforts are stymied by the lack of a cohesive and integrated SIMS, and this prevents a sector-wide approach.

### Conceptual Framework

The essential architecture of Sindh’s M&E system is depicted in Figure 11.

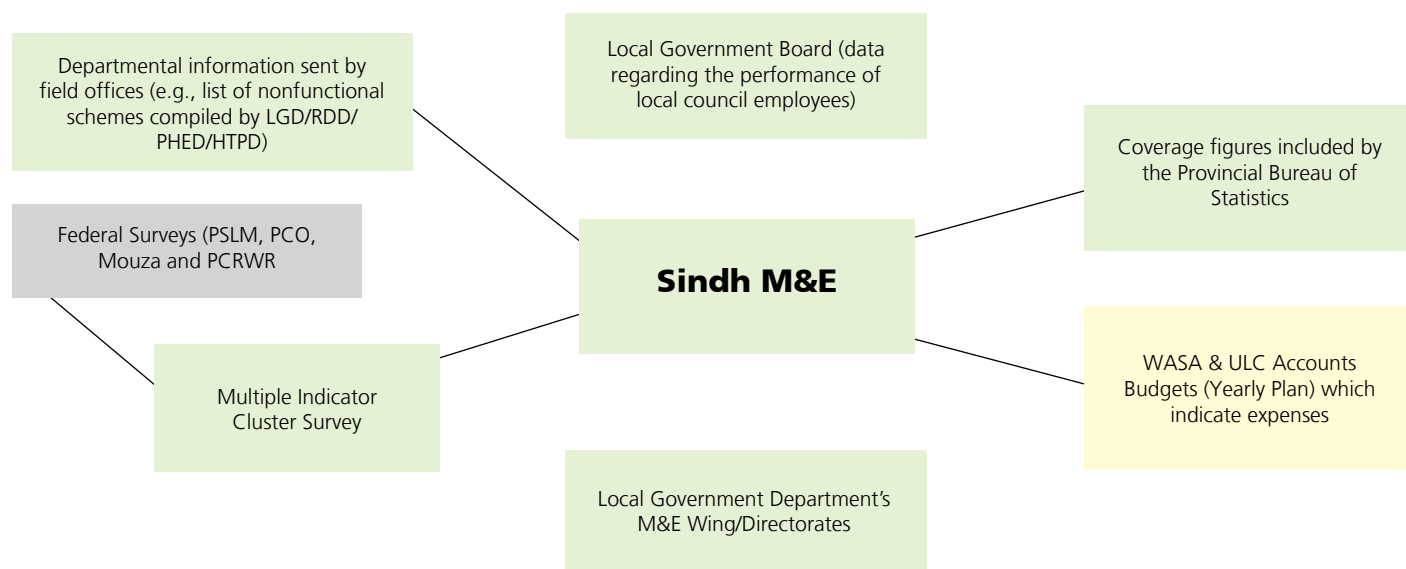
While water and sanitation is, by design, a local government subject and water and sanitation assets are *de jure* owned by

local governments, numerous agencies and departments are involved in service delivery. The LGD incorporates RDD, PHED and HTPD. The PHED is responsible for rural schemes and construction of urban schemes other than in Karachi, Hyderabad and the NSUSC areas. Municipalities through their Municipal Corporations and TMAs are responsible for municipal service delivery but, due to limited capacity, are dependent on PHED for developing new assets. The role of the LGD remains restricted to O&M.

While theoretically subsuming the PHED within LGD should create integration of data, and more harmonized planning, there is no evidence that this is the case. Each wing operates independently, and there is cursory oversight of the PHED by the LGD. The PHED does monitor its assets, and in rural areas has *de facto* responsibility. The LGD remains weak, and while a Local Government Board exists, it does not have a remit for monitoring water and sanitation assets. Data with TMAs have, in general, not been collated systematically and remains dispersed with limited utility for planning.

The KWSB and Hyderabad WASA report to the LGD. WASAs in general self-report, which can create system distortions, though there have been more structured performance and benchmarking initiatives in recent years (IBNET).

**FIGURE 11: M&E ARCHITECTURE**



The NSUSC reports through SCIP to the P&DD. It is a part of IBNET, and has identified key indicators related to service delivery performance, capital works, implementation, environment, land acquisition and resettlement compliance, institutional reforms and capacity building. Quarterly and annual reports are prepared. Data are gathered from TMAs. There is also a complaint management system. USAID's Municipal Services Development Program (MSDP) will also build M&E capacity, both in the municipalities in which it is working, and in developing the nascent Provincial Spatial Data Infrastructure to cover all extant municipal services and demographics in three selected divisions.

There is no defined M&E system with a set of clear goals, indicators and systems in place to assess:

- Quality to entry;
- Participation;
- Provision;
- Performance;
- Staffing;
- Complaints;
- Quality; and
- Equity.

This has resulted in practice with limited departmental or administrative data availability. The limited data available are only for NSUSC, the WASAs and basic data on assets that lie with PHED in relation to rural schemes. This has historically been further constrained by limitations to acquiring satellite imagery (which have now been lifted). To date, there is no consolidated geo-referenced database, which will allow for planning.

There are also a very wide range of private housing authorities and significant self-provision in Sindh, none of which is monitored.

### Regulator as Neutral Arbitrator

No regulatory body exists. In effect, this means that there is no body that provides neutral or third party audited information on:

- Water resource management and competing uses of water;
- Coverage;
- Performance; and
- Sector financing/targets formulae.

Broad oversight is provided by P&DD, but the capacity for detailed sector oversight by the small cell responsible remains limited.

### National/Macro Data Sets

In practice, therefore, provincial governments, scheme and city-level providers have limited information. It is understood that monitoring has to operate on two axes: (i) monitoring of outcomes, that is, people using the facilities; and (ii) monitoring of outputs, that is, the functionality of facilities. Both are complementary and important for assessing sector performance.

In the absence of consolidated and harmonized data on outputs, the sector is reliant largely on examining coverage through surveys, which look at access from the household perspective. Reliance on coverage is limited to the PSLMS and MICS, the latest round of which has been under debate for some time and not released. Sporadic monitoring of water quality is undertaken by PCRWR. For some indicators, data sets provide similar trends, however, there are discrepancies and anomalies that need further work.

### Macro Review Process

With the passage of the 18th Amendment, there are sensitivities around monitoring of the provinces by the federal level. While there is a clear federal role in equity, harmonization and commitment to international targets and conventions, the federal-provincial relationships are yet being worked out. Modalities for tracking the SDGs, at the federal level, and mechanisms for provincial submissions, will be interesting to note.

At the provincial level, mechanisms, which exist, for providing overview include:

- MTDF (not operationalized);
- Medium-Term Budgetary Framework (MTBF) (being tested in six departments); and
- ADP.

It is the ADP, which thus forms the crux of planning efforts. Critically, it is not possible to accurately access capital expenditure by USH, RSH, UWS and RWS. In addition, O&M expenses at the macro level are not readily available. Data are not readily disaggregated by subsector or fully aggregated at one point to build a detailed sector-wide picture. This is partly due to outdated financial management systems



in WASAs and at TMA level, and broader public resource management bottlenecks. All of these can be addressed by consolidation and integration of institutional roles, assigned finances and coherent financial flows.

Poor public expenditure management means that it can be difficult to establish unit costs of services (important for planning and determining efficiencies) regardless of whether it is at the city level or the macro level. Moreover, disbursement linked to outputs continues to be a challenge.

The only apex body where information is collated is P&DD. The monitoring of schemes in the provincial ADP is conducted by the Monitoring and Evaluation Cell of P&DD. Information regarding financial releases is obtained periodically from the Finance Department. Administrative data from LGD/PHED are collated, and evidence on physical progress may be obtained from physical visits of schemes under development by field monitors. The focus is on physical and financial progress. Information on inputs is limited and there is no information on quality, which does not enable decision-making. Departments do not have access to the dashboard and are unable to add information. Given limited resources, it is only politically visible schemes, which are generally actively monitored. While government-planning documents (the PC-1-5 documents) do include provision for M&E, the PC-5 document to be prepared ex-post, is rarely completed. Importantly, the P&DD, through its Special Initiatives Department, is also an ‘implementer’ of some schemes (for example, the water purification initiative), which would bring its oversight role in some question.

There are several issues with the current mechanisms for portfolio monitoring:

- The database is not geo-referenced so the scheme cannot be geo-tagged or viewed on a map. This precludes any spatial analysis. It can also throw up doubts about whether the scheme was actually visited;
- Detailed pictures of various stages of scheme development are not captured for systematic auditing; and
- There is no beneficiary feedback or grievance redress mechanisms.

There is current World Bank support to improve the capacity to monitor and assure quality, as part of improving public

sector management in Sindh but this does not obviate the need for a SIMS.

Moreover, although feedback from the field and anecdotal information would suggest that there have been improvements in services over the past decade, it is felt that third party surveys may lead to statistics that are closer to ground reality, and on the basis of which credible decisions should be made.

### Harmonizing Data Sets

Unlike other social sectors, there is no critical mass of water and sanitation indicators against which sector performance is monitored or evaluated.

This nonalignment and lack of commonality in indicators is apparent in all three dimensions:

- a) Vertical: comparisons between federal, provincial, district, union, city/village, and schemes are almost not possible;
- b) Horizontal: rural and urban disaggregations are available but not for all data sets; poor and non poor disaggregations are available but not across all data sets; and
- c) Sub-sectorally: comparisons across the sanitation subsector, or across the water subsector. Ideally, different levels of governments would have some common and some different indicators across quantitative data sets. The common indicators would be used to form a backdrop for the qualitative/perception-based data.

In Pakistan, at the federal level the, four data sets with significant information on the water and sanitation sector are:

- (i) **Population Census Organization (PCO)**, which is the custodian of the Population Census and the District Census Reports (now also available by Union Councils). Theoretically, the census should be conducted every 10 years but historically this has not been practiced due to political reasons. The value of the census data is that it covers the entire country (so none of the federal territories are excluded), it includes 100 percent coverage, the data is disaggregated to the Union Council level and can be analyzed along with data on utility access, housing access, family size, and so on. However, the indicator used by the PCO measures level of service not quality or source. So, tap water may simply mean a tap attached to a pipe attached to a motor pump, or a dug well. The PCO’s indicator is ‘potable water’ and ‘latrine’;

- (ii) **PSLMS**, which is conducted every other year. The indicator used here is ‘source of water’ (that is, tap, hand pump, motor pump, dug well, others) which confuses the level of service, for example, tap with source of water, that is, groundwater, surface water, and so on. For sanitation the PSLMS uses ‘type of toilet’ as an indicator (flush, non flush or no toilet);
- (iii) **The Agriculture Census Organization’s Mouza<sup>10</sup> Statistics (2008)** is the only public sector data set in the water and sanitation sector that provides perception-based information, that is, what coverage do the patwaris<sup>11</sup> think there is within their patwari circle (which can through a fairly longwinded process be superimposed on disaggregated data from the Population Census). Mouza statistics include indicators on sources of drinking water (piped supply, tube well, well, hand pump, private/electric pump, canal/river, spring/stream/karez, tank/pond and other). In addition, Mouza statistics includes taste of drinking water (sweet/brackish) and availability of filtration facility for drinking water. This makes it the only data set other than MICS, which provides some information on the quality of drinking water. On sanitation, toilet facilities are covered (inside house/open place). In addition, it includes data on bricked streets, bricked drains and sewerage system (all, mostly, some, none). From the gender perspective, the Mouza statistics are important as they provide information on social organizations by gender (NGO, Community Organizations, Community Centered Board, Community Center/Library, and none). From the integrated water perspective, it includes sources of irrigation and watercourse improvement. The survey has not been repeated since 2008; and
- (iv) **DHS** conducted by the National Institute of Population Studies under the aegis of the Ministry of Population Welfare and largely funded by USAID. DHS’s indicators are similar to the MICS indicators on water and sanitation: source, distance, purification, and type of toilets. The latest round is for 2012-13.
- (i) **Sindh Bureau of Statistics and P&DD and UNICEF’s MICS**, from which information is available by district but cannot be used to compare to any national level data set (although, for some indicators, it can be compared to MICS data in other provinces/regions) that has a number of indicators with some indicators disaggregated by urban and rural, income group, and educational status of the head of the household;
- (ii) **ADP** of the Government of Sindh provides data on capital investments in the given year, which are publicly accessible and are maintained by the P&DD in electronic form. However, analysis of the ADPs and other government documents do not necessarily generate the same data and information;
- (iii) **Departmental level data** may be collected by the LGD and PHED. This information is not accessible publicly and is not collated or analyzed manually or in computerized form. The WASAs self-report around a range of indicators and, despite some acknowledgement of benchmarks, these generally do not drive decision-making;
- (iv) **Local Council/TMA Annual Budget Document** is submitted to the Local Government Board at LGD. These documents are not accessible publicly and are not collated or analyzed manually or in computerized form;
- (v) **Scheme-wise data** are meant to be collected at the scheme level. This information is not accessible publicly and exists in systems, some not computerized, at the departmental level; and
- (vi) **Annual Budget Statements** of the Government of Sindh are available publicly.

As no template exists for an overall sector performance report, it is difficult to consolidate the input data, that is, investments and operational costs in one place, and the output/outcome data in one place, let alone monitor or evaluate it. What can be done in a nonconsolidated framework is the monitoring of outcomes in the sector. However, the lack of a critical mass of indicators means that sector monitoring is not comprehensive. Moreover, broadly speaking, MICS and PSLMS, data, for instance, do not present the same outcomes for similar indicators.

In Sindh, at the provincial level, there are currently six sources of information on the sector:

<sup>10</sup> Administrative district.

<sup>11</sup> Administrative government official/village accountant.

Quite critical is the fact that there is a lack of consistency in the definitions used by various surveys and no common understanding at the federal and provincial level of what constitutes safe water or sanitation.

### Sector MIS

If institutional consolidation and synergy remain a medium-to long-term challenge, greater work needs to be undertaken on building a sector Management Information System (MIS). This requires:

- Definitional parameters to be improved;
- Anomalies to be investigated;
- Analysis against other data sets to be enabled;
- A process of participation; and
- Credibility to be improved.

A sector-wide MIS should draw on the disparate data sources mentioned and collate these into a comprehensible and legible report with presentation of key data in the forms of maps, graphics and tables to enable the planning process. This, further supported with an agreement on some

common indicators at all levels, would help in providing a baseline on which sector performance may be measured. As a later step, quality of data could be improved and a system for triangulation and cross verification introduced.

The Urban Unit could make a good start towards this, but eventually a clear institutional home is essential.

Additionally, MISs needs to be created for:

- Services at the household level (quality, level and financial management as by income and area);
- Services at the community level (quality, level and financial management as by income and status);
- Scheme level (condition, operational cost, rehabilitation, depreciation, and so on);
- City level/settlement level (income, status, area, and so on);
- Outcomes;
- Performance and operational indicators;
- Benchmarking; and
- Complaints.

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# 7 • Subsector: Rural Water Supply

## KEY POINTS

- An estimated US\$122 million (US\$46.2 million additional) annual investments will be needed to meet the rural water targets.
  - Distinct role allocation, efficient planning and budgeting, performance monitoring, operation and maintenance mechanism, cost recovery system and priority based investments required to realize the universal coverage dream.
- 

### Priority actions for Rural Water Supply

- Rehabilitation of nonfunctioning schemes verified as demand-based.
- Accepting communities' and small scale service providers' role in RWS management, especially for simple-to-operate systems.
- Agree on and ensure recovery of operational costs to ensure sustainable O&M of built assets.
- Significant increases and equitable distribution of budgetary allocations (capital/recurring expenditures) from the provincial/federal government to ensure current level of coverage is sustained.
- Clear segregation of roles and responsibilities for 'policy', 'regulation' and 'service provision' supplemented by support for subsector coordination and planning.

Sindh is a lower riparian province and, due to over dependence on Indus water, has over the past decades seen the gradual decline of water quality and availability per person. Some 79 percent<sup>12</sup> of the population uses the surface water source and the balance depends on rainwater ponds and aquifers. The indiscriminate dumping of untreated sewage and surface runoff into the surface water bodies leads to heavy degradation of its water sources.

According to the Federal Government's Vision 2025 and NDWP of 2009, Pakistan's goal is to provide universal access to drinking water in an equitable, efficient and sustainable manner by 2025.<sup>13</sup> The main public data source with disaggregated water supply coverage by province at the time of estimating the MDG targets was the PIHS, 1991. Based on this, rural drinking water coverage for Sindh includes private taps (11.7 percent), private wells (61.2 percent), and public wells (1.9 percent). Using the guidelines of the WHO/

UNICEF (JMP and correcting for the percentage of private and public wells that can be considered as improved sources, the overall rural coverage in 1990-91 is estimated at 73.9 percent.<sup>14</sup> According to the estimates based on the PSLMS 2012-13, RWS coverage is 84 percent which is almost a 10 percent coverage increase over just a 20 year period.

Projecting the available trends, the 2025 coverage is estimated at 89 percent. This indicates that Federal Government's Vision 2025 goals are unlikely to be achieved unless the current rate of progress is accelerated. However, while coverage figures are encouraging, growing concerns over quality could erode some of the associated benefits, as is explained later. Figure 12 shows the graphical illustration of coverage trends since 1990.

Based on the current gaps, technology distribution, associated costs and 2025 targets, an estimated US\$122 million annual

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<sup>12</sup> Sindh Urban Unit, presentation in Pakistan Urban Forum, January 2014.

<sup>13</sup> [https://en.wikipedia.org/wiki/Water\\_supply\\_and\\_sanitation\\_in\\_Pakistan#cite\\_note-18](https://en.wikipedia.org/wiki/Water_supply_and_sanitation_in_Pakistan#cite_note-18)

<sup>14</sup> The MICS 2014 shows existing coverage at 90 percent. This suggests some acceleration of coverage, which could be attributed to an increase in trends towards self-provision.

FIGURE 12: COVERAGE TRENDS SINCE 1990

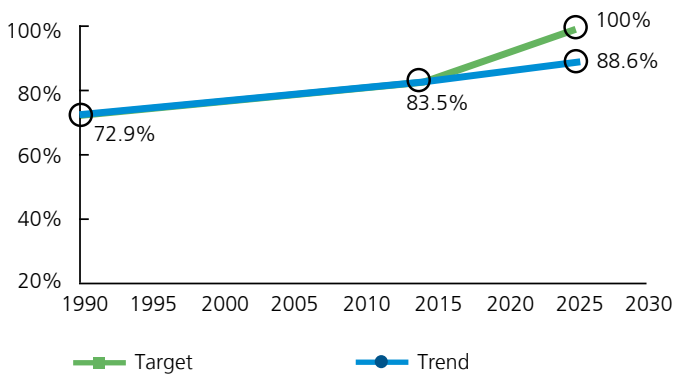


FIGURE 13: RURAL WATER SUPPLY

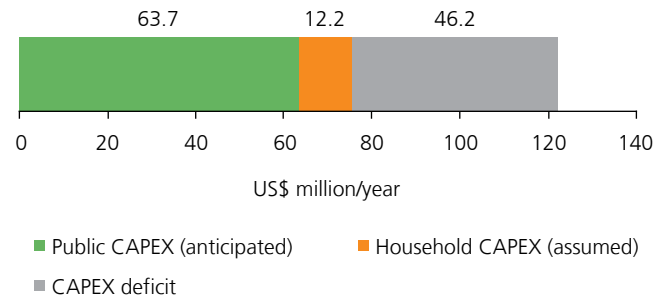
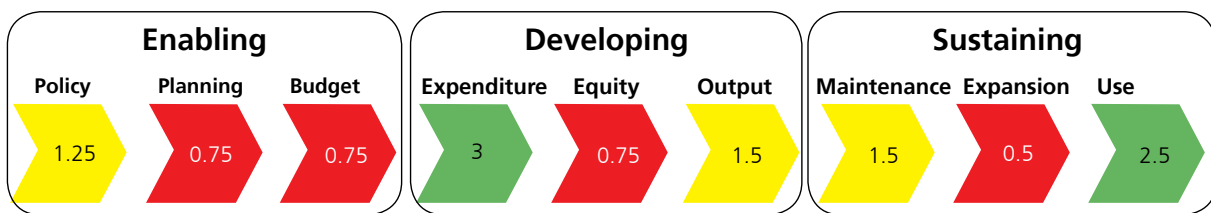


FIGURE 14: RURAL WATER SUPPLY (RWS) SCORECARD



investments will be needed to meet the subsector targets. Against this investment, the provincial government currently can mobilize an estimated US\$63.7 million per annum, which includes a modest donor commitment of US\$18.9 million, federal grants and some funding in the non-governmental sectors (that is, US\$5 million). An additional US\$46.2 million in public sector funding commitment is needed to meet the 2025 sector target for RWS in Sindh – a 73 percent increase over available commitments. The bulk of the investment requirements are for replacement/rehabilitation purposes as large numbers of existing schemes are near or past their design life and require costly investments. According to a PCRWR survey, 9 percent of the schemes are over 20 years old, 16 percent 20-25 years old, 28 percent between 15-20 years old, whereas 47 percent are 10-15 years old. Over 58 percent of PHED schemes are not functioning.

**RWS Scorecard**

A stakeholder review of the SDA performance indicators shows that policy guidance is a weak area, as there is no

officially notified provincial water policy available as yet. The existing federal policy guideline does not provide provincial targets, broken down into urban and rural. Vision 2025 does set targets for the drinking water sector, however, it is not clear if the federal Vision 2025 will be adopted by Sindh or not. After the 18th Constitutional Amendment, the province does need to set its own policy targets. The draft Water Supply Policy which was developed in the pre-18th Amendment era needs to be updated in the light of the new LGA. Due to the current impasse on local government elections, rural areas are neither catered for by the TMAs (that is, Municipal Councils/Town Committees) nor by the District Councils (as these are still not in existence due to delays in conduct of local government elections, lately. Vertical programs and special initiatives create overlaps and distortions.

No formal and consistent mechanism exists to coordinate water and sanitation sector investments. Quarterly and annual departmental reviews take place at the level of LGD, RDD, PHED and P&DD. However, there is no evidence

of a structured W&S institutional group for sector-wide review. No division of responsibilities and roles exists to allow structured sector coordination resulting in improved funding flows or joint reviews of progress across respective domains. Foreign aid coordination at some level exists but remains weak as no Sector Wide Approach (SWAP) exists and meetings to coordinate the multiple fund flows do not regularly take place. Those TMAs (a few) which are supported by donor projects have investment plans which are either available or under preparation for small towns. The focus on expansion of existing village piped schemes is limited.

A long-term planning horizon is noticeably absent, with no practice of formulation of multiyear (three to five year) investment plans, based on costing of subsector hardware and software needs for the achievement of the subsector targets. Ideally speaking, such a plan has to be built up from a location-based assessment (for example, service provider asset registers, business plans, village listings, and so on). Such a holistic plan should prioritize or sequence interventions against criteria (for example, rates of return, existing service level, equity, and so on). Sector planning also suffers due to the lack of multi-stakeholder assessments of subsector performance, which should review corrective actions.

Presently provincial level reviews are held but occasionally and are not multi-stakeholder, lack a third party dimension and often fail to set corrective actions.

Sector budgeting is another area of concern. In terms of adequacy, the study finds that public financial commitments to the subsector are insufficient for meeting the requirements for new and replacement infrastructure. A 2005 PCRWR study suggests that 95 percent of samples collected from different parts of the province under the National Water Quality Monitoring Programme (NWQMP) were bacteriologically contaminated.<sup>15</sup> The main reasons are ageing and/or failing systems and the need for critical rehabilitation/replacement investments. PHED does have estimates of funds required for new and replacement schemes but for those under its domain only and not for the entire RWS subsector. The budget demanded by PHED is only partially provided for

(15-20 percent of the demand). A large gap exists between funding requirements and allocations.

The budget structure at the provincial and agency level is such that subsector investments can be identified (for example, in the MTDF 2011-14). However, the budget structure fails to capture and record sector subsidies where they exist such as the PHED, LGD and RDD operations, which rely on heavy and continuing subsidies from the provincial government. Also, while the consolidated RWS budget allocation data for PHED are available, these do not cover TMAs whose budgets are not available in a consolidated form, and so do not entirely reflect the sector. A MTDF 2011-14 exists, but this is not considered as an operational document.

TMAs own-source revenues are a fraction of annual development and establishment costs. The breakdown of RWS recurring budget allocations is currently unavailable. Within the PHED and TMAs, recurrent budgets are typically not segregated for urban or rural areas. However, all recurring budgets are typically short of annual requirements and reportedly utilized 100 percent on an annual basis. In effect, 60-65 percent of the budget allocations are finally released. Of this, 90 percent of the releases are booked as expenditure. For PHED, this figure stands at 98-99 percent.

Equity is another area of concern for the RWS subsector. As compared to an average of 75 percent of the poorest having access to improved water supply, only 72 percent have access to water supply in Sindh.<sup>16</sup> In some districts, such as Umer Kot and Tharparkar, as low as only 19 and 21 percent of the poorest quintiles, respectively, have access to water supply, indicating huge disparities. In order to develop an equity-focused approach to delivery of water services, there is a need for creating evidence, and to align service delivery with the equity profile of the area to be serviced emerging from analysis. This requires equity-based water supply mapping of all districts to allow identification and prioritization of areas most in need of interventions. This will provide the basis for effective lobbying and advocacy for appropriate resource allocation.

<sup>15</sup> The MICS 2014 data shows 3 percent of samples with arsenic contamination and 39 percent showing e-coli contamination.

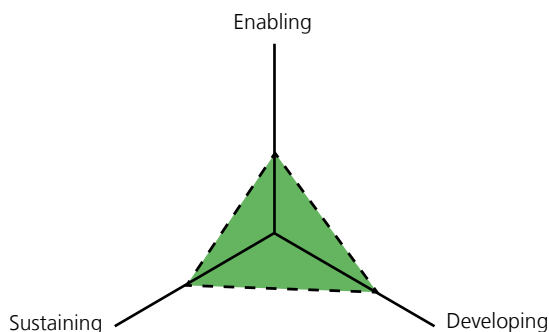
<sup>16</sup> Analysis of Inequities in Basic Water Supply and Sanitation Services In Pakistan, Avicenna Consulting for UNICEF Pakistan, 2014.

Procedures and guidelines for local participation exist as does the practice of community voice and choice during scheme implementation, but these practices are not followed when it comes to sector planning and budgeting. Further, human and other resources to enable community engagement are not fully institutionalized. In conclusion, a comprehensive community and stakeholder participation approach encompassing all aspects from planning through to execution has not been officially notified and is not uniformly applied. Besides, there is a need for the development of an equity-based district profile for improved water coverage in Sindh.

Clear and widely understood and adhered to criteria for budget allocation contribute a great deal towards bringing equity into the RWS subsector. The study finds that no such criteria exist to guide allocation of resources within the broader RWS and sanitation sector (for example, between water and sanitation) or within a district to guide equitable distribution between rural and urban areas. Some broad PFC type criteria are followed at the provincial level, however, to direct resources towards less developed districts.

Development of the subsector is also confronted by issues surrounding outputs (new services). While, apparently, an adequate number of new systems are being constructed each year, it is believed that not enough existing systems are being replaced and/or rehabilitated at the end of their design life. Given the large volume of schemes, which are nearing the end of their design life, this is a serious area of concern and could reduce coverage and further affect quality.

**FIGURE 15: AVERAGE RWS SCORECARD SCORES FOR ENABLING, SUSTAINING, AND DEVELOPING SERVICE, AND PEER GROUP COMPARISON**



While, generally, all new water schemes are tested as per national guidelines and standards, in the absence of routine surveillance and O&M mechanisms, a large number of systems fail to deliver safe water consistently. Water quality and acute periodic deterioration during the monsoon are further aggravated by the presence of arsenic in groundwater. At least five districts, namely Khairpur, Dadu, Nawabshah, Naushahro Feroze, and Thatta, are known to have arsenic in drinking water.<sup>17</sup>

In recent years, a number of efforts were made to put in place a subsector MIS with little success. Current information on the number of new schemes and their locations cannot be easily retrieved across agencies (PHED, LGDs, NGOs, and so on) and, hence, this is not reported in a consolidated format each year. While some form of agency specific asset inventory registers are maintained for internal planning and monitoring by PHED and TMAs, these often fail to record systems built in the same geographic areas by NGOs and other agencies, for example. The lack of a sector MIS to serve as a foundation for planning, asset management and monitoring is a serious gap.

Maintenance of schemes is an important area of concern for the RWS subsector. Unlike in Punjab, beneficiary communities in rural Sindh are not expected to pay for operational and basic maintenance costs in the RWS subsector. Hence, even minor maintenance becomes an issue. During study-related consultations, it was noted that Maintenance and Rehabilitation (M&R) funds are drawn even for those schemes, which are declared as defunct. It was revealed that the lack of a robust accountability mechanism and lax policy on basic cost recovery are key issues. In case of major breakdowns or complicated schemes, downtime is often a protracted affair. Recently PHED has been provided significant resources to rehabilitate defunct schemes, however, lack of cost recovery initiatives will eventually lead to breakdown again. Overall, the private sector is adequately responding to the supply chain needs with exceptions in inaccessible and remote desert areas of Thar and Umar Kot where the study found that distances impact on time taken to obtain spare parts, and still affects scheme downtime.

<sup>17</sup> Government of Pakistan, Ministry of Science and Technology, PC-I Performa for Provision of Safe Drinking Water, Pakistan Council of Research in Water Resources Islamabad, January 2014.

A key debilitating factor for the government of Sindh in achieving its target of universal water supply coverage by 2025 is its policy of no cost recovery and absence of community management of RWS schemes. This will continue to bind the scarce provincial and local government resources in capital investments. It is important to review the scheme management and cost recovery options. For example, CBOs could be provided support and handholding not only to maintain the RWS schemes but also to address issues of expansion and service provision as small businesses as part of a medium- to longer-term vision. Under such a vision, village and small town piped water supplies may be allowed to expand and recognized as legal entities (for example, under

specific water sector legislation or general legislation covering cooperatives, societies, company law, and so on). It will then be possible for such CBOs to receive technical support, for example, for engineering design and scheme management, and so on. It will be imperative that CBOs are recognized as legal entities and necessary support programs initiated to capacitate them to not only manage their own supplies but, over time, graduate to become small-scale providers.

Besides community management, it is important that other management options be explored and tested, so that the schemes are sustained and universal coverage targets by 2025 are not compromised.



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## 8. Subsector: Urban Water Supply

### KEY POINTS

- Urban water coverage is declining in Sindh and the province is likely to miss the government's universal coverage target by 2025.
- Investments to be increased by one third to meet the fiscal gap.
- Service providers in urban Sindh (Hyderabad WASA, KWSB and NSUSC) are facing a grim fiscal situation with poor tariff structures while recurring costs increasing continuously.

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### Priority actions for Urban Water Supply

- Ensure urgent reform of the urban utilities including KWSB, NSUSC and WASAs and TMAs with a view to introduce needed autonomy and structural changes covering performance-based systems; full authority for tariff setting and adjustment; hiring and firing; as well as raising of finances to ensure effective service provision.
- An institutional reform plan for urban municipal services should be developed and approved by the provincial government in 2016-17. This should begin with the constitution of functional, representative and independent boards for all urban utilities.
- Starting with FY 2016-17, a mandatory doubling of the subsector budget allocations (capital/recurring expenditures) should be ensured.
- Major water supply projects such as K-IV should be fully funded and efforts made to ensure completion in the next two years.
- A crash program for mapping and rehabilitation of all fit for repair, dysfunctional urban water schemes should be urgently initiated.
- Immediate quality mapping of all UWS should be ensured with a view to plan and implement a Sindh Drinking Water Quality Improvement plan across entire Sindh.
- Public awareness campaigns on water and health issues should be promoted with the help of nongovernmental bodies, educational institutions and mass media. This should be an on-going year round campaign with dedicated budgets in the public sector.
- Promotion of public-private partnership models for urban service provision, collection and M&R should be piloted and results assessed in 2016-17.
- Capacity building in areas of planning, M&E, asset management, regulation and financial management is a high need across all utilities.
- Advocacy with the federal government and selected donors to ensure that the CAPEX gap identified by the SDA is fully covered and Vision 2025 targets are met.
- Clear segregation of roles and responsibilities for policy, regulation and service provision should be reflected in the institutional reform plan for the subsector.
- Systems for need-based planning and investment provision should be ensured through policy and verifiable protocols that are open to public scrutiny.
- Quarterly multi-stakeholder review forums should be established and made mandatory for all utility companies and municipal service providers.
- Advocacy with selected donors to plan, design and fund new subsector projects for Sindh. WSP can play a key role with the provision of technical assistance and other support.

FIGURE 16: COVERAGE TRENDS SINCE 1990

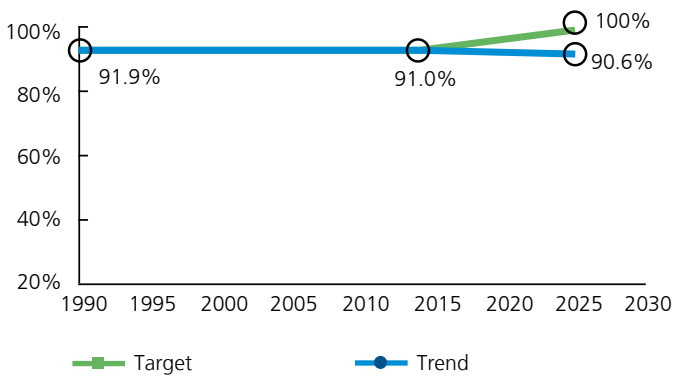


FIGURE 17: URBAN WATER SUPPLY

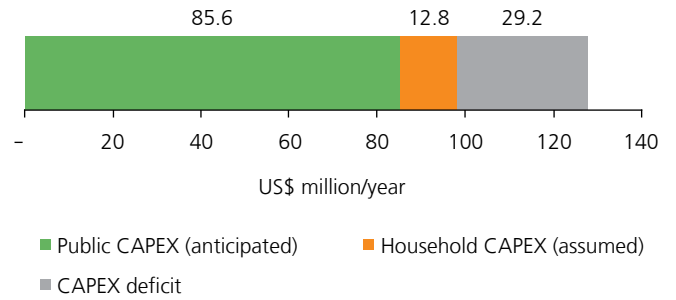
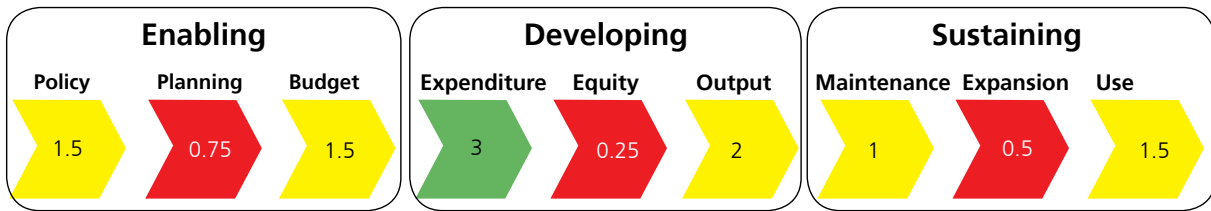


FIGURE 18: URBAN WATER & SANITATION SCORECARD



Sindh’s total population in 2014 was estimated at 47.3 million which is likely to grow to nearly 64 million by 2025. In this most urbanized province of Pakistan, a high 48.8 percent of the population lives in cities and smaller towns. The rapid urbanization trends are expected to continue (4-5 percent in cities) with a projected reversal of the urban/rural demographic mix in 2025 when nearly 51.5 percent of Sindh’s population will become urban.

Sindh’s urban character is largely defined by Karachi which houses nearly 10 percent of the national population of Pakistan, 30 percent of the total provincial population and nearly 63 percent of the province’s urban population. Hyderabad, Sukkur, Mirpurkhas, Nawabshah, Umerkot, Larkana, and a few other cities and towns account for the remaining 37 percent of the urban population.

The institutional landscape for water and sanitation services is visibly complicated by the multiplicity of players with overlapping mandates and authorities in several areas.

KWSB, several WASAs and NSUSC cater to the water and sanitation needs of the urban population in larger cities and towns.

Within Karachi, KWSB accounts for barely 60 percent of the urban water connections while the balance is serviced by other players. There is also a large presence of federal government institutions with varying jurisdictions in parts of Karachi. These include six Cantonment Boards, Defense Housing Authority, Port Qasim Authority, Karachi Port Trust, Pakistan Railways, Sindh Industrial Trade Estate, Lyari Development Authority, Malir Development Authority and Cooperative Housing Societies. Outside of Karachi, a number of development authorities also operate in Hyderabad and some of the larger cities. These institutions typically operate independently of each other and the key municipal service providers. Therefore, holistic planning and regulation of the sector remain a huge challenge. The Sindh LGA 2013 draws on LGO of 1979 and provides the basis for a Metropolitan Corporation in Karachi and five Karachi District Municipal

Corporations and one District Council for the rural areas of Karachi. In addition, three Municipal Corporations operate in Hyderabad, Sukkur and Larkana, while District Councils, Town Committees and Union Councils service the municipal needs of other areas. As a new municipal service model, the NSUSC was established under the Companies Ordinance 1984 for the secondary cities of Northern Sindh. The NSUSC covers Sukkur, New Sukkur, Rohri, Khairpur, Larkana, Shikarpur, Jacobabad and Ghotki.

Among other players, a sizeable PHED, Municipal Corporations/Town Committees, RDD and HTPD also operate under the auspices of the large LGD and service the water supply needs, particularly in smaller towns across Sindh. Other provincial departments such as the W&S department that traditionally engages in roads and buildings work also takes up water and sanitation sector work on a need basis. Another provincial player, called the Special Initiatives Department, operates under the umbrella of P&DD, and has been also mandated to take up large water sector works for many years. Some of its work includes the large reverse osmosis plants that are being set up across the entire Sindh province.

In terms of water sources, Sindh is heavily dependent on River Indus. Nearly 79 percent of the population relies on the use of surface water sources while the rest tap groundwater aquifers, rainwater and other sources. However, per capita water availability has gradually depleted due to competing upstream demands on the waters of River Indus which is a Sindh-wide concern due to its status as a lower riparian. Within Karachi itself, subsoil water is brackish and the only reliable source is River Indus, which is 130 kilometer away. The water supplies typically do not reach all areas of the city, often due to high levels of water theft, which are reported to be 40 percent of the total supply. As a result, many urban dwellers rely on water tankers that transport the daily needs of various households on a regular basis. With no other alternatives, this is a way of life for many in the peripheries as well as settled areas.

Based on PIHS, 1991, urban drinking water coverage included private taps (68.2 percent), private wells (14.9

percent), and public wells (9.5 percent). Using the JMP guideline and correcting for the percentage of private and public wells that can be considered as improved sources, the overall provincial coverage in 1990-91 was estimated at 91.9 percent. The current coverage has been estimated from PSLMS 2012-13 data, which surprisingly show a slight decline in urban coverage over a 21-year period. The data show a breakdown of tap water (72 percent), hand pumps (7 percent), motorized pumps (17 percent) and other sources at 4 percent, thus aggregating to a 91 percent urban coverage, which reflects a small drop over this period.<sup>18</sup> The MDG targets aimed at halving the share of people without sustainable access to an improved water source by 2015. This essentially required Sindh to achieve a target of 96 percent by 2015. However, projecting a linear declining trend, the MDGs are not likely to be achieved. Figure 16 shows the graphical illustration of coverage trends since 1990.

Meanwhile, NDWP 2009 and a recent Pakistan Vision 2025 document call for universal access by 2025. Estimates of provincial water supply coverage for 2014 are also being estimated through a Sindh MICS 2014-15. However, these data are currently not accessible.

The available data show large gaps in supply and demand in virtually all urban areas, particularly in Karachi where water is ensured through a bulk conveyance system comprising a complex network of canals, conduits, siphons, multi-stage pumping and filtration system. The present supply to Karachi from Indus and hub sources is approximately 650 million gallons a day (MGD). However, water demand (at the rate of 54 gallons per capita per day (GPCD) for a population of 20 million) is estimated as 1,080 MDG. Thus the city is faced with a short fall of 430 MGD. This is expected to be met through K-IV which is a new bulk water system planned to draw water from Kinjher lake to augment the current supplies. On completion of K-IV, Karachi is expected to become self-sufficient in water for the next 20 years with 1,200 cusecs or 650 MGD of additional water supplies. Meanwhile serious water shortages occur due to poor regulation and large water losses due to siphoning from the bulk supply. On average, barely four hours of water supply is reported in Karachi while water losses are currently

<sup>18</sup> The MICS 2014 shows coverage at 90 percent which is not widely divergent from the projections of the study, and confirms the slight decrease in coverage over a 20-year period, confirming that expansion is not able to keep up with growing populations.

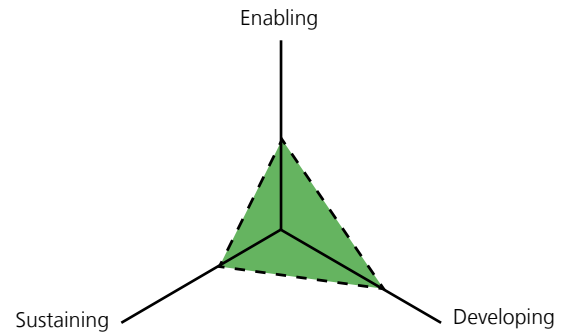
estimated at more than 30 percent of the total quantity supplied. Field discussions suggest that the supply of water is typically short of the demand in many of the cities and towns thus forcing residents to rely on private arrangements.

A variety of political and external interferences have heavily impacted the sector, thus compounding the large imbalance between demand and supply and a significant weakening of the regulatory role. The lack of real autonomy, required resource provisioning from the provincial government, poor services and highly inadequate cost recovery has also meant that the service providers have little or no leverage to improve performance. Evidence suggests that large players such as KWSB, NSUSC and many of the WASAs largely operate under the direct control of the government and have no real say in the affairs of the sector. As a result, sector investments and key decisions are often decided on political grounds rather than technical or need-based criteria.

Driven by these considerations, a Japan International Cooperation Agency (JICA)/Government of Sindh study team recommended far reaching institutional reforms in 2008 with a view to achieving the two main objectives of: (a) eliminating political/external interferences in the day-to-day operations and management of the retail water supply and sewerage services; and (b) enabling the services to be operated/managed on a full cost recovery basis by 2025. Key aspects of the reform called for a separation of bulk and retail supplies in the long run. The bulk supply will be managed and operated by KWSB while the responsibility for providing retail services (water supply and sewerage) will be transferred to new retail service companies to be established under the provisions of the Companies Ordinance 1984. In addition, an independent regulatory board will be established for the economic and technical regulation of the services. Evidence suggests that the reform plan has yet to be fully implemented.

Elsewhere in urban Sindh, the situation on the water supply front is equally grim. Among the major issues, water quality is a serious worry across much of Sindh as, generally, no water treatment is provided in any of the towns before supplying to households. Most water supply systems are poorly maintained and water distribution systems in most areas are old and have outlived their useful life. Frequent power outages also further compound the water worries in large areas of Sindh.

**FIGURE 19: AVERAGE UWS SCORECARD SCORES FOR ENABLING, SUSTAINING, AND DEVELOPING SERVICE DELIVERY, AND PEER-GROUP COMPARISON**



On the operational front, virtually all of the Sindh urban water and sanitation service providers are also faced with a very difficult fiscal situation. Poor tariff and cost recoveries mean that KWSB is heavily dependent on annual subsidies from the provincial and/or the federal government. The organization generates a monthly billing of PKR 800 million of which barely 500 million is collected. Meanwhile the large fixed expenditures on monthly salaries/pensions (PKR 450 million/month), electricity bills owed to K-Electric (PKR 600 million/month) and O&M (PKR 50 million/month) have to be met with virtually no funding. Continued provincial subsidies and a vicious cycle of circular debt between KWSB and K-Electric are therefore the norm. In the recent past, power supplies have been cut down to KWSB pumping stations due to lack of payment for the electricity supplied. This has led to further reduction of water supplies to urban residents and has created law and order situations, particularly during summer months. The KWSB officials have indicated an urgent need for a three-fold increase in tariff, greater autonomy in decision-making and enhanced capacities to check the large water thefts. However, the reform process has not picked up pace to respond to the growing needs of Karachi.

The feedback from other WASAs including Hyderabad and some of the other towns serviced by NSUSC is also fairly similar. Due to poor collection efficiencies (30-50 percent), virtually all-municipal entities are surviving on annual provincial subsidies. Incomes from water tariffs and other sources have generally stagnated while recurring costs have grown due to rapid salary increases, electric bills and other

costs. The water treatment capacities are a major issue, particularly in interior Sindh, thus forcing a growing reliance on untreated water from a variety of sources. The water quality issues noted by the PCRWR report are also a clear indicator that water treatment and network maintenance requirements have received a low priority with negative consequences for the residents of Sindh. A recent World Bank study has noted a 4 percent annual loss to the economy, which is directly attributable to the poor water, and sanitation practices that impact on human health, life and productivity.

Field evidence also suggests that there is no practice of five-year plans, business plans or any other analysis that would allow the water and sanitation service providers to effectively respond to the growing human and financial crises. Based on the current gaps, technology distribution, associated costs and Vision 2025 targets, an estimated US\$29 million annual investment will be needed to meet the subsector targets. Thus, a 34 percent increase in public sector investment is needed to meet the budgetary gap on the CAPEX front.

The stakeholder review of the SDA performance indicators shows that the largest gaps exist on the planning equity and expansion fronts which are all very poorly rated. This is largely attributed to the subsector chaos and multiplicity of players dealing with the sector. On the planning front, no formal or consistent mechanism exists to coordinate water sector investments. Quarterly and annual departmental reviews take place at the level of KWSB, WASA, NSUSC, LGD, PHED and P&DD. However, there is no evidence of a structured W&S institutional group for sector-wide review, coordination of funding flows or joint reviews of progress across respective domains.

A multi-sectoral MTDF 2011-14 exists but is not operationalized; it is also fairly biased towards hardware and is highly project oriented resulting in a low score; meanwhile NSUSC as well as KWSB have multi-year plans which are partially funded. No other agencies have any system for multi-year planning. Multi-stakeholder reviews of subsector performance do not take place; an annual or quarterly review takes place at agency and ministerial levels, but not by various stakeholders. The reviews that do take place are typically project and/or ADP specific and not across the sector.

On the equity front, sector policy and best practices highlight the need for local participation. However, this is not operationalized; neither KWSB nor WASAs or the NUSUC have any structured system for local participation in planning and decision-making in urban areas (although NSUSC does have a focus on customer responsiveness). In a few pilot projects, a structured approach to community participation has been successfully demonstrated. However, these are fairly minor exceptions to the general practice of top-down planning and investments.

Multi-stakeholder events in the sector are also ad hoc and infrequently held. KWSB, Hyderabad WASA and NSUSC receive annual funding linked to urban population needs and service spread. For other areas, there are currently no allocation criteria for rural/urban water supply allocations. Likewise, none of the urban entities show any specific focus on the poor. However, some special development schemes have been approved for the least developed districts such as Tharparkar. Similarly, some donors such as USAID also have also broadly focused on flood-affected districts in northern Sindh.

The expansion of urban services has also received a fairly low score. Several factors contribute to this situation; however, a large part of this is attributable to excessive governmental controls and lack of financial autonomy. Despite the legal autonomy enjoyed by KWSB, WASA and NSUSC, virtually all organizations are practically managed by the Government of Sindh. They have limited or no autonomy for hiring and firing, investments, disinvestments, major appointments, fixation of tariff or other key actions to address the fundamental issues. Likewise, there is no practice, nor any incentive, for business planning in any of the utility companies/boards. In the absence of own source revenues, and inability to tap external finances, municipal investments are typically ad hoc and invariably linked to fluctuating public sector or donor funding that determines if a short-, medium- or longer-term investment is made. A few multi-year projects (such as the K-IV for Karachi) and water supply projects launched with the assistance of ADB and USAID (that is, SCIP and the Municipal Services Project) reflect some of these investments. With a cash-strapped public sector, the only other source for subsector investment could

be credit from the local financial institutions. However, none of the municipal entities are mandated to tap funds from the markets.

There is currently no provincial policy for drinking water. However, the National Water Policy calls for a 93 percent access target by 2015. Legislative changes introduced during the Musharraf regime (1991-2008) led to huge changes within the local governments and municipal bodies. As a result, sector institutions have remained in flux with overlapping and unclear roles, particularly in non WASA areas. Among the key areas of concern, the separation of responsibilities on the policy-making front, regulation and service provision will need to be ensured.

At the provincial level, a MTFD and MTBF exist, but the finance team noted that this has limited and theoretical value only. For all practical purposes, ADPs provide the basis for investments and have little or no relationship with medium-term plans or budgetary provisions in MTBF.

With highly limited own source revenues, large utility companies and most smaller municipal service providers are largely surviving with the help of provincial and federal grants. For instance, the 2013-14 budget shows a special federal grant of PKR 5 billion for KWSB and PKR 800 million for Hyderabad Development Authority to enable the two utilities to pay their electric bills. Likewise, PKR 900 million has been allocated for PHED electric bills and another PKR 4 billion for meeting electric bills of municipal bodies across Sindh. The budget analysis also underlines the large resource crunch, which has heavily impacted on the sector. Despite the urgent needs in various cities and towns of Sindh, numerous projects are partially funded with large throw-forward liabilities with the associated risks of continuing cost escalations and reduced benefits. Among the many examples, the PKR 25 billion K-IV mega water supply project for Karachi, which is a desperate need of Karachi, only received an allocation of PKR 849 million during the FY 2013-14 (that is, barely 3.3 percent of the total cost). On completion, the K-IV is expected to provide an additional 250 MGD of water to Karachi, which is barely enough to meet the current gaps. However, large delays in project execution would clearly impact on the expected water supplies.

A large part of the budgetary problem is linked with a heavy reliance on federal transfers that are, in turn, linked to the efficiency of tax collection. The reduction of collection targets is now a routine phenomenon with highly negative consequences for the Sindh government and onward allocations to various sectors. Due to the prevailing system and continuing uncertainty, budgets are released on a quarterly basis. However, these are invariably short of the annual allocations. A review of the past few years of data shows that actual releases are typically 50 percent of the annual allocations. The SDA projections for annual capital receipts/allocations from the provincial government have, therefore, built for this budgetary reality.

Predictably, sector expenditures received the highest rating. On the utilization of domestic and donor capital funds, field interviews and review of quarterly budget utilization reports show some surrender and re-appropriations on an annual basis. However, over 90 percent of the development budgets are reportedly spent annually. Within the PHED and LGD establishments, recurrent budgets are typically not segregated for urban or rural areas. However, all recurring budgets are typically short of annual requirements and reportedly utilized 100 percent on an annual basis. All expenditure versus budget (or domestic flows) is regularly reported and closely watched on a quarterly basis. Donor programs also follow project/program specific work plans and reporting systems, which are fairly rigorous.

All utilities show fairly poor tariff structures and a high percentage of NRW thus forcing large annual deficits and continuing cash flow crisis that has inhibited service improvements. The KWSB staff indicated a regular effort to update tariffs; however, this has fallen short of the actual requirements. Any further increases in tariff have been reportedly blocked by the provincial government due to political sensitivities. The utilities also show a virtual lack of metering, thus a land area versus water usage based flat rate tariff is commonly levied in all areas while collection efficiencies remain poor. Barely 30 percent of domestic and 50 percent of commercial users pay water bills in Hyderabad. KWSB, though, reported a collection efficiency of 62 percent for all users billed during any given year.

In terms of the subsector outputs, coverage has surprisingly declined between 1990 and 2014-15 (from 91.9 to 91

percent) and water quality remains a major concern across the entire province. Investments are required for network replacement and upgrade, which is a large challenge. Available reports suggest that anywhere from 40-50 percent of the smaller schemes (funded by PHED and LGD) are currently nonfunctional due to source failures, engineering flaws or M&R issues.

Based on available data from Karachi and Hyderabad (only), filtration capacities exist to treat 70-80 percent of urban supplies although additional water treatment plants are being set up through some projects which is expected to raise this to 100 percent. Meanwhile, large water quality issues have been reported by PCRWR whose study across Sindh shows that a majority of municipal water supplies from various sources is not fit for consumption. Summarizing these very disturbing facts, the PCRWR study highlights that “all of the 15 sources monitored in Hyderabad city were found unfit mainly due to bacteriological contamination (93 percent), excessive levels of iron (47 percent) and turbidity (93 percent). Karachi, the largest metropolitan city and capital of Sindh province, revealed 93 percent unsafe water sources due to the presence of bacteriological contamination (86 percent), Total Dissolved Solids (TDS) and fluoride (4 percent), sodium, chlorides, sulphate (7 percent), nitrate (11 percent) and iron (18 percent). In Sukkur, 11 of 12 sources were unfit because of bacteriological contamination (67 percent) and turbidity (50 percent), hardness, chlorides, sodium, potassium, arsenic and fluoride (8 percent), nitrate (25 percent), sulphate and TDS (17 percent). Likewise, 22 water samples including from six dams, nine rivers, two canals, four lakes and one drain, left bank outfall drain and right bank outfall drain (Sukkur) from 23 selected surface water bodies were also collected and analyzed for 28 water quality parameters. All samples (22) were found microbiologically contaminated.”

On the supply front, stakeholders from KWSB noted approximately four hours of water supply; smaller cities under NSUSC also reported water supply for three to four hours/day. Meanwhile, most urban users typically rely on household-level storage tanks at the ground and roof levels to ensure 24-hour water access.

## Conclusions

Despite the relatively large focus, urban water supply coverage has declined over a 20-year period (91.9 percent

in 1990 to 91 percent in 2012-13). Thus, the MDG target of 96 percent coverage in 2105 is not likely to be achieved. Several factors appear to have contributed to the state of affairs. Rapid urbanization has clearly not been matched by a commensurate capital and recurring budgetary injection, nor has urban Sindh ensured the necessary institutional and regulatory environment to respond to the growing challenge.

In theory, large municipal entities including KWSB, NSUSC and WASAs have the legal mandate as well as the autonomy to make policies, ensure administrative and financial management, set tariffs, hire and fire staff and maintain high quality services for customers. However, the review shows that virtually all urban entities operate as another government agency with little or no autonomy for policy making, business planning or, indeed, overall management. The respective governing boards practically operate under the directions of the government and have typically little leverage or incentive for significant actions or fundamental reforms.

The large number of players catering to urban municipal services in Karachi and other cities also makes sector planning, regulation and overall governance a huge challenge. There is also limited coordination across the players thus inhibiting prospects of joint planning and action. Meanwhile water services for urban residents have shown a decline in both coverage and quality. The latter has assumed an alarming proportion due to inadequate attention to water treatment, poor M&R and a virtual lack of regulation.

Evidence shows poor collection efficiencies, inadequate tariffs and growing patterns of overheads that cannot be supported by any of the utilities. As a result, provincial and federal governments continue to annually inject subsidies at the expense of other development projects. The budget review shows that, in 2013-14, a nearly PKR 7 billion (US\$70 million) subsidy was provided for the W&S sector players in Sindh.

Municipal services in northern and interior Sindh are particularly grim. There is an urgent need to support the newly created NSUSC, which is still struggling with the reform process while trying to address very large service gaps. The organization also appears to lack the wherewithal and human resources to transform the old TMA-led mindsets that still represent and run the front lines of the organization.

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Serious resource constraints of the public sector and utilities themselves seriously inhibit the expansion of new systems to cater to the rapidly growing population. Karachi and all other cities and towns suffer from a resource crunch thus widening the supply and demand gaps. As a result, a very large population continues to rely on self-provision through water tankers and other means with associated quality issues and health risks for the larger population.

Finally, the subsector is very poorly regulated with unclear roles and responsibilities. Service provision and regulation functions are currently intertwined which is in clear contrast with the stated public policy and best practices. Based on this review, independent regulatory capacities for the subsector are emerging as a very high priority. Urgent measures will be needed to ensure that quality; health and environmental considerations receive sustained and high levels of attention.



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# 9 • Subsector: Rural Sanitation and Hygiene

## KEY POINTS

- A 23% increase (additional US\$29.3) on an annual basis is required in investments to achieve the envisioned progress.
  - Definitional issues, lack of institutional home, non-regulation of service standards, no discrete role allocation, capacity gaps and absence of equity based planning and service provision are issues to be settled.
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### Priority actions for Rural Sanitation and Hygiene

- The existing institutions of sanitation service delivery in rural areas (for example, District/Union Councils/PHED) as per the Sindh LGA 2013 are not oriented to and geared to the challenges of civic engagement/education behavior change, and so on. They have serious capacity issues. The policy requires that a separate division of environmental health and sanitation should be established within LGD having at least two environmental health technicians per Union Council. Such a department will, in future, accumulate a mandate for addressing vulnerable practices and emerging challenges such as dengue control, Ebola/H1N1 type outbreaks, indoor air pollution control, climate-change adaptation for water and sanitation services, and so on.
- In the interim period, a Sindh Sanitation Task Force, comprised of LGD, RDD, PHED, Education and Health departments and other key stakeholders may be created which is mirrored at the district and subdistrict levels to collaboratively address the complex and ever looming challenges of climate induced disasters and environmental sanitation risks.
- Mobilization of necessary Government of Sindh, local government, health and donor resources for the implementation of the SSS program. The SSS provides a clear multi-sectoral roadmap for achieving the ODF Sindh goal by 2020.

According to PSLMS 2012-13, rural sanitation coverage in Sindh stands at 55 percent. The PSLMS does not provide breakdown of improved and unimproved coverage figures and reports overall sanitation under categories of flush toilet and non-flush toilets. The anecdotal evidence suggests that large numbers of these non-flush toilets do not fit the criteria of improved sanitation. It is a common observation that, in rural areas, effluent from septic tanks is discharged directly into open drains, which is environmentally unacceptable. Vis-à-vis pit latrines, most fail to disrupt the feco-oral transmission route due, primarily, to missing pit covers. Incorporating these two corrections, the study concludes that half of the PSLMS reported non-flush toilets fall under the

unimproved sanitation category. Resultantly, current rural sanitation coverage in Sindh is considered as 55 percent.<sup>19</sup> Lack of a standard definition of sanitation remains an issue, which is needed to be urgently addressed if the province has to provide authentic reports on its achievements towards its national and international commitments.

An increase in coverage from 9 percent in 1990 to 55 percent by 2014 suggests that the subsector target of 100 percent by 2025 will not be achieved if the current trend continues.

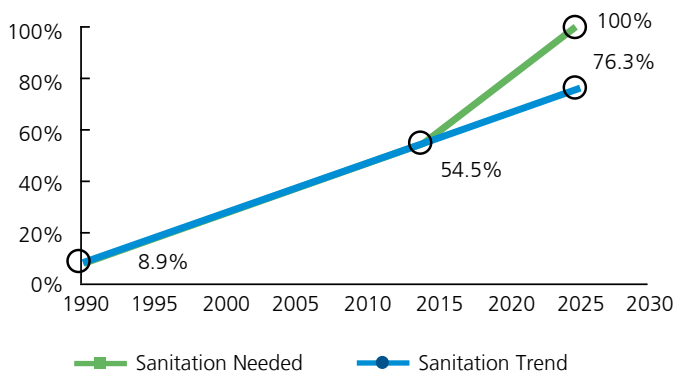
Based on current gaps, technology distribution and their associated unit costs and national Vision 2025's target<sup>20</sup> of

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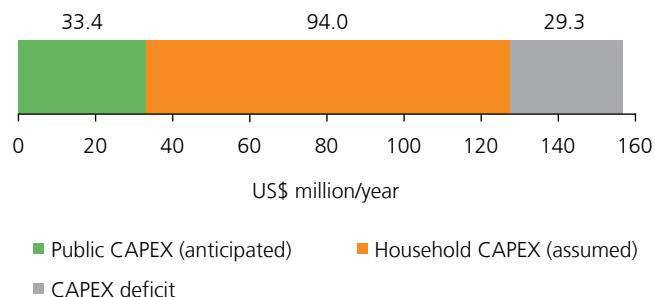
<sup>19</sup> The study awaited the results of the MICS. The data from MICS 2014 show coverage at 38 percent which is significantly lower than the trend line indicates. This could be due to definitional issues but, regardless, highlights the gravity of the situation with regard to rural sanitation. This would imply that rural sanitation coverage would fall far short of targets.

<sup>20</sup> Pakistan Vision 2025-One Nation One Vision, Planning Commission, Ministry of Planning, Development & Reforms, Government of Pakistan, May 2014. [www.pc.gov.pk](http://www.pc.gov.pk)

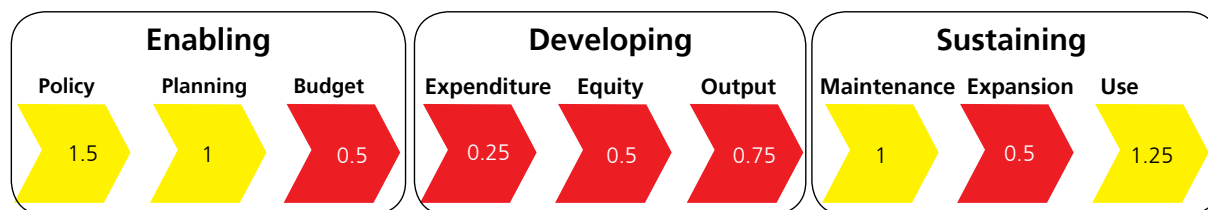
**FIGURE 20: RURAL SANITATION COVERAGE**



**FIGURE 21: RURAL SANITATION INVESTMENT REQUIREMENTS**



**FIGURE 22: RURAL SANITATION AND HYGIENE SCORECARD**



100 percent sanitation coverage as envisaged in the Vision 2025 document, an estimated US\$156.6 million per year in CAPEX is required to meet the sector target. Of this, it is anticipated that the sector will get US\$33.4 million per year from public investments and will potentially be leveraging US\$94 million as household contributions (assuming households will bear the cost of latrine construction while the government will pick up only program support costs, for example, information, education and communication, behavior change campaigns, and so on, in a government-led scale up program). Any effort to achieve the Vision 2025 target would require mobilization of an additional US\$29.3 million annually, between 2014 and 2025.

The sector scorecard shows that the subsector is generally in disarray and facing neglect in the arena of policy, planning and even more so in budgeting. The province has a Sanitation Policy, recently revised, but this is still in draft form with a 2025 target date for universal sanitation coverage in line with the goals of the National Sanitation Policy guidelines. The revised draft policy calls for the eradication of open defecation

from rural Sindh and deals with the issue of both liquid and solid wastes in order to address all elements of sanitation. More recently, LGD has drafted the SSS program. The initiative has been conceived as a component of the ongoing Sindh Inter Nutrition Sector Program (NSP). The common objective of the SSS and NSP is to improve the nutritional status of the rural communities through supportive sanitation interventions such as eradication of open defecation and hygiene improvements. This multi-sector integrated program is to be implemented by the LGD in coordination of the Health Department and district administrations.

Although under the SSS plan, LGD has laid basis for the establishment of a sector coordination unit, called a Hub, the fact remains that overall sector planning and aid coordination remains weak. No formal and consistent mechanism exists to coordinate water and sanitation sector investments. Quarterly and annual departmental reviews take place at the level of LGD, RDD, PHED and P&DD. However, there is no evidence of a structured water and sanitation institutional group for sector-wide review, existence of terms of reference,

coordination of funding flows or joint reviews of progress across respective domains.

Due to the current impasse in the local government system, rural areas are neither catered for by the TMAs (that is, Municipal Corporations/Town Committees) nor by District Councils (in which still don't exist). Vertical programs and special initiatives create overlaps and further distortions as, each year, significant resources are spent from the provincial and national exchequer on special initiatives and Members of National Assembly/Provincial Assembly constituency programs.

Multiyear (three to five year) investment planning, which is essential for systematically allocating resources, does not exist. Hence no one knows the hardware and software resource requirements to achieve subsector targets. Ideally speaking such a plan has to be built up from a location-based assessment (for example, service provider asset registers, business plans, village listings, and so on). Such a holistic plan should also prioritize or sequence interventions against criteria (for example, rates of return, existing service level, equity, poverty, and so on). Lastly, the prevailing planning practices in the sector are not evidence based and fail to learn from and build upon multi-stakeholder and third party assessments of subsector performance. What exist are occasional (annual or quarterly) reviews held at agency or departmental level which are not multi-stakeholder and often fail to set corrective actions. Such reviews are typically project and/or ADP specific and not sector wide.

Rural sanitation is the most neglected of the four subsectors, receiving the lowest local government budget allocations. Multi-year analysis of TMA budget allocations for water and sanitation reveals that sanitation receives 55-60 percent of the total budget. It is interesting to note, however, that the word sanitation is almost universally interpreted by LGD staff to refer to wastewater collection, conveyance and disposal systems along with brick paving of streets and lanes. This general definition also includes solid waste collection and disposal. However, human excreta disposal and, inter alia, latrines are almost universally considered as a fringe or non-

sanitation items. A similar breakdown of PHED budgets shows that, at the provincial level, no CAPEX is allocated for onsite sanitation and hygiene promotion programs in rural areas. However, a significant proportion (30-40 percent) of the PHED's budget is spent on urban sanitation, again primarily on construction of drains, sewers and street pavement. The situation clearly establishes that significant funds are being spent in the name of sanitation but on those aspects of sanitation which have a relatively lower impact on environmental health and, at the same time, require relatively much higher unit costs compared to human excreta disposal interventions. In other words, resources are available for and being spent on sanitation but on lower priorities therein. Hence, it is important that decision makers prioritize human excreta disposal (and eradication of open defecation) above other sanitation aspects resulting in allocation of enough resources on an emergency basis, at least for the next four to six years.<sup>21</sup>

Only 60-65 percent of the allocations made in the budget see a release in the financial year. Almost 90 percent of the releases are booked as expenditure. The system of quarterly releases remains a major issue and is considered highly inefficient. The fact, however, remains that sanitation receives low funding and within that human excreta management receives almost zero funding; utilization of such a low sum remains high and hence these higher expenditure figures should be treated with caution. However, the end results, as assessed in the output, uptake, and use building blocks are lagging (Figure 21).

With limited application of participatory procedures for local planning and implementation, and absence of a budget allocation criterion for rural sanitation, equity receives a low score, and represents a real barrier to effective service delivery (Figure 21). Guidance to ensure equity in rural sanitation programs exists in the draft sector policy and strategy but these practices are not followed when it comes to sector planning and budgeting. In conclusion, comprehensive community and stakeholder participation approaches, encompassing all aspects of rural sanitation, have not been officially notified and are not always uniformly applied. TMAs/Municipal Corporations lack a structured approach

<sup>21</sup> Poor hygiene and open defecation pose the greatest risk to human health and planners need to prioritize these areas as they are relatively cheap to implement, resulting in the widest impact on human health. This should be followed by other environmental health risks that are posed by improper solid waste collection, disposal and poor drainage.

to local participation in planning and decision making for rural sanitation; PHED too lacks skills in rural sanitation promotion, and absence of any sanitation behavior change activity is conspicuous in the current PHED portfolio of projects. Multi-stakeholder consultative events in the sector are few and ad hoc.

Lack of clear, widely understood and adhered to criteria for budget allocation at any level of government contributes a great deal towards the absence of equity in the rural water and sanitation subsector. The study did not come across any such criteria to guide allocation of resources within the broader rural RWS and RSH (for example, between water and sanitation) or within a district to guide equitable distribution between rural and urban areas. At the provincial level, the PFC remained in force up until 2010 which would, in theory, distribute provincial resources amongst districts, based on multiple indicators such as poverty, population, area, and so on, criteria including access to water and sanitation. However, with the rolling back of the local government system, the provincial government has stopped following the PFC formula for resource distribution amongst districts. During the time of PFC currency, it advocated for and worked towards some sort of equitable financial allocations based on needs and 'disparities, but a 'SMART' criterion even then was not available to translate good intentions into fair practices. The PFC is not operational any more but the de facto distribution is based on some sort of PFC type understanding.

The sector currently does not benefit from clear and measurable indicators of equity in the rural water and sanitation subsector. Hence no evidence exists to guide the subsector on whether allocation criteria and local participation procedures set by the government have been adhered to and are reducing disparities in access. Limited stakeholder consultations and an inadequate evidence base will lead to further widening of coverage disparities.

The budget breakdown at the provincial level provides information on domestic and official donor investments, but such information is not available at the local government level. Expenditure versus budget (or domestic flows) is

regularly reported and closely watched on a quarterly basis. Donor programs also follow project/program specific work plans and reporting systems, which are fairly rigorous. However, no desegregated data for water and sanitation are available.

Capacities in terms of staff, expertise, tools/materials, and so on, to deliver a RSH program at scale, using community-based behavioral change approaches are extremely limited, almost nonexistent within TMAs and PHED and exist to degrees within the Health department. The Health department with its extensive outreach at the grass roots level through Lady Health Workers (LHWs) and other trained staff of its existing provincial NSP is well placed to take the lead in the RSH sector. The LGD sponsored ongoing SSS program does provide a clear approach to the development of necessary capacities at all levels but the plan has to still receive funding for its implementation at scale.<sup>22</sup>

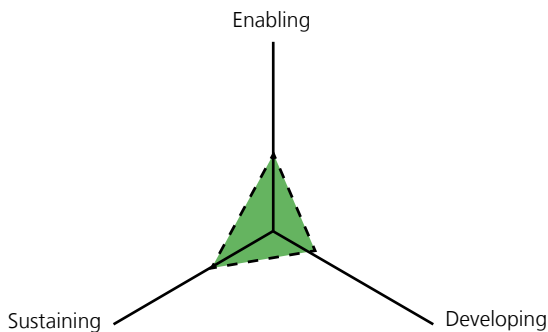
Challenges for output and markets, two other building blocks in the sanitation service delivery pathway, intersect: on the one hand, the government must ensure provision of software (such as promotion tools) but, on the other, must also help stimulate markets which provide sanitation goods and services.

The Community-Led Total Sanitation (CLTS) approach has been replicated and is being scaled up in many areas of the province with encouraging results. There is a general consensus on adoption of CLTS as the main approach for rural sanitation promotion. The study, however, finds that the latrines constructed by rural households do not necessarily meet the JMP criteria, and additional work is needed on the supply side and in developing a sanitation-marketing component.

A review of TMA and provincial ADPs does not establish significant allocations for rural sanitation programs focusing on promotion of improved household latrines following community-led approaches to sanitation. No line items exist for awareness or promotion for rural sanitation and household improved latrines in budgets. The ADP contains line items for capital and recurring budget; however, these are

<sup>22</sup> With the new local government system in place now, the SSS program has to be modified to suit the current and emerging institutional and financing arrangements.

**FIGURE 23: AVERAGE RSH SCORECARD SCORES FOR ENABLING, SUSTAINING, AND DEVELOPING SERVICE DELIVERY, AND PEER-GROUP COMPARISON**



highly inadequate or unavailable. Consolidated RSH budget allocation data are available for PHED but not for TMAs.

The Sanitation Policy (draft) widely recommends PSP in rural sanitation. However, there has been no real support to facilitate or promote the private sector. While the Sanitation Policy provides for private sector engagement (CBOs, NGOs and the private sector), the strategy for PSP is neither fully articulated nor practiced.

Sector monitoring is a major shortcoming, with issues of definitions, systems and responsibilities for data collection, collation and utilization. No unified M&E system exists within TMAs/PHED/LGD to capture and report on ODF villages except under the ongoing, somewhat sporadic, RSH interventions, which are supported by a limited number of development partners (for example, the World Bank, UNICEF, PLAN, Water Aid and WSP). However, under the SSS program, the LGD has developed a vision for a unified M&E system using modern technologies, which will allow province-wide tracking of ODF villages in collaboration with the key stakeholders and development partners. The department reports good progress on developing this and a pilot approach is currently under finalization.

Monitoring of uptake – in terms of the quantity and quality of latrines constructed by households, and hygiene behavior change – is limited, and constitutes a further barrier in the service delivery pathway.

In the absence of a RSH MIS, it is hard to expect evidence-based planning and monitoring in the sector. The existing

LHW database does offer a good starting point in this direction for future RSH programs. Once developed, more accurate estimates of coverage will be available allowing factual planning, monitoring and resource allocation.

Relatively little is known about rural populations' attitudes and practices regarding hygiene and sanitation. Typical sanitation schemes in rural areas consist of construction of combined open drainage systems (catering for both household wastewater and storm water) and brick or concrete pavements of local lanes and streets. Wastewater is disposed of into water bodies almost always without proper treatment. The community carries out the cleaning of drains on a self-help basis.

The supply side assessment of RSH reveals that the sanitation and hygiene supply chain exists almost everywhere in rural Sindh, but costs remain high for poor rural communities. (In Bangladesh, for example, a water closet costs less than a dollar while in Sindh it still costs more than US\$3 or 4). Masons are available almost everywhere. The draft Sanitation Policy does acknowledge the role of the private sector in RSH. However, there has been no real support on the ground so far to facilitate or promote the private sector, as the strategy for PSP requires more detailed articulation and implementation support.

The area of uptake is the most critical in limiting the effectiveness of the RSH subsector. Since there are no formal annual sub targets available for the RSH subsector, service providers and planners do not know where they are and what interventions and level of funding are required to achieve targets. Also, in the absence of sector regulations, there is no information available on the quality of uptake in terms of whether or not the quality conforms to the subsector standards for improved sanitation.

In conclusion, the rural sanitation subsector in the province has to undergo a transformation – *from a provider's movement into a people's movement*. This requires a substantive shift in the approach of the institutions of sanitation and hygiene service delivery in rural areas. The shift calls for the fullest adoption of the community led approach where the grass roots demand for improved sanitary conditions emerges from local communities themselves. The proposed shift in the existing approach also calls for closer multi-

stakeholder partnerships, where citizens, government agencies (Department of Health, PHED, LGD, RDD, Department of Environment), NGOs, donors, media and academics all work together to foster a ground swell of public demand for improved sanitary living conditions. Lastly, it calls for a specific government institution (for example, LGD) to become the institutional home for rural sanitation promotion, actively facilitating and regulating sanitation service delivery through a multi-agency task force (comprised of health, public health engineering, education and environment departments, with NGOs and development partners, and so on, also included). The broader terms of reference of this task force shall include the formulation of provincial, district and tehsil level plans for eradication of open defecation by an agreed to cutoff date, ensuring well-coordinated implementation and resourcing of the plan, development of required capacities, putting in place a robust planning, monitoring and evaluation mechanism, sanitation marketing and behavior change communication through mass media besides knowledge management and documentation. The provincial task force will also ensure that necessary technical assistance is provided to district and Tehsil level agencies to formulate their own ODF plans. This task force will require mirroring at the district and Tehsil levels as well to ensure that lower level ODF plans are not only formulated but implemented in a coordinated manner at the Union and village levels.

To provide the necessary boost to the implementation of ODF province/district/Tehsil plans, the provincial task force may consider reflecting the various level ODF targets as performance benchmarks in the Annual Credential Reports (ACRs) (performance reviews) of the respective staff of the different agencies involved. This action on its own will trigger the speedy development of an MIS and clear sight of annual targets to be achieved by senior managers and field implementers. It would also push managers to ensure

necessary resources (human, logistic and financial) are available to help them achieve their respective targets.

Sindh is a densely populated province with a population density of 300 against an average of 233 for Pakistan. The bulk of the population in Sindh is located along the rivers and canals, where the water table is often shallow. In a typical village, wastewater from streets and septic tanks is often discharged untreated into these water bodies. This implies that the prevalent sanitation technologies such as flush toilets; pit latrines and septic tanks only partially address the environmental sanitation problem. Innovative solutions such as household latrines connected to shallow sewers or communal septic tanks with secondary treatment will have to be promoted. This will mean that the per capita cost of such technologies will be higher relative to current technologies and the 10-fold funding increase required will, in fact, escalate to 12 folds or even higher. However, as mentioned earlier, prioritization of *human excreta disposal* over other aspects of sanitation and redirecting budget allocations from hardware oriented projects (*construction of drains and street pavements*) as currently pursued by PHED and TMAs to behavior change oriented approaches will, to some degrees, address the subsector funding requirements.

A recent study, the Economics of Sanitation Initiative, estimates that the overall economic cost of poor sanitation in Pakistan stands at PKR 344 billion (US\$5.7 billion) per year (PKR 2,160 per person per year) and is equivalent to 3.9 percent of the nation's Gross Domestic Product (GDP)<sup>23</sup>. There is clearly a compelling case for redistribution of financial resources from curative to preventive healthcare interventions. With increased allocation of resources to local government authorities, PHED and Health department, it is anticipated that the large financial shortfall would be broadly covered internally with only a modest need for mobilization of external resources from development partners and banks.

<sup>23</sup> <http://www.wsp.org/wsp/sites/wsp.org/files/publications/WSP-esi-pakistan.pdf>

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# 10. Subsector: Urban Sanitation and Hygiene

## KEY POINTS

- Public sector funding needs to be increased by 75% to meet the urgent budgetary gap.
  - Empowerment of institutions, policy reforms and implementation, non-regulation of service standards, weak cost recovery and tariff system, prioritized investments, and absence of equity based planning and service provision are the key issues to be addressed.
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### Priority actions for Urban Sanitation

- Medium- and longer-term planning for the subsector should be urgently ensured with inputs from all urban sector players. In addition, a regular system of subsector coordination and multi-stakeholder inputs and oversight should be initiated.
- Clear segregation of roles and responsibilities for policy, regulation and service provision should be ensured and all service providers including the KWSB, WASAs, NSUSC and others, suitably restructured as part of the broader institutional reform plan for the subsector; the reform recommendations contained in the Karachi Master Plan could provide one basis for initiating change. In addition, updated studies could be commissioned.
- Urgently ensure the needed autonomy within the large urban players with a focus on the introduction of performance-based systems; regular tariff adjustments to meet cost of service provision; hiring and firing; and raising of finances to ensure effective service provision.
- Urgent mapping of urban sanitation priorities with a focus on smaller cities and towns of Sindh that show signs of long and continuing neglect. As an output, a five-year business plan should be developed, adequately resourced and closely monitored.
- Expedite and enhance resource allocations for S-III (in Karachi) and other sewage treatment projects (across Sindh) whose delay can seriously impact the urban environment and health of all residents.
- Build public awareness and institutional capacities for enforcement of environmental laws and regulations.
- Starting with FY 2016-17, an annual doubling of the subsector budget allocations (capital/recurring expenditures) should be ensured.
- Budget shortfalls for the subsector should be ensured from the federal government and selected donors to ensure that the CAPEX gap identified by the SDA is fully covered.
- Advocacy with selected donors to plan, design and fund new subsector projects for Sindh.

Available country data show that the proportion of national urban population has steadily grown from 28 percent in 1980 to 36.5 percent in 2012.<sup>24</sup> Sindh's total population in 2014 was estimated at 47.3 million<sup>25</sup>, which is likely to grow to nearly 64 million by 2025.

As the most urbanized province of Pakistan, Sindh has a high 48.8 percent of population living in cities and smaller

towns. Rapid urbanization trends are expected to continue (4-5 percent in cities) with a projected reversal of the urban/rural demographic mix in 2025 when nearly 51.5 percent of Sindh's population will become urban.

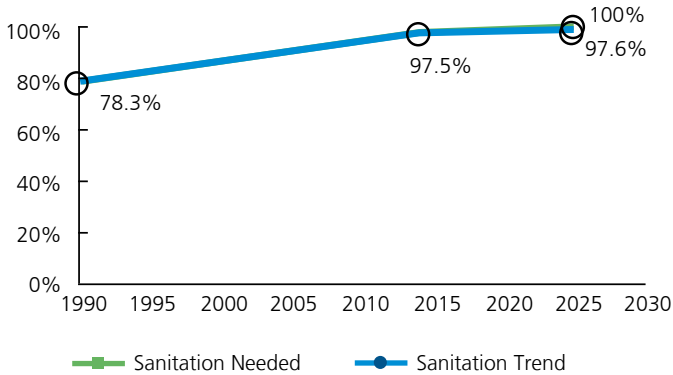
Sindh's urban character is largely defined by Karachi which houses nearly 10 percent of the national population of Pakistan, 30 percent of the total provincial population and

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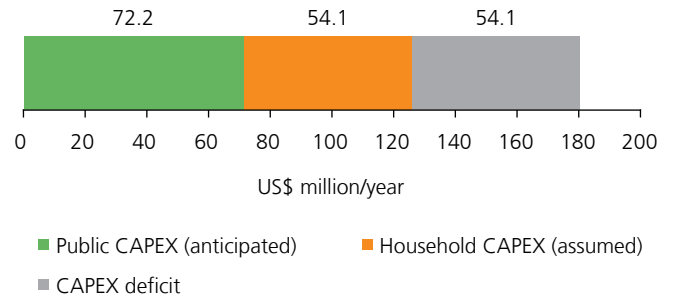
<sup>24</sup> JMP estimates, March 2012.

<sup>25</sup> Estimates of urban population, Sindh, Pakistan (multiple studies).

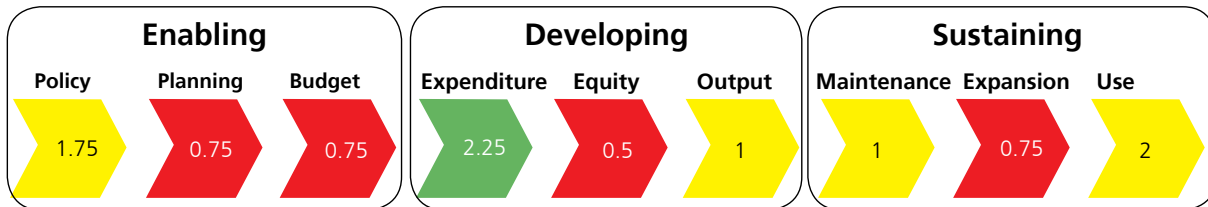
**FIGURE 24: RURAL SANITATION COVERAGE**



**FIGURE 25: RURAL SANITATION INVESTMENT REQUIREMENTS**



**FIGURE 26: RURAL SANITATION AND HYGIENE SCORECARD**



nearly 63 percent of the province’s urban population. The cities of Hyderabad, Sukkur, Mirpur Khas, Nawabshah, Umerkot, Larkana and a few other cities and smaller towns, account for the remaining 37 percent of the urban population.

Across Sindh, over 50 percent of the population has no access to sewer systems or wastewater treatment and most households depend on onsite disposal with negative consequences for groundwater quality. Oxidation ponds are a common treatment option; however, most are dysfunctional. Of the 40 million people practicing open defecation in Pakistan, nearly 10 million reside in Sindh.

A large network of underground sewerage systems exists in Karachi and to a lesser extent in some of the cities. However, maintenance is a major issue and expansion has not kept pace with rapidly growing demands. In the absence of public sewerage networks, a large number of urban residents have resorted to ad hoc arrangements including the construction

of house and street level septic tanks or by connecting household sewerage with the nearest municipal drain, natural drains or water bodies.

Based on some official estimates, the sewage system serves only 40 percent of the city’s population. Barely 12 percent of the 435 MGD sewage generated in Karachi is actually treated. If used to full capacity, the currently installed treatment plants would allow KWSB to treat approximately 150 MGD. However, pushed by the growing crisis, two new projects are in the pipeline, including a large treatment system (S-III), which will eventually take the total treatment capacity to 500 MGD. Meanwhile over 80 percent of the wastewater goes into the Arabian Sea without any treatment.

Available literature also point to a sizeable self-provisioning of sewerage systems through organized urban communities residing in large private townships, through several non KWSB players operating in the city and a few nongovernmental bodies also active in lower and lower



middle income settlements. Various estimates suggest that nearly 50 percent of Karachi's population is serviced through non-KWSB sewerage networks.

In addition to the untreated domestic waste, a very large percentage of hazardous industrial waste also remains unchecked and has seriously polluted the waters around the shorelines with highly negative consequences for sea life and the fishing sector at large.

Other large cities in Sindh such as Hyderabad show an equally grim picture. Due to limited plant capacities, only 20 percent of the 51 MGD of the sewage generated is actually treated. However, a sizeable treatment plant is reportedly in the pipeline under the Hyderabad Development Authority and should supplement the existing capacities to cover nearly 100 percent of the current demand.

The institutional landscape for water and sanitation services is visibly complicated by the multiplicity of players with overlapping mandates and authorities in several areas. KWSB, several WASAs and NSUSC cater to the water and sanitation needs of the urban population in larger cities and towns.

There is also a large presence of federal government institutions with varying jurisdictions in parts of Karachi. These include six Cantonment Boards, Defense Housing Authority, Port Qasim Authority, Karachi Port Trust, Pakistan Railways, Sindh Industrial Trade Estate, Lyari Development Authority, Malir Development Authority and Cooperative Housing Societies. Outside of Karachi, a number of development authorities also operate in Hyderabad and some of the larger cities. These institutions typically operate independently of each other and key municipal service providers. Therefore, holistic planning and regulation of the sector remains a huge challenge.

The Sindh LGA 2013 draws on LGO of 1979 and provides the basis for a Metropolitan Corporation in Karachi, five Karachi District Municipal Corporations and one District Council for the rural areas of Karachi. In addition, three Municipal Corporations operate in Hyderabad, Sukkur and Larkana, while 20 Municipal Committees and nearly 76 Town Committees service the municipal needs of other

urban areas with population ranging from 25,000 to nearly 500,000.

As a new municipal service model, the NSUSC, was established under the Companies Ordinance 1984 for the secondary cities of Northern Sindh. The NSUSC covers Sukkur, New Sukkur, Rohri, Khairpur, Larkana, Shikarpur, Jacobabad and Ghotki.

A recent USAID assessment of the northern towns in Sindh also shows a fairly bleak picture on the sanitation front. The assessment only covers only a few towns in Dadu and Kambar Shahdadkot (that is, Khairpur Nathan Shah, Johi, Mehar, Shahdadkot and Kambar) but it is reflective of virtually all small towns and cities of Sindh. The assessment shows that a large majority of residents rely on open drains for wastewater that are mostly choked due to solid waste intrusion, poor design and lack of maintenance. Barely 20 to 30 percent of the wastewater is collected, as many of the wastewater disposal stations are nonfunctional due to flood damages or lack of M&R. As a result, wastewater ponds up in streets and low-lying areas, creating serious environmental concerns. Machinery installations in most towns are technically faulty while power backups for pumping are typically unavailable. As a result, the few disposal stations that do operate cannot function during long hours of load shedding. There are no arrangements for wastewater treatment in any of the towns currently managed by NSUSC, although some funds have been recently allocated for wastewater stabilization ponds.

Among other players, a sizeable PHED, Municipal Corporation/Town Committees, RDD and HTPD also operate under the auspices of LGD and service the water supply needs – particularly in smaller towns across Sindh. Other provincial departments such as W&S that traditionally engages in roads and buildings work also takes up water and sanitation sector works on a need basis.

The National Sanitation Policy of 2006 aimed to meet the MDGs for sanitation by 2015 and achieve universal access by 2025. The large public data source on disaggregated sanitation coverage by provinces is PIHS, 1991. However, the JMP does not accept PIHS 1991 sanitation figures, hence JMP's 1991 figures for Pakistan have been assumed to be valid for Sindh as well.

Based on this, urban sanitation coverage of improved sources in 1990 was estimated at 78 percent.<sup>26</sup> Estimates of sanitation coverage for 2014 are likely to be reflected in the Sindh MICS 2014-15; however, this has yet to be officially approved. Meanwhile, the 2012-13 estimates from PSLMS provide the following coverage estimate: flush toilets (96 percent); non flush (3 percent); and no toilets (1 percent). Assuming flush toilets and 50 percent of the non-flush toilets as improved sources only the coverage figures work out to 97.5 percent.<sup>27</sup>

Measured in relation to coverage in 1990, the MDGs aimed at halving the share of people without sustainable access to an improved sanitation source by 2015. This essentially required Sindh to achieve a target of 89 percent by 2015. Thus the MDG for urban sanitation is already achieved.

### CAPEX and OPEX

Based on the current gaps, technology distribution, associated costs and MDG targets, an additional US\$54 million annual investments will be needed to meet the subsector targets. Thus, a 75 percent increase in public sector funding commitment is needed to meet the urgent budgetary gap on the CAPEX front.

On the operational front, virtually all of the Sindh urban water and sanitation authorities including KWSB, WASAs and NSUSC are faced with a grim fiscal situation. KWSB has been running a multi-billion rupee annual deficit for the past many years, and has just received a PKR 5 billion bailout from the Federal Government. The situation is fairly similar in WASA Hyderabad, NSUSC and the various Municipal Corporations across Sindh where large gaps exist between incomes and expenditures. Consultations with NSUSC management also suggest an evolving institutional crisis as virtually all of the frontline staff belongs to the TMAs who have been deputed to NSUSC without clarity on their future. Incomes from sanitation tariffs and other sources have not kept pace with the annual recurring costs that have grown due to rapid salary increases, electric bills and other costs.

Outside the large cities, the Municipal Corporations and TMAs are also faced with a similar financial crunch. Limited by poor tariff structures and with no mandates or capacities for generating other revenue sources, virtually all Municipal Corporations and TMAs are heavily reliant on annual provincial transfers that keep them afloat. In the absence of radical changes to the investment and recurring budgetary trends, coverage and quality targets are not likely to be met or sustained.

### Urban Sanitation Scorecard

The Federal Sanitation Policy (2006) calls for a universal coverage target by 2025 which is also endorsed by the yet to be approved draft Sindh Sanitation Policy with distinct provisions for urban and rural sanitation.

The subsector has shown steady progress in terms of coverage. However, serious issues exist on many fronts. Among these, the largest gaps exist under the broad headings of planning and budgets, which together with equity and uptake are the most poorly rated on the urban sanitation scorecard.

On the planning front, no formal and consistent mechanism exists to coordinate sanitation sector investments. Quarterly and annual departmental reviews take place at the level of KWSB, WASAs, NSUSC, LGD, PHED and P&DD. However, there is no evidence of a structured water and sanitation institutional group for sector-wide review or coordination of funding flows or joint reviews of progress across respective domains.

Based on the coverage data in urban areas (PSLMS 2012-13), 95 percent of the households in urban Sindh have flush toilets, which suggest sufficiency of private, and public sector investments. However, sewerage treatment remains a huge issue; even in large cities (Karachi and Hyderabad), barely 15-25 percent of the sewerage is treated. The rest is disposed of untreated into water bodies or into the groundwater. No data are currently available on replacement costs of sanitation infrastructure that has outlived its utility in urban areas.

<sup>26</sup> This includes improved facilities at household levels at 72 percent and 6 percent additional coverage of shared facilities.

<sup>27</sup> The MICS 2014 data for Sindh, received in January 2016, show coverage at 89 percent. This lower coverage could be attributable to definitional issues as well as the assumptions used in arriving at coverage of safe sanitation in Sindh. This may also be indicative of a tailing off and downward trend in coverage as populations grow and aging infrastructure and limited expansion affect coverage.

Therefore, a variety of assumptions have been made in arriving at replacement costs. Based on budget trends, a very small percent of replacement needs are actually met in the province.

The sector budget for urban sanitation is not available in any one document and, therefore, very difficult to analyze. Multiple agency/department and donor projects have budget line items that need to be aggregated for any sensible analysis. Likewise, data on subsidy to the sector are also unavailable. However, this can be aggregated from the annual losses accruing for KWSB, WASA, NSUSC and other players active in urban sanitation. Field evidence confirms that the sector is heavily subsidized.

Policy guidelines exist for local participation but the policy has yet to be approved. Meanwhile, none of the large utilities or Municipal Corporations and TMAs has any structured system for local participation in planning and decision making for urban sanitation.

No specific criteria are available for USH allocations. The annual allocations to KWSB, NSUSC and other urban areas define the allocations that are eventually passed on to urban sanitation. KWSB, WASA and NSUSC plans for addressing the needs of the poor are currently unavailable. The various meetings held thus far do not show a specific focus.

KWSB, WASA Hyderabad and NSUSC are largely managed by the Government of Sindh decision makers rather than their respective boards. These have limited or no autonomy for hiring and firing, investments/disinvestments, major appointments and so forth. Likewise no formal business plans exist in any agency. Available information suggests a listing of possible/required interventions. However, investments are typically ad hoc and invariably tied to available funding from the public sector or donors. PSP is advocated in policy (that is, National Sanitation Policy and the draft Sanitation Policy, Sindh), however, this policy dimension is not operationalized (apart from a few pilots).

Multi-stakeholder reviews of subsector performance do not take place. Annual or quarterly reviews are typically held at the agency and ministerial levels, but not by all of the key stakeholders including civil society, private sector and citizen's forums. Subsector reviews are normally project and/or ADP specific and do not cover the entire subsector.

Budget availability for the subsector is inadequate in all urban areas; sewerage disposal and treatment remains a huge issue. Virtually all-urban utilities require annual subsidies from the government to continue operations. For instance, the current budget document (2014-15) shows a huge PKR 7 billion subsidy for KWSB and a few other players servicing the water and sanitation sector.

Likewise, all local government corporations are heavily dependent on the provincial government for the annual salary and non-salary needs of the subsector. None of the urban utilities are authorized to tap funds from the market and are, thus, entirely dependent on the provincial resource allocations.

The institutional roles outlined in the provincial sanitation policy and the recently drafted sanitation strategy is not fully operationalized. The regulator's role is still unclear and unassigned. The separation of policymaking, regulation and service provision roles is critical for sector reform and needs to be ensured.

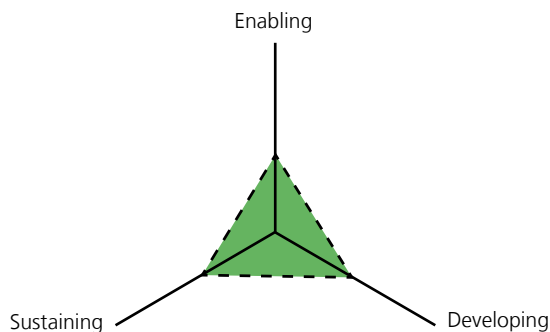
Within the array of SDA indicators, the annual budget spending or expenditure has received the highest rating, largely because annual recurring budgets and over 75 percent of the capital budgets are reportedly utilized on an annual basis. Meanwhile, the system of quarterly releases remains a major issue and is considered to be a serious barrier to sector efficiency. In general, expenditure versus budget (or domestic flows) is regularly reported and closely watched on a quarterly basis. Donor programs also follow project/program specific work plans and reporting systems, which are fairly rigorous.

The annual increase in urban fecal waste collection capacity is reported to improve in Karachi and may touch over 50 percent of the generated quantities. However, elsewhere in urban Sindh, the capacity to collect and treat is fairly weak.

The sanitation related O&M costs are generally known. However while a meager 50 percent of the O&M costs for sewerage are recovered, there is no cost recovery for other areas of sanitation, for example, solid waste and drainage.

Mandatory tariff reviews are conducted but decisions on rate adjustments typically rest with the political leadership and are invariably deferred. Thus the gaps between the costs of

**FIGURE 27: AVERAGE USH SCORECARD SCORES FOR ENABLING, SUSTAINING, AND DEVELOPING SERVICE DELIVERY, AND PEER-GROUP COMPARISON**



service provision and cost recoveries, has grown substantially. The national and provincial policy also calls for PSP in service provision. However, apart from a few pilots, the policy is generally not implemented.

Within the large cities of Sindh, 96 percent of households have installed flush latrines while coverage of sewerage systems varies from 50-85 percent. On the solid waste front, barely 60 percent of solid waste is collected in the urban areas of Sindh (some estimates indicate that this may only reach half of that) while no system of solid waste collection exists in most of the rural areas.

Even where some systems exist, sanitary landfill sites and recycling of solid waste are highly limited.

## Conclusions

While access has steadily improved, safe disposal of sewage remains a huge challenge. Over 80 percent of sewage generated from the urban areas is untreated and currently disposed of into the Arabian Ocean, natural nullahs<sup>28</sup> or just stays in low lying areas to create huge health and environmental hazards. Household sewage from septic tanks eventually finds its way into street-level drains, adjoining lands and eventually into the groundwater with serious health consequences.

Quite clearly, rapid urbanization has not been matched by a commensurate capital and recurring budgetary injection nor has urban Sindh ensured the necessary institutional and

regulatory environment to respond to the growing challenge. The need to run large cities along professional lines is reflected in government policy and the establishment of KWSB, WASAs, NSUSC and other players that were supposed to manage municipal service provision in the larger urban centers of Sindh. These organizations were expected to run with considerable autonomy including the ability to make policies for urban water and sanitation, draw up business plans, hire and fire staff, set tariff, ensure cost recoveries, raise finances and take other measures to ensure that customer needs are met. However, the review shows that the urban utilities practically operate as another government agency with little or no autonomy for subsector management. Several efforts, including the large Karachi Master Plan for water and sanitation (funded by JICA), suggested fundamental reforms for KWSB and regulation of the sector. However, the reform process has yet to be launched.

Thus municipal service provision in the cities is currently faced with an institutional challenge that remains the biggest hurdle in service delivery and any future reform.

The institutional challenge is further compounded by continuing legal and policy changes over the past 10 years that brought major structural changes in the municipal entities across the entire country including Sindh. Having experimented with the local government reforms introduced in 2001, the sector has undergone another change as a result of new political developments during the current administration. For purposes of water and sanitation, the legal and institutional landscape in Sindh has largely reverted back to the municipal systems in vogue prior to 2001.

Donor funding to the sector has also generally declined while municipal service providers are currently not mandated to raise funds elsewhere. Therefore, unless government priorities are altered with a new focus and significant additional investments, the subsector performance is not likely to improve.

A realistic prospect for change essentially lies in mandating and reforming the service providers. The Karachi Master Plan provides a good basis for institutional reforms and

<sup>28</sup> Natural drains.

could serve as the starting point for the issues faced by the metropolis. With varying degrees, similar autonomy and reform initiatives can be considered for the WASAs and NSUSC that are also struggling because of serious management issues and lack of autonomy.

Introducing a large-scale reform is difficult but doable and also an urgent need. It will, however, require political will and a coordinated response from the Government of Sindh. In addition, the government and potential donors will need to ensure significant additional resources for the subsector to facilitate the transition.

Finally, the sector is very poorly regulated with unclear roles and responsibilities. Service provision and regulation functions are currently intertwined within the broad roles of KWSB, WASAs, NSUSCs, Municipal Corporations and TMAs, which is in contrast with the stated public policy and best practices. New and independent regulatory capacities for the water and sanitation sector are emerging to be a very high priority need to ensure that quality, health and environmental considerations receive sustained and needed levels of attention.











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