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SANITATION AND HYGIENE SECTOR CAPACITY NEEDS ASSESSMENT

NEPAL COUNTRY REPORT

OCTOBER 2023

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ACRONYMS AND ABBREVIATIONS

ADB	Asian Development Bank
AWS	Area-Wide Sanitation
BCC	Behavior Change Communication
CBO	Community-Based Organization
CNA	Capacity Needs Assessment
CSO	Civil Society Organization
CTEVT	Center for Technical Education and Vocational Training
DP	Development Partner
DWSSM	Department of Water Supply and Sewerage Management
ENPHO	Environment and Public Health Organization
FEDWASUN	Federation of Drinking Water and Sanitation Users Nepal
FGD	Focus Group Discussion
FSM	Fecal Sludge Management
FSTP	Fecal Sludge Treatment Plant
GESI	Gender Equality and Social Inclusion
GON	Government of Nepal
HH	Household
HR	Human Resources
INGO	International Nongovernmental Organization
IPC	Infection Prevention and Control
IT	Information Technology
JMP	Joint Monitoring Program
KII	Key Informant Interview
LISA	Local Government Institutional Capacity Self-Assessment
M&E	Monitoring and Evaluation
MHM	Menstrual Hygiene Management
MIS	Management Information System
MOEST	Ministry of Education, Science, and Technology
MOFAGA	Ministry of Federal Affairs and General Administration
MOHP	Ministry of Health and Population

MOICS	Ministry of Industry, Commerce, and Supplies
MOWS	Ministry of Water Supply
MUAN	Municipal Association of Nepal
M-WASHCC	Municipal WASH Coordination Committee
NARMIN	National Association of Rural Municipalities in Nepal
NGO	Nongovernmental Organization
NMIS	National Management Information System
NWASH	National WASH Monitoring System
N-WASHCC	National WASH Coordination Committee
NWSSTC	National Water Supply and Sanitation Training Center
O&M	Operations and Maintenance
OD/ODF	Open Defecation/Open Defecation Free
PLGSP	Provincial and Local Government Support System
P-WASHCC	Province WASH Coordination Committee
SDG	Sustainable Development Goal
SDP	Sector Development Plan
TOT	Training of Trainers
TU	Tribhuvan University
UNICEF	United Nations Children’s Fund
USAID	United States Agency for International Development
VMW	Village Maintenance Worker
WASH	Water, Sanitation, and Hygiene
WHO	World Health Organization
WSST	Water Supply and Sanitation Technician
WSUC	Water and Sanitation User Committee

PREFACE

The United States Agency for International Development (USAID) Water, Sanitation, and Hygiene Partnerships and Learning for Sustainability (WASHPaLS) #2 is a five-year (2021–2026) activity implemented by Tetra Tech and partners. The project aims to strengthen USAID’s and partners’ water, sanitation, and hygiene (WASH) programming through support for learning and adoption of the evidence-based programmatic foundations needed to achieve the Sustainable Development Goal 6.2. The overarching theme for WASHPaLS #2 learning and research is area-wide sanitation (AWS). In addition to defining and seeking to understand effective implementation of AWS, WASHPaLS #2 implementation research also focuses on market-based sanitation and social and behavior change to reduce pathogen transmission pathways for infants and young children.

From March to October 2022, WASHPaLS #2 conducted a sanitation and hygiene sector workforce capacity needs assessment (CNA) focused on sub-Saharan Africa and South and Southeast Asia. The objective of the assessment was to better understand the capacity needs across the sanitation and hygiene sector and the dynamics at play in trying to address these needs to inform a roadmap of agreed-upon priority actions and pathways for the sector at multiple levels. The assessment focused on the human resource requirements to deliver area-wide rural sanitation and hygiene sustainably and at scale, with emphasis on on-site sanitation.

WASHPaLS #2 conducted six country-level CNAs, including in Nepal, to validate and complement initial findings from a global review and to understand local dynamics. Other country-level assessments were conducted in India, the Philippines, Ghana, Nigeria, and Rwanda. This report presents the findings from the CNA in Nepal.

EXECUTIVE SUMMARY

From March to October 2022, the United States Agency for International Development (USAID) Water, Sanitation, and Hygiene Partnerships and Learning for Sustainability (WASHPaLS) #2 project conducted a sanitation and hygiene sector workforce capacity needs assessment (CNA) focused on sub-Saharan Africa and South and Southeast Asia. The CNA concentrated on rural on-site sanitation and hygiene and was designed to assess the human resources (HR) capacity needed to deliver safely managed area-wide sanitation and basic hygiene sustainably and at scale. The overall assessment included six country-level CNAs, including in Nepal. The Nepal CNA included a document review, key informant interviews (KIIs), and focus group discussions (FGDs) across Nepal's three levels of governance, and field work in two districts—Dailekh (Karnali Province) and Rautahat (Madhesh Province)—and two municipalities—Narayan Municipality in Dailekh district and Gaur Municipality in Rautahat.

KEY FINDINGS

The assessment found a significant shortage of HR in the rural sanitation and hygiene workforce. Following Nepal's federalization and the associated public service reorganization, local governments are responsible for WASH service delivery. However, a 2019 assessment indicated that 50 percent of HR capacity needs of the provincial and local governments were yet to be filled (GON/World Bank/UNDP 2019). According to the Department of Water Supply and Sewerage Management (DWSSM) Business Plan, approximately 1.5 times the current levels of staffing are needed (Ministry of Water Supply [MOWS] 2019). Almost all functions required to deliver safely managed sanitation and hygiene face an HR shortage, particularly in rural remote and on-road areas.

Comprehensive HR planning, data collection, and analysis are absent or not prioritized.

The assessment found no systematic record keeping of sanitation and hygiene service providers under different tiers of the government. While the Nepal open-defecation free (ODF) campaign relied heavily on volunteers, no institutional record of these volunteers was available with the MOWS or elsewhere.

Sanitation and hygiene are not adequately prioritized across the three tiers of government, resulting in a lack of jobs and job opportunities. For example, there is a lack of WASH procedural guidelines to implement the Water and Sanitation Act of 2022, and while mandated by MOWS, there are limited municipal/local WASH plans and WASH units in place. While not actively tracked, the number of WASH units was said by informants to correspond to the number of Municipal (M)-WASH Plans developed; at the time of the assessment, fewer than 200 of the country's 753 municipalities had either completed or were in the process of developing M-WASH Plans. Post-ODF total sanitation activities do not get proper attention in recent government policies, and the sector lacks an enabling business environment needed to stimulate increased private sector engagement in sanitation and hygiene service delivery. As a result, local governments have no or limited internal funding to hire needed staff, and private sector investment in HR is equally low.

Work conditions for rural sanitation and hygiene sector workers are poor, hindering the attraction of highly skilled professionals. Low incentives, lower remuneration packages compared to inflation, lack of performance evaluations and rewards, and geographical barriers are further aggravated by a lack of adequate and timely recruitment and a lack of publicity for job advertisements. The inflow of staff is especially low in the mountain and high hill areas.

Additionally, there is strong gender inequality and persistent stigma and discrimination associated with sanitation jobs. While no province has detailed disaggregated data available, the assessment team found limited participation of female staff in the sanitation and hygiene sector and an absence of comprehensive gender equality and social inclusion (GESI) policies for the WASH or sanitation and hygiene sectors. Sanitation and hygiene work, particularly that linked to emptying and

cleaning sanitation facilities, is stigmatized and restricted to the so-called Dalit castes, who face strong discrimination and exclusion. In general, individuals portray a lack of interest and have negative perceptions of working in rural (remote) areas, with female staff particularly considering it unsuitable.

HR needs, supply, and training opportunities are mismatched, resulting in an insufficient supply of graduates in on-site sanitation and hygiene, competency gaps, and limited skills diversity within the workforce. Resources for and access to capacity development and certification are insufficient. Capacity development in the Nepal WASH sector is driven by academic/professional institutions that provide pre-service academic courses; in-house/in-service training through the DWSSM's National Water Supply and Sanitation Training Center (NWSSTC); and short-term capacity development training provided by development partners (DPs). However, DP training is not usually linked with NWSSTC training nor with the Ministry of Federal Affairs and General Administration's (MOFAGA) training. Moreover, there are limited on-the-job training centers in the country, requiring training participants to travel long distances.

The assessment found an overproduction of civil engineers and fewer lower-level graduates such as sanitation technicians, despite demand. At the federal level, informants indicated a need for a wider diversity of staff beyond the more traditional engineering roles, including climatologists, information technology (IT), monitoring, and social and behavior change and GESI specialists. Urbanization, climate change, and the associated rise in natural disasters will further affect required skills and competencies, including around coordination, risk management, and design and management of sanitation and hygiene services. However, the KIIs reported a lack of coordination and harmonization among training and education institutions and the government (e.g., MOWS) regarding the sector demand and supply of HR.

RECOMMENDATIONS

Several high-level recommendations emerged from the analysis. These are aimed at primary stakeholders active in the sector and are structured around key areas of engagement: Policy and Oversight, Training and Capacity Development, and Product and Service Delivery. Section 7 provides the recommendations in Table 9 that incorporates timeframes and responsible party/parties.

INSTITUTIONS RESPONSIBLE FOR POLICY AND OVERSIGHT

1. Undertake a national HR capacity needs assessment for sanitation and hygiene and routine monitoring on HR

The (broader WASH sector) HR capacity needs assessment should include the role of informal sector actors and volunteers, as well as HR needs and sanitation and hygiene related contributions of other aligned sectors such as health, education, and agriculture. Federal and local government departments and DPs engaged in sector recruitment and hiring should also generate and update HR databases on WASH sector HR, including volunteers, disaggregated by gender, caste/ethnicity, age, levels, qualifications, and areas they served (rural, peri-urban/mixed rural, and urban). This could possibly be a module in the national WASH monitoring system (NWASH). Improved WASH performance, and related HR capacity, could be stimulated further by inclusion of WASH performance monitoring in systems such as the Local Government Institutional Capacity Self-Assessment (LISA).

2. Coordinate and plan to prioritize sanitation and hygiene job creation and fulfillment of the required functions

A National WASH Coordination Committee (N-WASHCC), as well as provincial (P-WASHCC) and local government (Municipal (M)-WASHCC) committees should be established and/or operationalized across the country to support governments manage human and financial resources as per their WASH

plans. MOWS with MOFAGA (and the N-WASHCC) should develop a comprehensive, GESI-responsive sanitation and hygiene capacity improvement strategy and HR management plan, in alignment with existing programs, plans, and roadmaps. And in line with guidance provided by the DWSSM, dedicated WASH units should be established and appropriately staffed in all local governments, and central government and the DPs should provide coordinated support to develop municipal WASH plans, policies, and acts.

INSTITUTIONS RESPONSIBLE FOR POLICY AND OVERSIGHT IN CONJUNCTION WITH PRODUCT AND SERVICE PROVIDERS

3. Improve sanitation and hygiene sector workforce conditions for staff and volunteers

To ensure appropriate and full staffing in rural municipalities in line with the capacity improvement strategy and HR management plan, MOFAGA and federal government line ministries should explore opportunities to increase incentives for staff working in remote areas, such as higher scores for promotion against the number of years worked, and access to scholarships or other capacity development opportunities (see Recommendation 5). Incentives also may be required to attract expert candidates for critical jobs identified as part of the proposed comprehensive HR needs assessment, such as on fecal sludge management (FSM), wastewater treatment, research, policy and guideline development, statistics, and management information systems/IT.

Given local government HR shortages, local governments/Municipal WASH Coordination Committee (M-WASHCC) partners should seek to identify and (re)engage the volunteers (social mobilizers, natural leaders, etc.) involved in the ODF campaign to provide essential support to the post-ODF total sanitation campaign. As possible, local governments and implementing partners should provide volunteers with incentives such as travel allowance, (output-based) stipends, or certificates. Further research is needed to better understand sustainability considerations and effective management of such volunteer programs by local governments.

4. Dignify sanitation and hygiene sector roles and break down stigma and barriers

Local governments, with support from MOWS and other federal agencies, should improve support to (informal) sanitation workers to address the stigma they face, as well as the discrimination and exclusion faced by Dalits and disadvantaged groups involved in the sector. This may require dedicated support programs as well as broader campaigns to improve the position of Dalits and disadvantaged groups in Nepal.

INSTITUTIONS RESPONSIBLE FOR POLICY AND OVERSIGHT IN CONJUNCTION WITH PRODUCT AND SERVICE PROVIDERS AND TRAINING AND CAPACITY DEVELOPMENT INSTITUTIONS

5. Strengthen coordination and supply of sanitation and hygiene capacity development

MOWS and DPs should coordinate to ensure that DP investments in capacity development use or support the Government of Nepal training curricula or otherwise support the capacity improvement strategy proposed under recommendation 2. Informed by the strategy, DWSSM in coordination with academic and training institutions should also review and revise the technical curricula of the courses that supply HR to the WASH sector to reflect current and future skills, knowledge, and capacity needs.

Lastly, government stakeholders including the NWSSTC and with DP support should invest in more varied and accessible sanitation and hygiene capacity development opportunities across the country, such as increasing on-the-job and virtual training opportunities, exploring the development of more training centers to increase proximity to physical training opportunities, and/or focusing on skills identified as high priority in the HR assessment such as FSM, monitoring, and planning.

I.0 INTRODUCTION

I.1 BACKGROUND AND OBJECTIVE OF THE STUDY

With less than a decade remaining to achieve Sustainable Development Goal (SDG) Target 6.2, to “by 2030, achieve access to adequate and equitable sanitation and hygiene for all and end open defecation (OD), paying special attention to the needs of women and girls and those in vulnerable situations,” many countries still lag significantly behind. Accelerating progress toward universal sanitation and hygiene requires tackling many systemic barriers and challenges, including those related to ensuring a sufficiently skilled and resourced workforce.

In this context, the United States Agency for International Development’s (USAID) Water, Sanitation, and Hygiene Partnerships and Learning for Sustainability (WASHPaLS) #2 project conducted a sanitation and hygiene sector workforce capacity needs assessment (CNA), focused on sub-Saharan Africa and South and Southeast Asia. The objectives of the assessment were to:

1. Understand the current and future human resources (HR) capacity needs and gaps across the sanitation and hygiene sector and the dynamics at play in trying to address these needs; and
2. Identify priority actions and pathways for sector partners to address the identified needs and barriers, and capture these in a roadmap of actions and commitments.

Considering the identified lack of information in this space, the capacity needs assessment concentrated on rural sanitation and hygiene and was designed to assess the HR capacity needed to deliver safely managed area-wide sanitation and basic hygiene sustainably and at scale, with emphasis on on-site sanitation. The overall assessment included six country-level CNAs to validate and complement initial findings from a global desk review and informant interviews and to understand local dynamics. The assessment team developed a framework to guide the global and country assessments (see Annex I), which included important definitions, geographical area definitions, and a categorization of key functions deemed essential to perform sanitation and hygiene programming and service delivery, against which HR capacity could be assessed.

The country assessment was informed by four key questions guiding the overarching sector capacity needs assessment:

1. What are the HR capacity gaps impeding sanitation and hygiene sector achievement of universal access to sustainable services?
2. What are the different modalities for sanitation and hygiene sector capacity development and to what extent have they contributed to achieving and sustaining the needed human capital?
3. What are the barriers and incentives to access, recruit, promote, and retain existing workforce capacity?
4. What are the recommended priority actions to address HR capacity gaps in the sanitation and hygiene sectors?

This report presents the findings and recommendations from the Nepal CNA conducted in September and October 2022. It seeks to inform the Government of Nepal (GON) and its country-level partners, including international nongovernmental organizations (INGOs), nongovernmental organizations (NGOs), training and education institutes, and development partners (DPs), on the identified capacity needs and sector dynamics, and concludes with a set of proposed recommendations for further discussion and action.

I.2 METHODOLOGY

The assessment team conducted the assessment using several data collection methods, including a document review, key informant interviews (KIIs), and focus group discussions (FGDs). The team reviewed the GON's acts, policies, programs, strategies, and guidelines on WASH, as well as numerous other studies and reports (see References).

The assessment was conducted at the national, provincial, and local levels, corresponding to the three-tiers of the federal governance system. KIIs at the federal level were conducted over the course of the assessment. Based on a discussion with the Ministry of Water Supply (MOWS), the assessment team selected two of Nepal's seven provinces that have a low human development index on which to focus: Madhesh Province and Karnali Province, and within each identified one focus district: Rautahat in Madhesh Province and Dailekh in Karnali Province. Dailekh district represents a hill district while Rautahat represents a terai district. The local assessment team interviewed officials at the province office in Janakpur, capital of Madhesh Province before conducting a field visit to Gaur Municipality in Rautahat district for KIIs and FGDs. Similarly, the team visited provincial offices in Surkhet, capital of Karnali Province, and met with provincial-level informants from the Ministry of Water Resources and Energy and the Ministry of Physical Infrastructure, and DPs working in Karnali Province. This was followed by a field visit to Narayan Municipality in Dailekh district.

In addition to KIIs with selected government representatives from the federal, provincial, and local governments, the assessment team also interviewed and held FGDs with persons involved in providing WASH services such as civil engineers, sanitation technicians, plumbers, masons, cleaners, drivers, health workers, female community health volunteers, teachers, and school helpers. KIIs also were conducted with representatives of the United Nations Children's Fund (UNICEF), World Health Organization (WHO), and the Environment and Public Health Organization (ENPHO) at the federal level. Altogether, 19 key informants were interviewed at the federal level, eight at the provincial levels, and 30 at the local government level, including through two FGDs in Rautahat and Dailekh districts. (See Annex 2 for the list of the key informants.)

I.3 LIMITATIONS OF THE STUDY

The Nepal capacity needs assessment was not an in-depth, exhaustive assessment and did not set out to estimate quantitatively the HR gaps in the Nepal sanitation and hygiene sector as a whole. Concrete quantitative data on WASH sector HR are not systematically tracked and reported in Nepal. As a result, findings and recommendations in the report draw largely on qualitative data obtained from various sources through KIIs and FGDs and on the secondary information collected. Initially, the assessment was planned in three districts—one each from mountain, hill, and terai. However, due to time constraints and festival holidays (Dashain, Tihar, and Chhat festivals), the assessment was limited to the two districts noted above.

2.0 SECTOR CONTEXT AND ENABLING ENVIRONMENT

2.1 COUNTRY PROGRESS TOWARD SDGS

Nepal has an estimated population of 29.2 million (NSO 2021). Of this, approximately 34 percent live in rural areas or “rural municipalities,” while about 66 percent live in urban areas, including metropolitan, sub-metropolitan, and municipalities (NSO 2021). In the past decade, Nepal has made significant progress in increasing household (HH) coverage of basic sanitation. As a result, on the 30th of September 2019, the Prime Minister declared all 77 districts of Nepal to be Open Defecation Free (ODF) (UNSDG 2019). As reported in the 2019 Multiple Indicator Cluster Survey (MICS), 95 percent of the population has at least basic water supply access, 94 percent has access to improved sanitation services (with about 79 percent of HHs using improved facilities that are not shared), and 80 percent has access to a basic handwashing facility. In this period, Nepal benefited from a strong enabling environment accompanying the ODF campaign, including the 2011 Sanitation and Hygiene Master Plan (Steering Committee for National Sanitation Action [SCNSA] 2011), a clear institutional structure with mandates, inter-sectoral coordination, and government leadership.

However, notwithstanding the ODF declaration, five percent of the population was still reported to rely on OD and two percent of the population has no hygiene facilities (NPC/CBS/UNICEF 2019). Additionally, interviews with informants from UNICEF, the Department of Water Supply and Sewerage Management (DWSSM) in the MOWS and municipal authorities highlighted that local studies have shown that slippage can be between 20 to 44 percent. Also, the levels of access to safely managed sanitation services are questionable, with 80 percent of septic tanks and other improved onsite sanitation facilities reported as never emptied (NPC/CBS/UNICEF 2019).

The Nepal SDG Progress Report (2016-2019) does not include targets and achievements on improved sanitation facilities at schools, health care facilities, and public places, nor progress on hygiene. During the fieldwork, the assessment team observed that schools and health posts lacked disability-friendly toilets, and in particular, schools did not have an adequate number of toilets (1:50 for boys and 1:25 for girls, and handwashing with soap as per the Ministry of Education, Science, and Technology [MOEST] norm).

In Nepal, schools construct toilets with funds from the MOEST/government budget or through DP support, but in either case, they must follow the design prescribed by the MOEST. However, the MOEST toilet design is not child friendly nor helpful for menstrual hygiene management (MHM). During field observation, MHM at school, in particular collection and safe disposal of sanitary pads, was not seen to be facilitated.

2.2 INSTITUTIONAL ARRANGEMENTS, KEY SECTOR ACTORS, AND SANITATION AND HYGIENE FUNCTIONS

The Nepalese constitution of 2015 (GON 2015) established a three-tiered federal governance system that includes federal, provincial (7 provinces), and local levels (77 districts, subdivided into 460 rural municipalities and 293 ‘municipalities, metropolitan, and non-metropolitan local cities’). The constitution emphasizes decentralization of roles and responsibilities to the local level to provide effective and sustainable services, including WASH services. Notably, the previously centralized civil service system was reorganized across the three levels of government, with many staff and functions shifting places. The institutional structures for the WASH sector were similarly reorganized, including through the creation of the MOWS in 2015 as the lead ministry. MOWS is responsible for formulation of WASH policies and plans at the national level, as well as programmatic planning, implementation, regulation, monitoring, and

evaluation. Within MOWS, the DWSSM oversees implementation of both rural and urban WASH projects to achieve sector targets (USAID 2022).

In addition to MOWS, multiple ministries and government agencies share responsibility for the delivery of sanitation and hygiene services. Based on the desk review and interviews, the assessment team identified the key actors linked to each of the sanitation and hygiene functions outlined in the assessment framework and mapped them against the four rural geographies described in the 2019 *Guidance on Programming for Rural Sanitation* (WaterAid 2019). Functions and geographic area definitions are provided in Annex I. Table I provides an overview of actors and their institutional responsibilities for sanitation and hygiene, in the post-2015 governance system.

TABLE I. INSTITUTIONAL RESPONSIBILITIES BY FUNCTION AND ACTOR				
FUNCTION	RURAL REMOTE	RURAL-ON-ROAD	RURAL MIXED (PERI URBAN)	URBAN (INFORMAL)
Policy, strategy, and coordination (federal/provincial/local)	None	MOWS	MOWS Ministry of Federal Affairs and General Administration (MOFAGA), Ministry of Health and Population (MOHP) Ministry of Physical Infrastructure, Ministry of Urban Development	
Regulation (federal/provincial/local)	National level: MOWS, MOFAGA, MOHP, Ministry of Industry, Commerce, and Supplies (MOICS) Provincial and local level: none			
Monitoring (federal/provincial/local)	None	None	Provincial Ministry/ Local: M-WASHCC	MOWS
Advocacy (holding government to account)	None	None	Water and Sanitation User Committee (WSUC)	Federation of Drinking Water and Sanitation Users Nepal (FEDWASUN)
Oversight and support (local)	Non-governmental organizations (NGOs)/civil society organizations (CSOs) WSUC	NGO/CSOs WSUC	NGO/CSOs WSUC	Provincial government NGO/CSOs WSUC
Construction	HHs, informal private sector (hired by CSOs and government)	HHs, informal private sector (hired by CSOs and government)	HHs, informal private sector (hired by CSOs and government)	Private sector consulting, HHs, and government
Community mobilization and engagement	None	NGO/community-based organizations (CBOs) WSUCs	NGO/CBOs WSUCs	NGO/CBOs WSUCs, local government
Emptying and transport	None	None	Pit emptiers/ municipal vehicles with cleaners	Sub-Metropolitan/ Metropolitan utilities

TABLE I. INSTITUTIONAL RESPONSIBILITIES BY FUNCTION AND ACTOR				
FUNCTION	RURAL REMOTE	RURAL-ON-ROAD	RURAL MIXED (PERI URBAN)	URBAN (INFORMAL)
Operation and maintenance (O&M) (including treatment, disposal, and/or reuse)	HHs WSUC	HHs, WSUC	Municipality, CSOs, WSUCs, HHs	Sub/Metropolitan-utilities only sewerage, HHs for onsite O&M
Research and design	Higher Education/Academic Institutions Research Institutes/Consulting Firms Private firms/entrepreneurs NGOs			
Business development	MOICS, private sector, DPS, NGO/CBOs			
Training and capacity development (national/provincial)	None	None	NGO/CSOs Municipality	MOWS/ DWSSM, MOHP, MOFAGA Provincial government

Table I shows that particularly for rural remote and rural-on-road settings, there are no actors in place, particularly from the local government, to carry out functions such as policy support, advocacy, community mobilization, behavior change communication (BCC), emptying of fecal sludge, and follow up monitoring and reporting to the National WASH (N-WASH) monitoring system. The responsibility of design, construction, and O&M of sanitation facilities lies with the HHs. While not listed as official functions in the original assessment framework, the Nepal team added functions for training and capacity building and for advocacy/holding government to account. Here as well, there is limited to no access to training and capacity development for artisans or other sanitation and hygiene workers in rural remote and rural-on-road areas, nor are there active advocacy groups.

The responsibilities for fecal sludge management (FSM) and O&M are delegated to the local level. Provinces are charged with designing and implementing medium-size infrastructure construction projects, but informants reported being unclear about what comprises big and medium size projects at both federal and provincial levels, with the federal level taking responsibility for mega/bigger infrastructure development projects. Annex 3 contains an overview of the actors and their responsibilities outlined by level of governance. Staff positions and their indicative functions are discussed further in Section 4.

While progress has been made, Nepal's goals of achieving universal access to safely managed water supply and sanitation services are facing a growing funding gap, which is expected to reach approximately USD 1.6 billion annually by 2030 (USAID 2022). WaterAid estimates that government allocations will provide less than one half of the financing required (WaterAid 2018). Moreover, most budget is allocated to standalone water supply and combined water supply and sanitation programs, with budget for standalone sanitation projects/programs accounting for only 11 percent of the total WASH budget in 2022-2023. Also, only 17 percent of the federal WASH budget is allocated solely to rural programs (WaterAid 2022). Moreover, DP and INGO funding in the sanitation and hygiene sectors has decreased in recent years, with several programs supporting the ODF campaign coming to an end.

2.3 LABOR MARKET DYNAMICS

The available data on the labor workforce (15 years old and above) indicates that in 2018 20.7 million people (71.4 percent¹ of the total population) were of working age, of which 55.6 percent were female. The female employment-to-population ratio is 22.9 percent, which is 25.4 percentage points lower than the male employment-to-population ratio. The female labor force participation rate was 26.3 percent compared to 53.8 percent for males (NPC/CBS/ILO 2018).

Of the 7.1 million people employed in 2018, about 38 percent worked in the formal sector, while 62 percent were in the informal sector. The main contributor to total employment was the informal non-agriculture sector, accounting for 41 percent of all jobs. Youth unemployment is significant (Table 2).

WORKFORCE 15+ YEARS (MILLIONS)	WORKFORCE EMPLOYED (MILLIONS)	FEMALE WORKFORCE 15+ YEARS (MILLIONS, %)	UNEMPLOYMENT 15+ YEARS (%)	YOUTH UNEMPLOYMENT 15-24 YEARS (%)	YOUTH UNEMPLOYMENT 25-34 YEARS (%)	NOT IN THE LABOR FORCE, ENGAGED IN PRODUCTION OF GOODS FOR FINAL OWN USE (MILLIONS)
20.7	7.1	11.5 (55.6%)	11.4%	38.1%	31.1%	12.3
(NPC/CBS/ILO 2018)			(Female 13%)			

The Labour Force Survey shows that in 2018 908,000 Nepalese were actively looking for work (i.e., unemployed) (NPC/CBS/ILO 2018). Overall, 69.1 percent of job seekers in Nepal were young people aged between 15 and 34 years old (NPC/CBS/ILO 2018). While those in the age group 15–24 years accounted for 27.3 percent of the working age population, this age group was over-represented (38.1 percent) among the unemployed.

Annually, about 450,000 youth enter the labor market in Nepal, and most of them lack the skills to compete (ADB 2015). Several factors are said to contribute to youth unemployment in Nepal, including lack of technical skills required for jobs, a lack of internships and on-the-job training while studying, and a lack of technical training institutions, particularly in remote areas. A survey conducted among engineering graduates identified political instability, lack of opportunities, and corruption as the main factors behind unemployment. According to the World Bank, insufficient employment opportunities and/or inadequate qualifications are the main causes of unemployment in Nepal (Raju and Rajbhandary 2018).

With only 7.1 million out of 20.7 million people of working age employed in either the formal or informal sector, the group of people not participating in the labor force is large. As shown in Table 2, approximately 12.3 million people aged 15 years and above reported to have been involved in production of goods for final own use in the 30 days prior to the interviews. These activities included subsistence food production; manufacturing of HH goods; fetching of water; collection of firewood; and construction of or major repairs to own dwelling. The 2018 survey showed that females were more likely to be involved in these activities (65.7 percent of females were involved compared to 51.4 percent of males). Fifty-five percent of those aged 15 years and above were involved in production of subsistence food stuffs. Lastly, about two percent of individuals aged 15 years and above reported having been involved in volunteer work in the 30 days prior to the interviews (NPC/CBS/ILO 2018).

¹ Calculated on a total population figure of 29 million in 2018, not the 29.2 million reported in the 2021 national census.

Migrant labor is an important source of income for Nepal. The 2021 Census report (NSO 2021) indicates that 2,169,478 Nepalis are living abroad, an increase from 1,921,494 in 2011. While female migrants are only 17.8 percent of persons living abroad, the number of female migrants increased by 71 percent from the previous census. A large proportion of youth seek employment in India, Malaysia, or Middle Eastern countries, mostly in low-skilled jobs. A 2014 report showed that nearly 75 per cent of the migrant workers were “unskilled” (Ministry of Labour and Employment 2014). In all, migrant remittances account for more than 30 percent of Nepal’s Gross Domestic Product (GDP) (ILO 2021).

3.0 EXISTING HUMAN RESOURCES FOR SANITATION AND HYGIENE

As discussed in Section 2.2, the three tiers of government have responsibility for the delivery of sanitation and hygiene services. They are, however, supported by a large group of volunteers, formal and informal private sector actors, and DPs and (I)NGOs. This section discusses the sanitation and hygiene HR capacity of the public sector, as well as the roles played by and the HR considerations concerning the broader set of actors.

3.1 PUBLIC SECTOR HUMAN RESOURCE CAPACITY

Following enactment of the new constitution in 2015, the civil service system underwent a readjustment and redistribution of HR that resulted in the relocation of staff from the federal level to the provincial and local levels. During the readjustment process, MOFAGA requested that civil servants submit their preferred level of government service. Of the civil servants who responded, 46 percent chose federal, 18 percent province, and 36 percent local level, which gives an indication of the large preference of civil servants to work at federal level.

While some staff were indeed reallocated, the civil service overall still faces staff shortages. In 2019, the Nepal Capacity Needs Assessment for the Transition to Federalism (GON/World Bank/UNDP 2019) noted that the proposed required staffing level for the entire federal level is 41,335 (GON/World Bank/UNDP 2019). Similarly, the proposed provincial government staffing level is 21,399, and proposed local government staffing level is 66,750. With regards to these proposed numbers, the HR gap in 2019 at the local level was 22,943 (34 percent), at the provincial level it was 7,578 (35 percent), and at the federal level 8,530 (20 percent), including in MOWS (GON/World Bank/UNDP 2019).

The same report argues for a comprehensive capacity improvement strategy and program. To fill the required HR positions, the provincial and local governments have the authority to conduct their own organization and management surveys to determine their staffing needs. However, in the absence of provincial public service commissions, the local governments have to rely on the Federal Civil Service Commission to carry out the recruitment process.

In addition to numerical shortages, the 2019 Nepal Capacity Needs Assessment reported that while there were differences between levels and among units of provincial and local governments, a number of capacity gaps appeared to be widespread. Five critical elements reported to be missing in many, if not a majority of jurisdictions were: 1) medium-term planning; 2) clear roles and responsibilities of individual staff; 3) procurement; 4) managing performance of organizational units and individuals; and 5) gender equality and social inclusion (GESI). With regards to HR management, one half of local governments had written job descriptions available for all positions envisioned in their organizational structure. But less than one third of local governments reported having their own laws/policies for managing their staff in terms of leave approval, performance appraisal, reporting rules, etc. (GON/World Bank/UNDP 2019).

Regarding sanitation and hygiene, although Nepal had started the process of developing a WASH sector capacity development Master Plan in 2015, it was put on hold in 2016-2017 because of non-approval of the Nepal Water Supply and Sanitation Sector Development Plan (2016-2030) (SDP) (Ministry of Water Supply and Sanitation 2016). This SDP is still in draft and is expected to be replaced by an integrated WASH development policy entitled the 'National Water Supply, Sanitation and Hygiene Policy' that is currently under preparation (Group discussion, UNICEF, KII MOWS).

While it appears that the labor force in the WASH sector followed the general reallocation noted above and some jobs moved from the federal level to the provincial and local levels, the assessment team could not find data to confirm exact numbers. No information exists on the type and role of staff from

different ministries involved in various functions supporting the WASH sector. For example, no data was available on how many staff of which levels are engaged in Infection Prevention and Control (IPC), hospital waste management, and environmental sanitation under the MOHP, nor is there WASH-relevant HR data from related ministries such as MOICS, MOEST, and MOFAGA.

For MOWS, the 2019 capacity needs assessment (GON/World Bank/UNDP 2019) showed that existing positions at the federal level from section officer² and above are 250, but that only 116 (46 percent) of these existing positions are filled. The same source shows that 8,338 engineer positions are approved for federal, provincial, and local levels, but only 4,650 are filled, a gap of 3,688 (44 percent). As pointed out by a key informant, in the broader waste management sector (including fecal, liquid, and solid waste management), 67 percent of staff positions are vacant and about 18 percent of staff at the local government level have not received any waste management-related training. Box 1 provides an example of sanitation and hygiene HR shortages in Madhesh province.

BOX 1. LOCAL GOVERNMENT HAS MANY VACANCIES UNFILLED

Madhesh Province KIIs indicate that only a fraction of the government-approved staff positions for Madhesh Province are filled in the Water Supply and Sanitation Division under the provincial Ministry of Water Supply and Energy Development. As one key informant remarked, “We have four divisions and there are five positions of the Chief Divisional Officer, all are vacant now. The Water Supply Division has the provision of four Engineers, but only one is filled, and that will also be vacant after two years because of mandatory retirement. Similarly, out of 13 sub-engineer positions, only six are filled. Out of a total of 21 staff positions in the WASH Division, only 10 positions are filled. These positions are vacant due to a lack of staff recruiting acts and policies at the provincial level, a lack of interest of federal level staff to be transferred to the provincial offices, and so on.”

3.1.1 WASH HUMAN RESOURCE CAPACITY IN SAMPLED MUNICIPALITIES

While WASH service provision is the responsibility of all three tiers of government, the government directives delegate the responsibility of WASH service delivery to municipalities (*Palikas* in Nepali). In reality, municipalities face a shortage of human and financial resources to carry out the various functions linked to WASH service delivery. By way of illustration, the assessment team explored the status of HR for sanitation and hygiene in the two municipalities visited, Gaur and Narayan (see Table 3).

TABLE 3. HUMAN RESOURCES AVAILABLE IN GAUR AND NARAYAN MUNICIPALITIES

QUESTION	GAUR MUNICIPALITY (RAUTAHAT DISTRICT, MADHESH PROVINCE)	NARAYAN MUNICIPALITY (DAILEKH DISTRICT, KARNALI PROVINCE)
Presence of WASH Unit	WASH unit is formed but non-functional, a focal person is appointed but responsibilities are not given.	WASH unit is not formed, and there is no provision for a focal person. The Executive Officer handles the WASH activities.
WASH staffing	Two engineers, one focal point, four drivers, four cleaners/fecal sludge emptiers, overseers, and plumbers available (reported to be insufficient). WASH unit does not have adequate number of engineers, sanitation technicians, information technology/management information system (IT/MIS) technicians/computer assistants etc.	Eleven of fifteen staff positions are filled currently (two engineers, seven overseers, and two water & sanitation technicians). Still lack sanitation technicians, IT/MIS technician/computer assistant.

² Section officer is a gazette officer. It is a starting position, then followed by assistant secretary, joint secretary and secretary levels above it.

TABLE 3. HUMAN RESOURCES AVAILABLE IN GAUR AND NARAYAN MUNICIPALITIES

QUESTION	GAUR MUNICIPALITY (RAUTAHAT DISTRICT, MADHESH PROVINCE)	NARAYAN MUNICIPALITY (DAILEKH DISTRICT, KARNALI PROVINCE)
	Sweepers (60-65) were hired to clean the drainage, road, and municipal public places (19 permanent, rest contract).	
Municipal WASH plan	M-WASH plan was prepared in 2019/2020 with support from UNICEF and its local NGO partner.	M-WASH plan has not been prepared; there is no support from a DP for preparing the plan.
(Fecal) waste management	The municipality has truck drivers and cleaners for emptying fecal sludge, also there are cleaners for waste management in the market areas.	The municipality has plumbers, limited truck drivers, and cleaners for emptying fecal sludge; other cleaners are not available.
Monitoring	Formal post-ODF monitoring has not been initiated, municipal level key informants estimated over 25-30 percent slippage.	Formal post-ODF monitoring has not been initiated, municipal level key informants estimated 25 percent slippage rate.
Private sector engagement	Private and informal service providers are not involved in emptying fecal sludge at present; the municipality has fixed the cost for emptying through its staff (who are on contract and daily wage basis)	Private and informal service providers are involved in emptying fecal sludge, in addition to municipal staff. The municipality has not fixed the cost for emptying.
Volunteers and informal workers	No records exist of the volunteers, social mobilizers, other stakeholders, and informal workers involved during the ODF campaign.	No records exist of the volunteers, social mobilizers, other stakeholders, and informal workers involved during the ODF campaign.
Water and Sanitation User Committee	The municipality is supporting a WSUC linked to the main municipal water supply system, but the WSUC is not very active.	The municipality is supporting a WSUC linked to the main municipal water supply system, but the WSUC has not been working properly due to political disputes.

As indicated in Table 3, neither municipality has a functional WASH unit with a dedicated and adequate workforce. In Gaur Municipality, a municipal WASH plan (M-WASH plan) was developed with DP support three years ago, but it had yet to be endorsed by the municipality. The focal person for WASH was not involved in developing the plan and was not aware of the activities it includes. As discussed in Section 3.1.2, these plans are important for HR capacity development.

Both municipalities have recruited staff on contract for sanitation roles, but their numbers were deemed insufficient. Neither municipality has a plan in place to address slippage of toilet use, though they have started providing fecal sludge emptying services, which is more regulated in Gaur Municipality—with rates set and services provided directly by the municipality—than in Narayan Municipality, where services are provided by a range of (in)formal service providers and rates are negotiated directly with HHs. Both municipalities reported that they have very limited sources of internal revenue for hiring needed staff for the WASH sector.

In general, local governments were said to suffer from a low inflow of workers, including for sanitation and hygiene. KIIs and the document review attributed this to a lack of adequate and timely recruitment, low incentives, lower remuneration package compared to inflation, lack of performance evaluation and rewards, geographical barriers, and low funding by the government and DPs. These challenges are felt more in the mountain and high hill areas, where the resulting staff inflow is particularly low.

3.1.2 THE IMPORTANCE OF M-WASH PLANS

The draft National Water Supply Sanitation and Hygiene Policy states that municipalities should prepare M-WASH plans based on the profile of existing services available for the marginalized population, in

addition to maintenance and rehabilitation of old and vulnerable water (and sanitation) projects, and capacity development of service providers. At present, 97 out of 753 municipalities have completed M-WASH plans, 91 planning processes are ongoing, 191 have not yet started, and 374 are unregistered in the DWSSM dashboard (MOWS, n.d.). Informants reported that one of the reasons for the delays in developing the M-WASH plan is the lack of staff with the experience needed to do this, and the fact that their main task is more administrative with only a limited role in WASH. This seems linked to the lack of municipalities with WASH units in place. While the DWSSM in its guidance on the 'Verification and Validation Process of Data Collection' (MOWS 2021a) mentions the role of WASH units in verifying and validating WASH planning data, in reality, their establishment does not yet seem to have been prioritized.

The development of an M-WASH plan is linked with incentive schemes. If a municipality submits an M-WASH plan, it becomes eligible to receive some incentive funds from the federal government and DPs, as well as capacity development support. Several informants pointed to a lack of resources for capacity development, including a lack of capacity-building infrastructure, and minimal HR (specialists) to provide training and facilitate capacity development across the three levels of governance. The informants reported that given the shortage in budget, infrastructure, and HR to provide capacity development support to all local governments that need it, the presence of an M-WASH plan has been used as a criterion to prioritize municipalities for capacity development efforts. It was noted that these often are the municipalities that receive DP support, as it is the DPs who support the development of the M-WASH plan in the first place; this means that municipalities that already have an advantage are further benefited compared to those without external support, who continue to lag behind.

3.2 CONTRIBUTIONS AND HUMAN RESOURCE CAPACITY OF OTHER SECTOR ACTORS

3.2.1 THE ROLE OF VOLUNTEERS

Volunteers, including social mobilizers, community-led total sanitation facilitators or “triggerers”, natural leaders, and NGO/community-based organizations (CBOs), played a prominent role in the ODF movement in Nepal. While some NGOs paid social mobilizers, most of the grassroots HR worked as volunteers.

WSUCs are an important part of the large WASH sector volunteer army in Nepal. FEDWASUN, an umbrella organization of the WSUCs, reports that to date, approximately 4,100 WSUCs are registered under the FEDWASUN district/national networks, which jointly are reaching over 3,375,000 people in 562,000 HHs (FEDWASUN, n.d.). WSUCs essentially are self-help groups, functioning largely with unpaid volunteers. In reality, however, they are active in supporting and managing water supply systems, particularly gravity fed schemes, rather than sanitation. While FEDWASUN refers to WSUCs as water and *sanitation* user committees, other studies discussing their functioning refer to them as water *supply* user committees and do not point to any WSUC engagement in sanitation programming (Barakzai and Rajbhandrari 2014; World Bank 2022). WSUCs will thus not be discussed in any detail in this report.

The assessment team found that volunteers involved in the ODF campaign have been largely forgotten. Nepal declared itself ODF in September 2019. The 2011 Sanitation and Hygiene Master Plan envisaged that ODF achievement would be a step on the way to ‘total sanitation’, which entails a broad range of practices and services including drinking water supply, HH and institutional sanitation, cleanliness of public spaces, fecal sludge management/liquid waste management, solid waste management, and more (SCNSA 2011; National Sanitation and Hygiene Coordination Committee [NSHCC] 2017). However, the Total Sanitation Guideline was developed in 2017, and the ongoing disruption associated with the federalization process, as well as the end of a number of DP projects supporting rural sanitation and the ODF drive, impacted negatively on the continuity of work completed under the ODF campaign. As a

result, the institutions and workforce became dispersed. The government (MOWS) did not maintain records of the volunteers involved in the ODF drive, and as a result the assessment team struggled to find the number and types of volunteers involved in the sanitation and hygiene sub-sector in Nepal.

3.2.2 THE ROLE OF THE PRIVATE SECTOR

During SDG planning, the GON envisaged that the private sector would contribute to national development, including through investments in the WASH sector. However, KIIs reported that this has so far not materialized as foreseen. While some of the larger (mainly urban) infrastructure projects such as urban sanitation, FSM or drinking water supply projects are contracted out to private consultancies/firms through competitive bidding, as per government procurement policy, these are largely management contracts rather than private sector investments. Informants noted, however, that the private sector is facing a similar shortage of critical HR as the public sector.

Emptying fecal sludge, which is presently the responsibility of HHs, is done typically by the informal private sector. HHs use services from informal workers, who are not trained in the safe management of sludge and other hazardous wastes. However, in many municipalities, FSM is transitioning from private informal service providers to the public sector, which is contracting out some of its services to the private sector. Municipal reasoning for this shift is that private, informal services are too costly and unregulated. Of the two municipalities visited, Gaur (from Rautahat District) had fixed the cost of fecal emptying services for the entire municipality, while the Narayan Municipality (from Dailekh District) had variations in the fees to be paid by the HHs for fecal emptying services. As a result, the HHs in Narayan Municipality had to pay higher fees for this service.

The assessment revealed that the cleaners and vehicle drivers were not trained in safe handling of solid and liquid wastes, including medical waste. Although there were some vehicles with suction pipes and fecal collection tanks, workers in both municipalities visited informed the team that they had not received any training or orientation to empty the septic tanks and handle fecal sludge safely. They were also not aware of the health and environmental risks of unsafe handling of hospital waste. The assessment team was not able to determine where the collected fecal sludge was disposed.

Plumbing work also is dependent on the informal private sector. A MOFAGA representative indicated that “there are thousands of plumbers who are doing plumbing work without any formal training.” Their skills are not tested and accredited by the Center for Technical Education and Vocational Training (CTEVT). The same issues apply to most masons that come from the informal sector and have no formal qualification.

3.2.3 THE ROLE OF WOMEN AND DALITS IN THE SANITATION AND HYGIENE WORKFORCE

There are few female staff in the sanitation and hygiene sector. While disaggregated data is limited, the GON’s civil service data shows that of the total civil service employees, females comprise only 25 percent (excluding teachers and police). The assessment team could not find gender disaggregated data at the provincial level, nor were comprehensive GESI policies identified for the sanitation and hygiene sector specifically. In the 2019 Capacity Needs Assessment, 28 percent of municipalities and 18 percent of rural municipalities reported not having a GESI policy in place. Only 12 percent of cities and less than 10 percent of other local governments regularly carry out GESI audits, while 60 percent had never done so (GON/World Bank/UNDP 2019).

Sanitation and hygiene work, particularly the work linked to emptying and cleaning sanitation facilities, is stigmatized and often restricted to the Dalit castes. Social norms and values restrict certain castes and ethnicities from engaging in sanitation and hygiene activities. For example, both the districts visited considered emptying and cleaning fecal sludge derogatory work, set

aside for the lower castes, such as Dalits. Municipalities have created some positions of sweepers/street cleaners/pit emptiers, mostly on contract and daily wage basis, particularly in the urban and peri-urban areas. Dalits are more likely to fill these roles, as they are restricted to menial jobs like cleaning due to perpetual cycles of poverty, lack of education, unemployment, and discrimination (Gandhari 2014).

However, the cleaners interviewed during the team's field work were ashamed of doing scavenging work due to their social status. The assessment team did not find any specific support provided by the municipalities to ensure good working conditions or improve their social status and mitigate the prevailing stigmas.

4.0 HUMAN RESOURCES DEMAND

This section discusses sanitation and hygiene sector HR requirements and shortages. The section begins with general trends that may affect future sanitation and hygiene sector HR requirements and availability.

4.1 TRENDS AFFECTING FUTURE SANITATION AND HYGIENE SECTOR HUMAN RESOURCES

Increasing urbanization may affect the types of HR needed for sanitation and hygiene.

Preliminary data from the 2021 national census (NSO 2021), as compared to the 2011 census (CBS 2012), show that the overall population growth in the last decade was about 10 percent, with an annual growth rate of 0.93 percent. The urban population increased by 49 percentage points over this 10-year period, from 17 percent to 66 percent of the total population. However, the dramatic change in demographic data is contested due to Nepal's recent demarcation of urban and rural areas, whereby many rural areas that previously were called Village Development Committees, were annexed to establish a municipality under the new governance system. The number of urban centers increased from 58 in 2013 to 293 in 2017. At present, Nepal's municipalities (as opposed to its *rural* municipalities) are referred to as urban areas (Ministry of Urban Development 2017).

Factors driving this urbanization include the centralization of public services, such as health, education, and economic opportunities, stimulating the movement of people from underdeveloped, rural areas to more developed urban areas; and the merging of former rural areas into the municipalities. This urbanization is linked to a strong focus on sewerage systems, which, with the expanded demarcation of municipalities, is being extended into semi-urban areas (Ministry of Urban Development 2017).

Informants opined that the increased urbanization has created more demand for already scarce sanitation and hygiene workers, which may result in a lack of HR in the rural and remote areas. Urban (off-site) sanitation skills requirements are different from rural (on-site) sanitation skills requirements, affecting the HR capacity that will be demanded.

Nepal's sanitation and hygiene sector services are based on a rights-based approach, but the HR are not in place to implement that right. The Constitution of Nepal (GON 2015) and the Water and Sanitation Act of 2022 (GON 2022), recognize water and sanitation as fundamental rights of the citizens. However, guidelines to translate the rights into practice have yet to be developed. The government as the duty-bearer is responsible for providing these services throughout the country. Therefore, the governments at all three tiers need to develop appropriate and adequate HR to deliver the required services.

Nepal is noted as a high-risk country for climate change, with a high risk of hazards and exposure and lack of coping capacity (Joint Research Center of European Commission 2020). Data published by the Center for Research on the Epidemiology of Disasters has listed Nepal as one of the top 10 countries in the world in terms of disaster-related mortality. Nepal has been ranked 20th among the countries in the world regarding people affected by floods every year (Ministry of Energy, Water Resources, and Irrigation 2018). Floods and landslides account for almost 75 percent of disasters in Nepal, with often disastrous effects for WASH services. The Total Sanitation Guideline identifies climate change as an underlying issue for WASH and suggests a range of measures in response, including a WASH sector reform plan, improved coordination, expansion of skills, knowledge, and research on appropriate technologies, and capacity enhancement (NSHCC 2017).

4.2 HUMAN RESOURCE REQUIREMENTS OUTLINED IN SECTOR DOCUMENTS AND KIIS

In addition to the HR needs calculated as part of the federalization process (GON/World Bank/UNDP 2019), a number of recent or draft legal and policy framework documents are expected to support and strengthen the enabling environment to improve the coordination, sustainability and quality of WASH services provided (USAID 2020a). Framework documents such as the Water Supply and Sanitation Act (GON 2022), the draft National Water Supply, Sanitation and Hygiene Policy, the Total Sanitation Guideline (NSHCC 2017), and the Hand Hygiene for All Road Map (2022-2030) (MOWS et al. 2022) will have repercussions for HR needs. For example, the Total Sanitation Guideline foresees HR mobilization and capacity strengthening to address management and reuse of wastewater, emergency preparedness and technical know-how, skills and awareness of female Community Health Volunteers and health workers. While there are no official quotas in place that would determine exact numbers of positions required, this section discusses some of the HR requirements mentioned in these framework documents.

The draft SDP 2016-2030 (Ministry of Water Supply and Sanitation 2016) has suggested HR requirements on the basis of the size of WASH system/projects (Table 4). In this system classification, only Village Maintenance Worker (VMWs), civil engineers, sub-engineers, Water Supply and Sanitation Technician (WSSTs), and finance and administrative staff are considered key WASH service providers. Emptiers, masons, behavior change facilitators, and community mobilizers etc., are not mentioned.

SIZE OF SYSTEM	SANITATION AND HYGIENE ACTIVITIES	RESPONSIBLE STAFF	FINANCIAL MANAGEMENT
Single system	On-site sanitation	VMWs	Consumer (HH)
Small system (< 50 taps or HHs)	On-site sanitation, waste disposal management	VMWs	Consumer (HH) and community
Medium system (50-1000 taps/HHs)	Sewage and waste management	Sub-engineers ³	WSUCs, service providers
Big system (system at the municipality area)	Sewage and waste management, wastewater management	Water supply and sanitation technician (WSST), sub-engineer, finance and admin staff	Municipal Unit, service providers
Mega system (expanded in two or more provinces, sub/metropolitan area)	Sewage and waste management, wastewater management	WSST, civil engineers, admin and finance staff	Municipal Unit, service providers

The draft National Water Supply, Sanitation, and Hygiene Policy proposes similar jobs—VMWs, sub-engineers, civil engineers, WASH engineers, and finance and administrative staff for implementing WASH programs—but without proposing exact numbers required.

The draft SDP, 2016-2030 also proposes to develop 50 staff positions around emergency response, covering activities such as WASH response capacity development, preparation of a risk-based HR roster, establishment of a National WASH Academy, and capacitation and operationalization of HR requirements for water supply systems by 2030 (Ministry of Water Supply and Sanitation 2016).

Table 5 outlines the HR proposed by the SDP for the drinking water sector. While the focus of these positions is on water, some of them also will be involved in sanitation and hygiene activities, including, for example, the WSSTs, engineers, sub-engineers, and plumbers. The SDP did not project the

³ Those holding a diploma in engineering rather than a degree.

requirement of semi-skilled HR such as plumbers, masons, and volunteers and triggerers. A consolidated HR plan for the entire WASH sector, or a sanitation-specific HR plan, is not available.

TABLE 5. HR POSITIONS AND THEIR PROJECTIONS FOR DRINKING WATER ACCORDING TO THE SECTOR DEVELOPMENT PLAN (MIN. OF WATER SUPPLY AND SANITATION 2016)		
S.NO.	HR POSITIONS	# PROPOSED HUMAN RESOURCES
A.	Technical human resources	
1	Civil Engineers	350
2	Overseers	850
3.	Water Supply & Sanitation Technicians (WSST)	5250
4.	Plumbing Inspector	1050
5.	Meter Reader	2100
	Total	9600
B.	Administrative staff	
1.	Office Helper	1000
2.	Office Assistant	1050
3.	Store Keeper	1050
4.	Revenue Assistant	1050
5.	Accountant	1050
	Total	5200

The **Hand Hygiene for All Road Map 2022-2030 (MOWS et al. 2022)** calls for the training of **175 master trainers on hygiene and 1,500 hygiene inspectors**. It assumes that the master trainers will be stationed at federal and provincial government offices while the hygiene inspectors will be based mainly in local government offices (municipalities and rural municipalities). However, the road map does not clearly mention how these staff should be distributed. According to a KII from DWSSM, the hygiene inspectors will be responsible for the inspection of WASH services at the community level, reporting, and quality assurance.

In an FGD in Dailekh district, participants estimated WASH HR requirements at the municipal level. Table 6 provides an overview of positions for a typical (rural-on-road) municipality.

TABLE 6. ESTIMATED WASH SECTOR HR FOR A TYPICAL MUNICIPALITY	
STAFF/JOB POSITION NEEDED	ESTIMATED NO.
Engineer	2
Sub-engineer/Assistant Engineer	10
Overseer	4
Sanitation Technicians	15
Public Health/Hygiene Expert/Trainer	1
Sanitation and Hygiene Inspector/Promotor	1

TABLE 6. ESTIMATED WASH SECTOR HR FOR A TYPICAL MUNICIPALITY	
STAFF/JOB POSITION NEEDED	ESTIMATED NO.
MIS/Monitoring and Evaluation (M&E) Officer/Assistant	1
Plumbers	15
Truck drivers to empty fecal sludge	2
Cleaners	4
Social Mobilizers/Triggerers/Volunteers (government + NGOs)	12
Masons	80-100
TOTAL	147-167

(Source: FGD in Dailekh, CNA 2022)

While the estimation exercise was conducted for WASH broadly as informants found it difficult to separate water supply from sanitation and hygiene requirements, the overview in Table 6 includes workforce in sanitation and hygiene. For example, the engineers and sub-engineers, sanitation technicians, public health/hygiene expert/trainers, sanitation and hygiene inspectors and social mobilizers, MIS/M&E officers/assistants, truck drivers, and cleaners are supposed to be involved in sanitation and hygiene activities, in addition to water supply. The exercise did not include finance and administration staff, as these positions are not difficult to fill.

The requirement of informal workers or volunteers (e.g., cleaners, social mobilizers, and masons in Table 6) for a typical municipality would cover about two-thirds of the total HR needed for the WASH sector. Informants also noted that social mobilizers (volunteers and semi-volunteers), sanitary inspectors, and trainers could be co-financed by DPs and the government initially and then taken over by the local government gradually.

With an eye to ensuring current and future HR needs to achieve and sustain Total Sanitation goals, the assessment team collated information from the desk review, KIIs, and FGDs, to provide an overview of types of (new) jobs required and technical and transferable⁴ competencies and skills required for each sanitation and hygiene function. This overview is provided in Annex 4.

4.3 HUMAN RESOURCE REQUIREMENTS LINKED TO INSTITUTIONAL MECHANISMS

The sector frameworks indicate that dedicated WASH units with clear mandates and equipped with a basic number of competent staff are needed in all local governments, supported by multi-stakeholder WASH Coordinating Committees at all three levels of governance. At the federal level, there are two existing institutional structures: the National Sanitation and Hygiene Steering Committee and the National Sanitation and Hygiene Coordination Committee. The former is the apex body chaired by the Minister of Water Supply and the latter is chaired by the Secretary of MOWS. Both of these entities are, however, largely inactive since the introduction of federalism. Key informants from the federal government and DPs suggested forming and strengthening a powerful national body on WASH, which

⁴ Technical (knowledge and skills) refers to knowledge and skills a person has in a specific field, whereas transferable (knowledge and skills) refers to knowledge and skills that a person may need for their job but that are not specific to that field only and are applicable across multiple jobs (e.g., computer skills, relationship management, project management, interactive skills).

could be named the National WASH Coordination Committee (N-WASHCC) and chaired by the Chief Secretary of the GON.

Based on the document review and KIIs, Table 7 lists the minimum institutional entities and HR required for the sanitation and hygiene sectors at each level of government, including the proposed N-WASHCC. For each level of governance, the table lists the key governance bodies and the functions and HR that should be represented; this complements the information provided in Annex 4.

TABLE 7. INSTITUTIONAL ENTITIES, CRITICAL HR, AND THEIR INDICATIVE FUNCTIONS				
GOVERNANCE LEVEL				
Federal Level	WASH Institutional Entity	Indicative Functions	Critical HR Needed	Indicative Functions
	National WASH Coordination Committee (N-WASHCC) (proposed)	<p>Policymaking, coordination, resource allocation.</p> <p>Planning, implementation and monitoring WASH program activities, donor coordination (comprise representation of five key ministries, NPC, civil society, UN agencies, and DPs)</p>	<p>Engineers, sanitary engineers and technicians, environmental engineers, hygiene experts, public health experts.</p> <p>Statisticians</p> <p>M&E staff (planning, data management, reporting)</p>	<p>Designing and construction of big systems, FSM, environmental sanitation, social mobilization, and BCC.</p> <p>Support to evidence-based decision making</p>
Provincial Level	P-WASHCC Members	Indicative Functions	Other Staff	Indicative Functions
	Focal person (could be an engineer, sanitation expert, or administrator)	Overseeing the provincial WASH activities-planning, execution, monitoring, reporting	Engineers/sanitary engineers/technicians	
	WASH expert (from engineering or environmental science/public health, sanitation)	Support to planning, execution, monitoring and evaluation, reporting WASH activities		
	MIS/NWASH officer	Collect reports/data from the local bodies, analyze and input to the NWASH software. Generate data for planning and decision making		
	M&E officer	Look after M&E of the WASH systems/activities within the province, communicating to the federal and local governments, knowledge management		
Local (Municipalities/ Rural Municipalities)	Critical Staff	Indicative Functions	Other Staff	Indicative Functions

TABLE 7. INSTITUTIONAL ENTITIES, CRITICAL HR, AND THEIR INDICATIVE FUNCTIONS

	Focal person	Overseeing WASH activities	Plumbers	Design and construction of systems inc. FSM, water treatment
	Engineer	For design of systems, planning	Sanitation assistants	
	Sanitary technician/expert	Support in the construction of sanitation and hygiene systems, O&M	Sanitation inspectors	For quality monitoring and surveillance
	IT/MIS staff to handle NWASH enumerators	Collection, compilation, analysis and reporting WASH data (National Management Information System [NMIS]) using NWASH software	Social mobilizers (volunteers and semi-volunteers)	Social/community mobilization including school, health care institutions, and public spaces
			Trainers	Provide training to WSUC members, community, teachers, health care workers
Local Level (Community)	WASH Institutional Entity	Indicative Functions	Critical Staff	Indicative Functions
	WSUCs	They are meant for WASH functions as volunteers, but in reality, they are not focused on sanitation and hygiene activities	Members of WSUCs	Community mobilization for WASH activities, joint monitoring, systems O&M, awareness raising

4.4 REFLECTIONS ON HUMAN RESOURCE SHORTAGES

While the previous sections provided some insights into the types and numbers of jobs and skills required, in the absence of a comprehensive sanitation and hygiene (or even WASH sector) HR needs assessment and HR development plan, it is hard to place these numbers and proposed functions in context. The DWSSM Business Plan of 2019 (MOWS 2019) notes that the HR demand in the WASH sector is approximately 1.5 times the current number of staff, but also notes the need for an HR needs assessment to confirm exact needs and numbers. It further recommends preparing a capacity development master plan, a business promotion plan, and co-financing for water supply and sanitation infrastructure and service delivery among provincial and local governments and utilities.

The Business Plan further notes that the shortages in the public workforce require outsourcing WASH services to the private sector. Yet, the sanitation and hygiene sectors lack competent private contractors for designing and implementing large infrastructure projects. Moreover, they are not allowed by Nepal's public procurement policy to be awarded more than five projects at a time.

While federalization has meant a reduction of HR at the federal level, key informants at the MOWS and DWSSM stressed the need for additional staff at this level, including climatologists, WASH experts, engineers, sociologists, and computer/IT specialists. KIs from DWSSM, provincial, and local governments informed the assessment team that there is a shortage of HR across all levels to prepare WASH plans, collect data, conduct analyses, prepare reports, and input data to the NWASH software. This is considered a bedrock of the planning and evaluation functions, but similarly requires greater

diversity in technical skills. Furthermore, the Business Plan of DWSSM (MOWS 2019) identifies a lack of HR or experts for wastewater collection and treatment facilities, sewerage construction, and FSM.

Collating information from the various KIIs and FGDs, the assessment team estimated the available HR for each of the sanitation and hygiene functions (Table 8). The table depicts sufficiency of staff to deliver on SDG 6.2, by rural geography, and highlights that for urban and peri-urban areas, informants reported an availability of 51-95 percent of HR needed to meet the demand for a few functions. However, for rural-on-road and rural remote areas, with the exception of oversight and support in rural-on-road areas, HR for all functions was estimated to be less than 50 percent of that needed to reach SDG 6.2 and national targets. This assessment largely confirmed the HR gaps identified in prior sections.

TABLE 8. SIGNALLING SUFFICIENCY OF STAFF TO REACH SDG 6.2

FUNCTIONS	SANITATION				HYGIENE			
	URBAN	PERI URBAN RURAL MIXED	RURAL ON ROAD	RURAL REMOTE	URBAN	PERI URBAN RURAL MIXED	RURAL ON ROAD	RURAL REMOTE
Policy, strategy, and coordination (federal level)	Yellow	Yellow	Red	Red	Yellow	Yellow	Red	Red
Regulation (federal level)	Red	Red	Red	Red	Red	Red	Red	Red
Regulation (local level)	Red	Red	Red	Red	Red	Red	Red	Red
Monitoring (federal level)	Red	Red	Red	Red	Red	Red	Red	Red
Monitoring (local level)	Red	Red	Red	Red	Red	Red	Red	Red
Oversight and support (provincial, municipality)	Yellow	Red	Yellow	Red	Red	Red	Red	Red
Construction	Red	Red	Red	Red	Red	Red	Red	Red
Emptying and transport	Red	Red	Red	Red	Yellow	Yellow	Red	Red
O&M (includes treatment and reuse)	Red	Red	Red	Red	Red	Red	Red	Red
Community mobilization and engagement	Yellow	Yellow	Red	Red	Red	Red	Red	Red
Research and design	Yellow	Red	Red	Red	Yellow	Red	Red	Red
Business development	Red	Red	Red	Red	Red	Red	Red	Red

Legend:

- Sufficient HR to meet current demand/ future demand (to reach SDG/national targets), above 95 percent
- 51–95 percent HR to meet current demand/ future demand (to reach SDG/national targets)
- Under 50 percent of what is needed to meet current demand/future demand (to reach SDG/national targets)

The KIIs suggested that WASH sector HR shortages are most critical in the rural remote areas. Reasons for this were reportedly linked strongly to individuals’ lack of motivation to work in these areas due to factors such as the absence of health and education facilities, lack of road access, harsher living conditions, and lack of additional incentives to work in these remote areas.

This assessment also signaled an oversupply of civil engineers and lower supply of sanitation and hygiene graduates such as sanitation technicians, which are in higher demand. At the district and local government levels, informants reported that many engineers, particularly civil engineers, have applied for the position of sub-engineers. This, while the numbers of environmental engineering and sanitary engineering graduates are limited. As a result, there is a lack of competent HR for designing FSM projects, water treatment plants, and hospital waste management including IPC (Interview with WHO representative), among others. Sanitary and environmental engineers and technicians are in high demand by the government and the private sector. The shortages are critical at the local levels (municipalities and rural municipalities), and KIIs also predicted a further shortfall in sanitary technicians, as many of those in government employment are nearing retirement age and new sanitary technicians have not yet been recruited.

Informants and the desk review pointed to an overall lack of focus on and intention to deliver the post-ODF total sanitation agenda. It was felt that government has paid little attention to the plans and programs to implement post-ODF activities in the communities. With a number of policy and planning documents still in draft form, the implementation of the Total Sanitation Guideline is lagging. Informants pointed to a lack of advocacy regarding the Guideline reaching the community, district, and provincial levels, and stated that even the recently endorsed Water Supply and Sanitation Act (GON 2022) has not been made public.

The ambitions linked to achieving total sanitation require a trained workforce to provide improved sanitation services to HHs. At present, HHs either manage fecal sludge themselves or use the services of informal workers who are not trained in safe management of sludge and other hazardous wastes. While this assessment found some evidence that FSM services are transitioning from private informal service providers to the municipalities, the field visits also revealed that municipal staff recruited for these tasks did not have the proper training regarding safe handling of solid and liquid waste, including medical waste.

Local government lack the HR and broader enabling environment required to pro-actively manage and mitigate slippage. According to the 2019 MICS survey (UNICEF 2019), overall slippage from ODF was five percent, ranging from less than one percent in Province 4 to 16 percent in province 2. It was reported that in many local areas, ODF was declared in a rush, without ensuring that each family had a water seal toilet. (In the municipalities visited, many toilets constructed a few years ago were reportedly non-functional.) Upgrading of basic sanitation and water supply facilities to improved facilities and services was not found to be a priority, and as a result, dedicated human and financial resources were not in place.

4.5 REFLECTIONS ON SKILLS, COMPETENCIES, AND KNOWLEDGE

The assessment findings indicate areas for advancing individual transferable and technical skills, competencies, and knowledge (see Annex I for definitions) of the HR involved in the WASH sector. These are summarized below.

4.5.1 TECHNICAL KNOWLEDGE, SKILLS, AND COMPETENCIES

- At the federal level, technical knowledge and skills are needed for designing large infrastructure projects such as fecal sludge treatment plants, wastewater treatment plants, climate change and disaster-resilient systems, in addition to the WASH sector and legal expertise to develop standards, guidelines, and policy documents.
- The municipal- and provincial-level key informants noted that many masons lack knowledge about technologies; the community mobilizers lack skills in triggering/facilitation/communication;

the emptiers lack understanding of the tools/mechanisms of safe FSM; and municipal staff have little or no understanding of BCC.

- The cleaners in the municipalities, who are mostly from the lower caste ethnicities or Dalit community, are involved on a daily wage or contract basis and are paid poorly. They are not trained on the safe handling of various types of waste such as medical waste, wastewater collection and transport, and FSM. As reported, they work without using protective equipment. Although the government endorsed the Sanitation Safety Implementation Manual 2021 (MOWS 2021b), it has not been translated into action.
- Local government (sanitation) staff lack skills and knowledge, including technological solutions, to manage and mitigate slippage.
- The WSUCs have a prominent role in implementing water supply activities at the community level on a voluntary basis, but low levels of engagement and basic knowledge on sanitation and hygiene. In the assessment team's engagement with WSUC members, they requested orientation and training on sanitation and hygiene.
- There is a lack of technical skills for design, construction, and management of the different types of systems, plants, and treatment options required for safe fecal, liquid and solid waste management. One key informant remarked thus:

“Technical competent workforce is lacking these days and we can't even find a qualified person in the field. There is a lack of need-based training. If the existing non-technical human resources are provided training, then it will help to achieve the sanitation goal. (KII, DWSSM)”

- The DWSSM Business Plan (MOWS 2019) highlights that MOWS HR capacity is not enough to meet the mandates of the institution. This includes gaps in terms of information and communications technology (ICT) utilization for monitoring, management of information and decision support; research and design and development of technologies; and technological support/servicing of sanitation and hygiene infrastructure and treatment plants/processes.

4.5.2 TRANSFERABLE KNOWLEDGE AND SKILLS

The KIIs reported a stark lack of adequate and competent HR for operationalizing the WASHCCs at the provincial and local levels. The different stakeholders that would make up these coordination committees reported a lack of HR needed for developing WASH plans, program design and communication, data collection, analysis and reporting (IT skills), and project management skills.

Moreover, the existing workforce has limited transferable knowledge and skills, for example, regarding community mobilization and awareness raising, partnership building, leadership, financial management, and problem solving.

5.0 SUPPLY OF HUMAN RESOURCES

5.1 COORDINATION, COOPERATION, AND WORKING ACROSS SECTORS AND INDUSTRIES

Since Nepal's governance transition in 2015 and the reallocation of staff to the three governance levels that followed, many staff positions have remained vacant and institutional mechanisms that existed prior to federalization have become inactive or dysfunctional. Also, the collaboration and coordination amongst a variety of sectors actors—sectoral ministries, DPs, civil society, and private sector—that was exhibited in the drive to national ODF status, did not continue in the same vein following the ODF campaign, and **the revised governance structure has not yet resulted in the expected improved coordination.**

In 2022 the GON enacted the Water Supply and Sanitation Act (GON 2022) and are progressing on development of the necessary guidelines and an integrated WASH policy. Despite these efforts, the institutional structure for collaboration and cooperation among MOWS and other ministries, DPs, civil society, and private sector is lacking. The resulting lack of coordination also affects HR. For example, an informant noted that MOWS and MOHP have very little coordination when planning HR for WASH programs such as IPC and environmental health.

The KIIs reported a lack of coordination and harmonization among the training and education institutions and government/MOWS regarding the demand and supply of HR for the WASH sector. The KIIs from all three levels of governance clearly indicated that the current supply of HR is inadequate to address the identified gaps, and that there is a mismatch of recruitment and capacity-building training of the HR required for the WASH sector. Moreover, most of the KIIs opined that the quality of the new workforce was below standard and requires on-the-job training and better coordination between the academic institutions and employers.

As noted in the previous section, the WASH sector in Nepal needs a multitude of staff, including professionals, (informal sector) service providers, and volunteers. There also is a need for staff in other sectors associated with WASH activities. However, in the absence of a dedicated and well-staffed WASH division or entity at the central level, neither the HR requirements within the MOWS nor for the other related ministries and government levels can be fully understood, and the link between HR needs and HR supply remains uninformed.

The assessment team also found limited WASH sector recruitment from other sectors. Engineers and sub-engineers are attracted to working on large infrastructure projects, including those on wastewater, with little attraction to move to, particularly rural, sanitation and hygiene programs. Furthermore, no significant competition was reported among the five key ministries involved in WASH activities, in terms of attracting or competing for staff from across ministries.

5.2 NEW SUPPLY THROUGH UNIVERSITY AND TRAINING INSTITUTES

There are three main modalities of capacity development in the WASH sector.

1. **Academic/professional institutions** provide pre-service academic courses and degrees. The Tribhuvan University (TU), Institute of Engineering, Kathmandu University (KU), and their affiliated campuses (engineers, sub-engineers, sanitation engineers, technicians, environmental health/scientists); Institute of Medicine (health professionals); CTEVT (professional courses for overseers and sub-overseers, plumbers, and health workers). Under CTEVT, there are 13 professional (technical) on-the-job training courses, including the professional plumber and assistant plumber/helper. There are 14 engineering colleges in Nepal affiliated to TU including the Pulchowk,

Thapathali, Purwanchal, Dharan, Paschimanchal, Pokhara Engineering, Chitwan Engineering, and Rampur Chitwan campuses. The University Grants Commission reported that there were approximately 30,000 engineering students enrolled in the 2019-2020 school year (University Grants Commission 2019).

2. **In-house/in-service training:** The draft National Water Supply and Sanitation Sector Policy 2014 (Ministry of Urban Development 2014) prioritized strengthening DWSSM as the sector lead agency to prepare and implement sector HR development plans and provide training to develop the capacity of the workforce at the local level. The National Water Supply and Sanitation Training Center (NWSSTC) of the DWSSM provides short-term in-service training to WASHCC members, WSUC members, internal staff of the MOWS, and elected government representatives in a wide variety of courses and topics (see Box 2).

BOX 2. SANITATION AND HYGIENE-RELATED TRAINING COURSES PROVIDED BY THE NWSSTC

- Disability-inclusive WASH for engineering & WASH professionals
- FSM/fecal sludge treatment plant (FSTP) planning and design training for (sub-)engineers
- Training on pipeline network analysis and pipeline network operations for managers & decision makers
- Orientation training to DWSSM new engineers
- Orientation to FSM for “Elected representatives/executives at local Governments”
- Technical orientation of DWSSM officials on technical and managerial issues
- Master training of trainers (TOT) on “Planning, design, and operational aspects of FSM system”
- TOTs and orientations for WASH activists, volunteers, promoters, and local-level officials on “WASH in combatting Covid-19 pandemic”
- Environmental assessment for development projects & programs
- Contract management
- Planning and design of wastewater management system for (sub-) engineers
- Procurement planning and management

(Source: KII with DWSSM representative, selected from a longer list of WASH/water supply-oriented courses)

NWSSTC has adopted tailor-made HR development interventions to be compatible with local needs and is dedicated to strengthening the capacity of local-level institutions in the context of federalized governance. As described in the SDP 2016-2030 (MOWS 2016), the mission of the NWSSTC is to act as a linchpin for all training and development activities in the WASH sector, not competing with other WASH training providers, rather, enhancing the capacity of all in-house training units of WASH agencies of GON and other training providers. NWSSTC conducts orientation workshops for the elected municipal representatives to enhance their knowledge and skills on water quality, WASH planning, and total sanitation, and provides on-the-job/in-service training for staff. This varies from two days (WASH for WSUCs, for example) to nine days (design of FSM/FSTP training for government engineers) in 2022-2022. NWSSTC planned 27 training events in 2022, nine of which were online. While this seems a generous offering, it is limited compared to the number of sanitation and hygiene sector staff and volunteers requiring training throughout the country and constrained mainly by budget and HR considerations.

Data on the number of persons who received short-term training from NWSSTC and how they applied the skills and knowledge gained, was not available. The KIIs reported that NWSSTC has limited capacity to train existing HR and provide monitoring support, planning, and implementation of sanitation and hygiene activities.

UNICEF also offers ISO-certified training courses, such as WASH general courses, water and environment, sanitation and hygiene, WASH in emergencies, and systems strengthening for

sustainable WASH. However, these training are not linked with the NWSSTC training nor that of MOFAGA.

A limited number of scholarships opportunities are provided to existing government staff for academic courses, for example in environmental engineering, sanitation engineering, and environmental health. UNICEF provided four scholarships to study master's courses at the TU Institute of Engineering. Interestingly, a KII noted that MOWS had requested 10 positions, UNICEF could offer four, but only two staff applied for the scholarship. The possible reasons for this low demand from staff were that the scholarships were to study environmental engineering, while career progression and recruitment and promotion for engineers requires only a civil engineering qualification; and the scholarship was to study locally, while there was higher demand for scholarships abroad.

MOFAGA is also responsible for developing and strengthening local governments' capacity through the Local Government Institutional Capacity Self-Assessment (LISA) reporting system 2020, and Provincial and Local Government Support System (PLGSP) 2019/20-2022/23.⁵ MOFAGA has a training center called the Local Development Training Academy that provides various trainings that may address some of the transferable skills and competencies required by local government staff working in WASH (as described in Annex 4). However, specific training on WASH, or WASH-integrated trainings, are not given.

All in all, there are limited on-the-job training centers in the country, and training participants have to spend long travel hours to attend the training. Informants confirmed that this reduces motivation for participating short-term on-the-job training offerings.

- 3. Short-term capacity development training provided by DPs and INGOs:** Several DPs and INGOs also provide short-term training opportunities as part of their projects or overall assistance to the sector. Formerly, the Fund Board provided VMW training, plumber and assistant plumber training, and social mobilizer training, with support from among others USAID. Other projects like the Karnali Water Project, the Swachhata project (both USAID-funded) and the Sustainable WASH for All project in Karnali (with support from Finland) also engage in training WASH-related staff, such as VMWs.

The DPs have provided training on accounting, GESI, and plumbing to selected WSUCs and local elected representatives, including their rights and duties. However, the sustainability of these training options is questionable as these types of training are fully dependent on projects.

DPs offer a broader set of means to capacitate the sector, including placement of DP staff in provincial offices for direct capacity development support. Additionally, MOWS is in discussion with UN Habitat to develop a five-year plan to benchmark data and progress on the WASH sector community-level workforce, such as volunteers and social mobilizers—including informal workers.

⁵ Implementing partners include provincial governments, rural municipalities, municipalities, sub-metropolitan cities, metropolitan cities, restructured Local Development Training Academy, and Provincial Centre for Good Governance.

6.0 BARRIERS TO SANITATION AND HYGIENE HUMAN RESOURCE DEVELOPMENT

The previous sections outlined a broad range of HR shortages and gaps, including a lack of HR data and sanitation and hygiene HR development plans. This section summarizes some of the underlying barriers and challenges to recruiting, promoting, and retaining the workforce in the WASH sector.

The federal transition process has resulted in a loss of organizational expertise and in inactive/ineffective structures.

- During the federal transition process, some key experienced and qualified professional staff working with MOWS on WASH were transferred to other ministries, and many of the formerly established institutional setups were fragmented. This was a demotivating factor for the individuals and affected the available capacity and expertise within MOWS, and in other ministries. Informants agreed that the WASH governance structures that were intact during the ODF movement were powerful and active with clear communication and reporting structures. After the reorganization, many WASH committees became inactive, including the National Hygiene and Sanitation Steering Committee and Coordination Committee under the MOWS, and district and local WASH coordination committees up to the ward level. Among others, these coordination committees would have played an important role in planning, including for HR, across all levels of government.

Comprehensive HR planning, data collection, and analysis are absent or not prioritized.

- Where planning is undertaken (e.g., business plan development), there is more focus on water supply than on sanitation and even less on hygiene. Disaggregated data on the WASH sector HR composition by gender, caste/ethnicity, and minority groups and age is unavailable, especially at local government level. The assessment suggests there is a lack of comprehensive records across the three tiers of WASH sector governance, and of the HR involved in sanitation and hygiene in particular. There is no record of volunteers who were actively engaged during the ODF campaign, nor is there an overview of the HR involved in sanitation and hygiene through related sectors such as health, education, physical infrastructure, and MOFAGA. Lastly, there are no records of sanitation service providers under the different tiers of the government, with a MOFAGA informant stating that *‘there are perhaps up to 1,000 plumbers who are unknown and uncertified’*.

Sanitation and hygiene are not adequately prioritized and coordinated across the three tiers of government, resulting in unclear roles and responsibilities, and a lack of jobs and job opportunities.

- For example, there is a lack of WASH procedural guidelines to implement the Water and Sanitation Act of 2022 (GON 2022). The Act, in consonance with the Constitution of Nepal 2015 (GON 2015), recognizes water and sanitation as a fundamental right of the citizens of Nepal. The constitution says that all three levels of government have the responsibility to fulfill it, but without further stipulation. As a result, there are no clear roles and responsibilities assigned to the various levels of government. During KIIs, the federal-level stakeholders pointed out that delivery of WASH services is the responsibility of the local government, while the federal government is responsible for policymaking, donor coordination, resource allocation, designing and implementing large-scale systems, and capacity building of the provincial and local governments. Yet, the local and provincial governments have limited capacity and resources for WASH service delivery. At the provincial level, recruitment of necessary staff is delayed as many provinces are still in the process of developing the necessary civil service acts and overall, the

WASH sector lacks a comprehensive HR policy or plan. The draft National Water Supply, Sanitation and Hygiene Policy 2021 addresses some of the above issues, but still needs to be officiated and fully implemented.

- There are also **limited M-WASH plans and WASH units in place**. The draft National Water Supply, Sanitation and Hygiene Policy 2021 policy reiterates the establishment of WASH units with the necessary staff and with the representation of water and sanitation user groups. Among others, these WASH units need to determine and monitor the levels and quality standards of the service providers, and the WASH sector information has to be entered into the N-WASH monitoring system (including WASH in health care and schools). WASH units would be responsible for the development of M-WASH plans, and the existence of M-WASH plans opens access to resources and HR capacity development that could strengthen WASH units. Absence of M-WASH plans and WASH units thus leads to a vicious circle of lack of HR, lack of planning to inform HR, and lack of service delivery.
- There is a **lack of cross-sectoral coordination and linkages among the three levels of government**. For example, under the MOFAGA, local governments have to conduct a self-assessment to self-realize their strengths and gaps. But since WASH questions are not part of this assessment, local government progress made on WASH, or lack thereof, is unreported in the LISA reporting system.
- **Total Sanitation is not receiving the required attention**, and rollout of the Total Sanitation Guideline (NSHCC 2017) is lagging. A lack of government commitment, as well as delays in the finalization of the draft National Water Supply Sanitation and Hygiene Policy and related plans, were felt to contribute to this situation. As a result, HR planning and capacity development for total sanitation delivery also is not prioritized.
- There is **no enabling business environment to stimulate increased private sector engagement in sanitation and hygiene service delivery**. Private sector engagement and investment remains low due to low return on investment and a lack of incentives and business environment enablers that would support business viability. As a result, direct private sector investment is significantly less than foreseen, and the sector is not a major employer of HR.
- **As a result of the above, local bodies have no or very limited internal revenue to hire needed staff**, particularly in remote areas, where staff may need to be attracted from afar, or incentivized to come work there.

Nepal's rural sanitation and hygiene sectors' workforce conditions are poor, and stigma and discrimination persist, hindering the attraction of highly skilled professionals.

- **There is a lack of interest to work in rural (remote) areas**. Due to the lack of road access, education opportunities for children and health care services, technical staff, particularly those currently at the federal level, do not prefer to work in rural municipalities in remote areas.
- **Female staff consider working in rural remote areas unsuitable** and are even less willing to work in such areas.
- **Due to the strong social stigma still linked to sanitation work**, staff—in particular female staff and marginalized groups and persons with disabilities—are not attracted to the WASH sector.
- **Staff have negative perceptions of working in rural (remote) areas**. Staff working in remote areas perceive that they do not get promoted as timely as others because they do not have contact with influential higher-level people. Similarly, they might not qualify for opportunities such as training or visits abroad. The assessment acknowledges that this contradicts the system in which the Public Service Commission offers additional scores to the staff who have worked in remote areas while they are applying for a promotion. Yet, the

provincial-level KIs also reported that federal staff is unwilling even to be transferred to the provincial government offices for fear that opportunities are not available to staff who work in rural remote and even peri-urban areas.

- **There are no GESI policies** to support female staff engagement or engagement of vulnerable groups in the sanitation and hygiene sector, nor is stigmatization of Dalit castes as sanitation and hygiene workers systematically addressed.

HR needs, supply, and training opportunities in sanitation and hygiene are mismatched, leading to insufficient supply of graduates in on-site sanitation and hygiene, competency gaps, and limited skills diversity.

- **Financial, human, and training-related infrastructure resources for capacity development are insufficient.** This affects the number of federal, provincial and local staff that can be trained on sanitation and hygiene related themes or technical and transferable skills and competencies, and leads to the application of selection methods, such as the favoring of municipalities that have already developed an M-WASH plan.
- **Staff and sector actors lack access to capacity development and certification opportunities.** There is no access to training centers for on-the-job training in the rural and remote areas. It was reported that some recruited staff try to avoid their work, due to their lack of knowledge and competency to fulfill their roles, and consequent poor efficiency. Similarly, thousands of plumbers still have not received formal training accreditation, while CTEVTs could accredit their qualifications if there was better access to these institutions.
- **There are few incentives or scholarships to study for critical jobs.** As a result, the production of HR with expertise in high-level design and planning, treatment of FSM, and the range of required transferable skills is limited. Similarly, the basic qualification for technical staff to be employed at the officer level and above at MOWS is a bachelor's in civil engineering. As a result, internal staff is not motivated to be trained further.

Many of the barriers described in this final section can be converted to opportunities to advance not only the HR capacity of the sanitation and hygiene sector itself, but also the achievement of Nepal's overall targets. These opportunities are discussed in the form of recommendations in the next section.

7.0 RECOMMENDATIONS

Based on the capacity needs assessment undertaken in Nepal, a number of high-level recommendations are offered. These are aimed at primary stakeholders/institutions active in the sector and structured around key areas, namely: Policy and Oversight, Training and Capacity Development, and Product and Service Delivery. Some recommendations apply to more than one category of stakeholder as indicated in Figure I. While there also are recommendations/actions for actors outside of the sanitation and hygiene sectors (e.g., linked to overall public sector reform or stimulation of rural employment), this assessment has focused on those that are within the manageable interest of sector actors and their partners. Table 9 elaborates on the recommendations and provides more detail on the responsible parties and likely timeframe, distinguishing between short term (within two years), medium term (two to five years) and long term (five years or more).

With strong support from key informants, this assessment considers two recommendations to be of particular importance (Recommendations 2a and 2b in Table 9):

1. Form and strengthen a dedicated institutional WASH coordination structure in the form of a National WASH Coordination Committee (N-WASHCC), under the direction of the Chief Secretary of the GON, to serve as and be responsible for coordination and collaboration amongst line ministries involved in the WASH sector. This N-WASHCC can take on many of the roles previously played by the now defunct NSHSC and NSHCC.
2. Flow down the coordinating committee structure to the provincial and municipal levels through the formation of P-WASHCC and M-WASHCC at these levels, respectively. Not having institutional WASH coordination committees in place appears to be an organizational and even enabling environment capacity gap that affects many of the other barriers, and consequently, opportunities.

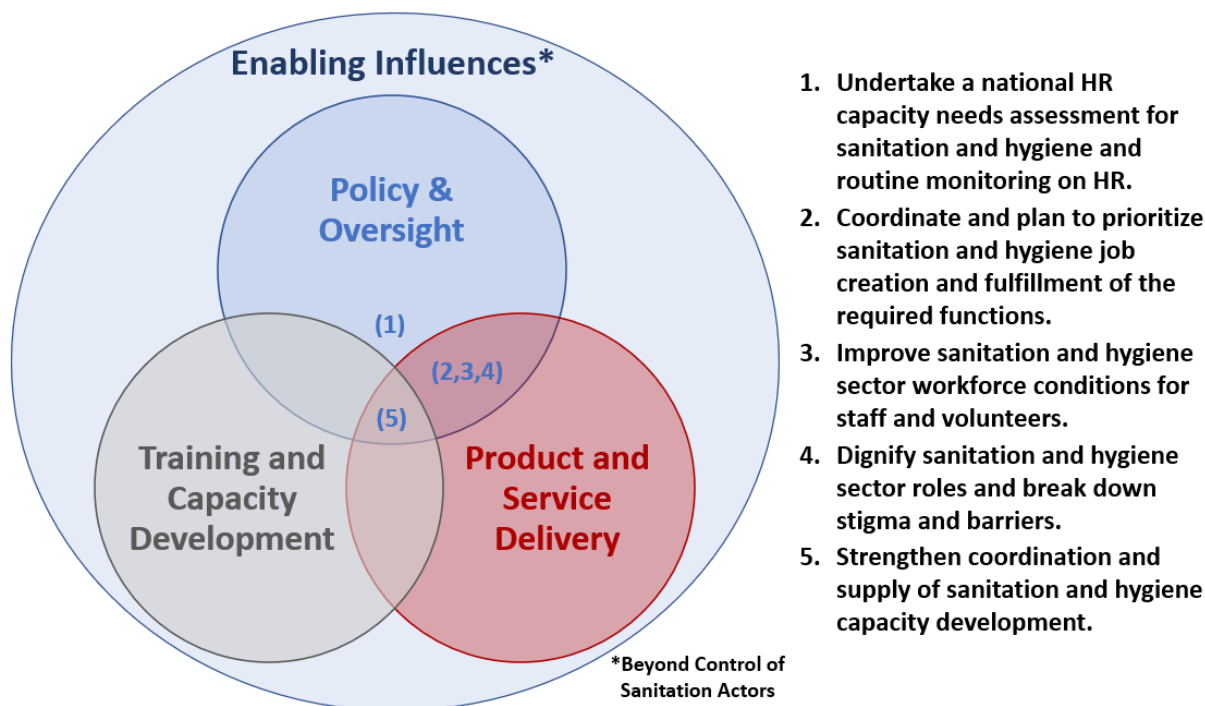


Figure I. Overview of Recommendations

TABLE 9. RECOMMENDATIONS BY LEAD STAKEHOLDER

RECOMMENDATION	WHO TO LEAD	TIMEFRAME (SHORT/ MEDIUM/ LONG TERM)	JUSTIFICATION/ COMMENTS	DEPENDS ON
INSTITUTIONS RESPONSIBLE FOR POLICY AND OVERSIGHT				
1. Undertake a national HR capacity needs assessment for sanitation and hygiene and routine monitoring on HR.				
<p>a. Conduct a comprehensive HR capacity needs assessment for sanitation and hygiene.</p> <ul style="list-style-type: none"> Consider focusing on sanitation and hygiene as part of a broader WASH sector HR capacity needs assessment Explore HR needs and contributions of other aligned sectors such as health, education, and agriculture to achievement of safely managed sanitation and hygiene targets and service delivery. Include an assessment of private sector needs and role of informal sector actors and volunteers. 	DWSSM, provincial governments, with DP support	Short term	HR capacity gaps are identified and can inform improved planning and resource allocation.	<p>Collaboration among ministries.</p> <p>(Municipal) plans, policies and acts to understand requirements and guide the assessment.</p>
<p>b. Generate and update HR databases on WASH sector HR, including volunteers, with disaggregation by gender, caste/ethnicity, age, levels, qualifications, and areas they served (rural, peri-urban/mixed rural, and urban).</p> <ul style="list-style-type: none"> Explore adding an HR module to NWASH to centralize information 	MOFAGA with NWSSTC MOWS (and others), local government, with NARVIN and Municipal Association of Nepal (MUAN)	Short term	Help develop and implement inclusive, effective WASH HR management	Enhanced capacity of local WASH units and implementing partners to collect HR data.
<p>c. Make provision to report the progress made by local governments on WASH through the LISA (Local Government Institutional Capacity Self-Assessment) reporting system and PLGSP.</p>	MOFAGA	Medium term	This will strengthen the inclusion of sanitation and hygiene service delivery in overall local government (HR) planning and resourcing.	Approval of LISA reporting with inclusion of WASH indicators
INSTITUTIONS RESPONSIBLE FOR POLICY AND OVERSIGHT IN CONJUNCTION WITH PRODUCT AND SERVICE PROVIDERS				
2. Coordinate and plan to prioritize sanitation and hygiene job creation and fulfillment of the required functions.				
<p>a. Constitute a National WASH Coordination Committee (N-WASHCC) under the Chief</p>	Federal government/ MOWS	Short term	This should replace the two separate structures of the National Sanitation and Hygiene Steering Committee and	Government approval of the proposed structure

TABLE 9. RECOMMENDATIONS BY LEAD STAKEHOLDER

RECOMMENDATION	WHO TO LEAD	TIMEFRAME (SHORT/ MEDIUM/ LONG TERM)	JUSTIFICATION/ COMMENTS	DEPENDS ON
Secretary of the GON at the federal level.			the Sanitation and Hygiene Coordination Committee.	
b. Establish and operationalize multi-stakeholder WASH coordination committees at the provincial (P-WASHCC) and local government (M-WASHCC) levels.	Provincial MOWS departments Local governments – WASH units where they exist	Medium term	These coordinating committees can support and influence the (provincial/local) government to manage needed human and financial resources as per their WASH plans	Availability of required human and financial resources to constitute committees
c. Develop a comprehensive, GESI-responsive sanitation and hygiene capacity improvement strategy and HR management plan, in alignment with existing programs, plans and roadmaps.	MOWS, with MOFAGA	Medium term	This will help fill required HR functions and jobs, build HR capacity, and encourage, invite and recruit more females, disadvantaged and marginalized groups into sanitation and hygiene/ the WASH sector	Dependent on capacity needs assessments recommendations (see Rec. 5)
d. Establish dedicated WASH units in all local governments and equip them with trained staff.	Federal, provincial, and local governments	Medium term	The recommended WASH unit staff composition as presented in Section 4 can be used for consideration	HR with the right skillsets are available for the WASH units
e. Provide technical support to the (rural) municipalities to develop their WASH plans, policies, and acts. <ul style="list-style-type: none"> Identify municipalities with DP presence who can support the planning process. Devise a strategy to provide similar support to other municipalities. Use examples developed by government in consultation with the National Association of Rural Municipalities in Nepal (NARMIN) and Municipal Association of Nepal (MUAN). 	Federal level government/ MOWS/DWSSM with MUAN, and NARMIN	Short to medium term	Comprehensive WASH plans should include required HR	Continued expert technical support/ training to local government staff Updating of NAWASH data
3. Improve sanitation and hygiene sector workforce conditions for staff and volunteers.				
a. Explore appropriate incentivization of HR in line with the capacity improvement strategy and HR management plan.	MOFAGA/ federal government and	Medium term	Such incentivization will be helped by standardization of jobs	Financial resources

TABLE 9. RECOMMENDATIONS BY LEAD STAKEHOLDER

RECOMMENDATION	WHO TO LEAD	TIMEFRAME (SHORT/ MEDIUM/ LONG TERM)	JUSTIFICATION/ COMMENTS	DEPENDS ON
<ul style="list-style-type: none"> • Increase incentives for staff working in remote areas, such as higher scores for promotion against the number of years worked • Develop incentives to attract expert candidates for critical jobs at all three levels, such as on FSM, wastewater treatment, research, policy and guideline development, statisticians and NMIS/IT. 	NARVIN and MUAN		<p>and job classifications/ requirements.</p> <p>Incentivizing recruitment of identified critical staff will contribute to further diversification of the WASH Units and departments.</p>	
<p>b. (Re)engage volunteers to support the post-ODF total sanitation campaign.</p> <ul style="list-style-type: none"> • At local level, identify the volunteers, social mobilizers, triggerers, and natural leaders involved in the ODF campaign, as well as the WSUCs. • Engage and train them to implement post-ODF total sanitation activities, in support of WASH units. • As possible, provide incentives such as travel allowance, (output-based) stipend, certificates, or others. • Undertake further research to better understand sustainability considerations and effective management of such volunteer programs by local governments. 	Local government/ WASH units (with DPs), with NARVIN and MUAN	Short term	Given local government HR shortages the use of volunteers is essential, but likely sustainability of volunteer engagement (including of proposed incentive schemes) needs to be better understood.	Improved record keeping, linked to recommendation I.b.
4. Dignify sanitation and hygiene sector roles and break down stigma and barriers.				
Improve support to (informal) sanitation workers to address the stigma they face, and the discrimination and exclusion faced by the Dalits and disadvantaged groups involved in the sector.	Local government, with support from MOWS and federal government, with NARVIN and MUAN	Short term	Reducing the stigma related to sanitation workers may require broader societal shifts linked to the position of Dalits and disadvantaged groups.	Inclusive GESI policy in place
INSTITUTIONS RESPONSIBLE FOR POLICY AND OVERSIGHT IN CONJUNCTION WITH PRODUCT AND SERVICE PROVIDERS AND TRAINING INSTITUTIONS				
5. Strengthen coordination and supply of sanitation and hygiene capacity development.				
a. Use the HR capacity improvement strategy to invite and channel more DP and private sector investment for the	Federal, provincial, and	Long term	Increases cost sharing	

TABLE 9. RECOMMENDATIONS BY LEAD STAKEHOLDER

RECOMMENDATION	WHO TO LEAD	TIMEFRAME (SHORT/ MEDIUM/ LONG TERM)	JUSTIFICATION/ COMMENTS	DEPENDS ON
development of sanitation and hygiene sector HR capacity in line with the capacity improvement strategy and HR management plan.	local governments			
b. Review and revise the technical curricula of the courses that supply HR to the WASH sector. Update curricula to reflect current and future sector skills, knowledge and capacity needs.	DWSSM in coordination with academic institutions and training institutions as well as private sector and DPs	Short term	This will help the production of appropriate HR in line with identified needs and for critical shortage jobs	Finance and technical expertise. Should be informed by recommendations 1 and 2.
c. Invest in more varied and accessible sanitation and hygiene capacity development opportunities across the country. <ul style="list-style-type: none"> • Increase on-the-job and virtual training opportunities; • Explore the development of more training centers to increase proximity to training opportunities; and • Focus on skills and knowledge identified as high priority in the HR assessment, such as around FSM, monitoring, and planning. 	Federal and local governments, NWSSTC (with UNICEF and MOFAGA) with NARVIN and MUAN and possible DP support	Medium term		Finance and relevant academic courses. Comprehensive HR needs assessment as per recommendation 5.

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ANNEX I. METHODOLOGICAL FRAMEWORK

This annex summarizes the key frameworks and definitions that informed the global and individual country capacity needs assessments (CNAs). A full description of the methodological framework is included as Annex I in the CNA Final Report (United States Agency for International Development [USAID] 2023).

Frameworks

Assessing and addressing human resources (HR) capacity shortages (numbers) and/or gaps (competencies) requires a full understanding of four interconnected levels of capacity: individual, organization, enabling environment, and society (Lincklaen Arriëns and Wehn de Montalvo 2013). Figure 2 demonstrates that individuals' (HR) ability to perform functions, solve problems, and set and achieve objectives are dependent on the organizations and broader society in which the professionals work (including the enabling environment and the society they aim to impact) (WaterAid 2021). In the country-level capacity needs assessments, this framework was primarily applied to the barrier analysis undertaken.

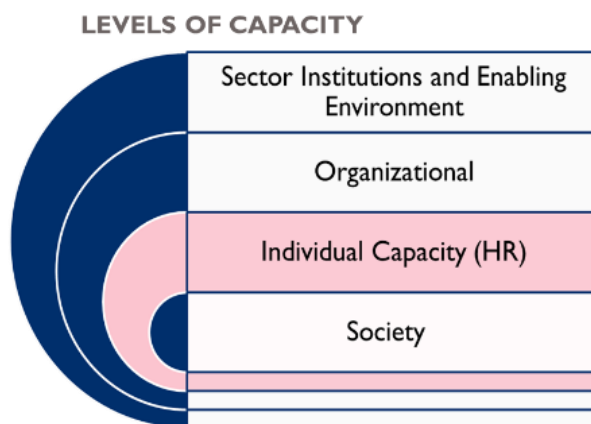


Figure 2. Framework for the Assessment

Many functions need to be fulfilled across sanitation- and hygiene-related sectors to reach universal safely managed sanitation (SMS) and practice of basic hygiene behaviors. In this capacity needs assessment, we developed a set of functions to guide our analysis of HR capacity and shortages, and required knowledge, skills and competencies, either at national or local levels or for the different rural to urban geographies within countries. This set of functions was informed by an earlier set developed by WaterAid (2021), but incorporated additional functions felt to be pertinent to our assessment's focus on delivering area-wide (predominantly on-site) sanitation, based on key informant interviews in the start-up phase of our global assessment.

TABLE 10. FUNCTIONS TO DELIVER SANITATION AND HYGIENE

Policy, strategy, and coordination
Regulation
Monitoring
Oversight and support
Community mobilization and engagement
Construction
Emptying and transport
Operation and maintenance (O&M) (including treatment, disposal, and reuse)
Research and design
Business development

Definitions

TABLE 11. GENERAL DEFINITIONS	
Area-wide sanitation	Sanitation that goes beyond the household (HH) and the community to area-wide (district/county) or market systems-level approaches (USAID 2020b)
On-site sanitation	A sanitation system in which excreta and wastewater are collected, stored and/or treated on the plot where they are generated (SSWM n.d.)
Hygiene	In this study strictly confined to fecal-related environmental cleanliness and hygiene
Capacity	Capacity refers to the ability of individuals, organizations, and societies to perform functions, solve problems, and set and achieve objectives (Fukuda-Parr et al. in Willems and Baumert 2003)
HR capacity (individual capacity)	The number of HR (personnel, or self-employed individuals) and their competencies available to perform functions, solve problems and set and achieve objectives
HR shortages	Refers to a deficit in numbers of HR needed, versus those available
HR gaps	Refers to a deficit in competencies needed, versus those available
Competency	Knowledge, skills, and abilities needed for an employee to perform their job in an effective manner
Technical (knowledge and skills)	Knowledge and skills that a person has in a specific field (e.g., Behavioral scientist – behavior change communication skills (BCC); Environmental engineer – design skills to develop a fecal sludge management [FSM] treatment plant)
Transferable (knowledge and skills)	Knowledge and skills that a person may need for their job but is not specific to that field only. These knowledge areas or skillsets are applicable across multiple jobs. (e.g., computer skills, relationship management, project management, interactive skills)
Formal workforce (ILOSTAT n.d.)	All workers in incorporated enterprises
Informal workforce (ILOSTAT n.d.)	All workers in unincorporated enterprises that produce at least partly for the market and are not registered. It excludes HHs that produce exclusively for own final use, subsistence agriculture, construction of own dwellings, etc.

TABLE 12. GEOGRAPHICAL AREAS DEFINED (ADAPTED FROM: WATERAID 2019. GUIDANCE ON RURAL SANITATION PROGRAMMING)	
Rural Remote (far from urban)	• Small and remote communities • Unpaved roads • Low population density • Primary agricultural livelihood • Low market reach (products and services not reaching rural remote area) • Low affordability of sanitation products and services • Few sanitation finance options (few finance institutions or services available)
Rural-on-road (close to urban)	• Small to medium communities connected with rural centers • All-weather roads • Low to medium population density • Agricultural and other livelihoods • Low to medium market reach • Low availability of market products and services • Low affordability of market-based sanitation products and services • Some options for sanitation finance
Rural Mixed (peri-urban)	• Large rural settlements and rural areas within urban catchments • Paved roads • Medium to high population density (some congestion problems) • Mixed livelihoods • Some tenants (rented accommodation) • Medium to high market reach • Medium availability of market products and services • Low to medium affordability of market-based sanitation products and services • Increased options for sanitation finance
Urban	• Large settlements within urban catchment • Unpaved or paved roads • High population density (congestion problems) • Mixed livelihoods • Fall in mandated area of the utility • Medium to high market reach • Medium to high availability of market products and services • Can have lack of land

TABLE 12. GEOGRAPHICAL AREAS DEFINED (ADAPTED FROM: WATERAID 2019. GUIDANCE ON RURAL SANITATION PROGRAMMING)

	ownership (informal/illegal settlement) • Low affordability of market-based sanitation products and services • Increased options for sanitation finance
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ANNEX 2. KEY INFORMANTS

TABLE 13. KEY INFORMANTS			
NO.	NAME OF KEY INFORMANT	DESIGNATION	ORGANIZATION NAME
A	Federal Level		
1.	Mr. Tiresh Khatri	Joint Secretary	Ministry of Water Supply (MOWS)
2.	Chet P. Upreti	Chief Admin officer	Department of Water Supply and Sewerage Management (DWSSM), MOWS
3.	Mr. Kabindra Bikram Karki		DWSSM, MOWS
4.	Dr. Rajit Ojha	Director	National Water Supply and Sanitation Training Center (NWSSTC), DWSSM, MOWS
5.	Egr. Madhu Timilsina	CDE	MOWS
6.	Mr. Rajendra Aryal	Former Director	Federation of Drinking Water and Sanitation Users Nepal (FEDWASUN)
7.	Mr. Maheshwor Ghimire	Senior Divisional Engineer, Local Infrastructure Development	Ministry of Federal Affairs and General Administration (MOFAGA)
8.	Mr. Hansa Ram Pandey		Federation of Nepalese Chamber of Commerce and Industries (FNCCI)
9.	Mr. Rajendra Pyakurel		National Association of Rural Municipality in Nepal (NARMIN)
10.	Bhawana Shrestha	Director	Environment and Public Health Organization (ENPHO)
11.	Muhammad Irfan Alrai	Chief WASH	UNICEF Nepal Country Office
12.	Mr. Dandi Ram Bissokarma		UNICEF
13.	Me Arinita Maskey Shrestha	WASH Specialist	UNICEF
14.	Mr Siddhi Shrestha	WASH Specialist	UNICEF
15.	Dr Surendra Dhakal	MNE Specialist	UNICEF
16.	Mr. Tika Adhikari	Officer	Fund Board
17.	Dr. Sudan Panthi	HSS Specialist	WHO
18.	Mr Kamal Adhilari		Urban Development Ministry
19.	Bal B. Thapa	Team Leader	Swachhata
B.	Provincial Level		
1.	Mr Dev Raj Niraula	Secretary	Water Supply and Energy Ministry, Karnali Province.
2.	Mr. Gopal P Sharma	Admin Officer	Water Supply and Energy Ministry, Karnali Province
3.	Egr. Ramesh Subedi	CDE	Physical Planning Ministry, Karnali Province

TABLE 13. KEY INFORMANTS			
NO.	NAME OF KEY INFORMANT	DESIGNATION	ORGANIZATION NAME
4.	Mr. Mario Milanese Mr.	CTA	SuSwa
5.	Mr. Bimal Chandra Sharma	Monitoring and Evaluatino (M&E) and Coordination Specialist	SuSwa
6.	Narayan Singh Khabas	Technical Specialist	SuSwa
7.	Mr. Surendra K Sharma	CDE	Provincial Drinking water and Energy Ministry, Madhesh Province,
8.	Mr. Subash Kumar Thakur	Acting Chief Administrative Officer	Gaur Municipality, Rautahat
C.	Local Government Level		
1	Ms Puja Jha	WASH focal person	Gaur Municipality
2.	Ms Sunita Devi Shah	FCHV	Gaur Municipality, Rautahat
3.	Ms. Pooja Kumari Jha	Health assistant	Basic health unit, Gaur Municipality-I
4.	Mr Ram Sharan Thakur	Truck/Tractor driver	Gaur Municipality
5.	Mr. Chunu Raut	Cleaner	Gaur Municipality
6.	Ms Chandra Kala Baral	Non-Gazette officer	Chapur Municipality
7.	Mr. Krishna P. Sigdel	Asst. Secretary	Chapur municipality
8.	Mr. Sambhu Shah	Mayor	Gaur Municipality
9.	Mr. Raja Ram Roy Yadav	Chairperson	Kuduwa Purnewa Water and Sanitation User Committee (WSUC), Gaur, Rutahat
10.	Ms Sunaina Devi Dhagad	Member	Kuduwa Purnewa WSUC, Gaur, Rutahat
11.	Ms Babita Devvi Dhagad	Treasurer	Kuduwa Purnewa WSUC, Gaur, Rutahat
12.	Mr. Kirti Thapa, Consultant	Sub-Egr.	Swachhata, Dailekh
13.	Mr Bharat Bhandari	Asst Sub-Egr., Technician	Swachhata, Dailekh
14.	Mr. Bhakta B. Malla,	Chief Executive Officer	Narayan Municipality
15.	Egr. Purna P. Koirala	Engineer	Narayan Municipality
16.	Mr. Dila Thapa	Staff	Narayan Municipality
17.	Mr. Khagendra P. Sharma	Teacher	Janata Secondary School, Dailekh
18.	Mr. Sher B Roka	Member, WSUCs	Narayan Municipality, Dailekh
19.	Mr Yam B Malla	Member, WSUCs	Narayan Municipality, Dailekh
20.	Mr Narendra Raj Adhikari	Coordinator, WSUC	Narayan Municipality, Dailekh
21.	Mr Ratna B Shrestha	Member, WSUC	Narayan Municipality, Dailekh
22.	Mr. Bharat B Thapa	Member, WSUC	Narayan Municipality, Dailekh
23.	Mr Amrit K Neupane	Member, WSUC	Narayan Municipality, Dailekh

TABLE 13. KEY INFORMANTS			
NO.	NAME OF KEY INFORMANT	DESIGNATION	ORGANIZATION NAME
24.	Mr Shailesh Shrestha, Ward Chairperson, Ward#1	Member, WSUC	Narayan Municipality, Dailekh
25.	Mr. Narayan Karki	Head Teacher	Durga Sec School, Rautahat
26.	Mr. Deepak Sigdel	Plumber	Rautahat
27.	Ms Suntali Thapa	FCHV	Narayani Health Post, Dailekh
28.	Ms Deepa Sharma	Public Health Inspector	Narayani Health Post, Dailekh
29.	Mr. Narendra Raj Adhikari	Plumber	Narayan Municipality, Dailekh
30.	Mr. Shir B. Roka	Plumber	Narayan Municipality, Dailekh

ANNEX 3. KEY ACTORS BY LEVEL OF GOVERNANCE

TABLE 14. KEY ACTORS AND INDICATIVE FUNCTIONS BY LEVEL OF GOVERNANCE		
LEVEL	KEY ACTORS	INDICATIVE FUNCTIONS PER LEVEL
Federal	<p>Ministries: Prime Minister's Office, Ministry of Finance, Ministry of Water Supply (MOWS)/Department of Water Supply and Sewerage Management (DWSSM), Ministry of Health and Population (MOHP)/Department of Health Services, Ministry of Education, Science, and Technology (MOEST)/Centre for Human Resource Development, Ministry of Federal Affairs and General Administration (MOFAGA), Ministry of Industry, Commerce, and Supplies (MOICS)</p> <p>National Planning Commission (NPC), National Sanitation and Hygiene Coordination and Steering Committee, Federal-level School WASH Coordination Committee, Multisector Steering committees</p> <p>Municipal Association of Nepal (MUAN), and National Association of Rural Municipalities (NARMIN)</p> <p>WASH Cluster, DPs (UN, international nongovernmental organizations (NGOs) (INGOs), NGOs, etc.), private sector (Federation of Nepalese Chambers of Commerce and Industry [FNCCI], Confederation of Nepalese Industries [CNI], etc.) and civil society organizations (CSOs); NGO federation, The Federation of Drinking Water and Sanitation Users Nepal [FEDWASUN]), Association of people living with a disability</p>	<p>Making policies, regulations/Acts and strategies/roadmaps (e.g., Integrated Water and Sanitation Policy, Water and Sanitation Act, Hand Hygiene for All Roadmap 2022-2030, water quality standards, hospital waste management guidelines)</p> <p>Strengthening WASH governance at all three levels of governance</p> <p>Inter-ministerial and donor/development partner coordination</p> <p>Monitoring, capacity building of all three levels on the use of national WASH monitoring system (NWASH) and data collection, recording, analysis, and reporting on sustainability of systems</p> <p>Making policy and regulation on fecal sludge management (FSM) and operations and maintenance (O&M)</p> <p>Design and construction of large projects</p> <p>Advocacy, behavior change communication, and awareness raising at national level</p> <p>Development of business plans for private sector engagement</p>
Provincial	<p>Ministries of Water Supply, Social Development, Rural Development, Energy, Education, Health (responsible for WASH activities at community, school, and health care facilities)</p> <p>Provincial WASH Coordination Committee (P-WASHCC)</p> <p>Water Supply and Sanitation Division Office</p> <p>DPs, CSOs (NGO federation, FEDWASUN)</p>	<p>Design, implementation, and monitoring of WASH projects (medium size)</p> <p>Development of provincial WASH plans and roadmaps, policies, regulations in line with the federal acts and policies</p>
Local (Rural Municipalities/ Municipalities)	<p>Municipality WASH Unit (Social development, Health, Education, WASH may take lead)</p> <p>Committees: District Coordination Committee, Municipal WASH Coordination Committee (M-WASHCC), WASH in School Coordination Committee and School Management Committee, Health Facility Operation and Management Committee, Water and Sanitation User Committee (WSUC)</p> <p>Women groups, volunteers and community-led total sanitation facilitators</p>	<p>Establishment of WASH unit with needed staff, collection, analysis, and input of data into the NWASH system</p> <p>Preparation of municipal WASH (M-WASH) plans</p> <p>Implementation, follow up, and supervision of WASH activities, reporting</p> <p>Coordination among the WASH actors</p> <p>O&M of WASH facilities</p> <p>Emptying of containment systems, solid and liquid waste management, FSM</p>

TABLE 14. KEY ACTORS AND INDICATIVE FUNCTIONS BY LEVEL OF GOVERNANCE		
LEVEL	KEY ACTORS	INDICATIVE FUNCTIONS PER LEVEL
	Local entrepreneurs, private sector	Upgrading of WASH service facilities at healthcare facilities, schools, public places

ANNEX 4. REQUIRED JOBS AND COMPETENCIES

TABLE 15. REQUIRED JOBS AND COMPETENCIES TO DELIVER ON NATIONAL SANITATION AND HYGIENE TARGETS				
	KEY ACTORS	NEW/POTENTIAL JOBS	COMPETENCY (TECHNICAL SKILLS/ KNOWLEDGE) NEEDED	COMPETENCY (TRANSFERABLE SKILLS/ KNOWLEDGE) NEEDED
Policy, strategy, coordination (national level)	<p>Ministry of Water Supply (MOWS)/Department of Water Supply and Sewerage Management (DWSSM)</p> <p>Ministry of Federal Affairs and General Administration (MOFAGA), Ministry of Health and Population (MOHP)</p> <p>Ministry of Physical Infrastructure, Ministry of Urban Development</p>	<p>WASH experts</p> <p>Climatologists Environmental engineers/experts</p> <p>Public health experts</p> <p>BCC experts</p>	<p>Guidelines and strategy development, planning and monitoring, reporting, policy briefs</p>	<p>Stakeholder engagement/ Workshops</p> <p>Leadership and coordination skills</p>
Regulation (national, provincial, local government)	<p>MOWS/DWSSM, Provincial WASH Coordination Committee (P-WASHCC)</p> <p>Municipal WASH Coordination Committee (M-WASHCC)</p>	<p>WASH experts, Engineers, Sociologists</p>	<p>Development of implementation guidelines, regulations</p>	<p>Stakeholder engagement/ Workshops</p> <p>Leadership and coordination skills</p>
Monitoring (national, provincial, local government)	<p>MOWS/DWSSM (Monitoring and Evaluation [M&E] Section) P-WASHCC</p> <p>M-WASHCC</p>	<p>National Management Information System (NMIS)/national WASH monitoring system (NWASH) experts</p> <p>MEL experts</p> <p>IT experts</p> <p>Statisticians</p> <p>Data collectors</p>	<p>Monitoring and Surveillance</p> <p>Training,</p> <p>Data collection and analysis</p> <p>Report writing</p> <p>Data generation for decision making</p>	<p>Project management, community mobilization, interactive skills, problem solving skills</p> <p>Stakeholder engagement</p>
Advocacy (holding government to account)	<p>Nongovernmental organization (NGO)/community-based organization (CBO)</p> <p>WASH Cluster (DPs)</p> <p>Federation of Drinking Water and Sanitation</p>	<p>Sociologists</p> <p>Public health experts</p> <p>Advocacy officers</p>	<p>Accountability/ compliance checks</p> <p>Evidence creation</p> <p>Advocacy</p>	<p>Project management, community mobilization, interactive skills, problem solving skills</p> <p>Leadership skills</p>

TABLE 15. REQUIRED JOBS AND COMPETENCIES TO DELIVER ON NATIONAL SANITATION AND HYGIENE TARGETS

	KEY ACTORS	NEW/POTENTIAL JOBS	COMPETENCY (TECHNICAL SKILLS/ KNOWLEDGE) NEEDED	COMPETENCY (TRANSFERABLE SKILLS/ KNOWLEDGE) NEEDED
	Users Nepal (FEDWASUN) NARMIN, Municipal Association of Nepal (MUAN)			
Oversight and support (provincial, municipality)	Provincial Govt Municipal Govt NGO/Civil Society Organization (CSO)	WASH experts Engineers M&E officers Management information system (MIS) officers Admin officers	Coordination Mentoring and coaching Evaluation	Project management, Interactive skills Leadership skills Stakeholder engagement
Construction	MOWS/DWSSM Informal, private sector consulting firms hired by CSO & Govt and masons and plumbers hired by households (HHs)	Construction engineers, Environmental sanitation experts	Design large scale sanitation and hygiene systems/FSM, Infection Prevention and Control (IPC), wastewater treatment, solid waste management systems	Social mobilization, private sector engagement
Community mobilization and engagement (National, local government, municipality level)	NGO/CBO WSUC Local Govt. Private sector	Sociologists Public health/Health Education experts Communication experts Sanitation & hygiene inspectors/supervisors Volunteers	Behavior change communication (needs assessment, design, implementation and evaluation)-P process Community engagement and mobilization Evaluation skills	Interactive skills Social mobilization Leadership skills Coordination skills
Emptying and transport	Informal/private sector-pit emptier Municipality/Local Govt.	Sanitation Technicians Vehicle drivers Cleaners Finance/Admin staff	Planning for FSM/ emptying, liquid and solid waste/medical waste management, Risk management Personal protective equipment use	Rapport building/ Interactive skills Time management
Operations and maintenance (O&M) (including treatment, disposal and/or	Local Government-Sub/Metropolitan-utilities, HHs	Village Maintenance Worker (VMW) Sanitary technicians/ Sub-engineers	Operation and maintenance of systems /structures-toilets, hand hygiene stations	Rapport building/Interactive skills private sector engagement

TABLE 15. REQUIRED JOBS AND COMPETENCIES TO DELIVER ON NATIONAL SANITATION AND HYGIENE TARGETS

	KEY ACTORS	NEW/POTENTIAL JOBS	COMPETENCY (TECHNICAL SKILLS/ KNOWLEDGE) NEEDED	COMPETENCY (TRANSFERABLE SKILLS/ KNOWLEDGE) NEEDED
reuse) (HH, municipality)		Plumbers	Personal safety and risk management	
Research and Design (national level, local level)	Higher Education/Academic Institutions Research Institutes/Consulting Firms Private firms/entrepreneurs NGOs	Public health/Social science researchers Enumerators Statisticians Communication materials designer/Artists	Research design, tools, methods Development, piloting/testing the designs Data analyses and writing of research reports, policy briefs	Interactive skills Social mobilization Leadership skills Coordination Time management
Business Development (national level, local level)	Ministry of Industry, Commerce, and Supplies (MOICS), Pvt Sector, Development partners, NGO/CBOs	Entrepreneurship/ Business promotion expert Management expert	Entrepreneurship development Supply chain management	Management/ Leadership skills Interactive skills Public relations
Training and capacity development	National Water Supply and Sanitation Training Center (NWSSTC) DWSSM MOFAGA Provincial govt Academic institutions	Trainers/Master trainers NMIS/IT expert	Training on sanitation and hygiene Use of NWASH software	Leadership skills Interactive skills Time management

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