SECTOR ASSESSMENT (SUMMARY): WATER AND OTHER URBAN INFRASTRUCTURE AND SERVICES

Sector Road Map

1. Sector Performance, Problems, and Opportunities

1. **Challenges and opportunities of urbanization.** Nepal has a total population of about 29 million (2016) and is rapidly urbanizing. Urbanization in Nepal is interpreted in terms of municipal population, and this perspective significantly affects the analysis of urban growth in the country. In 2011, Nepal had only 58 municipalities and an urbanization level of 17%.[1] After the establishment of 276 urban municipalities in 2015, about 58% of the total population now lives in urban areas, accounting for 63% of gross domestic product.[2] More than half of Nepal's urban residents live in the northern hilly area; the rest in the southern plains (Terai).[3]

2. Urbanization in Nepal is characterized by the migration of people from rural areas to market centers, towns, and cities, primarily in search of employment and, earlier, fleeing armed conflict during the insurgency. Unplanned growth has created numerous problems, including deficiencies in basic urban services, environmental degradation, encroachment of settlements on public lands, and rivers, and sprawling settlements. The development of municipal infrastructure has not kept pace with the rapid urbanization, causing an acute shortage of urban services. The key challenge is to enhance access to services for the urban population, including the poor and vulnerable; and ensure sustainable and high-quality service delivery. Concerns are that climate change impacts may create additional challenges.

3. The incidence of poverty in Nepal's urban areas is rising, from 9.2% in 2004 to 23.8% in 2015.[4] Given the country's slow economic growth rate—especially in the industrial sector, which normally employs the bulk of unskilled and semiskilled workers—urban poverty could well increase further unless the government is able to proactively manage urbanization and stimulate much-needed private sector growth. Unabated urban growth makes it imperative to maximize the economic opportunities offered by urbanization and agglomeration while securing environmental sustainability and social equity across various geographic regions.

4. **Water supply.** In 2016, although 89% of the urban population had access to basic water supply,[5] only 34% of the supply was safely managed,[6] and the rest with little assurance of adequate quantity, quality, or reliability.[7] Urban water supply service levels are generally poor, and significant disparities in access to services exist geographically and by income and ethnicity. Many systems are poorly maintained and not fully functional. Despite attempts to improve water quality, only 15% of water systems are reported to comply with national water quality standards. Water supply operators are evolving but find it hard to achieve operational and financial sustainability because of low tariffs, poor asset management, and inadequate institutional

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1 Government of Nepal, Central Bureau of Statistics. 2011. *National Census*. Kathamandu.
2 Government of Nepal, Ministry of Finance. 2016. *Economic Survey 2016–2017.* Kathmandu.
3 Government of Nepal. 2017. *National Urban Development Strategy*. Kathmandu.
4 Government of Nepal, National Planning Commission. *Approach Paper for the Fourteenth Plan.* Kathmandu.
5 Government of Nepal defines water supply service levels as "standard", "basic", "medium", and "high" based on quantity, quality, accessibility, reliability (duration and continuity), and service satisfaction.
6 "Safely managed" means that drinking water from an improved water source is located on premises, available when needed, and free from fecal and chemical contamination.
7 World Health Organization and United Nations Children's Fund. 2017. *Progress on Drinking Water, Sanitation and Hygiene: 2017 Update and SDG Baselines.* Geneva.

capacity. A changing and unpredictable climate poses a serious threat to water sources, assets, and functionality by depleting water tables and causing floods and landslides. From a gender perspective, women are disproportionately affected by poor water supply because it forces them to spend more time fetching water and fulfilling their household role of caring for those who fall ill from contaminated water. This leaves less time for income-generating activities and, in the case of school-aged girls, for study.

5. **Sanitation.** Although 52% of households in urban areas have at least basic sanitation,[8] lack of total sanitation with sanitary latrines and fecal sludge management as well as sanitation infrastructure for marginalized groups persists. In urban areas of Nepal, only 34% of households have septic tanks and only 15% of households have sewer connections. Adequate wastewater disposal and treatment remains a challenge. About 41% of local authorities were declared "open-defecation free" in 2015.[9] Development of stormwater drainage and sewerage systems in urban areas, along with wastewater treatment, lags the development of water supply facilities. The drainage network generally consists of roadside drains that are also used as sewers in most municipalities, and both design and capacity are inadequate. Poorly constructed and maintained drains contribute to waterlogging and unhygienic conditions in many municipalities. The waterlogging problem is severe in the Terai, particularly in the monsoon season. Public awareness of sanitation and related environmental and health risks is generally lacking.

2. Government Sector Strategy and Policy Framework

6. **National Urban Water Supply and Sanitation Sector Policy (2009).** The policy provides targets and guidelines for achieving equity in the delivery of urban water supply and wastewater services while also ensuring that financially marginalized households are supported through design and implementation of financial incentive schemes. The policy encourages private sector participation and involvement of users and provides directions for achieving full cost recovery for operation and maintenance and part-recovery of the capital cost in the urban water supply subsector.[10]

7. **Government's Fourteenth Three-Year Plan (FY2017–FY2019).** The plan targets high and inclusive economic growth through capital investment in infrastructure and urban services. It provides guidance on water, sanitation, and urban development, and highlights the need to counter the effects of rapid urbanization on basic urban services, water quality, sanitation, environment, and system maintenance. The plan focuses on improving functionality, enhancing service level standards, and expanding water and environmental sanitation in urban areas, and specifically endorses cost recovery from consumers.[11]

8. **Updated 15-year Development Plan for Water Supply and Sanitation in Small Towns.** Helping small towns invest in environmental infrastructure, especially water and sanitation, is a key priority for the government. This updated plan aims to achieve the following service levels: (i) water supply of 90–100 liters per capita per day to private households, (ii) 24-hour water supply with adequate residual pressure, (iii) at least 90% coverage of the service area after 5 years of

[8] Basic sanitation is the lowest-cost technology ensuring hygienic disposal of excreta and sullage and a clean and healthful living environment both at home and in users' neighborhood. The Government of Nepal defines sanitation service levels as "no service", "limited", "basic", and "improved" based on accessibility, facilities, use, reliability, and environmental protection.

[9] Government of Nepal, Water, Sanitation and Hygiene Resource Centre Network. 2015. *Open defecation free status update in Nepal.* Kathmandu.

[10] Government of Nepal. 2009. *National Urban Water Supply and Sanitation Sector Policy*. Kathmandu.

[11] Government of Nepal, National Planning Commission. 2016. *Government's Fourteenth Plan*. Kathmandu.

operation, (iv) treated water satisfying the National Drinking Water Quality Standards (2007), and (v) predominantly connections to private households.[12]

9. **National Urban Development Strategy (2017).** Building on the National Urban Policy (2007), the National Urban Development Strategy considers urban centers as catalysts for economic development and highlights the urban population's lack of access to water services, poor sanitation, environmental degradation, and lack of access to basic services by the urban poor as key issues requiring attention. The strategy also provides targets for urban water supply and wastewater service improvement.[13]

10. **Policy framework.** The Water Supply Management Board Act (2006) provides the legal basis for transfer of ownership of urban water supply and sanitation, and establishment of autonomous, independent local water management boards for the municipalities. The Directives on Operation of Water Supply Services (2012) enable effective provision of services for small-scale medium-level service providers. Citizens' access to safe water and sanitation services, and the right to live in a healthy and clean environment have been explicitly mentioned as the fundamental human right in Nepal's Constitution (2015). The Local Governance Operation Act (2017) established municipalities as autonomous government institutions with key roles in urban development, including water and sanitation services. The Ministry of Water Supply has issued total sanitation guidelines (2017) and is at an advanced stage of finalizing a new Water and Sanitation Policy and a National Water, Sanitation, and Hygiene Sector Development Plan.

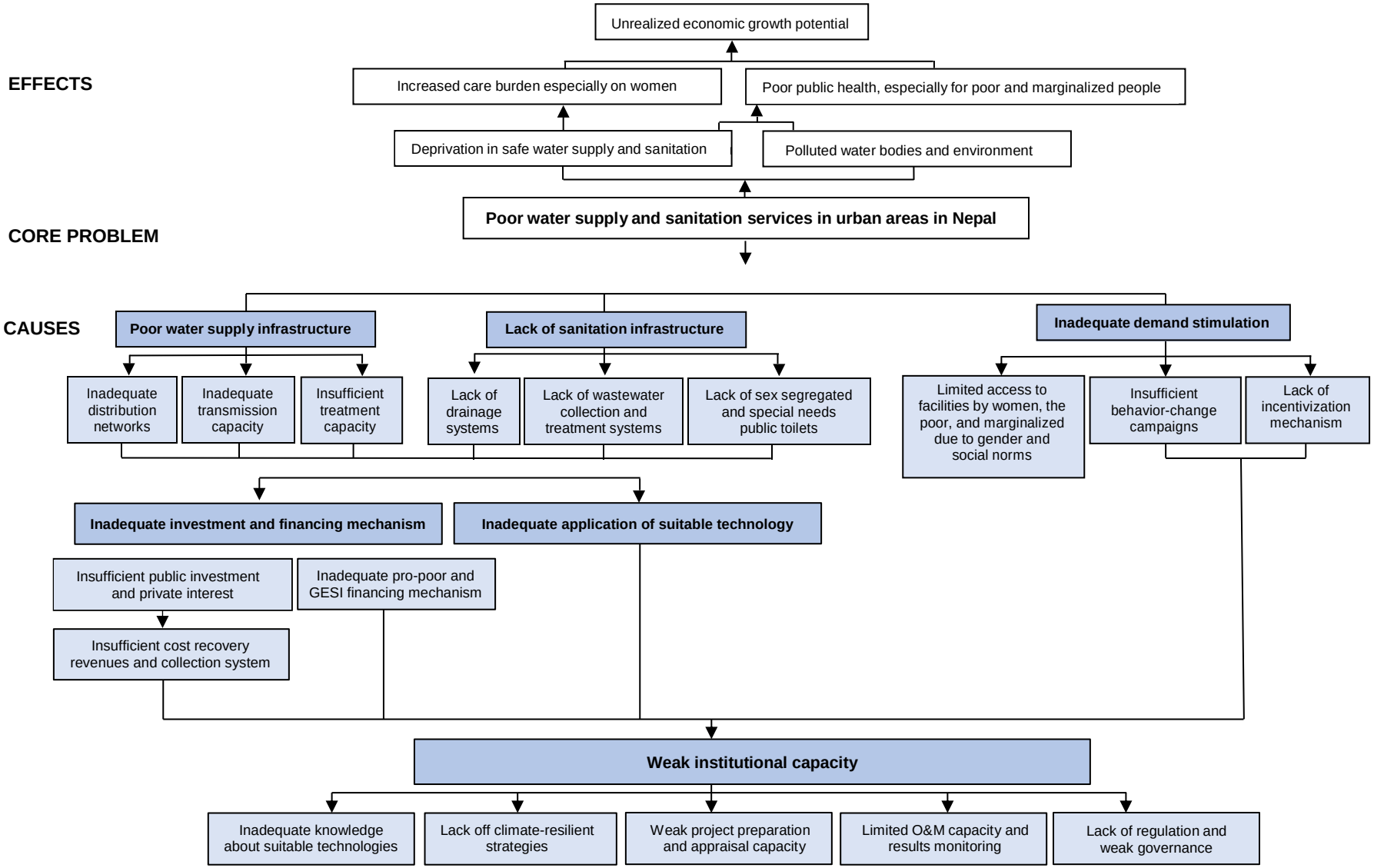
11. **Sector financing.** Urban water and sanitation services, being a local function, have received high attention from the government, development partners, and nongovernment organizations. This was driven by the national target to achieve basic water and sanitation services for all by 2017, and by the international agenda of the Millennium Development Goals and the Sustainable Development Goals. Annual sector spending by the national government increased from $140 million in 2010 to $340 million in 2017.

3. ADB Sector Experience and Assistance Program

12. The Asian Development Bank (ADB) has been the largest development partner in the water supply and other urban infrastructure and services (WUS) sector in Nepal. In addition to physical investments, ADB supported the improvement of technical and managerial capabilities of WUS institutions. It is supporting the government in (i) improving urban infrastructure, including water supply, sanitation, and urban transport; and (ii) institutional strengthening and capacity building of municipalities and water user and sanitation committees. Some of the key lessons from ADB's past involvement in WUS are that (i) effective social mobilization is essential; (ii) upfront consultations with key stakeholders ensure ownership and avoid start-up delays; (iii) poor functional relationships, collaboration, and unclear roles and responsibilities of sector agencies can lead to inefficient use of resources and suboptimal outcomes; (iv) weak institutional capacity of key stakeholders can have a direct and adverse impact on the implementation and success of urban projects; and (v) project quality should be carefully monitored at all stages of project execution.

[12] Government of Nepal, Ministry of Physical Planning and Works. 2015. *Updated 15-Year Development Plan for Small Towns Water Supply and Sanitation Sector*. Kathmandu.
[13] Government of Nepal, Ministry of Urban Development. 2017. *National Urban Development Strategy.* Kathmandu.

PROBLEM TREE



GESI = gender equality and social inclusion; O&M = operation and maintenance.

Sector Results Framework (Water and Other Urban Infrastructure and Services, 2013-2017[a]					
Country Sector Outcomes		**Country Sector Outputs**		**ADB Sector Operations**	
Sector Outcomes with ADB Contribution	**Indicators with Targets and Baselines**	**Sector Outputs with ADB Contribution**	**Indicators with Incremental Targets**	**Planned and Ongoing ADB Interventions**	**Main Outputs Expected from ADB Interventions**
Increased use of water supply and sanitation services	Population using improved water supply – Target (2017): 100%, Baseline (2012): 85% Population using sanitation facilities – Target (2017): 100%, Baseline (2012): 62% Urban population with medium–high service level of water supply – Target (2017): 27%, Baseline (2012): 12% Population using services for wastewater management – Target (2017): 1.9 m, Baseline (2011): 1.2 m	Water supply, sanitation systems, and other urban services expanded, improved, and sustained	Number of water supply schemes with treatment facilities Target (2017): 70 Baseline (2012): 50 Number of open defecation-free areas Target (2017): all VDCs and municipalities Baseline (2012): 647 VDCs and 4 municipalities Length of new sewer network installed Target (2017): 520 km Baseline (2012): 0 km Number of landfill sites Target (2017): 6 Baseline (2012): 2 Percentage of budget that is GESI-responsive Target (2017): 30% Baseline (2012): 22% Nonrevenue water in Kathmandu Valley Target (2017): 20% Baseline (2011): 50%	**Planned key activity areas** Water supply and sanitation (drinking water systems, sanitation systems, wastewater management, operation and maintenance, tariff policies, and sector development) (69% of funding) Other urban infrastructure and sector development (urban governance, urban planning, urban environmental policies, urban roads, drainage, solid waste management) (31% of funding) **Pipeline projects** Regional Urban Development Project ($150 million); Third Small Towns Water Supply and Sanitation – Additional Financing ($100 million); and Melamchi Water Supply – Phase 2 ($165 million) **Ongoing projects** Melamchi Water Supply ($192 million); Second Small Towns Water Supply and Sanitation Sector ($45.1 million); Secondary Towns Integrated Urban Environment Improvement ($60 million); Kathmandu Sustainable Urban Transport ($20 million); Integrated Urban Development ($56.8 million); Kathmandu Valley Water Supply Improvement Project ($170 million); Kathmandu Valley Wastewater Management ($80 million); and Third Small Towns Water Supply and Sanitation ($60 million)	**Planned key activity areas and pipeline projects** 90.5 million liters of wastewater treated per day; 750 km of water supply pipeline installed; 500 km of sewers installed; 30,000 households served with improved water supply; 200 km of stormwater drains constructed or rehabilitated; 240 km of roads improved; and 4 sanitary landfills constructed. **Ongoing projects** 203,136 households served with improved water supply; 1,910 km of water supply pipeline installed; 7 wastewater treatment facilities constructed and 2 rehabilitated; 4 sanitary landfills constructed; and GESI-responsive mechanisms for planning and monitoring established

ADB = Asian Development Bank, GESI = gender and social inclusion, km = kilometer, m = meter, MOUD = Ministry of Urban Development, VDC = village development committee.

[a] The country operations business plan of September 2017 extended the country partnership strategy, 2013–2017 until December 2019.

Source: Asian Development Bank estimates based on discussions with the Government of Nepal.