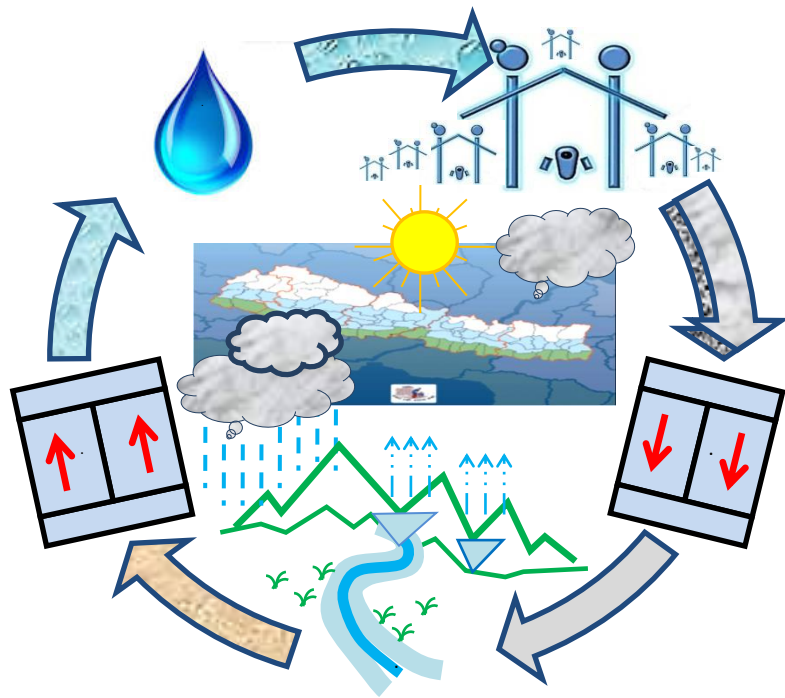


# Nepal Water Supply, Sanitation and Hygiene Sector Development Plan ( 2016 – 2030 )



Government of Nepal  
Ministry of Water Supply and Sanitation  
**Sector Efficiency Improvement Unit (SEIU)**

## Message

The Government is giving high priority to this sector by instituting the dedicated Ministry for Water Supply and Sanitation. Since then, we are continually involving ourselves in the sector reform process. Development as well as amendment in our Sector Plans, Policies and Legislations are under way and will be enforced very soon. The Nepal WaSH Sector Development Plan (SDP) is one of the first such document that our Ministry has prepared so far. As the first Minister of the Ministry, I am privileged to put this 15 year WaSH sector road map in front of the sector.

Despite many hurdles including various disasters due to floods and earthquake, we have not lost our hope to meet the national targets of basic water and sanitation facilities for all by 2017. Nevertheless, the sanitation movement is rapidly growing in past couple of years in Nepal. Over 81% people already had access to toilets, resulting 37 districts declared as ODF as of today. More efforts have to be put in water supply now onwards. Importantly, the Constitution of Nepal has included peoples' right to live in healthy and clean environment as well as right to access to safe water and sanitation. Also Nepal has expressed its commitments and become signatory to many regional and international forums to put maximum impetus towards achieving national as well as international commitments in water and sanitation.

I am pleased to notice that this document has been distilled out of a highly participatory process involving multitude of sector partners thereby creating a sense of shared ownership towards the implementation of the plan. I hope this SDP will be a guiding document for the entire WaSH sector for the coming 15 year time horizon to fulfil our needs and desires of getting adequate and safe water, having proper sanitation facilities at our premises and sustaining these facilities. A great deal of efforts has to be put in the course of the implementation of this SDP. Its initial phase coincides with the country's transition to federal system of governance; many new WaSH institutions will have to be instituted and many will have to be transformed of their roles.

It keeps me enthusiastic in seeing that the SDP has included the major challenges that the sector is facing at this moment. It analyses the issues of donor harmonization, alignment of the WaSH programs with government policies and principles, and adopting sector-convergence. Besides, the SDP spells out investment requirements divided into three major strategic timeframes from 2016 to 2030, which is also aligned with the SDG and the government planning systems. For reasons of conformity with broader national planning, the SDP was consulted with the National Planning Commission to feed its views into the government's long term plan. It has been reflective of the government's political commitment and international pledges, for example Vision 2022 and the SDGs. In terms of funding requirements, the SDP is realistic, as it shows possible access to public, development partners and private funding sources over time.

As a good gesture, and also in recognition to the Ministry's efforts towards long term plan preparation, the Government has increased WaSH budget by about 40% this year. Only what is needed is enhancement of sector capacity, honest commitment and concerted efforts by all sector actors for its implementation. I commend the lead role taken by the Sector Efficiency Improvement Unit (SEIU) of the Ministry headed by Joint Secretary Mr. Rajan Raj Pandey and his team in drafting this SDP. The immediate task for the SEIU would now be to develop a more detailed program document for first phase of the SDP and provide support to the concerned agencies in making their implementation plans in line with the milestones of the SDP. I wish and remain committed to successful implementation of this SDP for better WaSH service delivery to our people.

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Minister  
Water Supply and Sanitation  
Government of Nepal

## Message

The national target of providing basic water and sanitation services for all was a huge challenge for us when the target was first set. Although the water supply coverage increased significantly from nearly 40% per-cent in the early days of establishment of multi-party democracy to around 85 per-cent now, it is being frequently questioned due to functionality of the systems we constructed. Moreover, the arsenic problem in few of the Terai districts has further put a question mark on our coverage figures. Still much less progress has been possible in providing improved water supply services despite of the promising targets. It is understood that the challenging task ahead of us requires further urgent interventions.

Our cities and towns are growing not only rapidly but also haphazardly with people migrating to the city in search of opportunities, but the cities themselves are fiercely deprived of proper water and sanitation facilities. The sanitation systems, especially sewerage and drainage in the Terai towns, are seemingly non-existent and even if some facilities are there, in most cases they are inappropriate. Moreover, insanitary living conditions in cities and settlements has multi-faced effects which cannot be contained within our political boundaries. Diseases do not recognize national or international boundaries. For this, we should also think and act towards a regional networking and cooperation.

In absence of accurate and updated information system in place and an evidence-based planning approach, our past interventions have always been blamed of having overlapping and duplication. The operation and maintenance of the existing facilities are inefficient causing huge revenue losses. Reports say that only around half of the water supply systems are functioning.

However, I am pleased to see that this SDP has analysed and captured all these technical and operational issues and has come up with plausible solutions. It has also addressed the key strategic issues for our future interventions and subsequent investment in the sector. I wish and try my best for successful implementation of this plan.

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Minister of State  
Water Supply and Sanitation  
Government of Nepal

## Forewords

Nepal has made a remarkable progress in water supply and sanitation since last decade. Especially after the enforcement of the Sanitation and Hygiene Master Plan in 2011, despite various socio-economic and cultural barriers, rate of increase in sanitation coverage has been commendable. Notwithstanding the post-earthquake bizarre situation in Nepal, still we are striving deterministically towards achieving ODF Nepal by 2017 and providing basic water facility to all Nepali citizens. DWSS reports say that around 81% people have now access to toilets, and 86% population has access to basic water supply facility as of mid- 2015. While JMP, for the same year, has reported that sanitation coverage is only 46%, implying that Nepal still did not achieve MDG in sanitation but at the same time it reports 93% population has access to safe water supply. Though there is large disparity in data depending on different sources, we need to think beyond targets. The international development goals and our national targets may be achieved by pumping large resources from abroad as well as mobilizing our own internal resources, but it will not necessarily assure the effectiveness of outcomes. What we require is sustainable change in hygienic behavior and practices, quality of our services and confidence in our plans and actions.

Even after six decades of planned development process, the Nepal WaSH sector did not have a single long term development plan. Though the "National Water Plan" was prepared in 2005, it was generic in nature and remained almost un-implemented. Until now, the WaSH interventions largely were guided by the periodic plans and the annual budgets. The Sanitation and Hygiene Master Plan helped create self-propelled sanitation movement with the leadership of local governments. Despite of continued and significant annual investment in water supply, the coverage in both the basic and the improved water services could not be seen increasing. It remained stagnant since last 6/7 years.

While going through the set of action points and milestones that the SDP recommends, I find them much pragmatic and doable as well. It has emphasised on sector convergence, institutional and legal reforms, capacity development of the sector institutions, establishing better sector coordination and harmonization, vision for strong MIS/DSS system, efficient and effective management of water resources in particular and the whole WaSH sector in general, stimulating the private sector, conservation of the environment and tackling with the climate change issue, increasing sector finance, expanding coverage to reach the entire population, defining and increasing service levels, and ensuring sustainability of systems and services.

I thank my fore-office bearers for providing patronage in developing this SDP and colleagues, especially the Joint Secretary (Water Supply and Environment Division) who is also the Coordinator of the SEIU for his proactive convenorship in finalizing the SDP. I also thank the team members working in the SDP finalization for their relentless efforts in bringing the document in front of the sector.

It is my pleasure to introduce the SDP to all sector players, with strong hope that aspirations and need of our people in WaSH will be met eventually by effectively implementing the 15 year Sector Development Plan.

Dr. Sanjaya Sharma  
Secretary  
Ministry of Water Supply and Sanitation  
Government of Nepal

## Acknowledgements

## Abbreviations

ADB	Asian Development Bank
ANWR	Annual National WaSH Sector Review
BCC	Behaviour Change Communication
CC	Climate Change
CSO	Civil Society Organization
CSR	Corporate social responsibility
DCC	District Coordination Committee
DDC	District Development Committee
DeWaTS	Decentralized Wastewater Treatment Systems
DoLIDAR	Department of Local Infrastructure Development and Agricultural Roads
DPs	Development Partners
DPR	Detail Project Report
FSR	Feasibility Study Report
DRM	Disaster Risk Management
DRR	Disaster Risk Reduction
DTO	District Technical Office
DUDBC	Department of Urban Development and Building Construction
DWSS	Department of Water Supply and Sewerage
DWaSHCC	District Water Supply, Sanitation and Hygiene Coordination Committee
GESI	Gender Equality & Social Inclusion
GIS	Geographical Information System
GoN	Government of Nepal
GPS	Geographical Positioning System
HRD	Human Resource Development
IEC	Information, Education & Communication
(I)NGO	(International) Non-Governmental Organization
JMP	Joint Monitoring Programme
JSR	Joint Sector Review
JICA	Japan International Cooperation Agency
KUKL	Kathmandu Upatyaka Khanepani Limited
(KV)WSMB	(Kathmandu Valley) Water Supply Management Board
MDG	Millennium Development Goal
M & E	Monitoring and Evaluation
MoF	Ministry of Finance

MoFALD	Ministry of Federal Affairs and Local Development
MoH	Ministry of Health
MoPE	Ministry of Population and Environment
MoUD	Ministry of Urban Development
MoWSS	Ministry of Water Supply and Sanitation
NDWQS	National Drinking Water Quality Standards
NHSP II	National Health Strategic Plan-II
NMIP	National Management Information Project
NPC	National Planning Commission
NRW	Non-revenue Water
NSHCC	National Sanitation and Hygiene Coordination Committee
NWSC	Nepal Water Supply Corporation
NWSSTC	National Water Supply and Sanitation Training Center
ODF	Open Defecation Free
O&M	Operation and Maintenance
PCS	Post Construction Support
PPMS	Project Performance Management System
R&D	Research and Development
RHM	River Health Management
RVWRMP	Rural Village Water Resource Management Project
RWSSFDB	Rural Water Supply and Sanitation Fund Development Board
RWSSP-WN	Rural Water Supply and Sanitation Project- Western Nepal
SACoSan	South Asian Conference on Sanitation
SCNSA	Steering Committee for National Sanitation Action
SDG	Sustainable Development Goals
SEIU	Sector Efficiency Improvement Unit
SSG	Sector Stakeholder Group
TDF	Town Development Fund
ToR	Terms of Reference
TWG	Thematic Working Group
UNICEF	United Nations Children's Emergency Fund
VDC	Village Development Committee
WatSan	Water Supply and Sanitation
WaSH	Water, Sanitation and Hygiene
WB	World Bank
WHO	World Health Organization

WPE	Women, Poor and Excluded
WSMB	Water Supply Management Board
WSM	Water Safety Measures
WSP	Water Safety Plan
WSSDO	Water Supply and Sanitation Division Office
WSSSDO	Water Supply and Sanitation Sub-division Office
WSST	Water Supply and Sanitation Technician
WUSC	Water Users' and Sanitation Committee
WTFC	Water Tariff Fixation Commission
WUA	Water Users' Association
WUMP	Water Use Master Plan



## EXECUTIVE SUMMARY

In Nepalese WaSH sector the involvement of users in the process had significantly increased the coverage from 6% (1990) to 81.95% (2015) in sanitation and similarly 46% (1990) to 86.45% (2015) in water supply. The sector has become more inclusive with Water Users Committees representing more and more women and marginalized groups. Even then, reducing disparity in access, inequality in services, quality of water, functionality and sustainability of system and quality of services provided remains key challenges of the sector. The sector financing is largely attributed with imbalanced in respect of regional, unequal distribution of resources, resource gap and heavy dependency on donors' contribution. As a consequence, a large number of projects and programs are suffering from timely completion. Though the sector is gradually converging, greater trust and collaboration towards developing shared approaches and strategies is still a challenge. Many policies, fragmented institutional setup, multiple actors working according to project driven modalities, and absence of harmonization efforts have led to duplication of roles and overlapping responsibilities at both the national and local levels. The sector has yet to recognized its own scope, it has to extend itself from mere water and sanitation service provider to water resource and environment. To meet these sector challenges, the Nepal WaSH sector has realized that it needs a strategic framework and approach that can serve as a foundation for improved performance and effectiveness in the sector leading to effective and functional WaSH services.

Improved public health and living standard of people of Nepal through safe, sufficient, accessible, acceptable, and affordable water, sanitation and hygiene services –any time, everyone and everywhere is the major development goal of the Government of Nepal. To contribute to the realization of the goal this SDP is prepared. With the implementation of this SDP the sector will adopt one WaSH Act, one national WaSH policy framework, one National WaSH sector development plan executed by one Ministry and one WaSH performance report, this makes effective, responsive, transparent, and accountable WaSH Sector.

The preparation of SDP involved participatory process, in partnership with other sectoral Ministries, development partners, I/NGOs and civil society, the Ministry has prepared a Sector Development Plan (SDP) to guide the WaSH sector to achieve the sector goal. The development of WaSH SDP presents a unique opportunity for the sector in a coherent and strategic programming and management for sector development in Nepal led by the Government, fully backed by development partners and owned by the stakeholders. The objective of the SDP is to provide a framework for planning, implementing, coordinating and monitoring all activities in the WSS sector, with improved sector governance and effectiveness through a coherent, consistent, harmonized national WaSH programme. This SDP is a major step forward for putting into practice the principles laid out in the rural and urban water supply and sanitation policies. It identifies priority areas for future interventions and spells out a number of approaches that these will have to use.

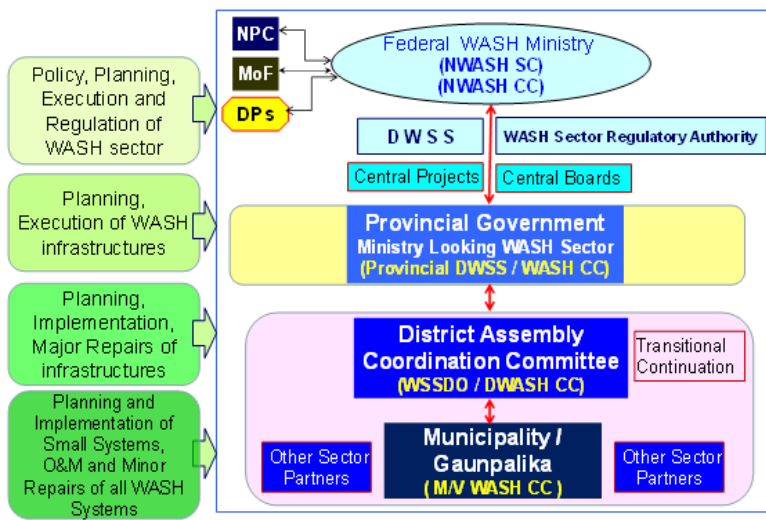
The SDP will cover the period 2016-2030, in three phases, aligned with the Sustainable Development Goals. First phase (2016-20) covers Universal access to basic WaSH services and improved service levels, reconstruction, the second phase (2021-2025) covers Improved service levels (medium/high), functionality and sustainability improvement and the third phase (2026-2030) covers Improved service levels and Impact assessment. It will be a rolling plan, which will be updated every five.

This SDP goes beyond conservative approach of increasing the coverage and provides major ambition on service improvement, so sees no boundary and discrimination between rural and urban population. The variation can only be in terms of system and services classifications. This classification entertains the desire of rural population to get higher level services. It tries to look

upon the WASH sector through system and service improvement.

The systems are classified as point, small, medium, large and mega. System classification, for both water and sanitation, is expressed in terms of human resource required, regulations and surveillance, financing and construction, ownership, Provision and production. The service level is defined as substandard, basic, medium and high. Water supply service levels are expressed in terms of system performance (quantity, quality and accessibility) and institutional performance (reliability, resiliency, service robustness and service satisfaction level). The sanitation service level is classified as Improved service, Basic service, Limited service and No service. The sanitation service level is expressed in terms of Accessibility, Type of Facilities/ Interface, Type of Facilities/ Interface, use, Reliability, Environmental Protection.

The Constitution of Nepal has envisaged complete decentralization of all aspects of planning, implementation, operating and maintaining WaSH projects to the Federal, Provincial and Local tiers of Government. Adhering to the principles of Federal Constitution of Nepal, efficient institutional mechanism is required for systemic overhaul and core restructuring of existing system for which following model of institutional setup is proposed.



The WaSH sector governance, especially in implementation and or operational level, will broadly depend on the federal as well as provincial and subsidiary legislatures that are envisaged in the federal constitution. The upcoming federal legislations will further clarify roles and responsibilities of WaSH institutions. However, for the time being while those legislations would be enforced, the following institutional provisions are proposed:

The local Water Boards with decentralized arrangements to foster improved services, efficiency and responsiveness for Large Municipalities; NWSC with enhanced capacity and responsibilities for Towns; and WUSC with Institutional strengthening, regulatory mechanisms with defined responsibilities for asset creation (WUSC are now the operators while the state is the asset owner), maintenance, financing, cost recovery and expansions in small towns and villages.

The SDP expresses the Nepalese WASH sector in thematic ways. In addressing the Nepalese WaSH issues, there is a widespread recognition of the need for integrated and inter related approaches. WaSH sector is a broad term that includes institutions, organizations, policies and practices which shape and manage environmental and water resources, including the delivery of water services for diverse populations and industries. Given the breadth of the challenges and the inherent role of many organizations and sector actors, mode of cooperation and coordination is expressed in different themes for improvement of outcomes. In particular, apart from the equitable service delivery, the effectiveness of alignment and co-ordination between government agencies, the corporate sector and civil society, and the role of leadership in enhancing collaboration and innovation across these sectors, has been emphasized in these themes. The details of the themes are explained in the chapter 8.

About 15% of the population are not yet reached by water supply services (CBS 2011) while about 18% have no access to sanitation services (DWSS 2015). They are supposed to be

located mostly in clusters in remote and rugged terrains, or disadvantaged and vulnerable communities that lack the power, resources, and skills to successfully secure WaSH services. In order to meet the national target of basic water and sanitation facilities for all, those populations must be reached, for whatever reasons they are left behind of access to water and sanitation.

Scaling up ODF progress and improving its sustainability is dependent on the further strengthening of enabling environments for rural sanitation. Analysis of the factors that lead to higher ODF success rates and more sustainable outcomes - for instance, why outcomes are better in one area than another should be an essential part of any local programming. In the urban context, the broad category of "improved" sanitation provision can be thought of as a sanitation "ladder" extending from pour-flush toilets using water and septic tanks, through to household connections to sewers and the provision of municipal wastewater treatment and drainage systems. Decentralized Wastewater Treatment options are typically adapted in urban and peri-urban low income areas where access to centralized sewer and wastewater treatment systems is limited.

Theme	Theme Area	Theme Objective	Theme Outcome	Theme Cost
Access and Utilization	Access, Reach, Utilization and Benefit Consumption	To Increase access to WaSH services which ensures reaching the unreached and also ensures effective utilization of available services and benefits.	Available services and benefits effectively accessed and utilized by all	572,773,986
Functionality and Sustainability	Functionality, Sustainability and Maintainability of WaSH Services and Institutions	To Improve functionality of WaSH services and institutions so that they deliver services as expected.	WASH services sustained.	28,346,750
Innovation and Technology Adaptation	Innovation, Learning, R&D, Alternative Technology and Technology Adaptation, Scaling up	To make WASH services more Innovative, relevant and effective	Dynamic and updated WaSH sector	3,852,947
Ecosystem and water production	Ecosystem Conservation, Water Augmentation and Production, River Health Management, Source Protection and Recharge.	To maintain, protect and regenerate ecosystem for increased water production	More water produced	224,762,500
WaSH Governance, Institutional Setup and Capacity Building	Water Governance, Transparency, Accountability, Participation, Standardization, Institutional Setup & Strengthening, Capacity Development	To make the sectoral institutions transparent, accountable and capable to serve the population with equitable distribution of services and to make all sections of the society capable to enjoy the benefit of the services	Capable, accountable and transparent WASH sector.	21,854,829

Theme	Theme Area	Theme Objective	Theme Outcome	Theme Cost
WaSH Diplomacy	WaSH Diplomacy, Network, Communication, Promotion and Sector Convergence, National Dialogue, Coalition Building, Mutual Accountability, Alignment and Harmonization	To establish continuous dialogue in WaSH sector	Converged, Harmonized and Aligned WaSH sector.	96,800
Monitoring & Evaluation	Monitoring & Evaluation, MIS/DSS and Planning.	To establish M&E system to measure the performance of sector linking it to inputs, outputs and outcome.	Evidence based planning in WASH sector established.	2,843,000
Continuous Quality and Service Improvement	Continuous quality and service improvement, Construction Quality, Process, Methods, Regulation, System conformity, quality standards, SOP	To institutionalize the systematic way to improve processes in WaSH sector	Processes Optimized	17,567,176
Diversity and Inclusion	GESI, non-discrimination, marginalization and exclusion, cross subsidy	To make the WASH sector more inclusive in service provision.	Equality in WaSH services ensured.	597,000
WaSH in Special Situation	WaSH in Emergencies, Vulnerable, Scarce and Fragile Situation, Resiliency	To capacitate the sector enough to work in special situation.	WASH sector functioned in all situation	36,326,422
Sector Financing	Finance, Investment, Marketing, Cost recovery, CSR, Enterprise and Entrepreneurship, Water taxation and Aid Modalities.	To generate financial resources and draw investment and create market thrust in WASH sector	WaSH sector financially self-sustained	6,362,500
<b>Total cost</b>	<b>203,010,852</b>	<b>207,721,475</b>	<b>195,280,935</b>	<b>915,383,910</b>
Cost for 1.35% annual pop. growth	6,944,740	20,483,842	34,134,680	97,686,159
<b>Subtotal</b>	<b>209,955,592</b>	<b>228,205,317</b>	<b>229,415,615</b>	<b>1,013,070,069</b>
Overhead cost @15%	31,493,339	34,230,798	34,412,342	151,960,510
<b>Grand Total</b>	<b>241,448,931</b>	<b>262,436,115</b>	<b>263,827,957</b>	<b>1,165,030,579</b>

Water systems are found to be dysfunctional mainly due to inadequate application of water safety principles, negligence, lack of institutional, technical and financial capacity of the users committee to undertake major repairs, and funding issues. The common tendency to use available resources only on new projects rather than on maintenance may be partly explained by the greater political visibility for the Government in the delivery of WaSH and reluctance on

the part of DPs to allocate sufficient resources to maintenance. In its quest for improving sustainability, the WaSH sector will henceforth give a serious attention to improving functionality of WaSH services by developing a dedicated national programme and institutional support mechanisms to address functionality and to thereby ensure sustainability of dysfunctional water systems.

The sector needs to continuously review, refine and adapt its programming, approaches and technologies to make sure that the work is sustainable, innovative, relevant and effective. Rapid urbanization, rural- urban migration, and densification of urban agglomerations, in combination with the climate change continuously challenge the WaSH sector in provision of innovative and sustainable solutions concerning safe and reliable WaSH services.

Availability of water for human consumption as well as for agriculture purpose is critical to a decent existence and livelihood in both setups in present agrarian Nepal. Adoption of well thought options for recharge and retention of rain drops in the landscape through protection of natural infiltration zones and development of additional recharge opportunities can be of help in stemming the decline in spring yields. The catchment areas of urban water sources are largely unprotected from human encroachment and climate change which are the common causes of source pollution, source depletion and conflict on use of water sources.

Water integrity refers to the adherence of water sector actors and institutions of governance principles of transparency, accountability and participation, based on core values of honesty, equity and professionalism. Integrity, by requiring that public interest be paramount, provides the basis for accountable WaSH projects and service delivery. For good accountability in WaSH services and operation, it is necessary that politicians, policy-makers and WaSH service providers are transparent and accept responsibility for their actions and recognize that they should be called upon to give an account of why and how they have acted or failed to act.

The Nepal WaSH sector envisions competent, capable and knowledgeable human resources for effective and efficient sector planning and service delivery. This imagines a Nepal WaSH Sector in which people manage their water and environmental resources in a sustainable manner, and in which, all sections of society, especially the poor and the underprivileged, can enjoy the benefits of the services. So, the NWSSTC's capacity will further be enhanced to become the National WaSH academy, with the clear mandate to perform, research in WaSH that establishes strong linkages between policy, practices and the empowerment of people. This SDP had made provision to set aside 0.5% for research, 1% of national budget in WASH for capacity development.

The purpose of WaSH diplomacy is to raise awareness on the current state of water resources and the need for adequate diplomatic solutions to stimulate cooperation around the way the resource is managed. It will provide knowledge resources, circumstantial experiences, and a cadre of tools to water-relevant Sector Actors so as to enhance their ability to assess, prevent, and respond to the tensions arising from situations of water scarcity and mismanagement. This approach will be relevant to the great water stressors of our time and will serve to promote both short and longer-term cooperation through shared benefits, inclusive multi-sector actor agreements and sustainable institution building.

The efforts of the last five-six years in which the sector has tried to move from a fragmented, multi- institutional-set up to a more harmonized, collaborative and effective environment are already paying off. The sanitation movement throughout the country has shown the efficacy of WaSH coordination committees of joint-up working modality, networking and sector wide collaboration, especially at district level. The two national WaSH Joint Sector Reviews conducted in the past, though have further generated appreciation, confidence and commitment among all sector actors for common purpose and plan, it could not be seen much complied by actors.

WaSH sector is gradually gaining market characteristics globally with recognition of water supply as commodity goods. However, the Nepal WaSH sector will have to look from both social service perspective as well as from market perspective to better cope with the needs and aspirations of the population and at the same time to become competitive and self-sustained sector in the long run. Promotion means raising customer awareness, enhancing production and sales, satisfying consumers with quality service and pursue them pay for the service. It is one of the four basic elements of the market mix, which includes the four P's: price, product, promotion, and place.

SDP envisages sector convergence, i.e. all WaSH interventions will be executed under a single sector Ministry. Also, all sector actors including DPs, NGOs, civil society and the private sector will be contributing to the sector through one sector plan for one agreed outcome. In this context the sector will adopt the approach of Annual National WaSH Sector Review (ANWR). It will be organized after the end of the Fiscal Year and will accommodate all sector actors. Sector Convergence brings the WaSH sector from fragmentation to coherent, harmonized and aligned sector. It envisages all WaSH interventions through one policy, one plan, one monitoring framework and one sector performance report.

Effective sector performance is a function of reliability of sector information as a basis for setting realistic targets and monitoring sector performance. Establishing sector information management systems linking inputs, outputs and outcomes is therefore absolutely essential. The WaSH Sector MIS will be seen as integral set of all existing and or future discrete MISs such as Dash Boards, Web-based sites for data collection and updating, static databases that are updated manually etc. These all systems capture quantitative data on a regular basis, enabling the sector to track SDP progress and make management and planning decisions regarding the sector. Sectoral MISs of Health and Education sectors, learning and sharing events in the sector, and evaluations will provide additional information needed to assess the effectiveness and efficiency of SDP implementation and to help make any mid-term corrections needed to ensure the WaSH sector continues in its designated course towards achieving set milestones of the SDP.

The Annual National WaSH Sector Review (ANWR) will review the information produced by the sector MIS/DSS. The Nepal WaSH sector will have one 'National WaSH M&E/MIS/DSS System', while each implementing agency will have their own Project Performance Management System (PPMS). This will be web based and GIS enabled system. Common people will have free and easy access to it. The National M&E system should have linkage and usages to the planning process of all WaSH agencies in Nepal. Sector performance report will be prepared and published based on the performance as reflected in this National M&E/MIS/DSS system.

Continuous Quality and Service Improvement (CQSI) is a systematic way to improve processes, where actors define their goals and key outcomes for improvement in their system and services. Common approach for improvement is to work harder to improve results, provide more training to staff whereas CQSI focuses on processes. The process assumes that staff are good enough, work hard enough and they have enough training. CQSI believes that every process can be improved and to improve outcomes, improve the process that creates those outcomes. The sector will develop and standardize the quality, process and methods documents. WaSH services are public, essential and monopolistic services. Effective service provision relies upon the actions of different Sector Actors (mainly government, administration and utilities). The provision of water services should preserve accountability of those different Sector Actors. The regulatory authority has the main responsibility to accomplish that target.

Involvement at local level is the key to develop ownership and ensure sustainability in WaSH projects. Though the Rural WaSH Policy 2004 has provisions regarding local involvement; it is obvious that further improvisations be made in policy to further ensure inclusiveness. Concepts

such as preferential modes of involvement for Women, Poor and Excluded (WPE) & marginalized groups and equity based water tariff lead to less financial burden for GESI stakeholders and encourage active participation. This results in development of ownership at local level for everyone in the community. The profiting utilities will be encouraged for corporate social responsibility (CRS) approach to address the GESI in WaSH services.

WaSH is one of the biggest immediate priorities after a disaster. Inadequate WaSH services can indeed cause disasters, while disasters can further degrade WaSH services; both resulting in increased risk. It is therefore necessary to consider disaster risk when developing WaSH services, whether in routine development phase or emergency phase. This is all about increasing resilience of WaSH services to natural disasters by knowing the risks and managing them to the extent possible, through preventive and preparedness measures.

The findings from the WaSH PDNA show that out of a total 11,288 water supply systems in the 14 severely affected Districts, 1,570 sustained major damages and 3,663 were partially damaged and that approximately 220,000 toilets were partially or totally destroyed. Likewise, of the total 16,433 water supply systems in the 17 moderately affected Districts, 747 sustained major damages and 1,761 were partially damaged and approximately 168,000 toilets were partially or totally destroyed. The total needs for recovery and reconstruction, using the principle of building back better and safer, is estimated at NRs 18.1 billion.

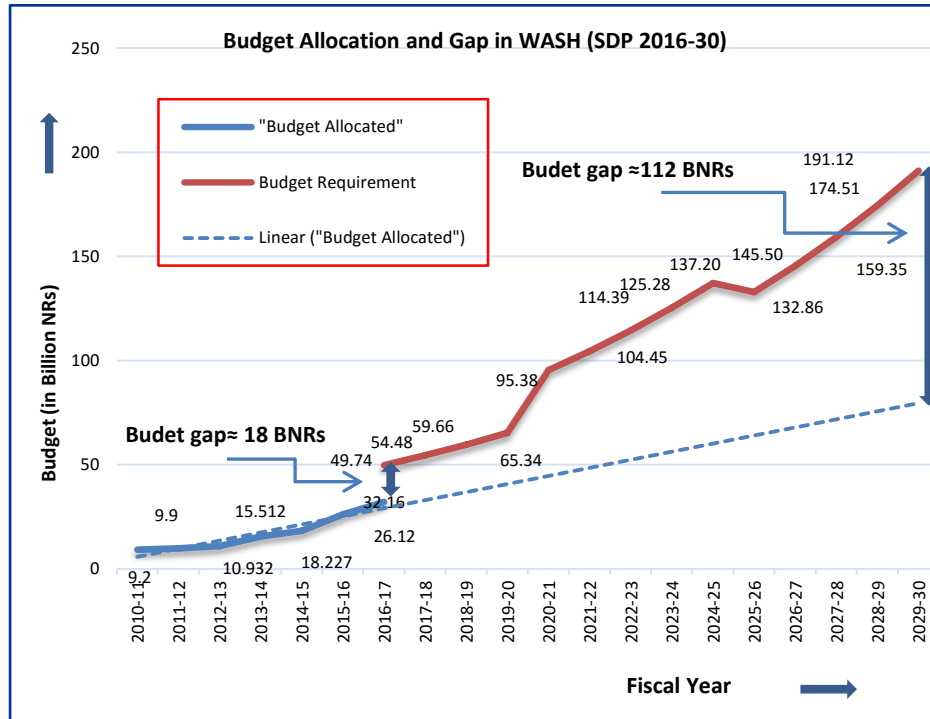
Main purpose of sector financing strategy is to i) Explore how domestic financial resources can be mobilized to ensure access and sustainable management of water and sanitation for all; ii) Use it as a credible evidenced basis for effective Negotiation and dialogue with DPs for securing external funding for the implementation of the SDP. iii) Mobilizing resources for sustainable, social and economic development and maintenance of Ecosystems through sustainable WaSH services. In the absence of consolidated financial information at the national and district levels, sector financing remains poorly tracked. The sector has undertaken limited analysis to analyse flows, efficiencies, expenditures, and value-for-money. The main source for sector financing is envisaged through the central government transfers coming from the sector Ministry and other Ministries (such as MoE, MoFALD and MoH) as per their WaSH plans; significant loans from ADB and WB; grants from UNICEF, JICA, Embassy of Finland, WHO and other bilateral agencies.

The SDP action points and milestones are diversified and so can be financed diversely by the government through public investment programmes; by households; by the non-government, cooperatives and community sectors; and by the private sector including through FDI. INGOs, charity foundations, and personal trusts can also be attracted in SDP financing.

The SDP financing strategy will have serious implications for the outreach of people to the WaSH services and their sustainability. In particular, the tariff and taxation system will have serious implications for the access of the poor to basic WaSH services. Thus incentive effects of well-designed tariff must be compatible with policy objectives. The financial forecast shows that there will be BNRs 111.62 gap at the end of SDP period if prevailing trend of sectoral budget continue. The WaSH sector of Nepal has been lucky in the sense that there has been tremendous support from users' side. The SDP envisages of about 25% of contribution from users to fully implement this SDP. This SDP also looks to ways to decrease foreign aid dependency in WaSH sector. While the sector now has 52% of donor's contribution, the SDP aims to decrease it to 27.2% at the end of SDP period. Private sector cannot be appealed in WASH unless and until water is not taken as commodity. Relying only on public investments in WASH may never meet the set sector targets- service levels and coverage. WaSH services can be provided equitably, sustainably and reliably to all section of the population only if value for money is respected and conducive environment prevails such that water entrepreneurs, vendors or service providers see opportunities for fair and competitive business in the WaSH

services provision.

It is essential that economic costs involved in operating Urban WaSH services are jointly shared and recovered at an appropriate level to ensure their long term sustainability and ownership.



After all it is the local authorities who are to plan strategically so that expenditures on WaSH service provision is somehow recovered and at the same time, equity in WaSH services provision is ensured. Such plan can better be met with success from users' side if local authority leaders include it in their election declarations as part of their commitment to improve water governance and thereby WaSH service delivery.

The total estimated cost of implementing the SDP of WaSH is approximately NRs. 696.915 billion on the basis of present cost price of 2016 and inflated cost is NRs. 1,597.972 billion. This estimated cost includes all cost of milestones and action points of 11 Themes and recurrent costs. The estimation is carried out on the basis of present price of 2016 and is inflated to year wise basis to 2030, with inflation rate of 9.5%. The ratio of inflated cost to present price is 2.3. The total estimate also includes the cost required to address the population that increases during SDP period. The total cost with this consideration comes the overhead cost is assumed as 15% of the total cost. Recent trend of overhead/recurrent cost is 12 to 13% as the official setup is still based on the administrative structure of late nineteen eighties. So it is slightly increased and 15% is assumed. The total estimated cost includes peoples' participation and the percentage of participation is around 25% and Government/Donor contribution comes to be around 75% on the basis of net cost of the SDP (without overhead), because the public contribution is counted for construction works only.



Construction Materials Required during SDP Period						
S.N.	Particulars	Unit	2020	2025	2030	Total
1	Stone	m <sup>3</sup>	684,865	414,458	520,724	1,620,047
2	Aggregate	m <sup>3</sup>	483,948	408,099	460,617	1,352,664
3	Coarse Sand	m <sup>3</sup>	496,618	362,572	409,131	1,268,320
4	Cement	bag	5,777,602	4,509,907	5,017,312	15,304,821
5	Tor-steel bar	kg	64,481,833	55,132,189	54,343,393	173,957,415
6	Skilled labour	no	5,045,720	3,478,762	3,275,759	11,800,241
7	Unskilled labour	no	35,261,301	17,486,658	17,142,287	69,890,246
8	Pipes - HDPE	m	56,038,666	26,526,322	16,967,809	99,532,796
9	Pipes - GI	m	9,588,974	3,508,521	2,619,499	15,716,993
10	Fittings	no	2,841,200	1,159,514	903,735	4,904,448

This SDP also made an effort to estimate the amount of construction materials required to implement this SDP. This exercise will provide a tentative estimation for construction and manufacturing industries to expand their capacity to meet this demand of WaSH sector as envisaged by SDP.

Human Resource Development		
Description of HR	Required Human Resource	Remarks
<b>A. Technical Manpower</b>		
VMW	28493	existing no is : 13315 (NMIP)
Meter Reader	2100	
WSST	5250	
Plumbing Inspector	1050	
Overseer	850	
Civil Engineer	300	
<b>B. Administrative Manpower</b>		
Office helper	1000	
Office assistant	1050	
Store keeper	1050	
Revenue assistant	1550	
Accountant	1050	

This SDP has also estimated the Key human resource required to implement this SDP. This will provide an overview for academic, professional and training institutes to develop these HR required. This SDP prescribes an ONEWaSH Programme for Nepal WaSH Sector in the plan period of 2016-2030.

The Government of Nepal, upon approval of the SDP, will launch the Phase-I Programme which will bring together all sector partners towards a converged sector approach for effective and equitable ways of water and sanitation services delivery to the people of Nepal. The next steps to follow are the elaboration of sub-sector action plans to identify and sequence the needed activities, and development of investment plans that will project funding requirements.

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# CHAPTER ONE

## INTRODUCTION

### 1.1 The Country Overview

The Federal Democratic Republic of Nepal, is a landlocked country located in South Asia bordering with two neighbours-India and China. With 26.5 million population spread over the area of 147,181 Square Kilometres, it is stretched east to west extending between the southern Terai plains and northern Himalayan range. Nepal is a least developed country with a low Human Development Index (0.458) ranking 145<sup>th</sup> (Human Development Report, 2014) out of 187 countries in the world.

Despite a decade-long conflict (1996-2006), protracted political transition, haphazard urbanization, inequality and unemployment, the country, however, has been making steady economic and social progress over time. The Government of Nepal (GoN) has made a commitment to graduate the nation as a developing country from the status of least developed country.

Till recent past, the country was politically and administratively structured into 75 districts, 58 municipalities and 3915 Village Development Committees (VDCs).The Federal Constitution has envisioned 7 Provinces and the existing 75 districts as coordinating political layer, under which local government units such as Municipalities and Gaunpalikas will be placed.

Nepal is located in active tectonic fault zones and past records tell that major/devastating earthquakes are expected at an average interval of 70-90 years in the central Nepal. The 7.9 and 6.9 richter scaled tremors of 2015 within 17 days interval had devastated the central Nepal.

### 1.2 Development Context

The duty of nation will be to create conducive environment where quality of life guarantees human dignity and inclusive growth for every child, woman and man. However, every year 1594 children die from diarrhoea caused by unsafe water and poor sanitation in Nepal (World Health Statistics, 2005-2014).

Water scarcity is acute not only in rural Nepal, but it is prevalent even in the capital city Kathmandu. The human deprivation of safe water and sanitation services is obviously holding back human development.

Water, sanitation and hygiene (WaSH) sector in Nepal is dynamic. Triggered by the need for reforms in the sector, the GoN has been providing unrelenting "political will" and leadership to improve sector governance, responsiveness and accountability. It aims at ensuring safe, sufficient, accessible, acceptable, and affordable water and sanitation services for the people. These five core attributes are to be seen as the foundations for WaSH services.

The sector has realized that it needs a strategic framework and approach that can serve as a foundation for improved performance and effectiveness in the sector leading to effective and functional WaSH services (JSR-I, 2011). In partnership with other concerned Ministries, DPs, (I)NGOs and civil society, the Ministry has been undertaking sector assessments and systematic Joint Sector Reviews (JSRs) to assess strengths of the sector, identify structural and operational causes that impede universal access to safe water and sanitation, and formulate appropriate strategy and actions. These initiatives are geared towards strengthening the

foundations of the sector and creating a more resilient, better managed, environment-friendly and cost effective sector that is able to meet the aspirations of all the citizens.

The GoN approved the formulation of a National WaSH SDP on January 03, 2013. In JSRII, the concept of formulation of SDP was owned by all the Sector Actors. By providing a shared vision and coherent strategy around national priorities, the SDP provides a clear programming framework and direction for action to the Sector Actors in the realization of safe water and sanitation services for all through improved coordination, harmonization and alignment. The SDP will gradually lead the sector towards a converged sector planning.

### **1.3 Scope of the Sector Development Plan**

The scope of this SDP transcends WaSH sector and includes health, education, and local development. This SDP frames a 15-year time horizon, starting in Nepalese FY 2073-2074. The period is divided into three phases (2016-2020), (2021-2025) and (2026-2030). The SDP will be a rolling plan, which will be updated at the end of each phase.

### **1.4 Approach and Methodology**

Under overall guidance from the Honourable Minister and Secretary, Ministry of Water Supply and Sanitation (MoWSS), the SDP formulation was coordinated by the Joint Secretary, Water Supply and Environment Division who is also the Coordinator of the Sector Efficiency Improvement Unit, MoWSS, in its development, periodic review and consultation workshops both at the national and local levels.

The preparation of SDP entailed participatory process, wherein a concept note was first shared with the Sector Actors and Development Partners for their inputs and comments. The preliminary outline was first presented and shared in the SSG meeting in September 2014. Building on the inputs received from the Sector Actors, the outline was then presented in a series of regional sector reviews organized in Biratnagar, Nepalgunj and Pokhara which were participated by a wide-range of representatives from sector agencies. The gaps and solutions identified during the regional reviews were summarized and presented at the Sector Actors' meeting at the national level in June 2015.

The first draft of SDP was discussed with representatives of eight Thematic Working Groups (TWGs) for their inputs in September 2015 before it was presented in the SSG meeting in October 2015. The key objective of thematic discussions and reviews was to ensure collective engagement of the Sector Actors and build on informed perspectives from the TWGs in the formulation of SDP. Independent WaSH professionals from the academia, Government, (I)NGOs and DPs peer reviewed the Plan providing critique and impartial perspectives, which further enriched the Plan.

Strategic consultation with the National Planning Commission (NPC) and the concerned Ministries organized on 1<sup>st</sup> February, 2016 was aimed at ensuring cross-sector linkages, ownership and areas that needed alignment and shifts. This strategic consultation showed some concern on strategic action plan, sector investment plan and sector convergence. The MoWSS then formed a team in the convenorship of the Joint Secretary, Water Supply & Environment Division to finalise the SDP building on the initial draft.

The final draft was then presented to the wider WASH sector partners on 5<sup>th</sup> May, 2016. The comments, suggestions and feedbacks received from concerned ministries, DPs and other agencies enhanced the sectoral ownership and convergence.

## **1.5 Organization of the Report**

The SDP has been divided into eleven chapters. Chapter one introduces background of report which mainly discuss the country overview, development context, scope of the SDP and the methodology used to prepare this report. Chapter two deals with water supply, sanitation and hygiene status of Nepal and focuses on distinctive achievements and sector challenges. Chapter three presents the sector policy and legislative environment. Chapter four describes the present institutional framework of WaSH sector. Chapter five gives the underlying principles for WaSH sector which mainly focuses on sector governance, human right approach, gender equality and social inclusion, integration, decentralized planning etc. Chapter six briefs the sector vision, mission and objectives.

Similarly, Chapter seven introduces concept of system classification and defines service levels in sanitation and redefines the service levels in water supply. Chapter eight describes the eleven themes to be adopted in WaSH sector. It is the core section of the SDP. Chapter nine has been contributed to the SDP cost estimates. It gives unit costs; estimates for total cost (theme-wise), total human resources and construction materials required for SDP implementation and the investment plan. Chapter ten briefs on SDP implementation plan. It outlines its three strategic phases, risks and mitigation measures, its review and revision process etc. Chapter eleven highlights the water supply and sanitation future perspectives. It indicates towards the direction the Nepal WaSH sector may have to strive for in the near future.

# **CHAPTER TWO**

## **WATER SUPPLY, SANITATION AND HYGIENE SECTOR OF NEPAL**

### **2.1 Sector Environment**

Over the last two decades, responsibility for the WaSH Sector in Nepal is significantly moving from national government to local community. Community management became a prominent concept of the sector. All WaSH sector agencies recognized this as a key concept. The Nepalese WaSH sector provided favourable environment for:

1. Demand-driven community management, based on empowerment of the community to ensure their full participation in all stages of the project cycle.
2. Community ownership of the assets through Water Users' Association (WUA).
3. Full responsibility for operation and maintenance by the community.

Nepalese WaSH sector is generally characterised by fragmentation, non-standardised project approaches, overlapping responsibilities of government agencies, and weak institutional leadership. Rapid and haphazard urbanisation is exacerbating water supply constraints as well as poor solid waste management and wastewater infrastructure in emerging towns, urban areas and the Kathmandu Valley. There is also a significant shortfall in available funds needed to address infrastructure and institutional requirements. It is estimated about half of existing water supply schemes are partly or totally dysfunctional. There are large regional disparities in coverage. Sanitation coverage lags in mid- and far-western development regions and Terai districts. The disparity on access to WaSH services had considerably narrowed down with 87% and 80% in urban and 80% and 81% in rural in water supply and sanitation respectively. Open defecation was ubiquitous across rural Nepal and is a key focus of sanitation and hygiene master plan 2010-2017.

### **2.2 Sector Strengths**

The WaSH sector of Nepal not only has the gloomy picture; the sector also has unique strength to achieve its vision. The sector has strong community driven and demand based approaches in rural water supply and intensive involvement of Users' Committees. The involvement of users in the process had significantly increased the coverage from 6% (1990) to 81.95% (2015) in sanitation and similarly 46% (1990) to 86.45%(2015) in water supply. This involvement in one hand significantly reduced the burden on the national government's over-stretched resources in other hand brought strong community cohesion. The sector became more inclusive with WUSCs representing more and more women and marginalized groups. The sanitation sector became more creative and innovative with the emerging concepts like ODF, CLTS, SLTS, Total Sanitation etc. The sector also offered the choice of technically simple, small schemes manageable at community levels.

The Government has also shown commitment towards achieving basic water and sanitation for all by 2017. This commitment is supported by favorable policy environment. In different forums and platforms, the sector actors have shown strong motivation and commitment towards sectoral outcomes.

## 2.3 Sector Status

### 2.3.1 Water Supply

Considerable progress has been made over the past decade to realize national target of basic water and sanitation services for all by 2017. Census reports show that 85% of Nepalese in 2011 have access to improved water sources, up from 72% in 2001 (CBS, 2001, 2011).

Table 1 provides rural and urban breakdown in terms of access and non-access to water services. According to the Joint Monitoring Programme (JMP, 2013), Nepal has already achieved the Millennium Development Goal (MDG) target for access to improved water supply (Actual = 85%, Target 2015 = 73%)

**Table 1: Access to Water Supply- Urban Rural Scenario**

Population	Population	% of Population with Access to Water	Gap in Access (No. of people without Access to Water)
Urban	4,523,820	87	585,382
Rural	21,970,684	85	3,295,603
<b>Total</b>	<b>26,494,504</b>	<b>85</b>	<b>3,880,985</b>

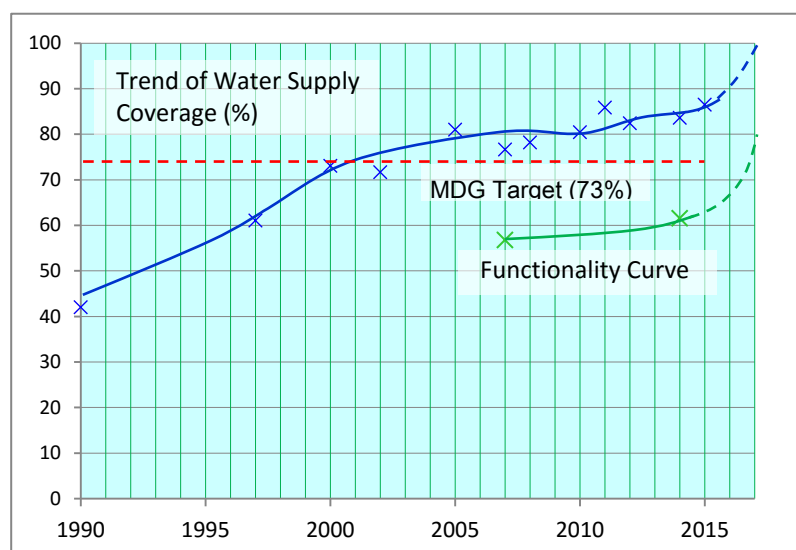
Source: CBS, Census 2011

**Table 2: Access to Water Supply across Ecological Regions**

Population Category	Projected Population (2014)	% of Population with Access to Water	Gap in Access (No. of people without Access to Water)
Mountain	15,49,734	80.19	306692
Hill	1,22,20,211	84.89	1846474
Terai	1,40,65,936	84.79	2139429
<b>Total</b>	<b>2,78,35,882</b>	<b>83.59</b>	<b>4292595</b>

Source: NMIP, 2014

**Figure 1: Water Supply Coverage over the Years**



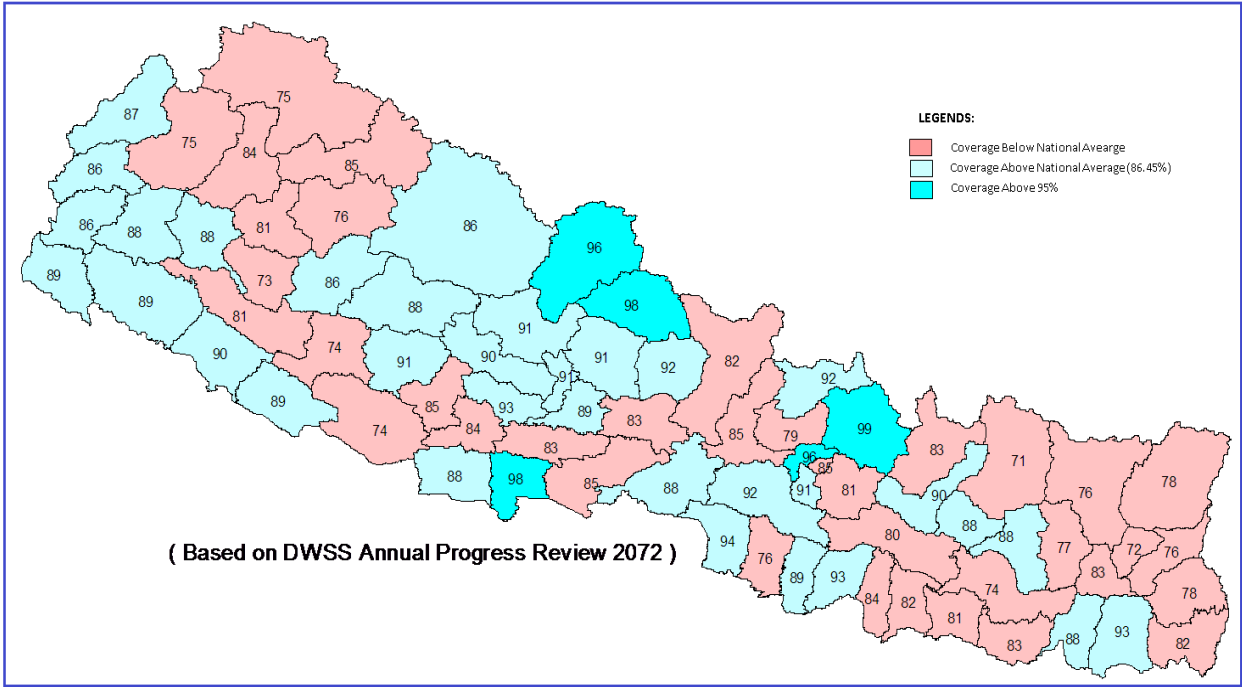
Water Supply Coverage			
Year	Cover (%)	Functionality (%)	Source
1990	46		8th. Plan
1997	61		9th. Plan
2000	73		NPC 2005
2002	71.6		10th. Plan
2005	81		NPC 2013
2007	76.6	56.76	SSR 2011
2008	78.13		NMIP 2008
2010	80.4		NMIP 2014
2011	85.8		13th. Plan
2014	83.6	61.5	NMIP 2014
2015	86.45		DWSS 2015

Source: CBS 2011; NMIP 2014

While Nepal has commendably reduced the rural urban disparity in terms of access to basic water supply services. It still has to make progress in terms of quality of services. However, coverage has remained stagnant since 2011. These coverage figures do not truly reflect large differences in actual functionality and sustainable water services. Nepal WaSH sector needs to significantly increase its performance to realize national target of functional access to basic water supply by 2017 for all as shown in Figure 1.

Significant disparity exists in access to water supply across 75 districts. Figure 2 shows the water supply coverage in the districts grouped into three categories.

**Figure 2: Present Water Supply Coverage in Districts**

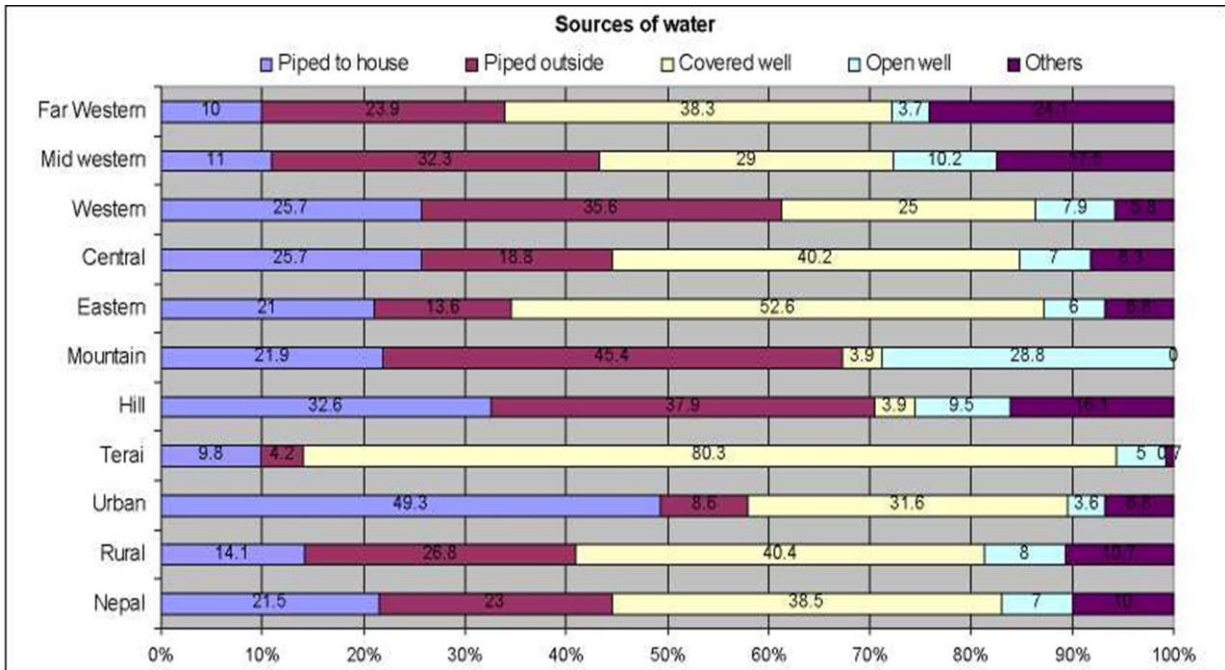


Source: DWSS progress review, 2015

As shown in Figure 3, 44.5% of households have access to piped water and almost half of these households have private connections. The remaining 55.5% depend on covered wells (38.5%), open wells (7%), and other unreliable sources like river and spring water (10%).

Piped water varies across rural-urban setting with 58% of population in the urban areas having access while only 41% in the rural areas have piped water services. By development region, the western region has the highest proportion (61%) and the Far-Western region, the lowest (34%). In the Terai, about 80% of households draw drinking water from covered wells and tube wells.

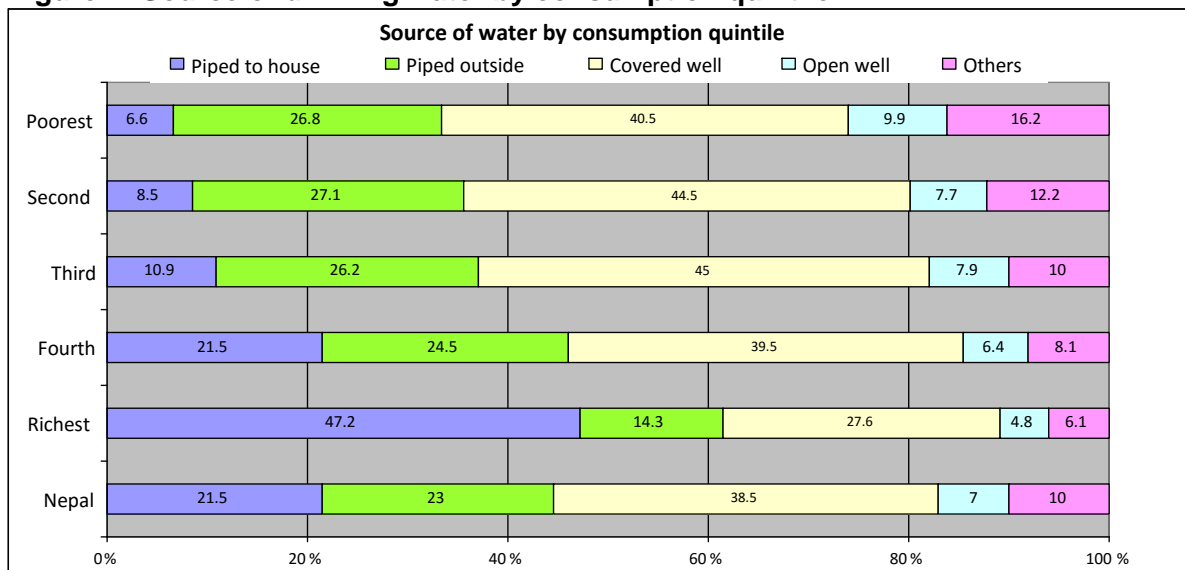
**Figure 3: Sources of Water Supply**



Source: MDG Progress Report, NPC/UNDP, 2013

As can be seen from Figure 4, access to piped water is positively associated with household wealth: about 47% of households in the top quintile have their drinking water piped to their housing units while only 7% of the bottom quintile.

**Figure 4: Source of drinking water by consumption quintile**

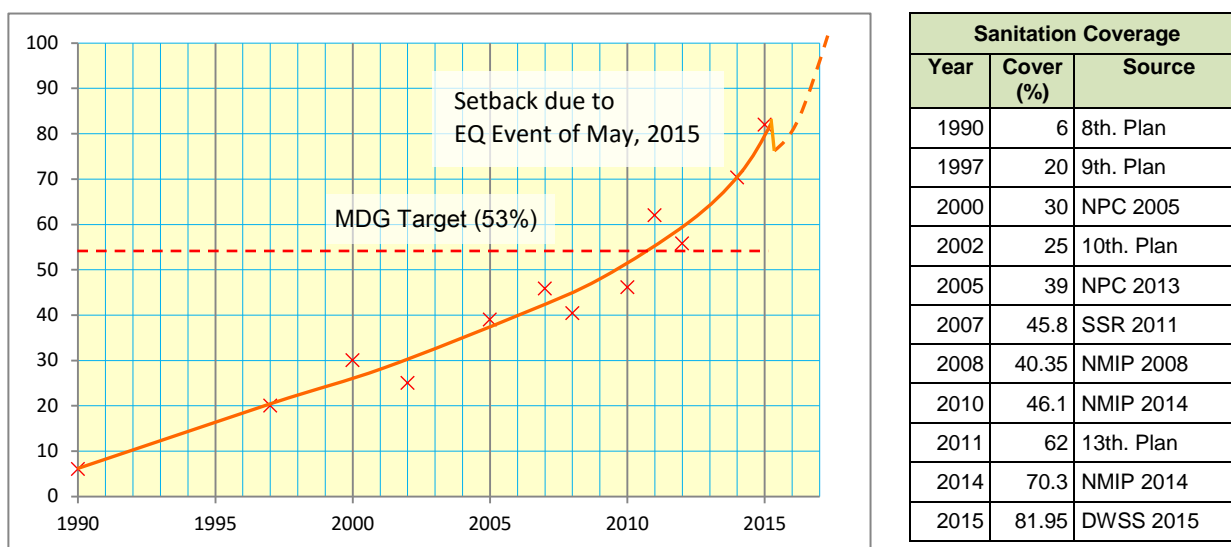


Source: MDG Progress Report, NPC/UNDP, 2013

## 2.3.2 Sanitation

Nepal has come a long way in improving basic sanitation services, with coverage doubling to 62% in 2011 (Census 2011, CBS) compared to 30% in 2001. It has already surpassed MDG target of 53%. Following the internalization of a National Sanitation and Hygiene Master Plan, 2011, Nepal has witnessed social momentum and transformation in the improvement of sanitation with several villages, municipalities and districts being declared open-defecation free. Nepal has witnessed social momentum and transformation in the improvement of sanitation with several villages, municipalities and districts being declared ODF. Coverage to basic sanitation facility has now reached 81% of the population (DWSS annual progress review, 2015). Figure 5 shows the trend of sanitation progress over the years.

**Figure 5: Sanitation Coverage over the years**



Source: CBS 2011; NMIP 2014

**Table 3: Access to Basic Sanitation Urban Rural Scenario**

Setup	Population	% of Population with Access to Sanitation	Gap in Access (No. of people without Access to Sanitation)
Urban	4,523,820 (17%)	91	411,668
Rural	21,970,684 (83%)	56	9,908,778
Total	26,494,504 (100%)	62	10,320,446

Source: CBS, Census 2011

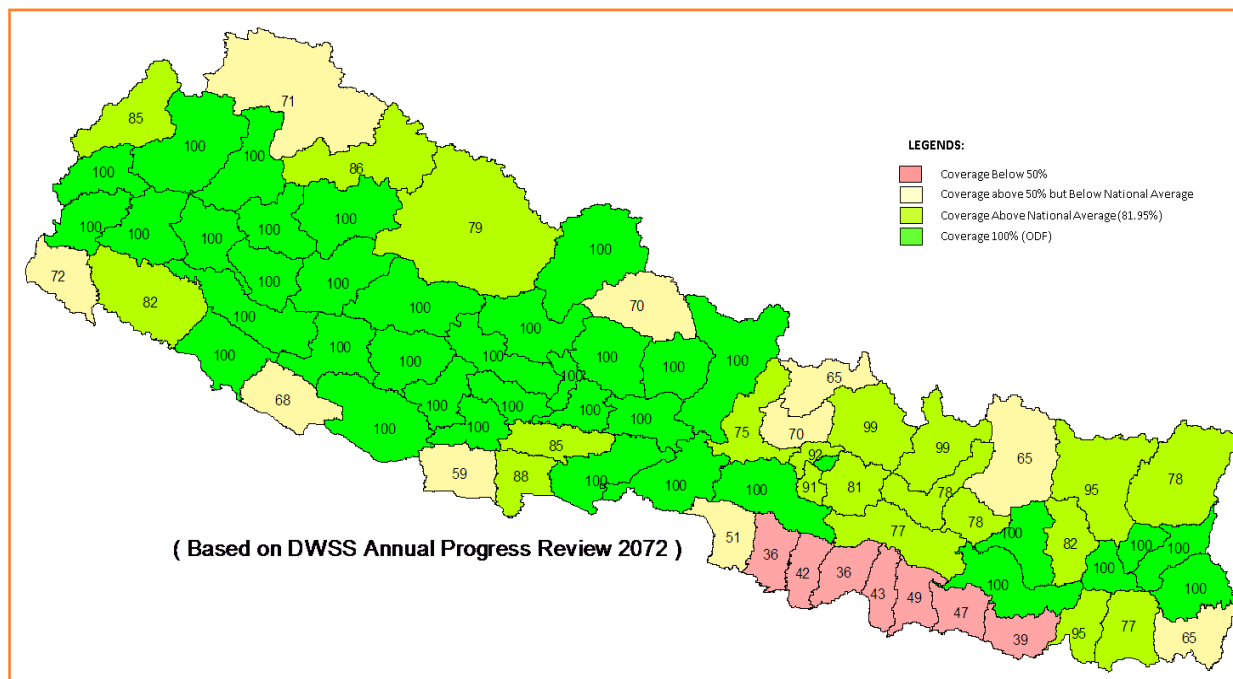
**Table 4: Access to Basic Sanitation across Ecological Regions**

Eco region	Projected Population (2014)	% of Population with Access to Sanitation	Gap in Access (No. of people without Access to Sanitation)
Mountain	15,49,734	74.48	395492
Hill	1,22,20,211	87.14	1571519
Terai	1,40,65,936	56.93	6058199
<b>Total</b>	<b>2,78,35,882</b>	<b>72</b>	<b>8025210</b>

Source: NMIP, 2014



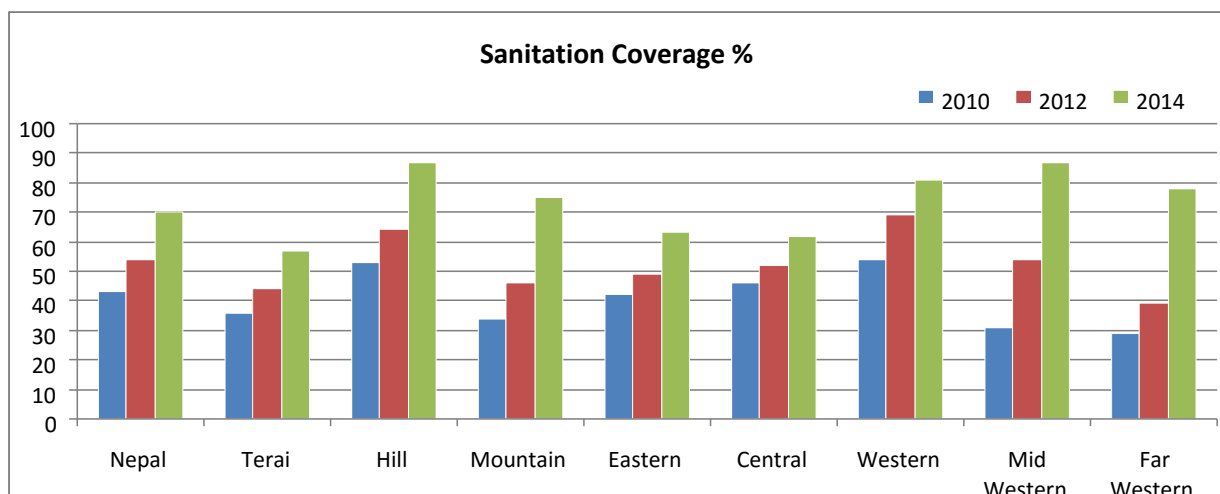
**Figure 6: Sanitation Coverage in the Districts**



Source: DWSS progress review, 2015

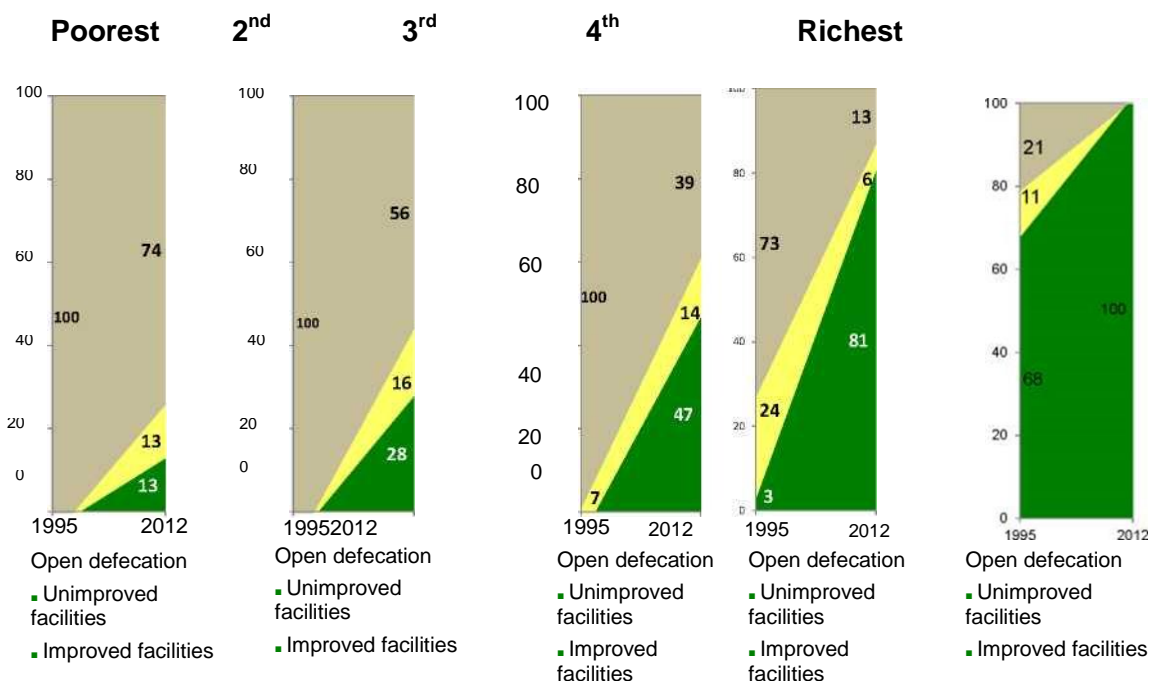
Disparity in sanitation coverage and economic status is stark. The chart below shows that the focus of interventions in sanitation is to target the bottom 2 quintiles. Figure 8 depicts access to sanitation trend (1995-2012) by wealth quintile.

**Figure 7: Geo and Ecological region-wise trend of Progress in Sanitation Coverage**



Source: NMIP, 2014

**Figure 8: Access to Sanitation by Wealth Quintile**

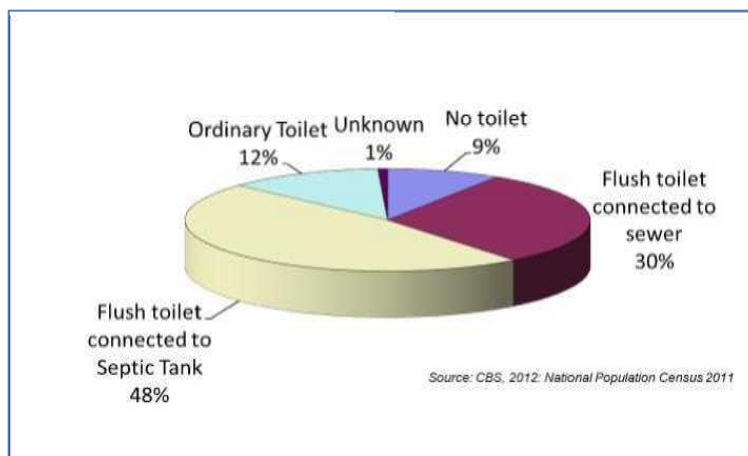


(Source: Nepal DHS 1996, 2011)

**Sanitation in Urban Areas:** 30% of urban households have toilets connected to sewer systems while 48% have toilets connected to septic tanks (Census 2011, CBS). However, many of the septic tanks are not designed properly, and there are no systems as yet for treating the faecal sludge from septic tanks.

**Figure 9: Access to Urban Sanitation**

Wastewater management is a major issue as much of the excreta and other wastewater is disposed of without treatment. None of the municipalities have properly functioning waste water treatment system. Only Kathmandu valley has few municipal wastewater treatment plants of which three are non-functional and one is functional but has lower capacity to withstand the current load. There is a wide difference in the sanitation situation among municipalities. Larger municipalities have better access to toilets but access to sewerage is very low in most of the municipalities. Hetauda has Waste Water Treatment Plant but its functioning is dubious. Pilot plants have been tried but these have usually stopped functioning a few years after completion. Some municipalities have promoted community managed decentralized wastewater treatment systems (DeWaTS), but these need to be scaled up.



### 2.3.3 Hygiene

Nepal has made significant progress in reducing under-five child mortality rate from 142 in 1990 to 39.7 in 2013, per 1,000 live births (World Health Statistics 2005, 2014). While marked reductions have been seen in number of patients visiting health posts in rural Nepal, but WaSH associated diseases remain among the top 10 causes of morbidity. Hygiene is being gradually mainstreamed as a key component in WatSan programmes for maximizing public health outcomes, keep people and their environments clean, reduce stigma, prevent spread of diseases, reduce under-nutrition to enhance dignity and improve status as well as wellbeing of the people.

The NPC has developed a Multi-sectoral Nutrition Plan (MSNP) in close collaboration with the five Ministries involved in its delivery (Ministry of Agriculture, Ministry of Health, Ministry of Education, Ministry of MoWSS, and the Ministry of Federal Affairs and Local Development). It was an outcome of the GoN's commitment to scaling up a set of evidence-based nutrition interventions through the MSNP to reduce the inter-generational transmission of stunting. In addition to it, reducing acute respiratory infections (ARIs) and water borne as well as water washed diseases is another objective of the MSNP. Safe drinking water being one of the vital components of nutrition, the WaSH sector will be contributing towards MSNP objectives through provision of safe WaSH facilities for all within the phase - I of the SDP implementation.

## 2.4 Sector Achievements

**Gradual Progress:** Over the years, Nepal has been making a steady progress to enhance water and sanitation services to citizens. Table 5 provides the progress trend.

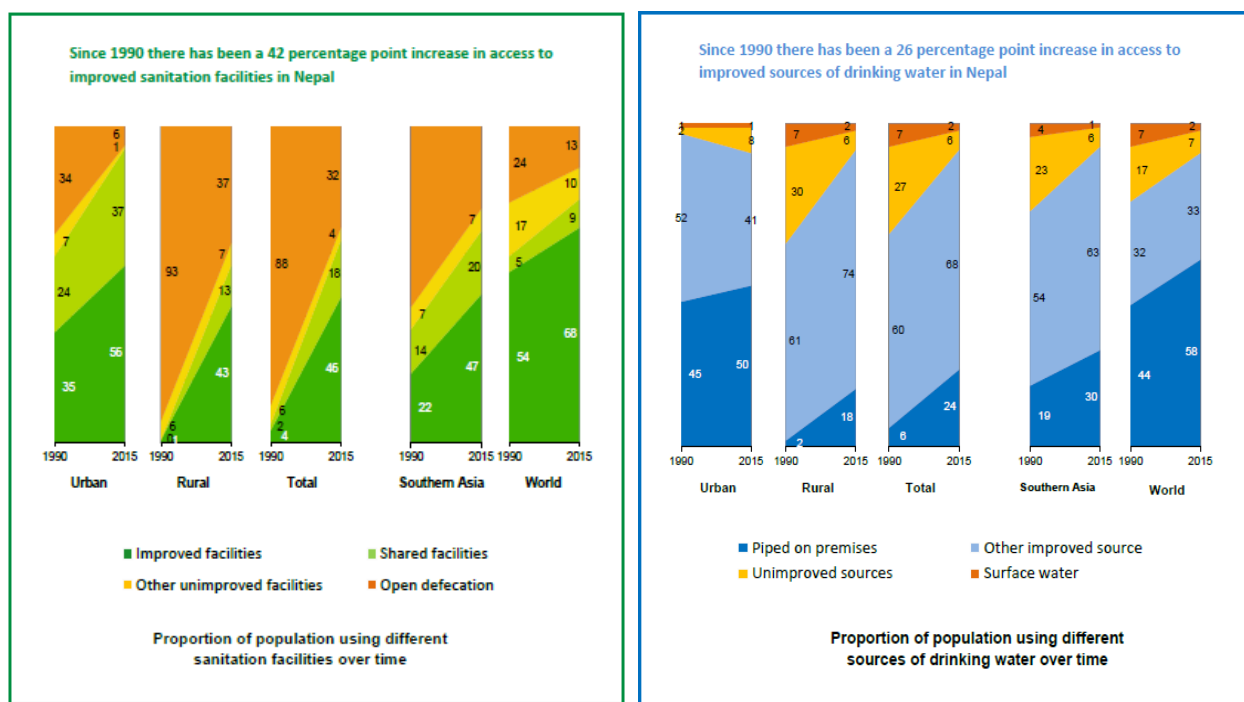
**Table 5: Progress of WaSH over the Years**

Indicator	1990 <sup>a</sup>	2000 <sup>a</sup>	2005 <sup>a</sup>	2010 <sup>a</sup>	2011 <sup>a</sup>	2014 <sup>b</sup> (NMIP)	2015 <sup>c</sup> (DWSS)	Set Targets	
								MDG 2015	National 2017
Proportion of population (%) using an improved water source	46	73	81	80.4	85	83.59	86.45	73	100
Proportion of population (%) using an improved sanitation facility	6	30	39	43	62	72	81.95	53	100

Source: (a) MDG Progress Report, NPC, 2013 (b) NMIP, 2014 (c) DWSS annual review, 2015

**Sector Convergence:** Through JSRs and other relevant sector assessments, the sector is gradually converging through greater trust and collaboration towards developing shared approaches and strategies. Joint sector reviews coupled with regional monitoring and learning visits have not only enhanced the willingness and collaboration of Sector Actors to work together but also have provided rich insights and informed analysis of sector blockages and actions needed thereof. These have increasingly contributed in instituting improvements in sector policies and practices in a participatory and transparent manner.

**Figure 10: Nepal's Standing in the World**



Source: JMP fact sheets-2015

**Narrowing the Vast Deficit in Sanitation:** Huge gap existed between water supply and sanitation coverage pre-2010, but it is increasingly getting diminished. Sanitation promotion has been intensified and scaled-up country wide following the formulation of a National Sanitation and Hygiene Master Plan (SHMP) in 2011 and through the implementation of focused programmes, advocacy and campaigns, and increased cross-sector linkages. The Master Plan includes nine guiding principles one of which is local bodies' leadership through joint action coordinated by the Coordination Committees at the local levels.

**Urban Water and Sanitation Plans and Policies:** To address the growing challenges in towns and Municipalities, the Urban Water Supply and Sanitation Policy, 2009 provides direction and strategies for effective programming and implementation through integrated urban water supply and sanitation sector projects. The GoN has also introduced 5-year Bagmati Action Plan, 2009, and enforced Solid Waste Management Act, 2012. More recently, the "Clean City Programme" has been initiated which includes five components- waste management, water and wastewater management, greenery promotion, pollution control and city beautification. The challenge now is to build local capacity and prepare an investment plan to implement these policies.

**Cross Sector Linkages:** Many of targets set for maternal and child health, education, gender equality and economic growth cannot be realized as they invariably are dependent on people gaining access to the most basic of human needs- safe water, improved sanitation and hygiene. The WaSH sector has been successful in establishing partnerships and cross sector linkages with health, education, local development giving a direct impetus to achievement of MDGs.

**Global and Regional Partnerships and Commitments:** Nepal is an active partner in Sanitation and Water for All (SWA) - a global initiative that addresses gaps in policy and planning, financing, information, and technical assistance that are impeding global progress. Nepal has been appointed to the Steering Committee to SWA, and is bringing global experiences to inform sector development in Nepal. Global partnership has also been

developed in realising common commitments of millennium development goals and sustainable development goals.

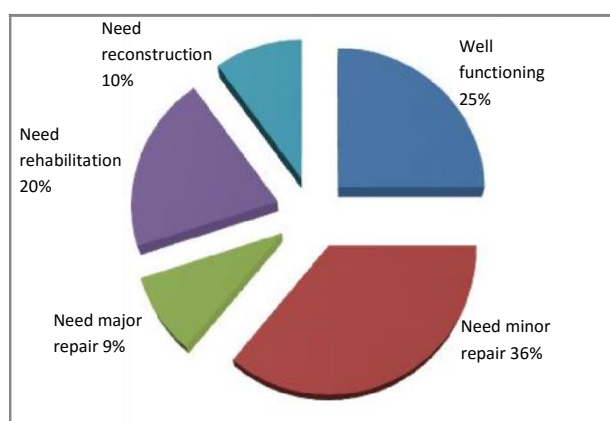
Similarly, a regional level of partnership has gained momentum through common platforms like SACoSan, where sector Ministers gather together, express their national commitments in sanitation and collectively pass declarations that provides overall direction for the period between two consecutive conferences.

## 2.5 Sector Challenges

From the services perspectives, the key challenges lie in reaching the unreached, improving functionality and sustainability, and enhancing service levels. The distinctive coverage in water supply facilities in past few decades was mainly due to participatory approach and ownership from the part of beneficiaries. Notwithstanding gradual improvement in water and sanitation situation over the past decade, in reality the WaSH sector is facing with structural and operational challenges. The key challenges include:

### Disparity in Access and Inequality:

Census 2011 data shows considerable disparities in access to water with 34 districts mostly in the flat plains having more than 85% coverage, 38 districts with coverage between 60-85%, and 3 hill districts in Mid-western Region with less than 60% coverage. Disparity in sanitation is even more alarming as the 8 Terai districts bordering India have less than 30% coverage to basic sanitation while people in 29 districts have more than 62% coverage. The sector needs to focus on better targeting with equity and inclusion approaches to secure right of all citizens for sustainable and affordable WaSH services. It is essential to ensure meaningful engagement of women and socially excluded groups in decision making processes to identify WaSH priorities so that their special needs can be addressed.



**Figure 11: Functional Status of Water Supply Systems (NMIP 2014)**

### Functionality and Sustainability:

Ensuring functional water services is increasingly becoming a serious challenge for the sector. Only 25% of the existing water supply schemes (Figure 11) are functioning well and 36% need minor repair. More than 39% of the schemes have been identified needing major repair, rehabilitation or complete reconstruction. This Figure seriously undermines functional access and sustainable use to safe water services. While access to safe water and sanitation can be measured by statistics but behind the coverage figures are almost half of Nepal's population deprived of opportunities for their full potential for development due to lack of functional access to water services. Absence of clear arrangements for ownership and management, alongside poor planning and maintenance, inadequate capacity, environmental challenges and lack of secure funding have caused many water services to become dysfunctional. Yet, sector focus has to put on ensuring systems' functionality and sustainability rather than increasing investment and coverage.

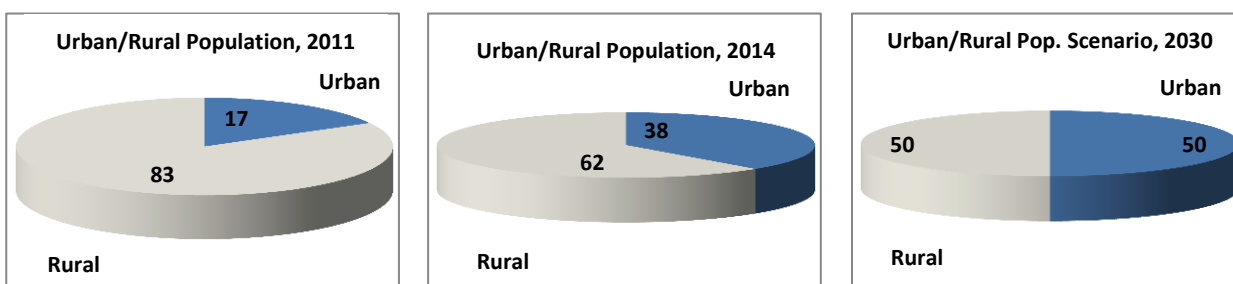
**Policy, Institutional Framework and Sector Capacity:** Many policies, fragmented institutional setup, multiple actors working according to project driven modalities, and absence of harmonization efforts have led to duplication of roles and overlapping responsibilities at both the

national and local levels. Institutional and management capacity constraints continue to be the bottlenecks in effective operation, maintenance and rehabilitation and for financial, planning and technical management of WaSH services.

**Sector Financing:** The sector financing is largely attributed with imbalance in respect of regional, unequal distribution of resources, resource gap and heavy dependency on donors' contribution. As a consequence, a large number of projects and programs are suffering from timely completion. Due to inefficiency of users' committee in generating tariff, even small repair and maintenance works are dependent on state treasury. There seems a large gap for achieving universal coverage in basic water and sanitation services. The sector financing is largely contributed by non-state actors through non-budgetary contribution which in turn is making difficult to know the exact sectoral investment.

**Haphazard Urbanization:** The urban population is estimated to be 38.5% (MoFALD, 2014), up from 17% (2011). The number of municipalities has been increased to 217 (2015) from 58 (2011). Nepal's population is projected an equal rural-urban split by 2030 (NUDS, 2015). This has a significant bearing on governance, programming and management for urban WaSH services.

**Figure 12: Nepal's Urbanization Trend**



Most of the urban centres are unplanned, densely populated and are already water and sanitation stressed. Poor environmental sanitation services and highly degraded urban environments are the most visible consequences in the Municipalities. Due to lack of an effective regulation, untreated sewerage, septage and faecal sludge contaminate groundwater and empty into rivers, polluting water sources and jeopardizing public health.

**Scaling-up Sanitation:** The main challenge lies in accelerating the sanitation movement nationwide, equitable targeting, scaling up of service levels, achieving total sanitation through appropriate investment in urban sanitation infrastructure and services, and sustaining sanitation outcomes and behaviour. Sanitation is scaled-up as a component part of water supply schemes beginning right from early 1980s in UNICEF funded Community WatSan Projects. Later, it was incorporated in DWSS projects and programs as integral part of WSS projects with community-led and school-led modalities.

**Water Quality:** WaSH associated diseases remain among the top 10 causes of morbidity in Nepal, diarrhoea is the second biggest killer of under-fives. Contaminated water and unhygienic food cause diarrhoea especially in the monsoons. Water quality assessment is unsystematic and irregular. Water quality studies done in urban systems showed that most of the water treatment plants are in poor condition. Arsenic contamination in eight districts (Nawalparasi, Kapilvastu, Siraha, Rautahat, Parsa, Sarlahi, Kanchanpur and Saptari) continues to be a serious challenge. Water Safety Plan (WSP) was piloted in 2006, but remains to be institutionalized in water supply system planning, implementation and monitoring. Water Quality Surveillance Guideline, 2015 endorsed by Ministry of Health cannot be implemented properly without cross sector coordination and support.

**Quality of Service:** One of the fundamental successes of community-led-demand driven approach is the dramatic increase in the coverage, but the qualities of services provided by WUSCs are largely in question. These include a failure to generate sufficient tariff, a failure in account transparency, and a lack of capacity for preventative and curative maintenance. This is also due to the limitations in the system's condition which include poor design, inadequate pressure, low flow and velocity, faulty pipe sizes, etc. Also, there is lack of clear service standards that are binding for the water service providers.

**Climate Change and Water Resource Management:** The sustainability of water sources is being increasingly threatened by depletion of water sources due to climate change (CC) impacts and unregulated extraction of groundwater particularly in dense urban areas such as Kathmandu Valley, water pollution and contamination, negligence on source conservation and competing water use for domestic consumption, irrigation and industry. Little information is available on how much ground water is extracted in urban areas compared to permissible levels.

Nepal is among the top 5 countries vulnerable to impact of climate change (CC Vulnerability Index, 2011). Changing and unpredictable climate possess a serious threat in the form of floods and landslides to water sources, assets and functionality.

## CHAPTER THREE

### SECTOR POLICY AND LEGISLATIVE ENVIRONMENT

#### 3.1 The Constitution of Nepal

The Constitution of Nepal recognizes access to safe water and sanitation as a fundamental right. Article 35 (4), Right to Health: Every citizen shall have the right of access to safe water and sanitation. Article 30, Right to Clean Environment: (1) every person shall have the right to live in a healthy and clean environment. (2) The victim of environmental pollution and degradation shall have the right to be compensated by the pollutant as provided for by law.

With this, Nepal now belongs to handful of countries in the world to have this right explicitly mentioned in the highest legislative framework. What this means, in effect, is the obligation of the state to seek progress year by year on WaSH services based on maximization of state's capacity and resources. The provision of this constitutional right implies that these services need to be easily available on need and affordable for all. People are expected to contribute financially or otherwise to the extent that they can do so.

**Table 6: Misconception on Right to Water and Sanitation**

Misconception	The Intent
The right entitles people to free water	Water and sanitation services need to be affordable for all. People are expected to contribute financially or otherwise to the extent that they can do so
The right allows for unlimited use of water	The right entitles everyone to sufficient water for personal and domestic use and to be realized in a sustainable manner for the present and future generations
The right entitles everyone to a household connection	Water services need to be within, or in the immediate vicinity of the household
The right to water entitles people to water resources in other countries	People can claim water from other countries. However, international customary law on transboundary watercourses stipulates that such water courses should be shared in an equitable and reasonable manner, with priority given to vital human needs
A country is in violation of the right, if not all of its people have access to water and sanitation	The right requires that a State take steps to the maximum of available resources to progressively realize the right to water and sanitation services year by year

Source: *Manual on the Right to Water and Sanitation*, [www.cohre.org/manualrtws](http://www.cohre.org/manualrtws)



## 3.2 National Planning Framework

Development planning in Nepal is guided by a national development framework formulated by the NPC in cooperation with sector Ministries. The Ministry of Finance (MoF) allocates budgets and releases them to executing agencies and coordinates with DPs to address resource gaps.

The strategic approaches in WaSH sector mentioned in the Three-Year Plan are: improving access, standards and service levels of water and sanitation provision; integration of water, sanitation and hygiene; introduction of appropriate technologies, and environment-friendly and climate-adaptive measures.

## 3.3 Policy and Legislative Frameworks

The WaSH sector of Nepal is characterized by the strong policy and legislative environment supported by Acts, Rules, policies, plan guidelines and directives. The summary of significant frameworks with the key areas addressed are given below:

**Water Tax Act 1966:** It provides modus operandi of recovering the amount of the water tax leviable pursuant to the prevailing law. It is umbrella act for all subsequent laws on water tariff and tax.

**Water Resource Act 1992:** The umbrella Act governing water resource management, declares the order of priority of water use, vests ownership of water in the State, Provides for the formation of water user associations and establishes a system of licensing, Prohibits water pollution, allows completed projects to be transferred into ownership of users' associations.

**Water Resource Rules 1993:** The umbrella Rules governing water resource management, Sets out the procedure to register a Water User Association and to obtain a license, Establishes the District Water Resource Committee, Sets out the rights and obligations of Water User Associations and license holders, deals with the acquisition of house and land and compensation

**Drinking Water Service Charge (Recovery) Rules,1994:** Details the procedures for Tap connection and hole change, ownership of Taps and its transfer, metering, repair of systems and Taps, fees/charges for tap connection and their recovery etc.

**National Solid Waste Management Policy 1996:** Waste management by Local Bodies; mobilize wastes as resources; reduce wastes at sources; local Participation in wastes management

**Policy on NGO Participation in WatSan Programs 1996:** Intends to involve NGOs in design and implementation of WSSP; NGOs can play a role of facilitator for better sector performance.

**Drinking Water Rules 1998:** Regulates the use of drinking water; provides for the formation of Drinking Water User Associations and sets out the procedure for registration; deals with licensing of use drinking water; deals with the control of water pollution and maintenance of quality standards for drinking water; sets out the conditions of service utilization by consumers; provides for the acquisition of house and land and compensation; provides for formation of service fee fixation committee

**Local Self Governance Act 1999:** Sets out the powers, functions and duties of VDC, Municipality and DDC in relation to water and sanitation; establishes the procedure for the formulation of water related plan and project implementation.

**Rural WatSan National Policy and Implementing Strategy 2004:** comprehensive set of policy statements; defines water supply service levels; provides basis for inclusion of women and disadvantaged groups in decision making; defines roles and responsibilities of different GoN ministries and agencies as well as WUSCs, Schools and Students and other Sector Actors; has set a National Goal of basic water and Sanitation facilities for all by 2017. It embraces the

"demand responsive approach" to the provision of rural water supply and sanitation, and uses cost sharing principle whereby Government would allocate 80% and the users 20% (including 1% upfront cash) in the implementation of new WatSan projects.

**National Water Plan 2005:** Plots short term, medium term and long term action plans for Water Resource Sector; More focused on Environmental Concerns (Sustainability); Introduces Integrated Water Resources Management (IWRM).

**Drinking Water Quality Standards 2005:** Sets standards for water quality; Service Providers responsible for monitoring; Local level offices of the Ministry of Health & Population responsible for surveillance; Guidelines specify methods and frequency of sampling & testing

**Water Supply Tariff Fixation Commission Act 2006:** Establishes the WSTFC; Provides for appointments to the Commission Authorises the Commission to fix tariffs to be charged by service providers; Authorises the Commission to monitor service providers to ensure compliance with standards.

**Water Supply Management Board Act 2006:** The act puts emphasis on the participation of local bodies and WaSH institutions in water and sanitation services in the urban areas. It provides for the establishment of an autonomous and independent WSM Board to own the assets of the water supply systems. The Act also provisions for the issuance of a license to the operator for the management, operation and maintenance of the system and leasing of the assets. However, sanitation has received little attention in the Act.

**Urban Water Supply and Sanitation National Policy 2009:** WaSH services are tools for poverty reduction; Output Based Aid to support for household toilets promotion; thrust on cost recovery principles; decentralized waste management.

**Periodic Plans:** Attainment of ODF status through promotion and use of toilets; emphasis on collaborative efforts of Sector Actors; Gradual move towards Sector convergence and Institutional capacity development.

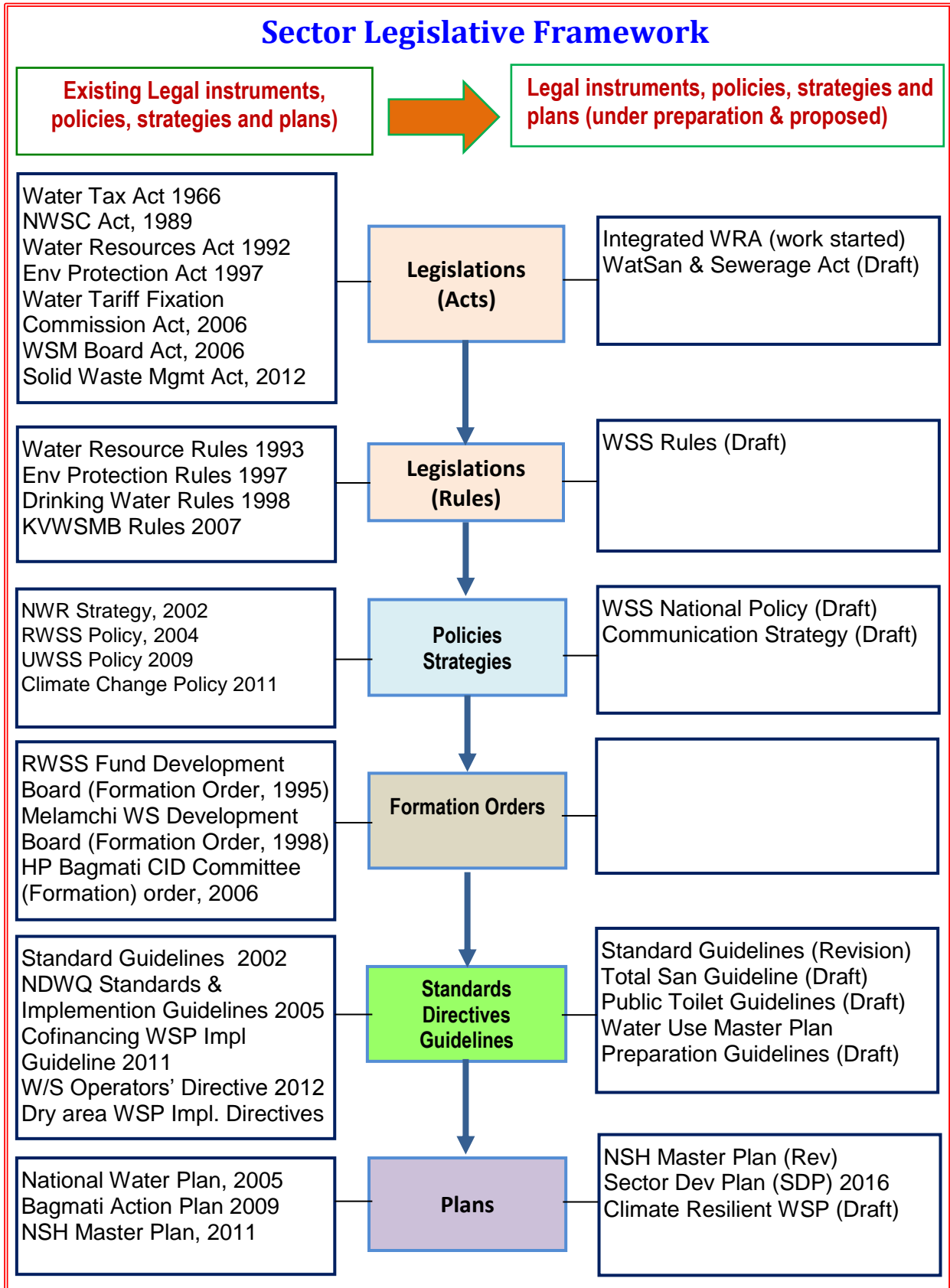
**Sanitation and Hygiene Master Plan 2011:** Recognizes the leadership of local bodies; Coordination Mechanism at Central, Regional, District and Municipality/Village Levels; ODF status as entry point of Total Sanitation; Cost Shearing stimulates ODF Initiatives.

**Directives on Co-financing in WatSan Projects 2012:** Investment by GON and the users; improvement of service level in emerging towns; technologically complex projects.

**Directives on Dry-area WatSan Project Implementation 2012:** Defines dry-area; project selection criteria; project activities; project cost and sources of funding and institutional setup for the project implementation.

**WatSan Service Operators' Directives 2012:** The DWSS is provided with the authority to Inspect, monitor, assess, supervise and regulate the work and activities of service providers regularly; Periodic election of service providers; Mandatory auditing of the accounts of service providers; Bar on Modifying the Drinking Water Supply System's Structure without prior approval of DWSS; Every service provider shall submit an annual report, describing all activities, with updated particulars, to the WSSDO/DWSS.

Figure 13: Sector Legislative Framework



## **3.4 Linkage to International Commitments**

### **3.4.1 Sanitation and Water for All**

Sanitation and Water for All (SWA) is a global partnership of over 90 developing country governments, donors, civil society organizations and other DPs working together to catalyse political leadership and action, improve accountability and use resources more effectively. Partners work towards a common vision of universal access to safe water and adequate sanitation. SWA is not an implementing organization, nor a funding channel. Recognizing that countries and organizations achieve more by working together, SWA provides a transparent, accountable and results-oriented framework for action based on common values and principles.

The external support agencies have made their commitments to increase sanitation financing and called upon finance ministers also to increase domestic resource mobilisation (SWA High Level Meeting, SWA HLM 2014).

### **3.4.2 South Asian Conference on Sanitation**

South Asian Conference on Sanitation (SACoSan), a government led biennial convention held on a rotational basis in each South Asian country provides a platform for interaction on sanitation. SACoSan is intended to develop a regional agenda on sanitation, enabling learning from the past experiences and setting actions for the future. The objectives of such conferences are to accelerate the progress in sanitation and hygiene promotion in South Asia and to enhance quality of peoples' life. The SACoSan process is instrumental to generate political will towards better sanitation in the region. The fifth SACoSan held in 2013 in Kathmandu resulted in a signed "Kathmandu Declaration" including an end to Open Defecation Free (ODF) South Asia by 2023 and to progressively move towards sustainable environmental sanitation. The 6<sup>th</sup> SACoSan held in January 2016 in Dhaka reiterated on the resolutions of earlier conferences. Finance ministers from the region have committed to increase sanitation financing. All SACoSans till now have committed to increase transparency of funding on sanitation.

### **3.4.3 Joint Monitoring Programme**

The Joint Monitoring Programme (JMP) for Water Supply and Sanitation led by WHO and UNICEF in collaboration with National Government, is the official UN mechanism tasked with monitoring progress towards the MDG relating to drinking water and sanitation (MDG7, Target 7c). It not only reports on the national, regional and global use of different types of drinking water sources and sanitation services, but also supporting countries in their efforts to monitor this sector and develop evidence based planning and management, playing a normative role in indicator formation and advocating on behalf of populations without improved water or sanitation.

### **3.4.4 Millenium Development Goals**

The internationally agreed framework of 8 goals and 18 targets was complemented by 48 technical indicators to measure progress towards the Millennium Development Goals (MDG). These indicators have since been adopted by a consensus of experts from the UN, IMF, OECD and the WB. MDG Goal 7 is related to Water and Sanitation and is formulated as 'Ensure Environmental Sustainability'. It had 3 Targets and 8 Indicators. Of them, only Target-10 and Indicators 30 and 31 are related to WatSan.

Since Nepal was lagging behind in sanitation, a MDG acceleration Framework (MAF 2013) had been prepared and internalised to mobilise adequate resources to expedite sanitation progress by 2015. Nepal has now surpassed the MDG targets in both water supply and sanitation, though JMP report still says that Nepal is still behind the sanitation target (JMP Draft report, February

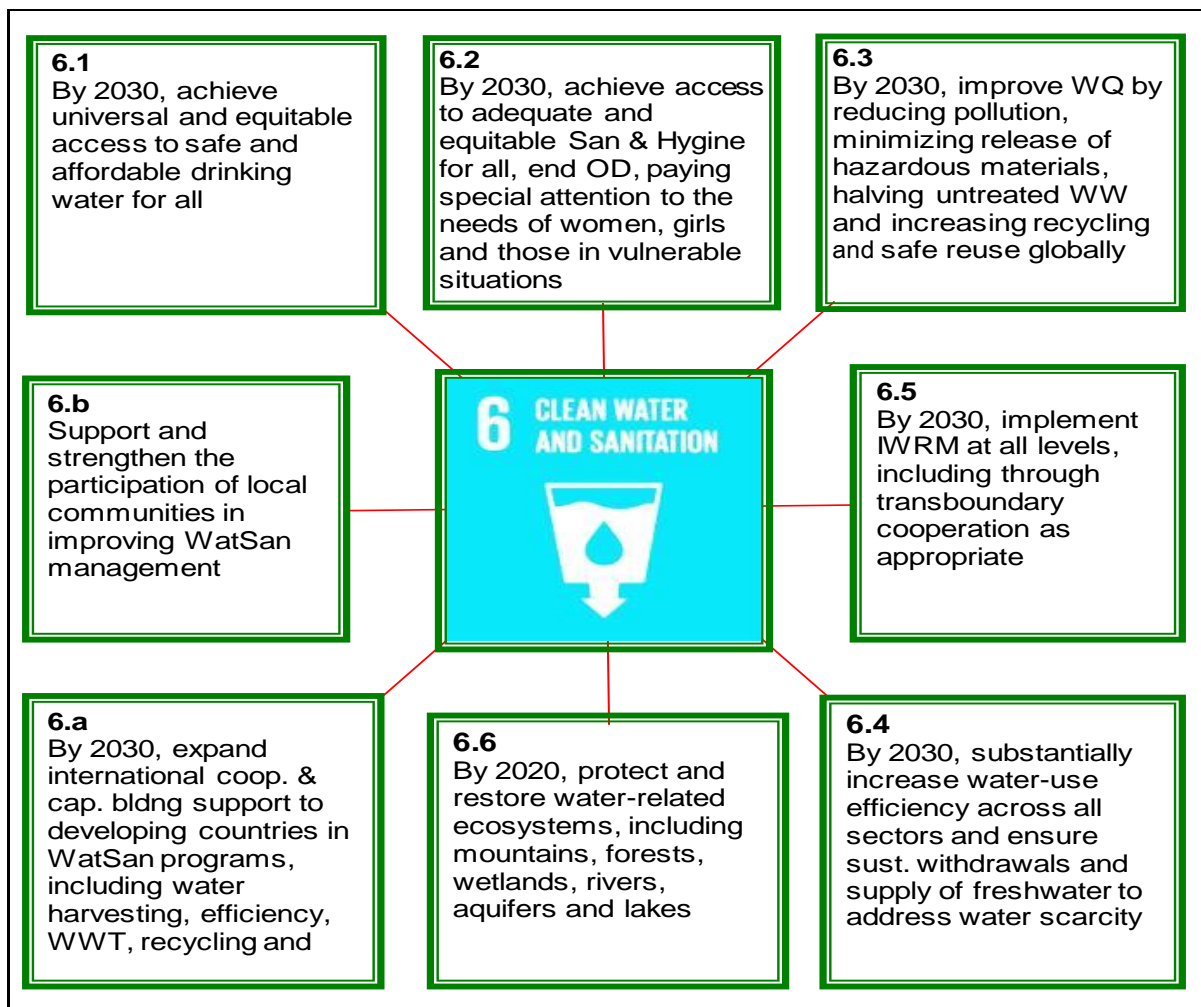
2016). There are some fundamental differences in definitions, baselines and consequently target figures between the National and JMP though the latter is also based on National reports.

**Way forward:** (a) Strong sector alignment for effective coordination and synergy, sector MIS, Sector Convergence, exchange and learning at national and regional levels and documentation; (b) Asset Management for Improving the effective functioning of systems and services; (c) Quality of coverage and redefining coverage against acceptable indicators; (d) More resources to achieve targets and equitable distribution for balanced growth; (e) Enumerating and mapping of the poor for effective monitoring of policy implementation and devising appropriate tools; (f) Stronger focus on urban sanitation; (g) Capacity building and motivation of local bodies including community groups; (h) Motivation to service providers; (i) Harmonisation in national as well as global WaSH reporting systems.

### 3.4.5 Sustainable Development Goals

The UN has formulated Sustainable Development Goals (SDGs), as a follow up to MDGs, with a proposed set of 17 goals and 169 targets relating to future development, which demonstrates the scale and ambition of new international development agenda. They are integrated and indivisible and balance the three dimensions of sustainable development: the economic, social and environmental.

**Figure 14: Sustainable Development Goal on Water Supply and Sanitation**



In these Goals and targets, SDGs envision the world where commitments on the human right to safe drinking water and sanitation and where there is improved hygiene is affirmed; and where food is sufficient, safe, affordable and nutritious. Out of 17 Goals, WaSH is included as Goal 6, which includes 8 targets.

The SDGs are integrated and indivisible, global in nature and universally applicable, taking into account country specific realities, capacities and levels of development and respecting national policies and priorities. Targets are defined as aspirational and global, with each Government setting its own national targets guided by the global level of ambition but taking into account national circumstances. Also, each Government will decide how these aspirational and global targets should be incorporated into national planning processes, policies and strategies.

### **3.4.6 Sendai Framework for Disaster Risk Reduction 2015-2030**

The Framework was adopted at the 3<sup>rd</sup>. UN Conference on Disaster Risk Reduction (DRR) in Sendai, Japan, on March 2015. Nepal is also a signatory to the Framework. It is the first major agreement of the post-2015 development agenda. The Hyogo Framework for Action (2005-2015), which is also taken as the foundation of the Sendai Framework, ended without any remarkable achievements.

The Framework is a voluntary, non-binding agreement which recognizes that the State has the primary role to reduce disaster risk and that responsibility should be shared with other stakeholders.

**The Four Priority Actions of Sendai Framework:** Following four priorities for action has been outlined in the Framework to prevent new and reduce existing disaster risks:

1. Understanding disaster risk
2. Strengthening disaster risk governance to manage disaster risk
3. Investing in disaster risk reduction for resilience
4. Enhancing disaster preparedness for effective response and to “Build Back Better” in recovery, rehabilitation and reconstruction

# CHAPTER FOUR

## PRESENT INSTITUTIONAL FRAMEWORK

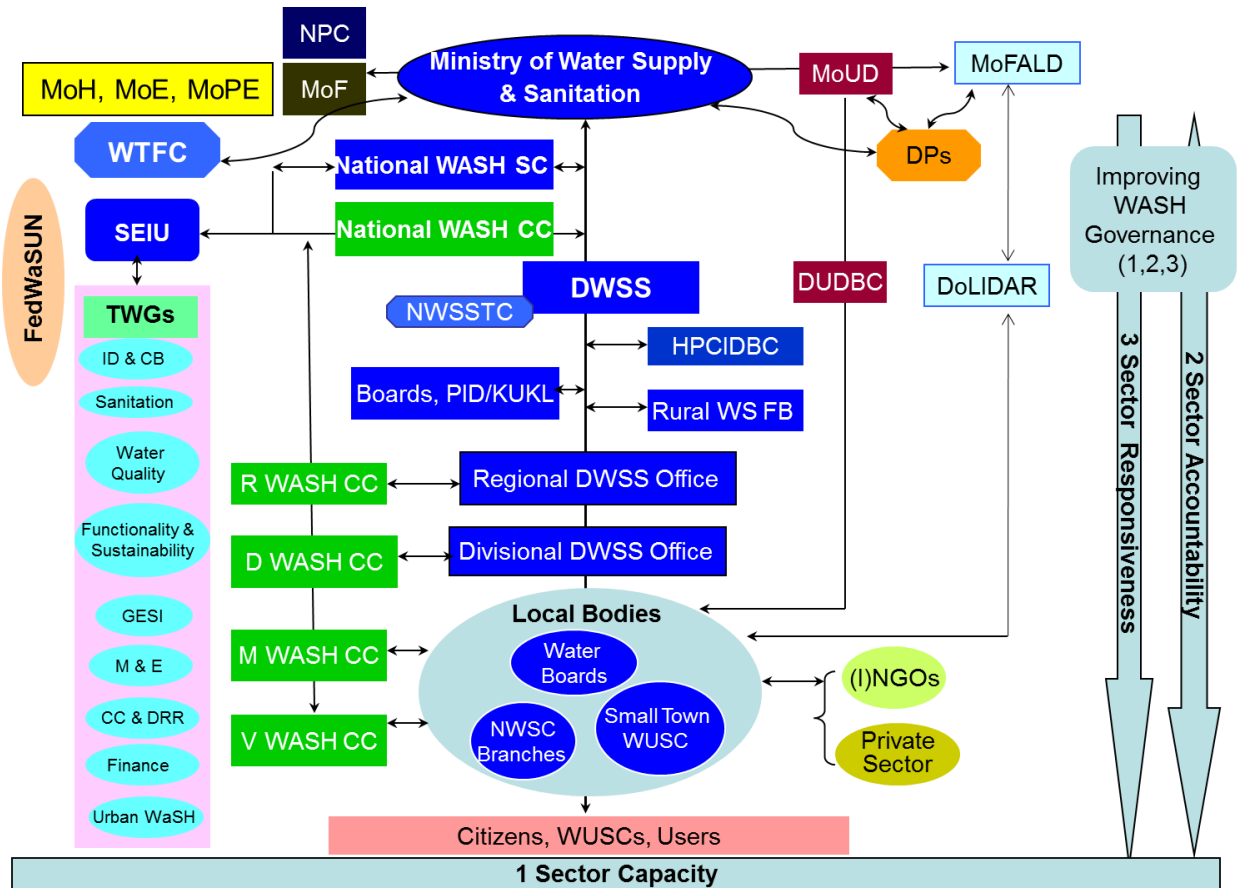
### 4.1 Key Institutions

#### 4.1.1 Government of Nepal

The WaSH sector in Nepal has three Government Ministries and many non-government agencies, civil society and private sector operating at the national, regional, district, village and municipality levels.

**Ministry of Water Supply and Sanitation:** MoWSS is the sector ministry responsible for the formulation of WaSH policies and plans as well as planning, implementation, regulation, monitoring and evaluation of programmes.

**Figure 15: Present WaSH Institutional Framework**



**Department of Water Supply and Sewerage (DWSS):** Under MoWSS, DWSS is the lead agency in the sector exclusively dedicated to planning and implementation of both rural and urban WaSH projects. With offices at the centre, 5 regions, and Divisional/Sub-divisional offices throughout 75 Districts, DWSS has strength of around 1700 staff who have proven expertise in technical, social, finance, administration and management of WaSH services. It is implementing several rural & urban WaSH projects throughout Nepal. It is responsible for the projects with population above 1000.

**Ministry of Urban Development (MoUD):** MoUD is responsible for integrated urban planning and development in Municipalities.

**Department of Urban Development & Building Construction (DUDBC):** Under MoUD, DUDBC has been implementing ADB-financed Secondary Towns Integrated Urban Environmental Improvement Project (STIUEIP) and Integrated Urban Development Project (IUDP) in which water supply, sewerage and drainage are key components. But DUDBC has not a single Water Supply or Environmental Engineering professional to look after these projects.

**Ministry of Federal Affairs and Local Development (MoFALD):** MoFALD is responsible for local governance and development as per Local Self-governance Act, 1999. MoFALD is another key Ministry planning and implementing rural WaSH projects with population below 1000.

**Department of Local Infrastructure Development and Agriculture Roads:** DoLIDAR is the main implementing agency through District Technical Office (DTO) at the local level. DoLIDAR is currently engaged in the implementation of two Finnish grant-funded programmes, the Rural Water Supply and Sanitation Programme-Western Nepal (RWSSP-WN II) and Rural Village Water Resources Management Programme-III (RVWRMP-III). While RWSSP-WN II is completely a WaSH sector initiative, RVWRMP-III is a multi-sector programme with WaSH as a key component.

**Local Bodies:** District Development Committees (DDCs), Village Development Committees (VDCs) and Municipalities are local bodies governed by LSGA, 1999 and are responsible for planning, management and coordination of local development efforts based on decentralized participatory planning and monitoring processes. This Act has made provisions for the development and implementation of WatSan programs as social and political responsibility of the local bodies within their respective areas.

**Local WaSH Coordination Committees:** The WaSH Coordination Committees at the District (DWaSHCC), Municipality (MWaSHCC), and Village (VWaSHCC) committees provide coordination in the preparation of local WaSH plans with inputs from WaSH Sector Actors and in the effective implementation of the local plans.

**Ministry of Health:** Its main role on WaSH is to promote health and hygiene through water quality surveillance and emergency response. As an agency responsible for water quality surveillance, the Ministry has formulated water surveillance guidelines for use at the local levels. Its work on WaSH services is guided by National Health Sector Plan II (2011-2015).

**Ministry of Education:** The key role of Ministry of Education is to promote WaSH in Schools (WinS). The concept of child-friendly schools (2010) introduced by the Ministry highlights child friendly standards on WaSH services and hand washing practices which is being further strengthened through WaSH in Schools (WinS) Programme.

**Ministry of Population and Environment:** Areas such as Environmental impact assessment and wastewater quality (discharge) standards are looked after through this Ministry.

#### **4.1.2 Water Users Committees, Water Boards, Nepal Water Supply Corporation, WaSH Management Bodies**

**WUSCs:** Water Users Associations (WUAs) are governed by the Water Resource Act 1992, Water Resource Rules 1993 and Drinking Water Rules 1998 and come into effect once registered at the District Water Resource Committee (DWRC). As WUA's executive body, Water Users and Sanitation Committees (WUSCs) have several roles such as operator, service provider, regulator, monitor, fund raiser and manager. WUSCs include at least 33% representation of women and representation from Disadvantaged Group. Water Users' Committees have formed their Federations from district to National level. Users' Committee registered in DWRC will be eligible for membership to Federation of Water Users.



**Nepal Water Supply Corporation:** As a public utility organization formed under Nepal Water Supply Corporation (NWSC) Act, 1989. The NWSC currently operates and maintains water supply systems in 22 towns and 1 VDC outside Kathmandu valley. Its functions overlap with that of the DWSS and Water Boards in some of the towns.

**Rural Water Supply and Sanitation Fund Development Board (RWSSFDB):** It is an autonomous body under MoWSS operating under its formation order. It facilitates implementation of small rural water and sanitation projects, through WB financing, under which communities are supported in the planning, management and monitoring of WaSH services through Service Organisation or Service Agencies.

**Water Supply Management Boards:** Urban areas covering Metropolis, Sub-metropolis and Municipalities are to be governed by the Management Boards as per the WSMB Act, 2006. The Boards can formulate specific policies to improve WatSan system in the area of their jurisdiction. Based on the WSMB Act, Kathmandu Valley WSMB as well as few more Boards (Bharatpur, Hetauda, Dharan, Kavre Valley) have been established till now.

KUKL has been formed under the Company Act in 2006 for the operation and management of water and wastewater services in the Kathmandu valley. It has concluded a License and Lease Agreement with the KVWSMB for 30 years and operates under PPP modality. It is responsible for the maintenance of all assets received on lease from KVWSMB.

### 4.1.3 Non-Governmental and Civil Society Organizations

**Non-Governmental Organisations:** This SDP envisages three critical roles for NGOs: (a) providing pro-poor WaSH services to unreached areas, (b) building partnerships with users and civil society to influencing policy and practices and holding the public sector accountable, and (c) bringing knowledge and innovations in the sector.

**Nepal WaSH Alliance:** It brings together a wide group of more than 60 Sector Actors, national and international NGO partners, and individuals for coalition building and advocacy for water and sanitation to increase public awareness. It shares of information and promotes use of knowledge on sector development.

**Users' Federations:** Federations of Drinking Water and Sanitation Users represent users. It lobbies for inclusive, transparent and accountable sector development. Their mission is to protect the rights of drinking water and sanitation users' organizations throughout Nepal by raising their awareness and organizing and empowering them to secure their rights on WaSH, and by advocating for users' access to policy formulation and decision-making. Its success depends on inclusive participation with all Sector Actors working together to ensure functionality and sustainability of drinking water and sanitation services.

**Civil Society:** The concept of "Civil Society" includes the whole range of private, voluntary, not-for-profit, community and self-help organizations, and formal and informal groups in existence. Civil society differs from the non-governmental organization in the sense that former can be the loose groups or network of individuals and institutions without any formal requirement for registration, whereas the NGOs are required to be registered under the law of the land as approved organization with focused objective (Acharya, M.R., 2013).

Civil societies as mentioned above are in fledgling stage in Nepal. The WaSH sector will adopt the policy to encourage those civil societies who act independent and as a catalyst in bringing together people from the various walks of life to enhance accountability, inclusiveness, effectiveness and legitimacy of WaSH institutions.

### 4.1.4 Private Sector

The private sector is providing their services such as water bottling, jar water and solid waste collection in Kathmandu Valley. It is also providing design, construction and supervision

services in several projects. Private sector also operates tanker services and street vendors to partly meet the water supply deficiency in large cities particularly in Kathmandu valley. Private sector in WaSH is yet to be developed in Nepal. An appropriate environment has to be created for the private sector to contribute to enhancing WaSH services especially in the urban areas.

#### **4.1.5 Development Partners**

There is a wide array of Development Partners (DPs) active in supporting the Government in deepening and expanding WaSH services, contributing in sector development policy, practices and financing, and bringing in innovation and knowledge for wider sector use. The prominent ones include:

- ADB (urban water and sanitation sector projects with MoWSS/DWSS, MoUD/DUDBC);
- World Bank (project with MoWSS/Fund Board);
- UNICEF (sector development, sanitation and hygiene, WaSH in schools, emergency preparedness and response)
- Embassy of Finland (support to two major bilateral projects to MoFALD)
- WHO (water and health, water safety plans and climate change)
- DFID (Gorkha Welfare Scheme)
- JICA (WaSH solutions, capacity building for urban areas)
- UN-Habitat (sanitation and hygiene, urban WaSH)

#### **4.1.6 International NGOs**

A number of international NGOs are involved in WaSH service delivery and advocacy with local NGOs, especially in awareness creation, empowerment and to enhance capacity building of users and local communities. In the recent past, the shift from only direct services delivery by international NGOs to piloting WaSH services and advocating to the government and service providers, through best practices knowledge and sharing, for deepening services and addressing gender equality and social exclusion issues and global-local linkages has been noteworthy. The list of prominent sector partners including INGOs is annexed in Annex 3.

### **4.2 Rural Institutional Models**

Rural WaSH is implemented through a wide array of institutional models. The main difference lies in the distribution of tasks between agency, local support organizations and users, the institutional and technical standards and the rigor of their application, fund flow, accountability arrangements, and post-construction support mechanisms. For ease of reference, the institutional models can be grouped into five categories: (a) DWSS, (b) DoLIDAR, (c) Local Bodies, (d) RWSS Fund Development Board, and (e) NGOs. These modalities are, however, not uniform.

#### **4.2.1 DWSS**

DWSS is implementing both regular and donor funded projects. DWSS uses its own technical standards and guidelines. In the recent years, DWSS has strengthened the social and capacity building components and users' involvement. Projects are implemented through the WUSCs with support from the divisional or sub-divisional offices at the district level, and coordination through the WaSH Coordination Committees and monitoring by the DWSS Regional Offices.

## 4.2.2 DoLIDAR

The DoLIDAR-supported projects are implemented by the WUSCs through support by the VDCs and DDCs and its District Technical Office (DTO). DoLIDAR and DTOs have limited water supply engineering staff and often lack the skilled human capital for intensive field support and supervision. The notable projects are those implemented under Finnish support (eg. RWSSP-WN II and RVWRMP III) Using central guidance and coordination. DoLIDAR has recently developed technical and approach standards and guidelines for application by all DTOs.

## 4.2.3 Local Bodies

Local Bodies' supported WaSH projects, especially those implemented with DDC/VDC-funding often consist of only budget support or supply of pipes and other materials, and could be called Do-It-Yourself schemes.

## 4.2.4 RWSS Fund Development Board

The Fund Board was started by the GoN mainly to address two obstacles that the government agencies faced in smooth implementation, namely timely availability of funds and cost-effectiveness. It implements schemes through support organizations (mainly District based NGOs), sending funds straight to the support organizations and WUSCs, using elaborate implementation mechanisms and monitoring them from central level. The third phase entitled "Rural WatSan Improvement Project" is underway in 55 Districts focusing on new projects and improving sustainability.

## 4.2.5 NGOs

Implementation by the major NGOs is characterized by elaborated technical, social and capacity building mechanisms, use of local support organizations, community empowerment and implementation through NGOs-WUSCs partnership arrangements.

## 4.3 Urban Institutional Models

Development of WaSH services in the urban areas must be harmonized with urban development plans and programmes. The Urban WatSan Policy, 2009 outlines measures to achieve coherent, consistent and uniform approaches of sector development in urban areas for different agencies and institutions involved. The Policy sets PPP, cost recovery principles and sector effectiveness for improved service delivery with municipal engagement in the management of urban WaSH services.

GoN has been promoting effective and appropriate institutions depending upon the characteristics, size and complexity of urban WaSH services to develop, implement, operate and manage urban WaSH services in an effective manner within the limits of financial affordability. Based on lessons learnt internally and drawing from successful examples elsewhere, the following modes are adopted to address Nation's urban WatSan challenges:

- Municipality with utilities managed by Water Boards in major urban areas;
- Towns with utilities managed by NWSC; and
- Small Towns managed by WUSCs

**Table 7: Urban WaSH Institutional Models and their key features.**

Urban Areas	Current Service Area	Legislative/ Institutional Framework	Functions				Key Issues
			Planning	Construction	Tariff Setting	O&M	
Municipalities (The High Powered Committee for Bagmati Civilization is also responsible for WWM)	Kathmandu Valley, Bharatpur, Hetauda, Kavre, Dharan, Butwal	Water Supply Management Board Act, 2006 Water Tariff Fixation Commission Act, 2006	WSMB and Municipality	Contractor/ WSMB	WTFC Act (2006)	Service Providers	Except for Act, no plan/strategy since Act was enacted in 2006 to aid operationalization and expansion in the Municipalities throughout the country
Towns	22 towns	NWSC Act, 1989 (second amendment, 2007)	NWSC	NWSC	WTFC Act, 2006	NWSC	Limited service coverage, management issues to provide regular and functional services
Small Towns	76 towns	Updated 15-yr plan for small towns water and sanitation	LBs under LSGA, 1999	Contractor/ WUSCs	WUSCs	WUSCs	Users based model limited coverage and longer lead time. Loan repayment issues. Lack of Institutional framework as town grows and service area expands

### 4.3.1 WaSH Utility in Large Municipalities

The key functions of Water Supply Management Boards are aimed at improving water services in large Municipalities, improve technical and commercial efficiency in operations management, increasing productivity of employees, and achieving institutional and financial sustainability in the long term.

**Kathmandu Valley:** Residents of Kathmandu Valley has severe water crisis. Supply is grossly inadequate and intermittent, of poor quality, and subject to indirect costs such as electricity for pumping. Kathmandu Valley Water Services Sector Development Programme with ADB support, has been initiated to improve WaSH services in the Valley with a two-interlinked strategy: Infrastructure Development and Institutional Strengthening.

Infrastructure Development is aimed at completing Melamchi Water Supply Project by 2016 to bring water into the city by diverting the Melamchi River through a 27km tunnel. The Project component includes Melamchi diversion, water treatment, bulk distribution system, distribution network improvement, and waste water management. Under Institutional Strengthening Framework, KVWSMB is the main agency responsible for planning, development and management of WaSH services.

**Other Large Municipalities:** Water Supply Management Boards have been established in other Municipalities such as Bharatpur, Hetauda, Kavre (Banepa-Panauti-Dhulikhel), Dharan, and Butwal. However, Boards in these Municipalities are in nascent stage of development. Large systems like in Surkhet is still operated by WUSC and Pokhara is operated by NWSC.

### **4.3.2 Utilities in Towns**

NWSC has been providing water supply services in 22 urban areas outside the Kathmandu Valley. Bahadurganj (Kapilvastu) is in the process of handover to NWSC. As the populations in towns have grown rapidly, NWSC has been confronted with institutional and management capacity constraints to meet the growing water demand. The second amendment 2007 to the NWSC Act enables the legal basis for the transfer of ownership of water and waste water services owned by NWSC to any designated organization as decided by the Government. At the same time, it also opens door for NWSC to engage private companies to operate and manage its systems under management contracts.

### **4.3.3 Water Users and Sanitation Committees in Small Towns**

The planning and implementation of WaSH services in small towns are guided by GoN's 15-year development plan for the small towns for the identified 176 small towns. Based on experiences from the first 29 towns and second 21 towns projects and considering implication from increased number of Municipalities to 217 from 58, new sector projects (such as third small towns WSSP- up to 26 towns, and other similar projects) are being implemented through an integrated WaSH comprising of water supply systems (for medium/high service levels), public and private toilets, septage management including decentralized wastewater treatment facilities, and drainage systems.

## CHAPTER 5

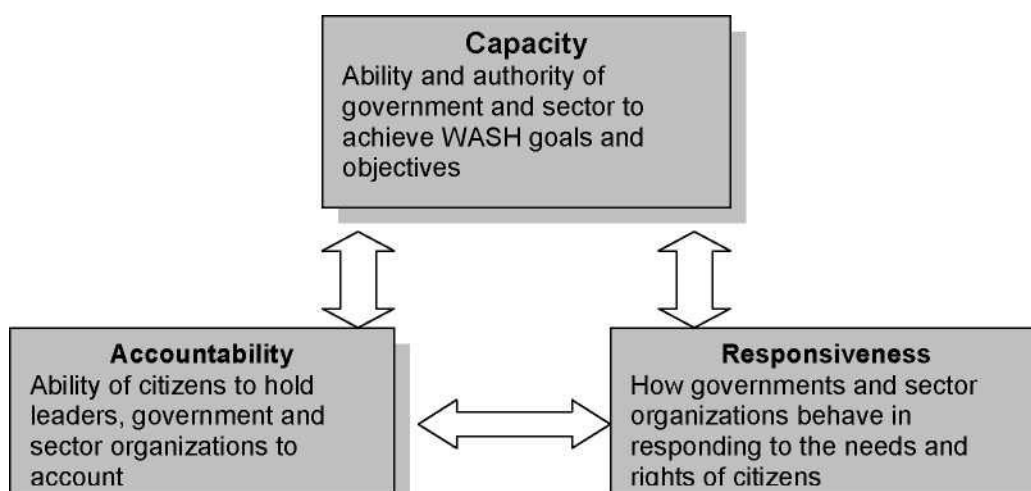
### UNDERLYING PRINCIPLES OF 'WaSH'

#### 5.1 Improving Sector Governance

Water governance is the set of systems that are involved in decision making about water management and service delivery. Governance systems determine who gets what water, when and how. Effective sector governance is a precondition for the effectiveness and sustainability of WaSH services. Good governance emerges when Sector Actors engage and participate with each other in an inclusive, transparent and accountable manner to accomplish improved WaSH services for all-anytime, anywhere and everywhere, and is performed within the rule of law and integrity.

The Capacity, Accountability and Responsiveness (CAR) framework presented below provides greater clarity on the ingredients of "good governance" in the WaSH sector. Used as an analytical tool, it allows assessment of the three dimensions of water governance that can lead towards improving sector effectiveness, efficiency and performance.

**Figure 16: WaSH Governance Framework**



Capacity requires appropriate human and financial resources for enhancing WaSH services for people, effective institutions performing delineated policy and implementation roles, political will backed by the necessary policy, coordination and regulation (both formal and informal norms) for service delivery, and improved information and management systems. It requires sufficiency in budgets, equitable allocations and skilled and accountable staff working in effective institutions with an attitude for positive change always.

Accountability for WaSH services requires some basic ingredients: Government and Sector Actors understanding of the objectives and processes for improved accountability, respect for citizens and civil society to play a role in holding government to account for service delivery and civil society having the confidence, trust and skills to fulfil their roles.

Central to responsiveness is Government and service providers' response to meeting citizens' demand for improved WaSH services, articulating and moving towards human rights to WaSH services, equity and inclusion, pro-poor policy making and implementation, and the integrity of service providers in fulfilling their roles and responsibilities to citizens.

## 5.2 Government Leadership

The primary responsibility for the allocation and provision of WaSH services, as a basic need and as a fundamental right, lies with the Government. Even if the State holds ultimate responsibility for the sustained provision of WaSH services, a number of Sector Actors can take part in the planning and implementation in a coherent and harmonized manner. All sector actors will adopt to one plan and one reporting as agreed in the sector.

A development compact between the Government and DPs setting out shared responsibility and mutual accountability with follow-up mechanisms to champion and ensure WaSH sector reform is a must. The principles adopted in Paris 2005 - ownership, alignment, harmonization, managing for results and mutual accountability - and the maturation of in-country sector planning processes offer tangible opportunities for reducing sector fragmentation, duplication and transaction costs and improving aid effectiveness. The Accra Agenda for Action 2008, reinforces particular emphasis on DPs commitment to strengthen government capacity to lead and manage development results.

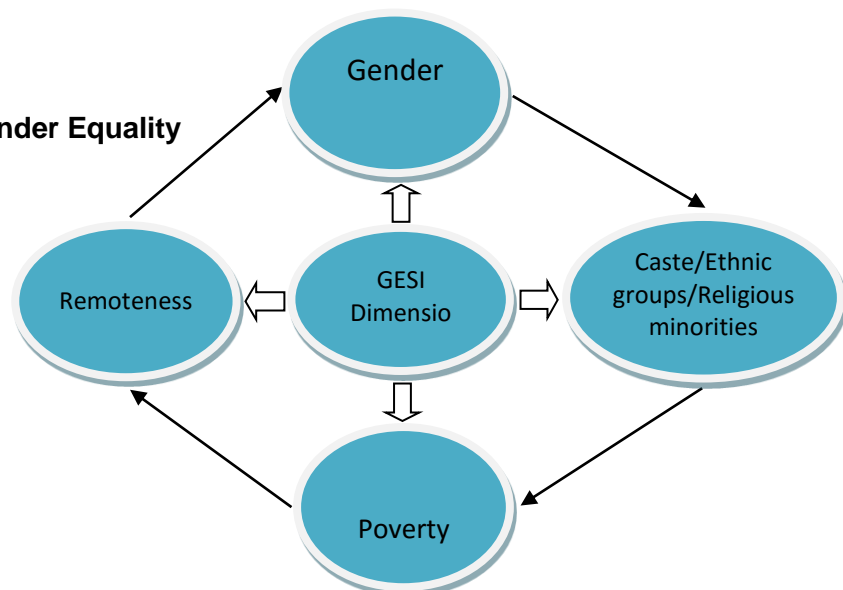
## 5.3 Human Right Based Approach

Safe water and basic sanitation are fundamental human needs and basic human rights - everyone needs them to live healthy, dignified and productive lives. A rights-based approach is about improving wider systems of sector governance for progressive realization of human rights of all citizens for WaSH services within the nationally set timeframe by maximizing resources. Moving to a rights-based approach implies focusing on the relationship between state and citizens.

## 5.4 Gender Equality and Social Inclusion

Gender Equality and Social Inclusion (GESI) is one of the most sensitive issues in today's world. Gender, caste/ethnic groups, poverty and remoteness are considered as the main affecting factors for GESI in WaSH. Despite significant progress, disparity among WSS service users still persists. Social equality, child-gender-disable (CGD) friendly facilities, menstrual hygiene management (MHM), financial feasibility are the key issues in WaSH regarding GESI. It is widely recognised that WaSH services need to move beyond technical solutions towards more GESI oriented approach that considers existing power relations between men and women, and between social groups, and how these influence access to resources and participation in decision-making process.

**Figure 17: Dimension of Gender Equality and Social Exclusion**



## 5.5 Integration

SDP will integrate WaSH in households, public places and institutions (health, education, community) through improved linkages within the sector and between local development, health, education, and the environment, integrating WaSH into their respective policies and programmes.

Within the sector, WaSH will be planned and implemented as an integrated WaSH package. In other words, water, sanitation and hygiene cannot be viewed in isolation, and there will be no discrete water, sanitation and hygiene projects anymore in a given location. Standalone sanitation and hygiene projects will only be initiated in areas where communities already have access to adequate and functional water supply, and if there is an expressed demand from the communities for standalone sanitation and hygiene projects.

With the establishment of dedicated Ministry to look after the WatSan sector, the Government of Nepal has envisaged to integrate all WaSH interventions, which are currently spread under different Ministries, under the aegis of the sector Ministry. This notion has been invoked by the representatives of concerned Ministries- MoFALD and MoEd in the strategic consultative meeting on SDP, on 1st. February, 2016 with NPC, MoF and other relevant Ministries along with DPs. The Joint Sector Reviews had also reiterated in the formation of Umbrella Ministry for WaSH, through its declarations.

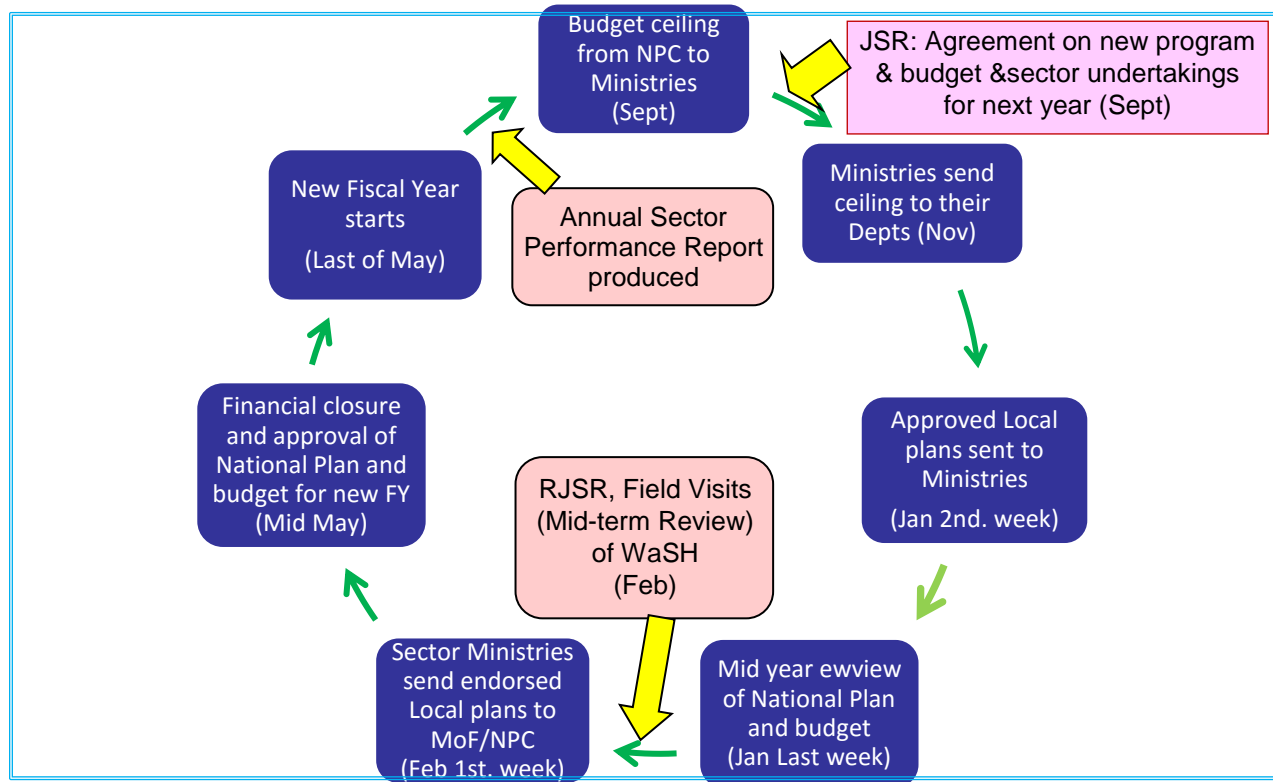
## 5.6 Decentralized Planning

WaSH services need to be planned for a local area as part of integrated development linking with local development, health and education based on the provision of Federal Self Governance framework. Processes and structures for both strategic and participatory annual planning where all WaSH Sector Actors come together to make informed decisions about local equitable WaSH service provision options, including infrastructure, costs, service levels and institutional arrangements, and where every Sector Actor is empowered to put forward views and choices are critical elements.

There are apparently two planning layers, namely local level planning and central level planning. The budget of the first type of planning is not reflected in National Budget (Red Book) though a significant investment is made out of this budget which is mainly borne by the local body's own internal revenues.

The local planning process largely bases on the familiar 14 step planning process which is also the basis for central level planning. The Constitution has made it mandatory to roll out the budget for next year before mid of June every year. The Figure 17 illustrates the general planning and budgeting cycle in Nepal in line with the provision of the Constitution.



**Figure 18: National Planning and Budget Cycle**

## 5.7 Building Resilience to Climate Change and Disaster Risks Management

Climate change is likely to lead to more frequent unpredictable and extreme weather episodes, with poor people disproportionately affected by floods, droughts and contaminated water. It will become critically important for the sector to develop and equip WaSH institutions to enable communities whereby they can access climate-resilient water and sanitation infrastructure and sustainable services. This will require defining climate risks and addressing them in planning, implementation and monitoring.

Disasters affect everyone, but have the biggest impact on poor and vulnerable people. WaSH services are among the biggest immediate priorities after a disaster as these are critical determinants for survival in the initial stages of all disasters. Diarrhoeal diseases are one of the most common causes of death in emergencies and these are closely related to inadequate sanitation, clean water supplies and poor hygiene. The sector will increase its capacity on disaster management through preparedness, response and recovery of WaSH services while also ensuring that action is taken to mitigate the impact of risks and disasters on WaSH services including contingency planning.

## **5.8 Sector Convergence**

The Sector convergence is "a process in which funding for the sector, whether internal or from DPs supports a single policy, plan and expenditure, under government leadership, and adopting common approaches across the sector. It is generally accompanied by efforts to strengthen government procedures for disbursement and accountability and ideally involves broader sectoral consultation in the design and implementation of a coherent sector programme at micro, meso and macro levels, and strong coordination amongst DPs and between DPs and government.

Over time, MoWSS makes the sector more comprehensive, bringing on-going projects in line with sector priorities, developing common planning, implementation, monitoring and reporting procedures. This implies a partnership which involves the simultaneous deployment of different aid modalities. A sector programme can be a purely domestic affair, or supported by DPs through sector budget support, pooled funds and/or project modalities. Some modalities are more aligned to national systems than others, but support by any modality can be "on policy", "on plan", "on budget" and integrated in joint monitoring efforts and national sector coordination mechanisms.

## CHAPTER 6

# SECTOR VISION, MISSION AND OBJECTIVES

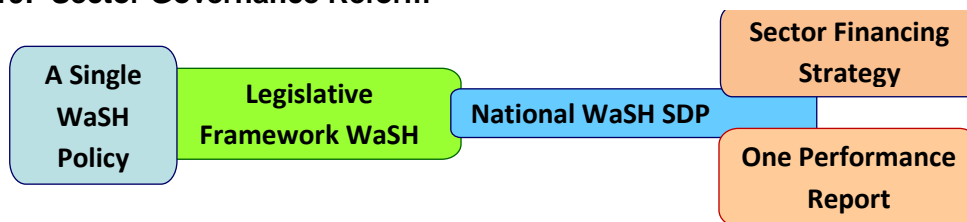
### 6.1 Sector Vision and Mission

Sustainable WaSH services are among the most powerful drivers for human development. They extend opportunity, enhance dignity and help create a virtuous cycle of improving health and growth.

**Vision:** Improved public health and living standard of people of Nepal through safe, sufficient, accessible, acceptable, and affordable water, sanitation and hygiene services—any time, everyone and everywhere.

**Mission:** An effective, responsive, transparent, and accountable WaSH Sector. The sector will adopt one WaSH Act, one national WaSH policy framework, one National WaSH sector development plan executed by one Ministry and one WaSH performance report to contribute to the realization of the vision.

**Figure 19: Sector Governance Reform**



### 6.2 Objective of Sector Development Plan

The SDP is organized in eleven themes. These themes are the Strategic Objectives of the SDP and provide further detailed action points, targets, indicators and estimated costs for each objective. The SDP is a strategic framework to progressively ensure effective, efficient and sustainable provision of WaSH services. The key objectives of the SDP are to:

- enable provision of basic water and sanitation facilities for all as well as service improvement through improved sector governance and effectiveness;
- address all current sector issues and future developments in the sector;
- articulate the sector priorities, strategies and actions for effective programming and implementation of WaSH in a coherent and harmonized manner, and gradual sector convergence; and
- guide and align all sector actors with national priorities, strategies, standards and procedures in the effective programming and management of WaSH services.
- put in place an enabling policy, legislative and regulatory framework, a clear institutional framework for service delivery, financing arrangements, capacity building, improved coordination and performance monitoring. In align with this SDP, to ensure that all citizens in Nepal have functional and sustainable access to WaSH services.

### 6.3 Duration of Sector Development Plan

The SDP will cover the period 2016-2030, aligned with the Sustainable Development Goals. Further divided into short-term, medium term and long term, the SDP has three phases, each of five years' duration. It will be a rolling plan, which will be updated every five years.

**Table 8: SDP Period and Targets**

Phase	Period	Overarching Targets
Phase 1	Short Term (2016-2020)	Universal access to basic WaSH services; improved service levels (medium 25%, high 15% population, Reconstruction
Phase 2	Medium Term (2021-2025)	Improved service levels (medium 40%, high 30% population), Functionality & Sustainability improvement
Phase 3	Long Term (2026-2030)	Improved service levels (medium 50%, high 50% population), Impact assessment

Overall, the 15 years of implementation of the plan will be contributing to the countries aspiration of meeting Vision 2030. The entire first phase and the initial 2 years of the second phase will be providing much impetus towards promoting Nepal to the status of a developing country as set out by the GoN, through WaSH results as follows:

- Reduction in water borne diseases;
- Reduction in school dropout rates among girl students due to enhanced access to water and sanitation services;
- Reduction in infant and child morbidity and mortality rates; and
- Increase in the Human Development Index (HDI)

## CHAPTER 7

# SERVICE AREA, SYSTEM AND SERVICE LEVEL CLASSIFICATION

### 7.1 Classification of Service Areas

It has been usual practice world-wide to express water and sanitation interventions in terms of rural and urban divide. This SDP has tried to see WaSH interventions in terms of service level. Types of water sources, infrastructures, operational modalities and hence costs may differ in the rural and urban cases but the ultimate objective is provision of safe and affordable water and sanitation services to all populace, irrespective of rural or urban setup.

Moreover, the current urban-rural design in Nepal is such that the boundaries are blurred and are overlapping to each other. While WSS systems with higher service levels are being installed in some of the rural areas, some municipal areas are still not been able to get basic level of WaSH services. Even then, service area classification is necessary in view of planning and reporting of service coverage and to ensure balanced development of both rural and urban areas.

#### 7.1.1 Rural Areas

As per the Constitution, the country shall have three main tiers of government structure: federal, provincial and local. Under the local level, there shall be Village Council (Gaunpalika), Municipal Council (Nagarpalika) and District Assembly (Jilla Sabha). The number of wards in a Village Council and Municipal Council shall be as provided in the Federal law. Governance systems for each of these structures, once formulated, will have significant bearing on development planning and management of sectoral functions including WaSH.

In the new governance setup the district will have no executive functions, rather it will be a coordinating layer in the local tier of government system. Exercise is on-going towards restructuring the local bodies. It is expected that Village Councils will get expanded to more larger geographical extents by merger of number of adjoining existing VDCs. The term "Village Council" here has been used to refer both to the geographical area and the executive village level committee of elected and nominated VC officials.

#### 7.1.2 Urban Areas

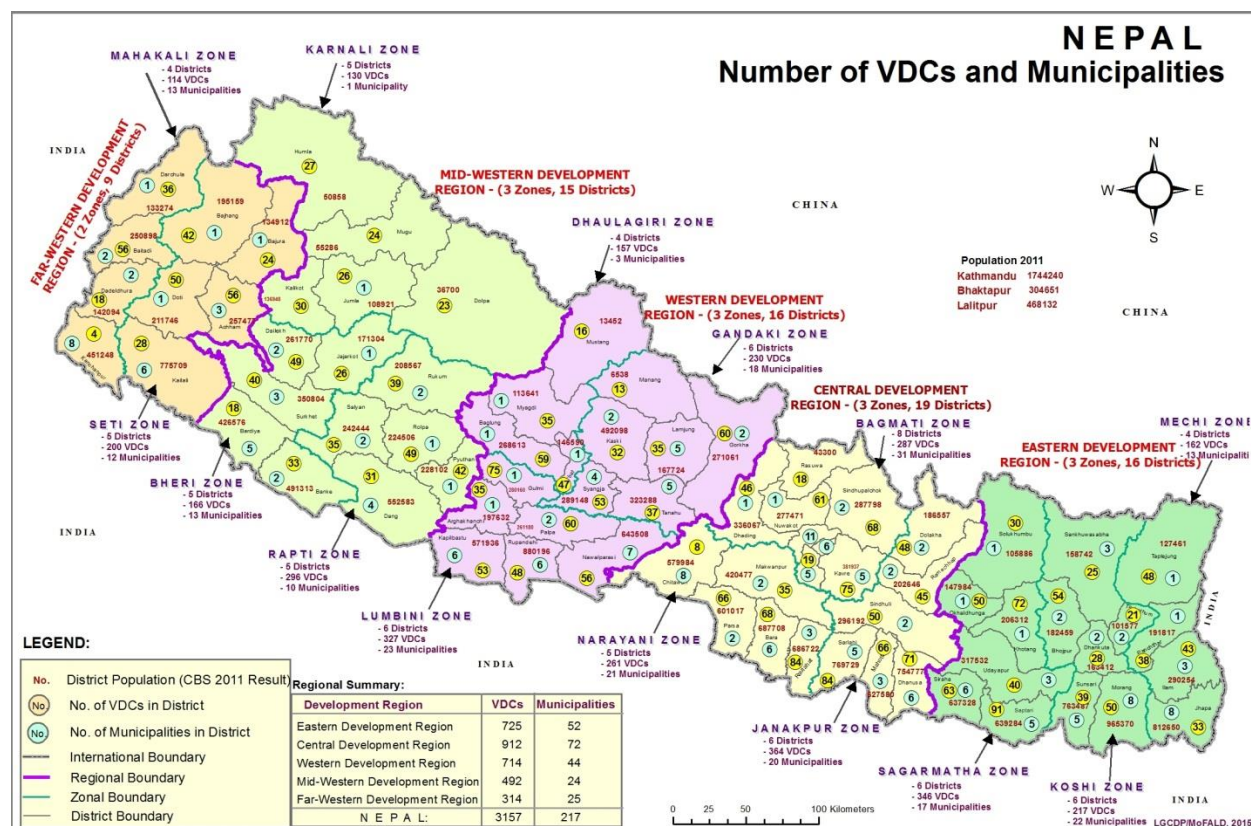
While urban areas are engines of economic growth, accounting for two third of country's gross domestic product, unmanaged urban growth poses environmental hazards and can lead to rising urban poverty if economic opportunities and provision of urban WaSH and municipal services do not keep up with the growing urban population.

The classification of urban areas, which has changed over the years, is based on the existing infrastructure, population, and potential to generate revenues as defined by the Local Self Governance Act, 1999 and National Urban Policy 2007. The classification is shown in Table 8.

**Table 9: Classification of Urban Areas**

Urban Area	Min. Population	Annual Revenue (Million Rs.)	Infrastructure
Metropolitan City	300,000	100	Electricity, roads, drinking water, telecommunications
Sub-metro city	100,000	50	Same as above
Municipality	20,000 (10,000 in the mountain and hill areas)	2 (1 in the case of mountain and hill areas)	Same as above (to a limited extent in the case of mountain and hill areas)
Definition expanded by National Urban Policy, 2007			
Secondary Towns	10,000-50,000	No revenue criterion but population density of at least 10 persons per hectare and at least 50% population dependent on non-agriculture activities.	Basic facilities such as grid Electricity, telecommunications, high school and health Services
Small Towns	5,000-40,000		

**Fig 20: Village and Municipal Areas**



## 7.2 System Classification

System classification is vital for effective implementation of the WaSH SDP. It not only clarifies the roles and responsibilities of each of the Sector Actors, but also shows the different functional requirements.

### Background Notes:

- (1) The System classification should be viewed as the Water Supply and Sanitation as the integral part of that system.
- (2) Utility Manager includes Cooperative, Contractor, Concessionaire, Private Operator, NGO etc.
- (3) Ownership of all water sources by prevailing law remains to the state, where as the assets could be private also.
- (4) Introducing competition to operate water networks can be central to reform in WaSH sector governance. Private participation in WaSH infrastructure and service provision can take many forms as shown in Table 9.

**Table 10: Forms of private participation in water and sanitation systems.**

Options	Ownership	Management	Investment	Risk	Duration (Years)	Example
Service contract	Public	Shared	Public	Public	1-2	Finland, Maharashtra (India)
Management Contract	Public	Private	Public	Public	3-5	Johannesburg (South Africa), Atlanta (US)
Lease	Public	Private	Public	Shared	8-15 (Ktm-30)	Abidjan (Ivorycoast), Dakar (Senegal), Kathmandu (Nepal)
Concession	Public	Private	Private	Private	20-30	Manila(Philippines), Jakarta (Indonesia)
Privatization	Private	Private	Private	Private	Unlimited	Chile, UK

Source: Human Development Report (2006), *Beyond scarcity: Power, poverty and the global water crisis*

Table 11: System Classification and Role Delineation

System Classification		Minimum Key HR Required	Regulation & Surveillance	Financing & Construction	Ownership of System	Service Delivery						
Size	Water / Sanitation					Provision	Production					
Point	Water Supply	VMW	Federal and or Provincial Government	Local Govt + / User	Local Govt (except for private systems)	Local Govt and or User	User					
	Sanitation							Typically with Onsite Sanitation	User	User	User	User
Small	Water Supply	WSST	Federal and or Provincial Government	Local and or Provincial Govt +/ User +/ other	Local and or Provincial Govt	Local Govt	Users Committee/ Utility Manager					
	Sanitation							On site Sanitation, Solidwaste management	User +/ community+ / other	User +/ community+ / other	User +/ community+ / other	User +/ community+ / other
Medium	Water Supply	Sub-Engineer	Federal and or Provincial Government	Provincial+/ Local Govt + Community /Other	Provincial and or Local Govt	Local Govt	Users Committee/ Utility Manager					
	Sanitation							Typically with Septage and Solidwaste Management	Provincial +/ Local Govt +/ Community +/ Private Sector	Provincial +/ Local Govt +/Community+ / Private	Local Govt	Users Committee/ Utility Manager
Large	Water Supply	Civil Engineer	Federal and or Provincial Government	Federal +/ Provincial Govt +/ Community +/ Private	Federal and or Provincial Govt +/ Private	Local Govt	Users Committee/ Utility Manager					
	Sanitation	Typically with Septage or FSM or Wastewater Management						WASH Engineer + finance & admin staff	Federal +/ Provincial Govt +/ Community +/ Private	Federal and or Provincial Govt +/ Private	Local Govt	Utility Manager
		Solidwaste Management						Civil Engineer	Federal +/ Provincial +/ Local Govt +/ Private	Municipa-lity	Local Govt	Municipal Authority / Utility Manager



System Classification		Minimum Key HR Required	Regulations & Surveillance	Financing & Construction	Ownership of System	Service Delivery		
Size	Water / Sanitation					Provision	Production	
Mega	Water Supply	>4000 Taps:	WASH Engineer + finance & admin staff	Federal and or Provincial Government	Federal +/- Provincial Govt +/- Community +/- Private	Federal and or Provincial Govt +/- Private	Local Govt	Utility Manager
	Sanitation	Typically with Septage/FSM or Wastewater Management	WASH Engineer + finance & admin staff		Federal +/- Provincial Govt +/- Community +/- Private	Federal and or Provincial Govt +/- Private	Local Govt	Utility Manager
		Solidwaste Management	Civil Engineer		Federal +/- Provincial +/- Local Govt +/- Private	Municipa-lity	Local Govt	Municipal Authority / Utility Manager

## 7.3 Service Level Classification

As with system classification, service level classification is also vital for a long term effective WaSH plan. It also serves as the basics of the plan and its investment requirement.

### 7.3.1 Water Supply Service Level

This service level classification reviews i) the requirements for water for health-related purposes, ii) the requirement of the provisions that system should have and iii) the requirement of services that utilities provide.

**Table 12: Water Supply Service Levels**

Parameters			Service Level			
			Substandard	Basic	Medium	High
System Performance	Needs	Quantity (LPCD)	25 - 45	45 - 65	65 - 100	100 - 150
		Hygiene	Not possible (unless practiced at source)	Hand washing and basic food hygiene possible; laundry/bathing difficult to assure unless carried out at source	All basic personal and food hygiene assured; laundry and bathing also assured	All hygiene needs met
	Quality		Potable	Meets NDWQS (Rural criteria)	Meets NDWQS	Meets NDWQS
	Accessibility		Less than 25% consumers having private connection	More than 25% consumers having private connection	100% consumers having private connection	100% consumers having private connection
Institutional Performance	Reliability	Duration of supply (hrs/day)		8 (Peak hour)	12 (day hours)	24 (Round the day)
		Continuity (Number of interruption events)		Not more than 1 interruption event in one month	Not more than 1 interruption event in three month	Not more than 1 interruption event in a year
	Resiliency(service restoration period)			Service restored in 2 days	Service restored in 1 day	Service restored in 1 day
	Service Robustness				System can withstand 10% of additional sudden demand without compromising its service standards	System can withstand 10% additional sudden demand without compromising its service standards
	Service Satisfaction Level (Annual Survey)				75%	90%

Notes:

1) Substandard Service are not desirable in normal conditions. However, in emergency condition SPHERE guideline may be referred.

2) This service standard will be applicable to new, rehab and upgrading systems. The existing system should be upgraded to meet this criteria.

This SDP recommends the following figures for Lifeline and Basic water requirements while classifying the water supply service level:

**Table 13: Lifeline water requirements for human needs (per person)**

Activity	Minimum, litres/day	Range/day
Drinking Water	3	2–5
Bathing	10	7–15
Other Sanitation Services	7	5–10
Cooking and Kitchen	5	4–10
<b>Total</b>	<b>25</b>	

**Table 14: Recommended basic water requirements for human needs (per person)**

Activity	Minimum, litres/day	Range/day
Drinking Water	5	2–5
Bathing	20	10–30
Other Sanitation Services	25	20–35
Cooking and Kitchen	15	10–20
<b>Total</b>	<b>65</b>	

### 7.3.2 Sanitation Service Level

It refers to the containment, disposal, treatment and re-use of excreta and urine. No or unacceptable service is where facilities do not effectively separate faeces or urine from the user or the environment, e.g. open defecation, and/or groundwater contamination.

**Separating out greywater and solid waste:** In reality, while conceptually part of sanitation services, the management of excreta and urine, of greywater, and of solid waste are separate from both a hardware and service perspectives. It is proposed that systems and services for grey water and solid waste be assessed against separate service ladders.

Seemingly, the WHO-UNICEF Joint Monitoring Programme (JMP) does not count shared sanitation even among family members, towards sanitation coverage, thus leaving Nepal with just 52% coverage in 2015. In Nepal's socio-economic and cultural context shared sanitation among family members has to be considered as improved sanitation.

Table 15: Sanitation Service Levels with detailed indicators

Service Level	Accessibility	Type of Facilities/ Interface	Use	Reliability	Environmental Protection
<b>Improved service</b>	Each family dwelling has one or more toilets in the compound; Easy access for all family dwellings	Platform with Impermeable slab separating faeces from users	Facilities used by all household members	Routine O&M (including pit emptying) service requiring minimal effort; Evidence of care and cleaning of toilet	Non problematic environmental impact/ Safe disposal (preferably re-use of safe by-products)
	Each public place or institution has adequate number of toilets; Comfortable access for all	Child, Gender and Disabled friendly; Platform with Impermeable slab separating faeces from users	Facilities available for use by all	Routine O&M (including pit emptying) service requiring minimal effort; Evidence of care and cleaning of toilet; (Linkage with other business opportunities for sustainable O&M of public toilets)	
<b>Basic service</b>	Each family dwelling has a toilet in the compound; Easy access for family dwellings	Platform with Impermeable slab separating faeces from users	Facilities used by all household members	Evidence of care and cleaning of toilet; Unreliable O&M (including pit emptying).	Non problematic environmental impact/ Safe disposal
<b>Limited 'service'</b>	Shared Toilet, Toilet at distance more than 10 m; Seasonal access	Platform without impermeable slab separating faeces from users	insufficient use	No O&M (e.g. pit emptying) taking place and no evidence of cleaning or care for the toilet	Environmental pollution increasing with increased population density
<b>No service</b>	-	No separation between user and faeces, i.e. open defecation	No or insufficient use	No O&M (e.g. pit emptying) taking place and no evidence of cleaning or care for the toilet	Significant environmental pollution; increasing with increased population density

## CHAPTER 8

# WaSH SECTOR THEMES

In addressing the Nepalese WaSH sector issues, there is a widespread recognition of the need for integrated and inter related approaches. WaSH sector is a broad term that includes institutions, organizations, policies and practices which shape and manage water resources, including the delivery of WaSH services for diverse populations and industries. Given the breadth of the challenges and the inherent role of many organizations and sector actors, mode of cooperation and coordination is expressed in different themes for improvement of outcomes. In particular, apart from the service delivery, the effectiveness of alignment and co-ordination between government agencies, the corporate sector and civil society, and the role of leadership in enhancing collaboration and innovation across these sectors, has been emphasized in these themes.

### 8.1 Access and Utilisation

Theme areas: Access, Reach, Utilization and Benefit Consumption

Theme Objective: To Increase access to WaSH services which ensures reaching the unreached and also ensures effective utilisation of available services and benefits.

Theme Outcome: Available services and benefits effectively accessed and utilized by all.

Access in WaSH sector is not only about physical access but also the paying capacity to use the service, easiness to use the technological and social inclusion.

#### 8.1.1 Improving Access

About 4 million or 15 % people are not yet reached by water supply services (CBS 2011) while about 18% (DWSS 2015) have no access to sanitation services. They are supposed to be located mostly in clusters of homes in remote and rugged terrains, or disadvantaged and vulnerable communities that lack the power, resources, and skills to successfully secure WaSH services. In order to meet the national target of basic water and sanitation facilities for all, those populations must be reached, for whatever reasons they are left behind of access to water and sanitation.

##### 8.1.1.1 Water Supply

Social attitudes about caste, ethnic groups, religion and persons living with chronic illness can be factors in the exclusion of persons or communities from water sources, which are otherwise physically accessible. Other population groups are excluded by neglect rather than purposefully. Women have extra challenges of security, overwork and low decision-making status that must be addressed in water supply system planning. Differently-able people have explicit access challenges, both personally and for their families who often must give additional support to the disabled person.

There are technical and cost challenges inherent in bringing water supply to remote or rugged locations. Greater distance requires costlier quantities of pipe. Lifting water from lower sources to communities at higher altitudes requires substantive technical inputs and / or innovative investments. Sometimes remote communities are also socially excluded, having been marginalized to difficult locations by historical and social forces.

Universal access to basic WaSH services is a considerable challenge as witnessed by the numbers of people who are deprived of WaSH services. Looking it from the perspectives of resources and efforts to put, and if modelled mathematically, reaching the unreached function will resemble to an asymptotic function.

## Strategic Actions:

- **Tracking of the Un-reached:** The cluster of homes / settlement will be identified and mapped throughout the country. Global Positioning System (GPS) technology will be used to identify and map all those settlements having and/or not having water supply services in them. This will help to identify those settlements which are located in remote and rugged terrain as well as those settlements in which deprived, disadvantaged and vulnerable communities, lacking the power, resources, and skills are living. The data on unreached population will be collected under Monitoring & Evaluation theme and linked to sector M&E system.
- **Update of Sector M&E database with GPS data of Settlements:** NMIP Database will be updated by locating the schemes with GPS technology along with locations of served and un-served settlements taking care of the settlements in which the unreached population are living.
- **District WaSH with Investment Plan Based on Priority Ranking of Schemes and Equity:** The priority ranking of schemes (mapped throughout the country deploying GPS technology) for further investment on reaching the unreached based on set of indicators is carried out. The investment plan will put overriding priority on programs for reaching the unreached.
- Inclusive water and sanitation services require overturning social exclusion beliefs and establishing proactive policies to assure equal access. Both the geographically remote and the socially excluded communities will be assured of technical, institutional, management and budget support which may be at higher cost per capita than required for the population that has been reached with WaSH services.
- Provisions will be made to improve the service level. Existing systems will be upgraded for service level. New projects will be given due priority for medium or higher level services. Servicing systems like community taps, public tap stands will be discouraged, existing system will be upgraded for private connection while all new projects will have private connections.
- Water Supply Facilities will be provided in all Schools, HCFs and other Public Institutions including Public Places.

### 8.1.1.2 Sanitation and Hygiene

With the growing urban population and massive extension of towns and consequences thereof, the need for effective planning and delivery of environmental sanitation services remains one of the major intractable challenges facing the sector, municipalities and the small and emerging towns in Nepal. Investing in sanitation gives good economic returns. WHO 2012 estimates show that global economic return on sanitation spending is 5.5 folds, more than double the economic return on water spending which is around 2.0. Also, improving access to sanitation contributes to health, education, gender equality, and poverty reduction.

As per Census 2011, 91% of urban population has access to sanitation. While 30% of urban population has their toilets connected to sewer system and 48% to the septic tanks, effective management of on-site urban sanitation systems thus far has remained a neglected component. Urban environmental sanitation and its impact on environment and public health is an important issue that will become more critical in the days ahead. Furthermore, urban sanitation is more complex than rural sanitation because it includes issues such as management of wastewater, storm water and solid waste, land issues and it involves multiple agencies and heterogeneous communities.

### 8.1.1.3 Total Sanitation and Hygiene Behaviour

Sanitation and hygiene are being implemented as per the National Sanitation and Hygiene Master Plan, 2011. A “Guideline document on Total Sanitation” is felt need to in order to further enhance effectiveness of sanitation and hygiene programmes implementation.

All government agencies, local bodies, DPs, I/NGOs, and other WaSH Sector Actors will adhere to the principles and approaches mentioned in this Plan and envisaged Guidelines while planning and implementing sanitation and hygiene in WaSH projects. The Master Plan has recognized the local bodies as the frontline agencies with coordination committees at various levels.

Much is dependent upon human behaviour change for achieving total sanitation. As many VDCs, municipalities and districts have already declared ODF, the next step is to scale up the sanitation movement throughout the country by advancing total sanitation.

#### Strategic Actions

- Guidelines on "Total Sanitation" will be developed and uniformly applied across the country to support the communities to improve sanitation ladder through inclusive, effective and sustainable approaches and realize total sanitation outcomes. The Guidelines should include clear approaches and indicators for the clean house, community, village, municipality and district;
- Hygiene promotion will be contextualized based on proper hygiene barrier analysis.
- Based on diverse contexts and geographic settings, people-friendly approach, technology and Behaviour Change Communication (BCC) materials will be developed with proper behaviour change monitoring indicators for creating sustained behaviour change, targeting emotional drivers, and social marketing;
- As the lead of D WaSH CC in the district, the capacity of DCC will be strengthened to enhance conducive enabling environment, uniformity on policy, working modalities and approach in the district and villages; and
- Monitoring mechanism will be further strengthened for ensuring sustainability of public and institutional sanitation services;

### 8.1.1.4 Local Plans

Scaling up ODF progress and improving its sustainability is dependent on the further strengthening of enabling environments for rural sanitation. Analysis of the factors that lead to higher ODF success rates and more sustainable outcomes - for instance, why outcomes are better in one area than another should be an essential part of any local programming.

#### Strategic Actions

- Verification of ODF declared areas will be studied and improvement actions formulated to ensure sustainability;
- Local bodies will develop strategic sanitation plans for the respective areas that elaborate the role of ODF in creating large-scale demand for sanitation, and financing sanitation for achieving total sanitation.

### 8.1.1.5 Improving Urban Sanitation Systems

In the urban context, the broad category of "improved" sanitation provision can be thought of as a sanitation "ladder" extending from pour-flush toilets using water and septic tanks, through to household connections to sewers and the provision of municipal wastewater treatment and drainage systems.

Moving from open defecation at one extreme to the safe collection, storage and disposal of human excreta and the treatment or recycling of sewage effluents poses different challenges in different contexts. For high-density urban areas sewerage systems have obvious advantages. Connections to feeder sewers and trunk sewers are the safest way to separate people and drinking water from human waste: an age-old human development challenge. But where the reach of the sewerage network is limited and the unserved population is large, the capital costs of developing a sewerage system capable of connecting all households can be prohibitive. Under these conditions onsite sanitation or decentralized systems may be the most viable short- to medium-run option.

Urban centers need to prioritize investment in a mix of sanitation options to address ever growing challenges of rapid urbanization. The urban population of Nepal has reached to around 40% (MoFALD, 2016) with the recently declared new municipalities. This requires urgent attention to find innovative financing approaches to incentivize municipalities and utilities to undertake policy and institutional reform, investing in capacity building, city-wide sanitation planning, and cost-effective approaches (not only conventional networked sewerage systems) to ensure adequate sanitation service delivery, and livable cities for all.

**Sewerage:** A sewerage system is an expensive system. Conventional sewerage systems require vast investments and also tend to be expensive to operate and maintain. They are also dependent on a well-resourced institutional set-up, with an advanced regulatory and enforcement framework and well trained staff to function properly. Many utilities are not able to meet these criteria and are extra challenged to meet the complex demands for service provision in growing cities typified with rapidly expanding unplanned settlements.

### Strategic Actions

- A systematic planning will be done for sewerage network in all large and medium system areas;
- Sewerage system including network and connections with modern wastewater treatment plants and treatment facilities will be constructed and expanded;
- Energy generation will be encouraged through sludge digestion and gasification;
- Construction of decentralized wastewater treatment systems will be encouraged in low-income areas;
- Construction of sewerage will be prohibited in toles without an approved Municipal plan;
- Possibilities will be explored and efforts concentrated on promoting inter-city cooperation programmes on urban sanitation.

**Decentralized Wastewater Treatment System (DeWaTS):** DeWaTS are typically adapted in urban and peri-urban low income areas where access to centralized sewer and wastewater treatment systems is limited. DeWaTS are designed to be low maintenance with no technical and energy inputs, are not mechanized and are designed, implemented and operated with strong community participation. Some DeWaTS have been installed in Nepal since 1997 as an alternative to conventional systems.

### Strategic Actions

- The guiding principle in DeWaTS will be focused on quality rather than quantity to ensure sustainable management;
- The following conditions will be met: (i) availability of suitable Government or community land; (ii) willingness and participation of the community during design, implementation and operation and maintenance; (iii) identification of suitable communities that do not have access to the centralized sewer network; (iv)



development of operation and maintenance plan including identification of fund availability; and (v) establishment of appropriate design criteria.

**Storm Water Drainage:** Both combined and separate sewerage systems are being used in Nepal. While Kathmandu Valley adopts combined system, Biratnagar and Birgunj have adopted separate systems. For many Municipalities, particularly the recently formed ones, the concept of management of both municipal sewage and storm water drainage is yet to emerge.

### Strategic Actions

- Preparation of drainage master plans and provision of priority drains in areas with flooding risks; and
- Separation of storm water drainage along all black topped roads.

**Faecal Sludge and Septage Management:** Faecal sludge possesses an environmental health risk if not treated and disposed of on water bodies and land. There is currently a lack of demonstrable city-wide level Faecal Sludge Management (FSM) or Septage Management (SM) model in Nepal. Even major cities like Kathmandu and Pokhara do not have operational faecal sludge treatment systems in place. Some private sectors are engaged in the emptying and collection business in some towns. But in the absence of disposal and treatment facilities, the sanitation service chain remains incomplete. Additionally, there is a lack of O&M and business model supporting long term sustainability of FSM/SM systems.

### Strategic Actions

- Faecal Sludge/Septage Management is increasingly becoming a priority development agenda for the national government, local bodies, communities and households for advancing total sanitation particularly in small towns. A systems perspective in Faecal Sludge/Septage Management refers to addressing the entire sanitation value chain from the point of generation to treatment and end use. Sample designs for septic tanks and FSM/SM treatment plant, operational manual and institutional and regulatory framework will be developed to aid operationalization of FSM/SM in small towns in Nepal;
- When properly managed or treated, human excreta and urine represent valuable resources for agriculture, eg. when kept separate as an organic fertilizer or when combined as a biogas to generate energy. Reduce, Reuse, Recycle options will be explored on FSM/SM considering health, legal, technical, and social issues.

**Institutional Home for Urban Area Sanitation Services:** Even more than urban water services, environmental sanitation suffer from lack of a clear policy on institutional roles and responsibilities that has led to fragmented project mode of working. The involvement of multiple agencies in repair and maintenance of sewers in urban areas has created lot of confusion among customers and they are sometimes forced to spend considerable time finding appropriate agency to solve their problem. There is therefore a clear need to define the main agency that is to be responsible to provide the sanitation service in urban areas.

**Kathmandu Valley:** Agencies currently involved in sanitation services in Kathmandu Valley include KVWSMB, Municipalities, High Powered Committee for Integrated Development of Bagmati Civilization. In Kathmandu Valley, KVWSMB is the main agency responsible for development and management of sanitation service as per WSMB Act, and KUKL is providing sanitation services under the provisions of license issued by KVWSMB. However, the sanitation service provided by KUKL is more focused on sewerage not covering other aspects of sanitation.

There are still other agencies like Kathmandu Valley Development Authority, Department of Roads, and Users' Committees who are involved mostly in construction of road side surface drains. However, due to lack of coordination between the agencies and each agency plans and

implements sewer system as per their specific requirement without any consideration of long-term planning and design. This has usually resulted in poorly designed and constructed sewer system. The individual property owners are responsible for construction and maintenance of sewers within their compound and the connecting part outside, leading up to the public sewer.

KUKL collects all sewerage service charges from the customers but it does not respond to all wastewater customer complaints. The Kathmandu Valley Development Authority could play an obligatory infrastructure planning and regulating authority in the valley. That way only the haphazard planning and construction of infrastructures like sewers, roads, telecom ducts etc. could be bestowed thereby also saving in huge resources.

**Other Municipalities:** In other small towns/emerging towns in Nepal, the Municipality, DWSS, DUDBC, I/NGOs, and WUSCs are involved in urban sanitation provision. The Municipality and/or Users committees are the only agencies who carry out operation and maintenance of the services. The Water Supply Management Board Act provisions that the sanitation service can also be the responsibility of this Board but in reality, sanitation service has not been placed under the jurisdiction of Board wherever such Board has been established. There is clearly a lack of clarity in defining the role of agency responsible for development and management of sanitation services in urban sector. However, the Boards are run by the concerned Municipalities and they can vest the responsibility of Sanitation services on Boards any time.

**Small Towns:** Some of small/emerging towns are still VDCs and they do not have the organization structure to look after sanitation. Capacity of local bodies for implementation of sanitation and sustainable operation and maintenance of sanitation is very much lacking.

### Strategic Actions

- Develop and define a dedicated institutional home and regulatory framework on city area sanitation services for all Municipalities, city and small towns. In this connection, the Local Government Units (Municipal or Village Councils) are to be taken as institutional home for WaSH facilities. Sector line agencies can assist them in creating sanitary infrastructures in line with their sanitation development plans.
- Strengthen institutional, management and operational capacities for development of a sanitation plan and implementation. Assessment of the existing sewerage network and update of the sewerage connection database, and an asset management plan are the prerequisites; and
- Community participation and public education for health, hygiene, and behaviour change in water conservation and wastewater management practices will be internal components.

### Wastewater Management:

Surface water sources, especially in urban areas, have been heavily polluted by the discharge of untreated wastewaters and dumping of septic sludge from on-site sanitation systems. Densely located on-site sanitation facilities, such as septic tanks and pit-latrines, in urban localities have been posing risk of ground water pollution. To minimize such risks appropriate environmental mitigation measures will be taken in a phased manner to improve wastewater management and to prevent surface and ground water pollution.

**City Sanitation Planning:** In order to address the issue of urban sanitation, GoN has introduced policies such as Urban WatSan Policy, 2009; Bagmati Action Plan 2009-2014, and Solid Waste Management Act, 2012. More recently, the Government has launched the 'Clean City' Programme, which includes five components - waste management; water and wastewater management; greenery promotion, pollution control and city beautification. The challenge now is to build local capacity and prepare and invest in plans to implement these policies.

City Sanitation Plans are strategic planning processes for city-wide sanitation sector development through sewer, decentralized and on-site systems, integrated approaches involving Reduce, Reuse, Recycle and Recover and demonstration of replicable models. The City Sanitation Plan will include the following major components as appropriate, with due consideration on slums and informal settlements:

- Accelerating and achieving ODF status in all cities;
- Effective management of wastewater through sewerage with treatment and drainage systems;
- Faecal sludge/Septage management and treatment; and
- Strengthening sustainable solid waste management systems in Water Supply System areas outside of municipalities. Solid waste management in municipal areas will be dealt by concerned municipality.

### **Strategic Actions**

- Based on the "National Sanitation and Hygiene Master Plan", "Total Sanitation Guidelines" and "Clean City Programme", municipalities will be supported to prepare a city-wide sanitation plan and guidelines. To meet the total sanitation principles, a city will be encouraged to follow a strategic approach;

A citywide sanitation plan and strategy covers technical aspects, including strategies and programmes for the development for appropriate infrastructure for domestic and industrial wastewater and non-technical aspects, including strategies for the development of non-physical aspects such as (a) the public awareness and participation, (b) policy and rules, (c) institutional capacity, (d) private sector engagement, (e) NGO engagement, (f) financing and tariffs, and (g) monitoring and evaluation.

- The Government will set wastewater quality standards for discharging all kinds of wastewater into natural water bodies and agricultural lands. The standards will be enforced in order of priority setting according to the severity of pollution of surface and ground water sources;
- Preferences will be given to the application of wastewater, with appropriate treatment meeting wastewater quality standards, on agricultural lands against the discharges into the surface waters;
- Hospitals, commercial establishments and industries will be required to treat their wastewaters on-site before so that they meet the wastewater standards before they are discharged into the public sewers;

#### **8.1.1.6 Terai Sanitation Programme**

Eight Terai districts (Saptari, Siraha, Dhanusa, Mahottari, Sarlahi, Rautahat, Bara and Parsa) have only 35-50% sanitation coverage (DWSS 2015).

### **Strategic Actions**

- Based on feedback from Terai Conference on Sanitation held in Janakpur in early 2014, GoN has formulated a specific strategy for eight Terai districts, which will be accelerated;
- An integrated strategy combining community awareness, ODF, social campaign, human resource development, and sanitation marketing will be implemented to improve total sanitation in these districts.

### **8.1.1.7 WaSH in Community Institutions and Public Places**

#### **WaSH in Schools: The Star Grading Approach**

WaSH in Schools (WinS) is an internationally adopted campaign to provide drinking water, basic sanitation facilities and education on hygiene behaviour change to school students in developing countries. WinS leads to healthier children, better educational performance especially for girls and enhances community school relationships. The slogan of "No schools without WaSH facilities" is being given due emphasis in schools.

The 3-Star Approach encourages schools to meet gradually higher criteria for protective and healthy learning environment for students in schools as a part of a broader Child-friendly environment. The approach focuses on meeting the needs of students through key actions and provides clear pathways towards national standards for WinS.

The idea behind the 3-Star Approach is that schools and their host communities can maintain minimum conditions required for health and hygiene promoting schools using local resources. Role of government and DPs can be to support for hardware and create policy environment, programme design, training, monitoring, certification and awarding schools their Stars.

A school can progressively attain first, second and a third star status, by improving WaSH facilities and ensuring compliance with essential WaSH practices.

#### **Strategic Actions:**

- Provision of adequate WaSH services within the school premises;
- While planning for WaSH services, due attention will be paid for child, gender and differently-able-friendly (CGD) processes and technologies with sufficient supply of water and separate toilets for boys and girls including hand washing with soap and menstrual hygiene management;
- Safe water, clean toilet and proper hygiene education and practice in schools must be a priority as this not only increases attendance but provides examples of good practice which are taken on board by the children. For school sanitation there must always be a sufficient ratio of squat and urinals to pupils. The schools must have garbage pit facilities within the school premise; and
- MoWSS in consultation with MoE will define the certification process and monitoring methods, as part of the 3-Star Approach. Certification and monitoring process will use simplified and limited set of monitoring indicators that best measure progress on the indicators for each star.

#### **WaSH in Public Institutions including Health Facilities:**

Availability of WaSH facilities in public institutions is a neglected subject at present. Though Health facilities are in better situation in this regard, even there is no adequate supply of water and available toilets are hardly well maintained. In addition to Health facilities there are number of other public institutions at village level such as VDC offices, Agriculture, Livestock, Post office, Police, Banks etc., where the beneficiaries usually do not have access to sanitation facilities.

Equal emphasis has to be given to the service recipients also at par with office bearers. As the condition of the toilet in a public institution is indicator of how much it is well managed and it values its customers, every public institution is thus required to maintain and keep toilets in their premises clean and functional.

#### **Strategic Actions:**

- Provision of adequate and CGD-friendly WaSH services including hand washing with

soap and MHM facilities;

- Safe water, clean toilet and proper hygiene practice in public institution should be maintained. The institution must have garbage pit facilities within its premises; and

### **Public Sanitation Services:**

The shortage of public wash rooms has become the single biggest problem for commuters in the capital Kathmandu and other large cities. There is only handful of public toilets to cater for Kathmandu Valley's 2.5 million population. Most of The public wash rooms are not only unhygienic but are not sensitive to children and differently-able persons.

### **Strategic Actions**

Research, development and standardising to establish effective public toilets in key public areas;

- Provide technical assistance to municipalities to develop standards and guidelines for the establishment of CGD-friendly toilets;
- In densely populated cities, public toilets will be viewed as a business model for sustainable sanitation service delivery. The delivery of sanitation services will be improved at town and peri-urban areas, through the construction of public toilets, conceived on high quality design and including showers, where ever deemed necessary, as well as improved access for people with disabilities and through integrated systems for the management of solid and liquid waste;
- An operational model with cross subsidy or support from corporate bodies will be explored;
- No new bus parks, bus stands, amusement parks, bazaar areas etc., will be permitted without CGD friendly toilets; and
- Exploring mobile sanitation services where required.

### **8.1.2 Service Utilization**

Despite of commendable increase in access to WaSH services, the users are not quite aware of utilising the benefits the services had delivered. For example: excessive use of water may lead to inequitable consumption, whereas the under-utilisation of water may cause diseases.

Following aspects are also to be looked in while talking about utilisation of services:

**Optimum Utilisation of Services:** The aim of the revision of water supply service level in this SDP is to encourage user to using water efficiently, effectively and in sufficient quantity. WASH sector national policies and strategies recognise water as a social as well as economic commodity. It implies that users have to be encouraged to reduce water loss and waste and practise higher value uses of water.

#### **Strategic Action:**

- Users will be made aware on sustainable and equitable service utilisation;
- Users will be motivated to effectively and efficiently utilise the services. People, specially poor and marginalised will be encouraged to utilise the services that the system had produced.

## 8.2 Functionality and Sustainability

Theme areas: Functionality, Sustainability and Maintainability of WaSH Services and Institutions.

Theme Objective: To Improve functionality of WaSH services and institutions so that they deliver services as expected.

Theme Outcome: WASH services sustained.

When WatSan systems; i) Function up to and even beyond their design period and serve users with quantity, quality, accessibility and continuity, ii) Sector Actors perform their roles, responsibilities, iii) norms and standards as assigned, iv) Regular monitoring and regulation system in place, v) Operation, repair and maintenance take place timely, vi) Post construction support institutionalized and practiced, the systems are considered as functional and sustainable.

Although WaSH infrastructures are in place, effective institutions and management mechanisms may acutely be lacking. So the functionality should be looked upon as system functionality and institutional functionality.

### **Sustainability Measures adopted in Nepalese WaSH Sector:**

- Community management is accepted as leading principle for the implementation of rural and small urban water supply systems;
- Contribution of beneficiaries in capital investment partly(10%-30%) and operation cost fully;
- GESI is carefully considered in the programmes to assure service delivery to disadvantaged groups;
- Insurance of water supply system (Piloting);
- Adequate operation, repair and maintenance at scheme level with provision of Maintenance Fund for timely operation/ functioning of the system;
- Post construction support introduced, practiced and yet to institutionalized.

### **8.2.1 Benchmarking of Systems and Services**

Reliable information on coverage, system performance and service delivery of all water utilities are not available due to lack of benchmarking and monitoring and evaluation, especially of urban WatSan utilities. Some attempts are being made to this end, however. SEIU has initiated bench marking study to monitor and track the performance of WaSH utilities in small towns and some NWSC served urban areas.

The WaSH sector expects the single data collection mechanism through national M&E/MIS/DSS system (Theme 7) for BM, planning, performance evaluation and other purposes. The BM will not be carried out as an independent project or activity but will be taken as the integral part of the sectoral data collection process.

### **Strategic Actions**

- The Sector will consolidate upon the Benchmarking and Performance Assessment of Service Providers, which was initiated in early 2013, to develop capacity for monitoring functionality and performance of Nepal's urban water supply service providers as an instrument for improved performance of the urban water supply utilities. Recent publications 'Water Service Provider Data Book (2013-2014), and the one before that, capture the critical performance indicators of piped water supply providers, with service areas ranging from 500 connections to well over 10,000 populations;

- Such Benchmarking and Performance Assessment will be accelerated and made a permanent feature of the sector monitoring by expanding coverage to all large, medium and small systems. Findings from assessments will help design appropriate capacity building programmes while also instilling performance improvement measures to improve service delivery, efficiency and accountability;
- WUSC will evaluate their asset and report it to National M&E through concerned WaSH offices. MoWSS will prepare asset evaluation guideline.

## 8.2.2 Improving Functionality and Sustainability

Water systems are found to be dysfunctional mainly due to inadequate application of Water Safety principles, negligence, lack of institutional, technical and financial capacity of the users committee to undertake major repairs, and funding issues. Poor functionality of water supply and unsafe drinking water poses risks in sustaining results of improved sanitation & hygiene, and is undermining potential health benefits. The common tendency to use available resources only on new projects rather than on maintenance may be partly explained by the greater political visibility for the Government in the delivery of WaSH and reluctance on the part of DPs to allocate sufficient resources to maintenance.

In its quest for improving sustainability, the WaSH sector will henceforth give a serious attention to improving functionality of WaSH services by developing a dedicated national programme and institutional support mechanisms to address functionality and to thereby ensure sustainability of dysfunctional water systems. This would entail the following measures:

### Strategic Actions:

- **Determination of Functionality of W/S Systems:** The definition of functionality will be based on the service level classification as in paragraph 7.3.1. This defines both system and institution functionality.
- **Update of NMIP Database with Modified Definition of Functionality:** NMIP under DWSS (2007 - 2011) had established a system of WaSH database when there was no systematic information of WaSH sector in the country. Many shortcomings have now been realised in the database (e.g. parity in total number of schemes in the database with the actual number in the field, method of determination of system functionality status, lack of priority ranking criteria of schemes for further investment for long term functionality leading to sustainability, etc.). When all WaSH sector actors started working in harmony towards developing the sector further by using National M&E/MIS/DSS (refer theme 7). It will be inevitable to revise the NMIP data collection formats and regular update in line with the SDP milestones and indicators developed thereof.
- **Registration of Water Source and WUA/Utility prior to Implementation:** Despite of policy and legal provision for registration of water source as well as the Water Users Association at the District Water Resource Committee (DWRC) prior to implementation of the project, most of them are not meeting the requirement. The implementing agencies will be made responsible to ensure that all of the sources as well as the WUAs are duly registered at the DWRC. Only the WUAs registered in DWRC will be given priority on Post Construction Support (PCS).
- **Registration of Water Service:** A close coordination among all Sector Actors (at sub-national/district and national level) will be made in WaSH sector such that each implementer will register the water source in DWRC and proceed for implementation. The concerned local authority will not allow the implementer to start the construction work unless the water source will be registered at DWRC. The regulatory agency will be made responsible to monitor this process.

- **Establishing an 'Institutional Home' for Post Construction Support Services:** In the past, a large number of the RWS schemes were handed over to WUSCs upon completion of implementation without providing proper scheme management skills (technical, social, management, financial, etc.) to WUSC members. As a result, a minor problem turned into severe one, ultimately causing the whole scheme to get collapsed.

The WaSH sector will improve functionality of schemes by establishing a dedicated national programme and institutional support mechanisms in the district level in order to provide all types of PCS services to the schemes. The prevailing models in global WaSH sector like 'Life Cycle Support' model and JICA assisted WASHMIP (Support and Management Model for Nepal) will be adopted and scaled up.

The existing Water Supply Services Regulation and Monitoring Unit within each WSSDO (at district/local level) will be strengthened and made capable enough to provide all types of PCS services to each scheme throughout the district. The organisational structure of District WaSH Office (WSSDO) will be redesigned keeping in view this aspect, with a dedicated section headed by an engineer. This unit will act as 'Water Supply and Sanitation Service Support Centre' at district level, which provides technical assistance to WUSC on O&M of system.

- **Preparing Investment Plan based on Priority Ranking of Schemes:** The priority ranking of schemes (mapped throughout the country deploying GPS technology) for further investment seeking for long term functionality and then to sustainability will be done based on few set of indicators (derived upon statistical analysis of various technical, social, management, financial etc., parameters with functional status of schemes) having strong and moderate positive correlation with the functionality status of schemes. The investment plan will be developed based on the priority ranking of schemes and executed accordingly setting up the benchmarking of the work. The projects will be then ranked in the ascending order of cost-effectiveness and then implemented first with those projects that are estimated at the lowest cost. Acknowledging the fact that a system gaining less priority may deserve high priority after few years or due to other considerations (such as service level), prioritisation will be carried out at least at the end of each SDP phase.
- MoWSS will prepare system operation and maintenance/functionality guidelines for sector-wide use. The functionality improvement approach on-going under RWWSIP III-Component 2 in 5 pilot districts will also be replicated to remaining other districts;
- The nature of dysfunctionality will be categorized into social, technical, managerial and financial components with appropriate solutions;
- MoWSS will prepare guideline for preparation of Business Plan (BP);
- Utilities will prepare their Business plan, if the post construction support is needed, it will be based on BP. This BP should be an output of strategic planning process that involves the identification of and assessment of investment options as well as financial projection which translates long term strategies and plans in to detailed estimate of costs and cash requirement to meet the investment and O&M needs.
- **Water Safety Planning (WSP):** For any rehabilitation project or new system construction, WUSCs commitment will be required, through development of a Water Safety Plan, cost sharing, training, establishment of tariff system, and reporting etc. It can be an effective means to ensure functionality of a W/S system and hence leading to its sustainability.
- **Water Use Master Planning (WUMP):** In recent years, an effective planning tool to assist communities and planners in better understanding the water situation and multiple



uses of water (e.g. domestic uses and livelihoods) in a locality, be it a village or a watershed across several local administrative units, for the equitable and sustainable use of water sources is being practiced in the western and far western Nepal. The approach is being used to make an inventory of water sources and together agree on their use at local level. The approach is seen effective in promoting local solutions with flexibility by acknowledging the local situation. The key lesson learnt from the practice of the approach is that local institutions with adequate authority in planning and implementation of water resources at local levels are keys to sustainable conservation of small water sources. Also that, the more local the institution, the more effective is local water governance. The WUMP serves as the 'Mini IWRM or Basin Plan' and is expected to be an effective planning tool for raising water security for human use, livelihood and economic development and watershed management.

A guideline document will be developed based on good practice and experiences gathered in water use planning at local levels over the years. The approach will be gradually applied in all local level water resources planning;

## 8.3 Innovation and Technology Adaptation

Theme areas: Innovation, Learning, Research & Development, Alternative Technology and Technology Adaptation, Scaling up

Theme Objective: To make WASH services more Innovative, relevant and effective.

Theme Outcome: Dynamic and updated WaSH sector.

### 8.3.1 Innovation, Learning, Research and Development

The sector needs to continuously review, refine and adapt its programming, approaches and technologies to make sure that the work is sustainable, innovative, relevant and effective. Rapid urbanization, rural- urban migration, and densification of urban agglomerations, in combination with the climate change continuously challenge the WaSH sector in provision of innovative and sustainable solutions concerning safe and reliable WaSH services.

#### Strategic Actions

- All WaSH agencies will put Research and Development (R&D) in priority and allocate adequate budget (at least 0.5% of annual budget) towards it;
- A network between professional and academia will be developed;
- Based on sector-wide identification of additional research and innovation that are required which have a bearing on overall sector development, research topics and innovation areas will be identified and implemented;
- Peer learning event will be organised annually with an objective of learning (Learning and Sharing include formation of interest groups, Common website development, sector gathering, Orientation of WaSH actors towards new ideas/ innovations/ technologies from producers and or suppliers side);
- Innovations practiced at remote and grass-root level will be identified, brought up and promoted.

### 8.3.2 Alternative Technologies

The Use of advanced technologies adopted by developed countries in water supply have appeared to be unrealistic in Nepalese socio-economic conditions. It greatly restricts expansion of service coverage due to high investment and operation costs. Cost effective and affordable technologies will be promoted.

#### Strategic Actions

- Rain water harvesting technology will be promoted in geographical areas with high occurrences of rainfalls and where water supply by conventional means is not feasible;
- Development and restoration of artificial lakes and ponds (pokharis) will be carried out to hold abundant wet season flow of small rivers and streams to supply communities in dry seasons when source water is generally depleted. In general community based efforts to slow down run-off in the landscape (due to rainfall events) will be promoted as suitable (bunds, gulley plugs, etc.)
- Efficiency rating framework for WaSH related technology will be developed and efficiency rating of commonly used WaSH related technologies will be carried out continuously,

### 8.3.3 Solar Pumping

Due to global warming and consequences of climate change, massive drying out of water sources, especially small springs at higher elevations, is expected in the future. Sources of supply will be mainly the water sources at lower elevations. These require usually multi-stage pumping resulting in high operational costs.

In later years technology has been much advanced and solar pumps have been devised which can be operated without having need for batteries. That means, in an average Nepali terrain, pumping can be achieved at reasonable cost by proper sequencing of storage size, pumping hours, number of pumps and pumping stages. DWSS will have to develop design standards and guidelines on solar pumping systems as well as traditional pumping systems considering the advancements in the pumping technology.

By providing a solar pump to pump water from deep tube-well into a subsurface tank next to the tube-well, and have a simple booster pump to pump it into the grid, it may be easy and economic to manage. The water pressure in the pipes is less, just enough to flow, so we can make our grid more simple and easy to manage and avoid losses. The water towers (OHTs) in the developed part of the world has mostly disappeared and turned into historic landmarks; for a good economic reason.

Water towers have so many known problems, but the main issue to overcome here is that we are so much used to this and can't imagine for the moment that there are better solutions available, providing us adapt the technique to the supporting environment. Indeed the solar systems need continuous attention and management and a firm book keeping to manage. If not, things can go wrong quite fast also.

#### Strategic Actions

- A guideline document will be developed including all aspects of carrying out feasibility, design, operation & maintenance of solar pumping systems;
- Solar pumping will be encouraged in all lifting systems irrespective of size and locations, be it large lifting systems like Bheri pumping or deep tubewell in small cluster of Terai settlements;
- All existing pumping systems will be gradually converted to solar pumping systems as far as applicable.

## **8.4 Ecosystem and Water Production**

Theme areas: Ecosystem Conservation, Water Augmentation and Production, River Health Management, Source Protection and Recharge.

Theme Objective: To maintain, protect and regenerate ecosystem for increased water production.

Theme Outcome: More water produced

### **8.4.1 River Ecosystem Management**

#### **8.4.1.1 River Health**

'River health' means the ability of a river ecosystem to support and maintain a balanced, integrated and adaptive community of organisms that resembles the natural habitat. It can be measured using set of indicators of environmental disturbance from the healthy state, relative to some benchmark or reference condition.

As a result of haphazard urban growth many rivers passing through major urban centers of Nepal are dying out. When a river dies, not only the ecology relying on it is suffered, rather the human life around it also suffers. This problem is burning at present especially in the case of Kathmandu Valley. Same situation is envisaged to be seen in near future in Pokhara Valley and many other large and growing urban centres with low flow rivers. It has been now recognised the need for a systematic, national approach to river health monitoring and take corrective measures. It is necessary to seek a more rigorous approach to monitoring river health that will reflect all aspects of ecological conditions of a river. Under such approach, a nationally consistent program would underpin the monitoring of river conditions, evaluate the impact of corrective/mitigation actions, and assist to prioritise rivers and river catchments for particular management attention.

#### **8.4.1.2 Scope of River Health Management**

River health management (RHM) should, but need not necessarily be limited to rivers only. It should also include in it the health of other water bodies such as ponds, lakes, swamps etc.

A river health-monitoring program in near future should be one component of a holistic, asset-based framework for evaluating river health, environmental flows and water reallocation in the country's major river systems, as part of the new river basin master plans. The main components of river health strategy should incorporate: (1) Catchment processes, (2) In-stream physical processes (hydrology and geomorphology), (3) Water quality and sediment chemistry (including contaminants) and (4) Aquatic and riparian life (flora, fauna and ecosystem processes).

Reliable and comparable information about the health of different rivers enables managers to prioritise restoration and remediation activities in a scientifically-robust and professional way. A river health assessment strategy can rapidly assess the health of a river, by scoring and quantifying the condition of several aspects of its ecosystem.

The measures and variables used to assess river health vary depending on the natural characteristics of rivers, the pressures they face, and the objectives of a study or management action. Monitoring should not be restricted to a single set of indicators, and each set should be chosen to suit local conditions and local objectives. It may be necessary to select a broad range of factors for assessment in pilot studies, and then select those that best respond in the particular river situation. Only then predictions can be made about river health for different environmental flow options.

The SDP sees urgent need in working towards designing a framework for river assessment that can be applied country-wide. The overall aim of monitoring river health is to provide information to decision making authorities, on the ecological state and functioning of a river system. This helps to guide rational river management decisions.

### **Strategic Actions:**

- National RH monitoring framework will be developed which will be generally applicable to all river systems across the country. Based on it, a particular River Basin Authority may develop its own framework;
- River Basin Master Plans of major rivers with high chances of pollution will be prepared;
- Indicators of river health will be developed and continuously monitored;
- Environmental flows for river health will be managed.

### **8.4.1.3 Managing Flows for River Health**

One of the areas of river management will be to improve environmental flows, carry out assessments, and recommend some options that will lead to improved ecological outcomes.

**The case of the Bagmati River:** Though it has been initiated to measure water quality in certain stretches of Bagmati River since the year 2015. Data on hydrology, flora, fauna, geomorphology and water quality have to be systematically collected, and analysed.

The HPCIDBC in cooperation with WECS and Department of Irrigation (DoI) has initiated some works towards improvement of river health of the Bagmati River. Two medium sized dams are being proposed in Nagmati and Dhap areas of the upper catchment of the river. The downstream flow in the river is supposed to be regulated by the impounding reservoirs so created by those dams. At present, flow regulation to some extent is being made through the discharging of purified waste water from the Guwheshwori WWTP. After Melamchi, there will be added opportunity to tailor the available environmental water allocation to optimise health of rivers in the valley.

The Bagmati River had been managed for centuries. The Ghats constructed in the Malla period, and even before, are still intact and not flushed by floods. It seems that the Kathmandu Valley residents were extremely knowledgeable about the way the river behaves. With recent haphazard urbanization, the river corridors were alarmingly encroached, all waters were tapped to the last drop, sewage directly discharged and almost all municipal garbages ruthlessly dumped into the rivers. It resulted in virtual death of the rivers in the valley.

### **8.4.2 Source Protection, Conservation and Augmentation**

Conservation of water sources is important for sustaining functionality of water supply systems. Conservation of ecosystem always pays, which can be evidenced from the fact that the yield from the streams emerging from the Shivapuri watershed increased by almost 6 folds after its conservation started in BS 2045/46. Livelihood both in the hills as well as in the Terai plains has become fragile and is increasingly under threat of climate change consequences.

Availability of water for human consumption as well as for agriculture purpose is critical to a decent existence and livelihood in both setups in present agrarian Nepal. Adoption of well thought options for recharge and retention of rain drops in the landscape through protection of natural infiltration zones and development of additional recharge opportunities can be of help in stemming the decline in spring yields. The catchment areas of urban water sources are largely unprotected from human encroachment and climate change which are the common causes of source pollution, source depletion and conflict on use of water sources.

In recent years, an effective planning tool for the equitable and sustainable use of water sources

is being practiced in the western Nepal by HELVETAS and later in RVWRMP Project areas. The experiences and lessons are being distilled out into a Guideline document for development of "Water Use Master Plan (WUMP)". WUMP approach is used to make an inventory of water sources and together agree on their use at local level. The WUMP seems effective in promoting local solutions with flexibility by acknowledging the local situation. The key lesson from the WUMP practice has been that local institutions with adequate authority in planning and implementation of water resources at local levels are keys to sustainable conservation of small water sources. Also, the more local the institution, the more effective is local water governance.

### Strategic Actions

- Appropriate measures will be taken to protect water sources from unforeseen human activities and from potential climate change impacts in the catchment areas that adversely affect the quality and quantity of water sources.
- The influencing catchment areas of the surface and ground water sources of water supply sources will be defined and the service provider will be made responsible to protect and preserve the areas to safeguard the quantity and quality of water;
- Use and preservation of archaic and historic water sources like stone spouts, kuwas, wells and ponds, etc. will be encouraged for recreational and aesthetic purposes. As an exception, use of such historical water sources as complementary sources of water supply in water scarce areas of the towns and cities will be permitted with adequate catchment protection and water treatment;
- Over extraction of ground water will be strictly prohibited through appropriate regulation and standards;
- Recharge methods to augment water sources will be promoted; and quality standards for recharge will be developed;
- Management of watershed ecosystem will be facilitated in line with integrated water use;
- Provision of source mapping will be developed and put into implementation, the data will be housed in National M&E System.

### 8.4.3 Water Production

Minimizing water losses is also the way of water production. The other ways include waste water reuse. Reducing NRW is also a major challenge the general perception is that in an average there is more than 40% of water losses from urban systems.

#### Strategic Actions:

- **Bulk Water Production:** Feasibility study will be carried out and DPR will be prepared for East West Trunk W/S Pipeline along the E-W Highway. The project will be implemented in a phased manner for bulk distribution of water to the thirsting population of Terai-Madhes. It will not only help to get rid of arsenic problem in the Terai belt, but also bring feeling of satisfaction among the population of warm low-lands for consuming snow-fed fresh water. The interdependency so induced between up and low lands of the country will at the same time will strengthen sense of fraternity among the resource sharing communities.

- **Metering:** All private connections will be metered and utilities will maintain NRW within an acceptable limit, for this, their institutional strength and capacity will be developed.
- Feasibility of pre-paid meters will be explored through piloting from core city business areas. The program will be expanded to other areas based on lessons from piloting phase.
- To address the problem of CC and water scarcity, the concept of 'one house one recharge pit' and 'one village, one pond' will be implemented. Similarly, at least one impounding reservoir in each province will be introduced and implemented.
- Major water utilities will be encouraged to reuse wastewater, such as in agriculture/ industries/recharge/ regeneration of rivers etc.

## 8.5 WaSH Governance, Institutional Setup and Capacity Building

Theme areas: Water Governance, Transparency, Accountability, Participation, Standardisation, Institutional Setup & Strengthening, Capacity Development.

Theme Objective: To make the sectoral institutions transparent, accountable and capable to serve the population with equitable distribution of services and to make all sections of the society capable to enjoy the benefit of the services.

Theme Outcome: Capable, accountable and transparent WASH sector.

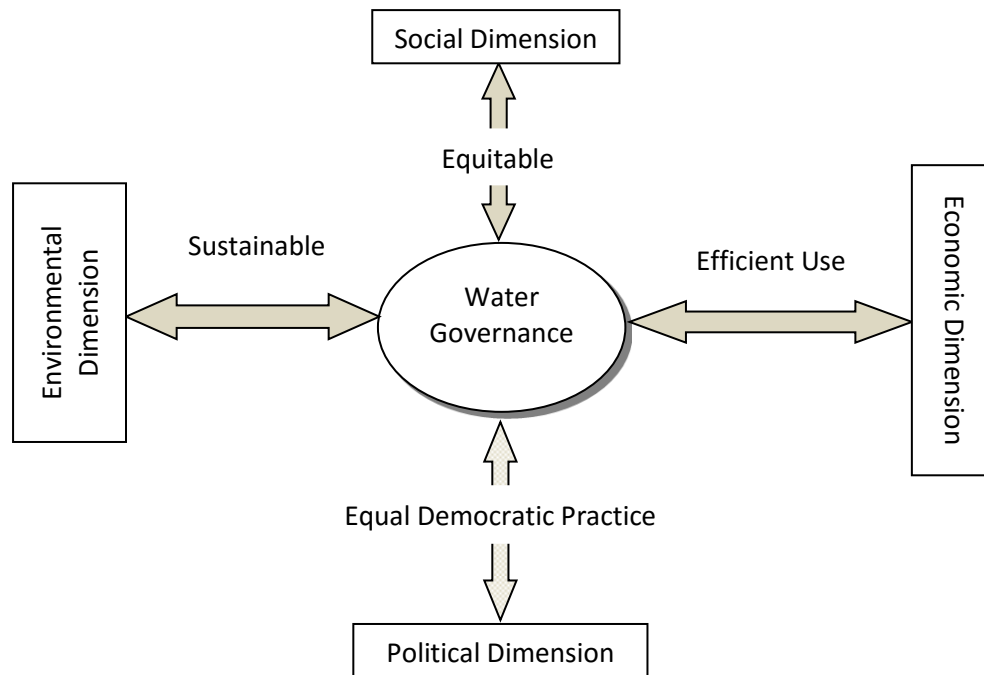
### 8.5.1 Dimensions of Water Governance

There are four dimensions in water governance which are as follows:

- Social dimension focuses on equity of access to and use of water resources.
- Economic dimension highlights efficiency in water allocation and use.
- Political dimension focuses equal rights of Sector Actors and participation in decision-making process.
- Environmental dimension priorities sustainable use of water and related ecosystem services.

The following figure depicts the interrelationship between the dimensions of water governance.

**Figure 21: The Dimensions of Water Governance**



Source :Tropp, H., 'Water Governance Challenge,' in *World Water Assessment Programme, 2006, The United Nations World Water Development Report, 2 :Water, a shared responsibility, United Nations Educational, Scientific and Cultural Organization (UNESCO), Paris, adopted from WIN, 2016.*

There is a wide array of legislation, regulatory framework, and policies that provide direction to programming and management of WaSH services in urban and rural areas. The prominent ones, in chronological order, are listed in Annex 2.



### **8.5.1.1 Water Integrity: Transparency, Accountability & Participation**

Water integrity refers to the adherence of water Sector Actors and Institutions of governance principles of transparency, accountability and participation, based on core values of honesty, equity and professionalism. Integrity, by requiring that public interest be paramount, provides the basis for accountable WaSH projects and service delivery. For good accountability in WaSH services and operation, it is necessary that politicians, policy-makers and WaSH service providers are transparent and accept responsibility for their actions and recognize that they should be called upon to give an account of why and how they have acted or failed to act.

Water integrity cannot be expected when information is kept secret, when some stakeholders are excluded from a participation or negotiation process, when the rules/laws are not clear or when there is no predictability of rules or laws.

#### **Strategic Actions**

##### **(a) Horizontal Accountability**

- SDP will foster improved transparency and accountability measures to the beneficiaries and also to DPs who provide funding for the implementation of SDP;
- As a whole, the sector will be accountable, and will respond to feedback on its performance, to communities, DPs and Sector Actors;
- Systematic annual WaSH sector reviews including learning visits at the local level, publication and dissemination of annual sector performance reports and regular sector stakeholder group meetings are aimed at enhancing transparency and accountability in the sector. There is accountability for decisions taken and implemented so that Sector Actors involved in decision-making are accountable to those affected by decisions;
- At the operational level, management will report on progress against agreed plans and budgets;
- The WaSH regulator can effectively take an interest into the relations between the Sector Actors: Towards the state, the regulator can be part of the policy and plans; towards service providers, regulator should oversee that they fulfil the agreed services, and with users ensure that consumer protection mechanisms are in place;

##### **(b) Vertical Accountability**

- Public action by organized citizen, community groups and users' associations can create regulatory impetus from below to enhance accountability and transparency. Institutional and management capacity particularly that of Water and Sanitation Users' Associations and other CSOs will be strengthened to augment users' voice and influence to improve sector policies and practices and sustain their rights to hold service providers and public utilities to account;
- The use of accountability tools such as report cards and social auditing give citizens a voice in enhancing transparency, improving accountability by assessing and publicizing performance of service providers and utilities, and reforming the water utility as appropriate. This model will be scaled up throughout the country. Where service providers and utilities respond to positive dialogue and action, there are tangible improvements in service delivery;
- Engagement of media will be strengthened to promote sector achievements and enhancing transparency and accountability in the sector. Securing good coverage of water issues on the radio, TV and in newspapers can be a great way to influence public policy and build pressure for reforms. It will also allow citizens to get their voices heard and provides water utilities with a right to respond.

- **Introducing Citizens Report Cards—voice as agency for change:** Where administrative capacity and effective institutions are lacking to regulate effectively, social action by well-organized community groups plays an important role in enforcing compliance with standards and information disclosure and reducing environmental damage. Civil society has to play an active role, pressing for reliable and authentic information and publicizing underperformance by water utilities.

### **8.5.1.2 Respecting Peoples' Right to WaSH**

To contribute to the progressive realization of the right to water and sanitation services, the sector will give emphasis on following strategic actions:

#### **Strategic Actions**

- Better understand the key reasons why people, especially those who are unreached, lack access to basic WaSH services (political, economic, social, cultural issues etc.). Water as a human right justifies that those citizens who have not been served yet will be the first priority for water supply before the already served population;
- Strengthen institutional and management capacity of duty bearers (Government, service providers etc.) to fulfil their obligations and to increase their accountability and responsiveness to all rights holders;
- Empower claim holders, particularly those who do not have functional access, to claim and secure their rights to WaSH services; and
- Apply the human rights principles of participation, non-discrimination, transparency and accountability; and standards of WaSH security (safe, adequate quantity and quality, equitable distribution, physical accessibility and economic affordability).

### **8.5.2 Developing Water Supply and Sanitation Policy, Act and Rules**

The WaSH sector has adequate policies and Acts, and as such their earnest compliance in implementation has been a major challenge. Realizing this, Water Supply and Sanitation Policy, Act and its corresponding Rules are under advanced stage of preparation. These instruments will integrate existing WaSH policies and Laws into a single compressive legislative and institutional framework, and will guide all Sector Actors to move in a coordinated manner in the attainment of targets by creating an enabling environment to provide improved, inclusive and sustainable access to WaSH services.

#### **Strategic Actions**

Water Supply and Sanitation Act and Policy documents are being developed and finalized based on wider consultation with the Sector Actors and disseminated widely for sector-wide application.

- Provision in the WSS Act/Rules will include: priority rights on water resources for drinking water and domestic use, groundwater extraction and corresponding regulation for licensing, WaSH services and quality standards, independent sector regulation, cost recovery, operation and management, public private partnerships and incentives for private sector investment in WatSan service provision, and penalty issues etc.
- WSS Policy will outline sector objectives and strategies, service levels, programming, implementation, sector financing, and coordination. It will provide improved clarity on institutional roles and responsibilities with a clear delineation of roles of the key sector agency, local bodies, and WUSCs responsible for sector programming, management and coordination arrangements both at the national and locals. The policy will also define responsibility of non-state actors (NGOs, private sector and civil society) so as to resolving

issues of fragmentation and differences in policy interpretation and modalities of implementation.

### 8.5.3 Institutional Set-up and Strengthening

The top-down and contractor led approach in WaSH interventions is replaced by a demand responsive approach, which adopts an inclusive, community driven approach where local communities play the leading role in planning, design and implementation of schemes, as well as in operation and maintenance. The approach is holistic and integrated, and incorporates water supply, sanitation, health and hygiene.

The Constitution of Nepal has envisioned 3 tiered political divisions in which local government units such as Municipalities and Gaunpalikas will be placed under local government with existing 75 districts as coordinating political layer along with provincial and Federal Governments. The provision of WaSH services in the Constitution of Nepal, is given in the table below.

**Table 16: Provisions of WaSH Services in the Constitution of Nepal**

Constitution Clauses/Schedule	Provisions
30 (1)	Every citizen shall have the right to live in a clean and healthily environment
30 (2)	Victim of environmental pollution or degradation shall be entitled the right to compensation from the polluter as provided in the law
35 (4)	Every citizen shall have the right to access to basic clean drinking water and sanitation services
56 (2)	The exercise of Nepal's state power shall be used by Federations, States and Local units as mentioned in the constitution
Schedule 5 (11)	Water resources conservation, multidimensional utility policy and indicators
Schedule 5 (14)	Central level mega electricity, irrigation and other projects
Schedule 5 (35)	Issues not listed in the federation, province, local level power or concurrent lower power, along with issues not mentioned in this constitution and law
Schedule 6 (7)	Provincial level electricity, irrigation and water supply service, transportation
Schedule 6 (19)	Management of national forest, water resources and environment within the province
Schedule 7 (18)	Tourism, WatSan services
Schedule 8 (7)	Local level development projects and schemes
Schedule 8 (9)	Basic health and sanitation
Schedule 8 (19)	Water supply, small scale electricity project, alternative energy
Schedule 9 (5)	Like electricity, water supply, irrigation services

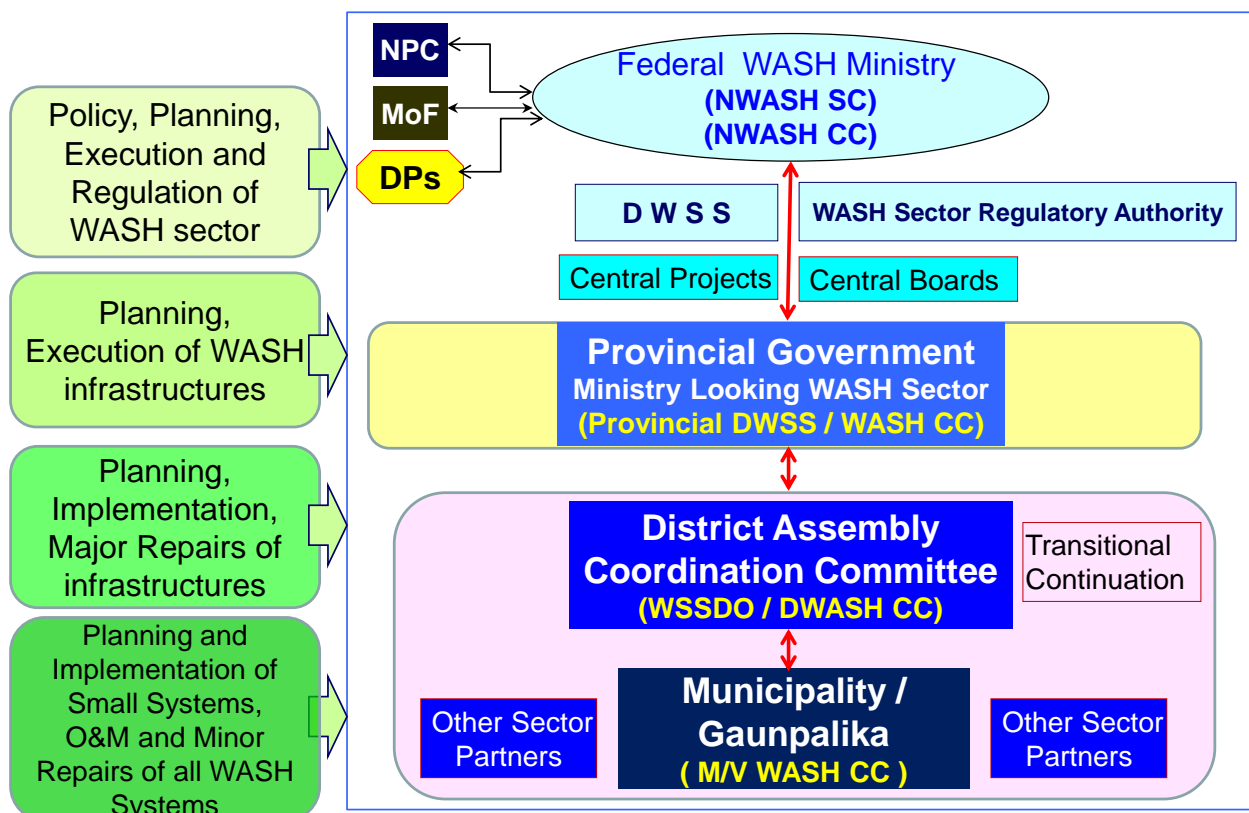
The role and responsibility of Federal, Provincial and Local Government regarding WaSH Services Delivery is given in Annex 1.

Adhering to the principles of Federal Constitution of Nepal, efficient institutional mechanism is required for systemic overhaul and core restructuring of existing system for which following model of institutional setup is proposed. Diagrammatic representation of the proposed model for WaSH services below depicts the roles and responsibilities of different levels of Federal Government.

In the proposed model of Federal restructuring of WaSH sector, the role of DWSS as key institution are:

- As per the Constitution of Nepal, the work division in WaSH sector there is a need to manage human resource as well as infrastructure in all levels;
- DWSS is the lead agency in water supply, sanitation, sewerage and solid waste management; also it retains specialized human resource in this sector, so all the activities and infrastructure should fall under DWSS's authority in the course of transition to federal setup of governance;
- DWSS will gradually delegate its implementation role to the Sub-national WaSH departments/Institutions and develop itself into a full-fledged WaSH regulatory Authority;
- Establish project office for the project period for Central level projects and manage the Human resource from the Department;
- Establish provincial level DWSS or other appropriate institution under the gazzetted 1st class officer in accordance to the number of district and geographical region;
- Establish project office for the project period for Province level project and manage the human resource from the Provincial Department;
- DWSS as well as all Provincial Departments will establish a specialised section in their organisation capable enough to technically backstop the concerned Municipal Authorities in managing solid wastes;
- To implement the local level programme as per the workload, at least one engineer and one sub-engineer in municipality and Gaunpalika, with possibly expanded geographical area, are recommended respectively.
- During the period of transition to full-fledged federal governance system DWSS will devolve all small scale works and those works that can be accomplished by local level itself, to the provincial and local governments, thereby transforming itself into a central sector regulatory authority. After then DWSS will involve itself only in central level projects and programs and in those of complex nature.

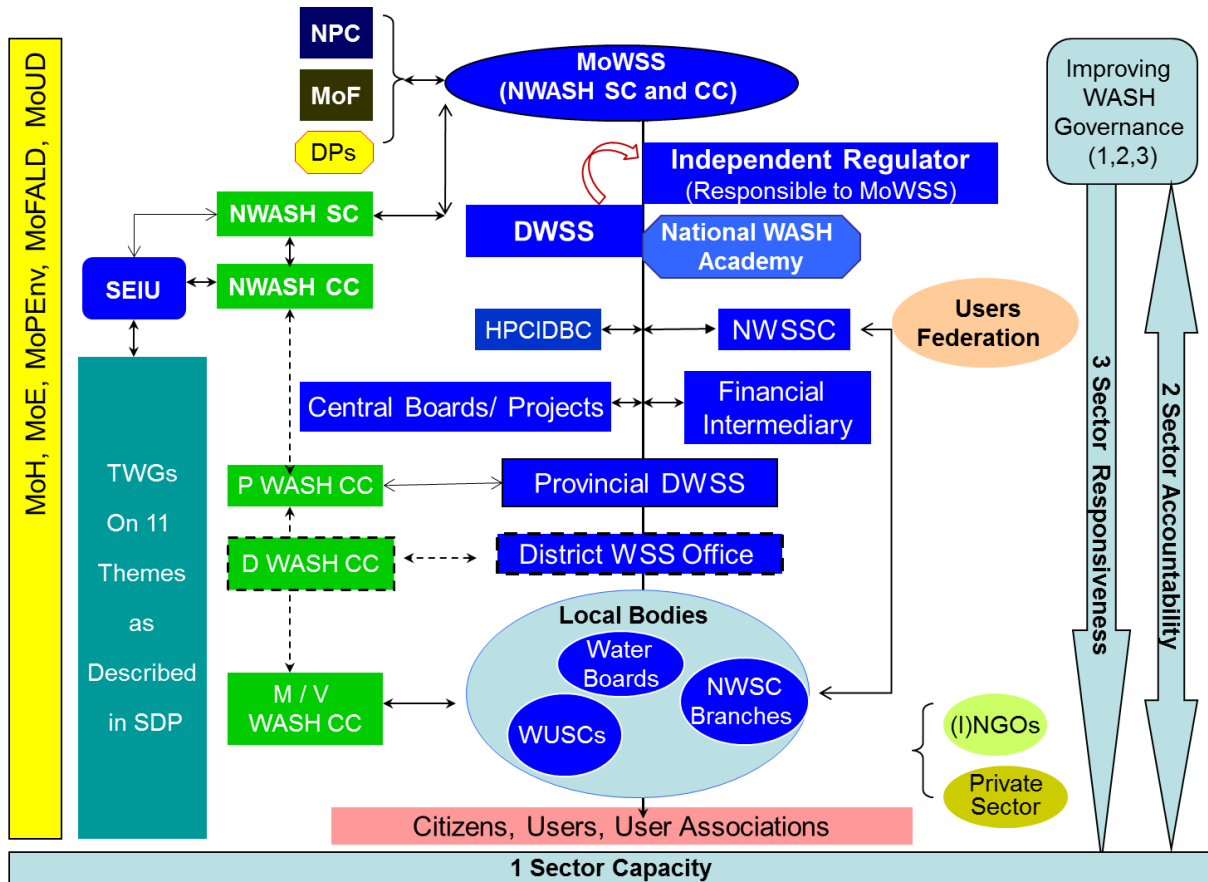
Figure 22: Envisaged Roles & Responsibilities of different tiers of Governments in WaSH



The envisaged WaSH institutional setup after full sector convergence will be much simplified compared to that of present institutional setup (see Figure15)

The Constitution of Nepal has envisaged complete decentralization of all aspects of planning, implementation, operating and maintaining WatSan projects to the Federal, Provincial and Local tiers of Government.

**Figure 23: Envisaged WaSH Institutional Structure in Federal Setup**



### Strategic Actions

Multiplicity of agencies with overlapping areas of responsibility has impeded effective planning, project implementation of WaSH services resulting in confusion and duplication of resources. The fragmentation has increased due to different implementation modalities with agency-specific systems of planning and implementation. This will be addressed by:

- **Developing a clear separation of roles and responsibilities:** planning and implementing WaSH projects while considering the sector Ministry’s domain of work, historical and technical excellence and devolution of sectoral functions;
- Once separation of roles and responsibilities are agreed, institutional restructuring, organizational and management capacity of the respective agencies will be strengthened to effectively plan and implement this shift in an earnest manner;
- Transition to the new institutional arrangement will be implemented with long-term consistency through political buy-in and gradual shift. In the absence of earnest action, lack of resources for implementation including incentives for change, the transition will suffer.

- The federal structure in Nepal will have a significant bearing on the governance and management of WaSH services which will be addressed through development of appropriate institutional models, strategy and approaches.

### 8.5.3.1 Effective Governance and Management Improvement of Local WaSH Institutions

The WaSH sector governance, especially in implementation and or operational level, will broadly depend on the Federal as well as Provincial and Subsidiary legislatures that are envisaged in the Federal Constitution. The upcoming federal legislations will further clarify roles and responsibilities of WaSH institutions. However, for the time being while those legislations would be enforced, the following institutional provisions will prevail:

**Large Municipalities:** Experience has shown that a national WaSH utility model has many drawbacks including inefficiency and excessive external interference. In many successful countries, urban WaSH services are increasingly managed by the local Water Boards with decentralized arrangements to foster improved services, efficiency and responsiveness to local citizens' needs and fairness based on pricing based on affordable costs.

#### Strategic Actions

- Urban WaSH institutional reforms involving establishment and institutionalization of independent local Water Supply Management Boards will be expanded in the large Municipalities and made functional in line with WSMB Act, 2006;
- These local Water Boards will develop a comprehensive WaSH plan, manage, and operate WatSan services in municipalities with appropriate institutional arrangements and financing modalities - internal revenue, grants and external assistance (grant/loan);

As per the Act, the Water Supply Management Board may itself operate the service or engage a service provider, as required, through license/agreement with the service provider. A Board can be constituted within one or more than one Municipality, being operated by any governmental body or corporation in the area;

- MoWSS and its Departments will provide policy and guidance, technical inputs, implementation support and monitor the activities;
- **Management Effectiveness will be improved through:**
  - Adequate investments in infrastructure development (water treatment, storage, and distribution network);
  - Governance reforms for greater institutional effectiveness including the setting of minimum service and performance standards;
  - Strengthening more efficient and professional management of the utility including changes to the utility's financial structure, and revenues (tariffs) generation;
  - Approaches for reaching excluded and vulnerable urban populace, who remain locked out of progress;
  - An enabling environment to ensure a proper regulatory environment that protects the rights of consumers and safeguards the objectives of WaSH service providers is absolutely essential;
  - Promotion of citizens' engagement through their enhanced role to demand for and secure their rights on water services and to hold service providers to account to increasingly comply with water distribution schedule.

**Towns:** The second amendment, 2007 to the NWSC Act, 1989 provides the legal basis for the transfer of ownership of water and waste water services owned by NWSC to any designated organization as decided by the Government. At the same time, it also opens door for NWSC to engage private companies to operate and manage its systems under management contracts. On the other hand the Water Supply Management Board Act 2006 has also opened avenue for establishing Water Management Boards in townships. Except for Kathmandu Valley the Boards at present, are taking the functions of both operators and Asset Owners.

### **Strategic Actions**

- Townships will have opportunity or options to choose between existing WUSC, NWSC and Board modalities for service provision.
- The NWSC's capacity will be enhanced to manage, and operate water supply services to more towns.
- The Local Water Boards will be supported by providing necessary funds and technical assistance.

**WUSCs in Small Towns:** Institutional strengthening, regulatory mechanisms with defined responsibilities for asset creation (WUSC are now the operators while the state is the asset owner), maintenance, financing, cost recovery and expansions are the key components for enhancing WaSH services in small towns.

The main issue with WUSCs is that although they are well motivated and even exhibit strong management skills, strengthening their human, technical and financial resources remains an issue. As more towns access the benefits of the small towns water and sanitation project, each new WUSC requires both general and customized capacity building support.

### **Strategic Actions**

- As towns demand increases, development of business plan for WUSCs and process guidance framework for the appropriate legal structure will be developed. Such a business plan will include utility management guidelines - relevant standard operating procedures for technical trouble shooting, operation and maintenance, consumer complaints redress and handling emergencies. WUSCs will be assisted in accounting, and financial management, including preparation of financial statements and audit requirements.
- WUSCs will be encouraged to form Water Supply Management Boards to strengthen their institutional capacity to serve its consumer with enhanced autonomy and independence.
- The legal position of WUSCs will be strengthened as the owners of the system assets providing them with defined authority and accountability, in order to make them independent and autonomous to take initiatives to undertake further improvements in the service delivery to the consumers.

**WUSCs in Rural Areas:** Institutional strengthening, regulatory mechanisms with defined responsibilities for asset creation (WUSC are acting as the operators while the state is the asset owner), maintenance, financing, operating cost recovery and expansions are the key components for enhancing WaSH services in rural water supply systems.

A large number of WUSCs are not registered in the DWRC while only few WUSCs are re-instituted since their formation. Strengthening their human, technical and financial resources remains an issue. WUSCs require both general and customized capacity building support.

### **Strategic Actions**

- WUSCs will be encouraged to form Water Supply Management Cooperatives to

strengthen their institutional and financial capacity to ensure its sustainability.

- The legal status of WUSCs will be strengthened as the owners of the system assets providing them with defined authority and accountability, in order to make them independent and autonomous to take initiatives to undertake further improvements in the service delivery to the beneficiaries.

### 8.5.4 Sector Capacity

Currently there are a number of the DPs actively involved in WSS sector to provide technical assistance to DWSS and WUSCs to carry out various types of training, workshop and study tour to enhance the quality and sustainability of WatSan services across the country. All those capacity development efforts are targeted to local and central government counterparts to achieve more effective and quality programme implementation and to sustain outcomes at the sub-national and national levels. However, due to absence of systematic and coherent approaches, the activities undertaken by key Sector Actors might have not been as effective as expected in order to meet the National Target.

From sector governance perspective, the key objective of WaSH sector is to enhance institutional and management capacity of the Sector Actors (both supply and demand side) to define and achieve shared sector objectives, solve challenges, and address emerging sector development needs in a broad context and in a sustainable manner.

While the WaSH sector has a stock of capacity building and training materials, they are developed for individual organization's needs and requirements, and hence not used sector wide. Most of the packages focus only on project planning, implementation and construction of the WaSH projects with less consideration for sustainability of services.

#### Strategic Actions:

- Sector will set aside a budget and measure its capacity building activities in terms of the portion of budget expended.
- The project estimate will include some portion of its budget to develop technical capacity like VMW, WSST, Sub-engineers and Engineers of that particular project area from the women, poor and excluded (WPE) groups.
- Promote the involvement of private sector in capacity development activities of WaSH sector;
- The National WaSH Academy (currently NWSSTC) will regularly conduct capacity development need assessment and impact assessment.

#### 8.5.4.1 National Water Supply and Sanitation Training Centre

Each sector agency has been planning and implementing its own training activities. Where convenient, cooperation arrangements are organized between and among the agencies or projects. At the core of these training efforts is the Central Human Resources Development Unit (CHRDU). On June 2014, the CHRDU was renamed as National WaSH Training Center (NWSSTC) to perform the role as a sector training leader. The NWSSTC is an ISO 9001:2008 Quality Management System certified training centre.

**Vision:** The NWSSTC's vision is to equip the Nepal WaSH sector with competent, capable and knowledgeable human resources for effective and efficient sector planning and service delivery. The NWSSTC envisions a Nepal WaSH Sector in which people manage their water and environmental resources in a sustainable manner, and in which, all sections of society, especially the poor and the underprivileged, can enjoy the benefits of the services.

**Mission:** To ensure the availability of motivated, competent, responsive, respected and certified



WaSH sector managers and policy makers, project managers and engineers, and service delivery managers and technicians. NWSSTC seeks to contribute to the establishment of a transparent, accountable and fair working environment. It develops innovation, provides new knowledge, and promotes the uptake of technologies and policies.

The NWSSTC strives to be the leader in all WaSH training and development activities in Nepal. As the Centre of Excellence, it will act as a "lynch pin" for all training and development activities in the WaSH sector. The NWSSTC will not compete with other WaSH training providers, rather, it will try to enhance the capacity of all in-house training units of WaSH agencies of GoN and other training providers.

#### **Strategic Actions:**

- The role and capacity of NWSSTC will further be enhanced to become the National WaSH Academy, with the clear mandate to perform, research in WaSH that establishes strong linkages between policy, practices and the empowerment of people. Technical issues such as: (a) development and optimization of appropriate technologies that are socio-economically and environmentally sound, (b) soft issues, like community dynamics and their management skills, marketing and business opportunities, cost-benefit estimates of implementation, and (c) impact on livelihoods and productivity that provide access to safe water and sanitation;
- Training for water sector professionals, engineers, scientists, consultants, policy makers, WUSC members, users and other Sector Actors;
- NWSSTC will conduct water sector capacity development needs, based on identified needs for water sector line agencies, municipalities, DDCs, VDCs, coordination committees, water boards, water utilities, education training and research institutes, industries, NGOs, private sector organizations, WUSCs, communities and users;
- It will expand its network and work together with academia for partnership building and networking for WaSH at the national and international levels, through programmes like Water Operators Partnership (WOP, WUAP); and
- It will be mandated for standards setting for training for agencies in WaSH sector. It will also have mandate for licensing Wash trainers, WaSH institutions, VMWS's skills etc. Similarly, it will be mandated for franchising of course programmes (to run certain specified NWSSTC courses and being able to issue a certificate accepted by NWSSTC) to appropriate and capable sector partners/agencies.

#### **8.5.4.2 Capacity Development Master Plan**

The NWSSTC has recently completed a comprehensive capacity assessment identifying pertinent target groups and training modules for different levels from the central to local and communities. Based on institutional, operational and technical requirements, a sector wide capacity building plan will be developed to address present and future capacity requirements.

#### **Strategic Actions**

- A Capacity Building Fund will be established at N WaSH TC to address sector-wide capacity building requirements in an integrated manner and to thereby enable the training center to increasingly become a "center of excellence" with state-of-the-art skills, knowledge and competence.
- Compared to rural WaSH institutions, urban management models and approaches are still evolving. The responsible institutions are confronted with the rapid pace with which urban settlements are becoming stressed with the lack of water and sanitation services due to rapid urbanization and growing number of Municipalities. Capacity development is necessary for improving the ability of water sector professionals and service providers

to better plan and manage water and environmental sanitation including liquid waste and faecal sludge management for urban residents. This warrants a focused attention with necessary investments for capacity building measures for developing institutional capacity and credible sector professionals for effective urban WaSH management.

### 8.5.4.3 Capacity Building Manuals and Guidelines

The sector agencies together with National WaSH Academy will work together to develop and standardize the capacity building manuals and guideline. This process will bring uniformity in the learning process.

#### Strategic Actions

- WaSH manuals, guidelines and other relevant training materials for capacity building will be reviewed, updated and adopted. The prominent ones include: equity and inclusion framework, urban utility, disaster risk reduction/emergency preparedness and response and others identified areas;
- Technical manuals including operation and maintenance are required for different types and components of urban and rural WaSH; manuals will be both in English and Nepali languages as appropriate for the intended user group.

### 8.5.4.4 Standardisation

Standardisation in its general meaning is the process of implementing and developing technical standards of works, goods, productions and methods. It is intended to help maximize compatibility, interoperability, safety, repeatability or most importantly, quality. It can also facilitate commoditisation of formerly custom processes.

#### Strategic Action:

- **Standardisation of Technical Processes:** different norms or requirements in regard to technical systems will be established. A technical standard is usually a formal document that establishes uniform engineering or technical criteria, methods, processes and practices. The examples of technical standards are: standard specification, standard test method, standard operating procedures, standard guidelines, standard definition, standard units etc.
- **Standardisation of Social Processes:** WaSH sector business involves in it many other disciplines such as social, economics, finance, communication and so on. Standardisation in this context is intended towards ensuring solution for a coordination problem, a situation in which all concerned stakeholders can achieve mutual gains, through mutually consistent decisions. Hence, standards of various kinds will be established which aims at improving efficiency to handle people, their interactions, cases, and so forth.
- **Standardisation of Services and Products:** a standard will be developed that enables WaSH service providers/utilities to focus their attention on delivering excellence in customer service, while at the same time providing recognition of success through a third party organization.

All larger WaSH Institutions will be encouraged to attain certain internationally recognised certification. NWSSTC is the first WaSH institution obtaining the recognition of international standard. It has become an ISO 9001:2008 certified institution. Similarly, the process of specification and use of any item the Utility or WUSC must buy in or produce, allowable substitutions, and build or buy decisions will be standardised.

### **8.5.4.5 Learning and Sharing Events**

MoWSS, through SEIU, has set up a systematic monthly sharing and learning mechanism for the sector referred to as learning exchange meetings. Many sector agencies and professionals actively participate in these learning exchanges which provide an excellent forum for dissemination of knowledge and sector information.

#### **Strategic Actions**

- Learning exchange will be further strengthened through publishing in annual calendar of events and dissemination;
- This exchange will be initiated into a webinar style, so that sub-national level can also benefit. It would further require some good facilitators and arrangements;
- Priorities for learning and sharing will be identified and implemented based on assessment of gaps on sector knowledge.

## 8.6 WaSH Diplomacy and Sector Convergence

Theme areas: WaSH Diplomacy, Network, Communication, Promotion and Sector Convergence, National Dialogue, Coalition Building, Mutual Accountability, Alignment and Harmonisation, Sector Visibility.

Theme Objective: To establish continuous dialogue in WaSH sector.

Theme Outcome: Converged, Harmonized and Aligned WaSH sector.

### 8.6.1 WaSH Diplomacy

The purpose of WaSH diplomacy is to raise awareness on the current state of water resources and the need for adequate diplomatic solutions to stimulate cooperation around the way the resource is managed. It will provide knowledge resources, circumstantial experiences, and a cadre of tools to water-relevant Sector Actors so as to enhance their ability to assess, prevent, and respond to the tensions arising from situations of water scarcity and mismanagement. This approach will be relevant to the great water stressors of our time and will serve to promote both short and longer-term cooperation through shared benefits, inclusive multi-Sector Actor agreements and sustainable institution building.

### 8.6.2 Coordination, Networking, Communication & Promotion

#### 8.6.2.1 Planning and Coordination

##### (a) Planning:

The Rural WatSan National Policy and Strategy (2004) has given primacy to the District for service provision. Irrespective of nature of federalism and tiers of federal structure that Nepal is going to have, provision of WaSH services has been vested as the responsibility of all 3 tiers-central federal provincial and local governments. What will be important is to provide the instrumentation and strong, long-term political support to implement the (new) policy provisions.

##### Strategic Actions

- The District will be the primary planning and implementation monitoring authority at the District level. It will be supported by the DWaSHCC to coordinate local government units and other Sector Actors' activities in the District. The DWaSHCC chaired by the coordinator of the District Coordination Council, will have the authority for ensuring an effective implementation and monitoring of District WaSH plan. Support to DWaSH CCs and coordination among districts will be done by the Provincial WaSHCC;
- All projects to be implemented in the District through Municipal/Village Councils will be an integral part of the District WaSH plan prepared in line with the bottom-up planning procedures in accordance with Federal/Local Governance Act provisions;
- A Municipality/Gaunpalika is considered as the lowest unit for the WaSH planning. Once these units have been prioritized and selected by the DCC for WaSH, feasibility study will inform the decision-making process considering technical, social, environmental and economic factors. The most feasible projects will be implemented by government's sector line agency and local bodies as appropriate;
- Local WaSH plans, approved by the local councils, will have three clear categorizations: (a) Reaching the unreached, (b) Improving functionality, and (c) projects for enhancing service levels and consideration of climate change adaptation and disaster-resilient principles.
- MIS/DSS, GIS tools and maps shall be used for evidence-based planning and decision-making both at the national and local levels.

- All the funding for the WaSH sector at the district level will be accounted for in the District WaSH plan and expenditures assessed through regular local monitoring and social audits.

### (b) Coordination:

WaSH sector is characterized by multitude of doers, doors and donors. Since long, the sector actors have been following their own ways of modality and approaches. Thus, the WaSH sector has been highly fragmented and remained uncoordinated.

Table 17 provides new steering and coordination committees at different levels while sector institutional framework is shown in Figures 22 and 23.

**Table 17: Sector Steering and Coordination Committees**

Level	Existing	Rename	Remarks
National	National Sanitation and Hygiene Steering Committee(NSHSC)	National Water, Sanitation and Hygiene Steering Committee (N WaSH SC)	Led by Secretary, MoWSS
	National Sanitation and Hygiene Coordination Committee (NSHCC)	National WaSH Coordination Committee (N WaSH CC)	Led by Joint Secretary (WSED), MoWSS
	9 Sector Thematic Working Groups	11 Sector Thematic Working Groups aligned SDP themes	Lead (GoN) with co-leads (DPs)
Provincial	Regional Water Supply Sanitation and Hygiene Coordination Committee (RWSCC)	Provincial WaSH Coordination Committee (P WaSH CC)	Led by Provincial Director for WaSH
District	District Water Supply and Sanitation Coordination Committee (DWSCC)	District WaSH Coordination Committee (D WaSH CC)	Led by District CoordCommittee Chair
Municipality	Municipal Water and Sanitation Coordination Committee (MWSCC)	Municipal WaSH Coordination Committee (MWaSH CC)	Led by Mayor
Gaunpalika	Village Water and Sanitation Coordination Committee (VWSCC)	Village WaSH Coordination Committee (V WaSH CC)	Led by Gaunpalika Chair

### Strategic Actions

- The existing National Sanitation and Hygiene Steering Committee (NSHSC) will be reconstituted as National Water Sanitation and Hygiene Steering Committee (N WaSH SC) so as to integrate water, Sanitation and Hygiene. It will be led by MoWSS Secretary with close cooperation from local development, health and education, to provide direction and oversight to WaSH development, regardless of the aid modalities used while ensuring a clear institutional accountability;
- Similarly, the existing National Sanitation and Hygiene Coordination Committee (NSHCC) will be reconstituted as National Water Sanitation and Hygiene Coordination Committee (N WaSH CC) to allow for a more coherent and engaged planning for improved coordination in the sector. This will be led by the Joint Secretary, MoWSS;
- Given the nascent structures, the Coordination Committees at the respective local levels will be strengthened to take up their planning and coordination functions in more effective manner through the development of ToRs;
- National ANWRs will be organized annually. For each ANWR, discussions,

presentations and contributions will be guided by a pre-determined theme originating from recent sector developments, policies and implementation experiences;

- ANWRs will assess the sector progress, achievements of Thematic Working Groups and formulate actions for implementation until the next review period;
- Sub-national Sector Review meetings will be organized, if deemed necessary, to disseminate sector progress, draw from local success and solicit feedback from the local Sector Actors; and
- Based on identified priorities, specific agreements will be concluded between Ministries/Departments for enhancing cross sectoral linkages and collaboration potential.

**Sector Efficiency Improvement Unit:** Since 2009 the SEIU, under the Ministry, has been the instrument to support and encourage sector coordination and knowledge management. It has worked as the sector secretariat and facilitator to important sector development processes, such as the drafting of an overarching WaSH policy, Act and SDP, capacity building for Bench Marking and performance assessment of water service providers, sector communication strategy, and capacity building and human resources development with the NWSSTC.

### **Strategic Actions**

- The SEIU will be engaged to better address emerging challenges for improvement in policy, coordination, accountability and responsiveness in the sector. It is only through broadening its current role will SEIU (from efficiency to effectiveness) be able to take up its functional responsibilities as the Secretariat to the WaSH Steering Committee and Coordination Committee more effectively;
- The key role of SEIU will be to promote improved sector governance and effectiveness through policy development and guidelines, monitoring of policy compliance, building the foundation for and facilitating effective implementation of SDP, organization of Sector Reviews, learning, sharing and innovation for sector development. The key objectives of SEIU are:
  - As the WaSH Sector Secretariat to WaSH Steering Committee and Coordination Committee, enhance sector effectiveness and improve coordination and governance;
  - Support formulation and facilitate implementation of WaSH SDP, and their revisions and monitoring;
  - Support the Ministry in strengthening policy and monitoring through the preparation of policy dialogue series and implementing special tasks in institutional development, sector assessment etc;
  - Developing tools, mechanisms and guidelines for enhancing accountability, transparency and responsiveness;
  - Undertaking and supporting research and development on sector-wide identified priorities; and promoting innovation and knowledge management in the sector through learning and sharing events and other appropriate measures;
  - The SEIU will be fully institutionalized with in-house capacity through dedicated skilled human resources, budget and a Business Plan. SEIU will have access to "Sector Governance and Accountability Fund" with contributions from national budget and financing from interested DPs.
  - Organizing Annual National WaSH Sector Reviews (ANWR) and preparing annual sector performance reports (SPR) and performance benchmarking of service providers;

### 8.6.2.2 Networking

The efforts of the last five-six years in which the sector has tried to move from a fragmented, multi-institutional setup to a more harmonized, collaborative and effective environment are already paying off. The sanitation movement throughout the country has shown the efficacy of WaSH Coordination Committees of joint-up working modality, networking and Sector wide collaboration, especially at district level. The two national WaSH Joint Sector Reviews conducted in the past, though have further generated appreciation, confidence and commitment among all sector actors for common purpose and plan, it could not be seen much complied by partners.

**Thematic Working Groups:** Following the first Joint Sector Review (2011), five Thematic Working Groups (TWGs) were established along with 3 cross-cutting themes. Later on, the 3 cross-cutting themes were converted to full TWGs. These TWGs identify key issues under each theme, and prepare action plans on priority issues that need attention by the sector, ultimately feeding into the development of sector performance report and subsequent JSR discussions. After JSR II (2014), an additional TWG on Urban WaSH had been established to bring urban Sector Actors in a single platform to find ways and means to address urban WaSH challenges as Nepal rapidly urbanizes;

#### Strategic Actions

- TWGs will be re-instituted in line with the 11 SDP themes and strengthened with dedicated GoN leadership to advance the Annual National WaSH Sector Review (ANWR) recommendations and subsequent Action Plans with support from co-leads from the respective DPs;
- The number of members in each TWG will be kept at a reasonable size; the list of TWG members will be published in MoWSS/SEIU webpage; it keeps all members active and raises sense of responsibility.
- Each TWG will share its outcomes with each other, SEIU, MoWSS and Sector Actors at regular intervals; and
- SEIU will provide horizontal coordination support between the TWGs;
- Alliance will be built with international/regional forums working for promotion of water integrity.

**Sector Stakeholder Group:** The RWSS National Policy/Strategy, 2004 and Urban Water and Sanitation National Policy, 2009 have clearly delineated the formation of the Sector Actor Group (SSG) for sector dialogue and coordination. Subsequently, a SSG had been thought out in 2003. The SSG meetings are held every year to bring all Sector Actors for reviewing sector progress and sharing sector knowledge.

Sector coordination, harmonization and synergy in efforts have been highlighted and discussed as prime concern for further sector development by all partners. As a result of the 11th SSG meeting five different TWGs had been formed. These TWGs have organized several meeting and discussed rigorously to identify the existing issues encountered in the sector and put forward recommendations for better future of the sector. The Position Paper of each TWG is the product of the joint and consensus effort among the sector actors. The process and dynamics of the TWG meetings create an environment of building trust and confidence among the sector actors leading towards one Sector Approach to planning aimed at harmonization of investments, approaches and efforts.

#### Strategic Actions

- The SSG meeting will be organised coinciding with the Annual WaSH Sector Review focussing at improving sector performance, networking and linkages;

- Documenting and sharing of the SSG meeting outcomes will be done through a report and posted in SEIU website.

**Development Partners (DPs):** DPs will coordinate their country-level WaSH operations as part of their commitment to improve harmonization under the "Paris Declaration (2005)" and "The Accra Agenda for Action (2008)" to enhance aid effectiveness, shared responsibility and mutual accountability.

### **Strategic Actions**

- This coordination will be further strengthened through Development Partners WaSH Group that facilitates communication within the Group and joint-up linkages with the government, avoid duplication and reduce transaction costs, with a nominated lead and co-lead representing a spectrum of DPs in WaSH sector.

## **8.6.2.3 Communication**

Managing the multi-stakeholder WaSH sector is a multi-dimensional task, covering socio-cultural, technical, and policy domains. It is expected that sector actors work towards greater excellence, alignment, coherence and synergistic impact in policy, practice and service. In the past few years, the GoN, with its partners, has worked towards sector collaboration in WaSH. These efforts are now reaching a milestone with the formulation of this National WASH SDP.

The roll-out of this SDP will require a consistent and supportive communication effort to inform, influence and inspire not only the sector partners but all sections of Nepalese society for the provision of inclusive WASH services to all. A good communication strategy will be an essential component of the SDP. It will equip the Ministry and the WASH Sector with the skills to provide clear information about the activities and progress of the SDP implementation.

The realization of the vision, goals and objectives of the SDP rests on all sector partners being clear about the principles, policies and priorities of the SDP as well as the WASH sector. An effective and coherent communication strategy is expected to help convey the principles, policies and priorities of the SDP; positive convergence and collaboration towards greater impact in the sector. Effective communication plays a vital role in informing the sector, engaging sector players and interacting with beneficiaries.

### **Strategic Actions**

- Procedures and reporting requirements will be established for the multi Sector Actor platforms to allow for a meaningful participation of all relevant sector actors for robust engagement and decision-making and monitoring processes at different levels;
- For effective sector dialogue and communication, the 'Nepal WaSH Sector Communication Strategy, 2015' will be implemented across the sector. The action points suggested in the strategy will be prioritised and implemented gradually;
- The existing motivation among sector players and beneficiaries will be harnessed to work together and pool available resources to foster a cost-effective and mutually reinforcing communication work-plan that collectively will contribute to the achievement of the SDP goals.



### 8.6.2.4 Promotion

WaSH sector is gradually gaining market characteristics globally with recognition of water supply as commodity goods. However, the Nepal WaSH sector will have to look from both social service perspective as well as from market perspective to better cope with the needs and aspirations of the population and at the same time to become competitive and self-sustained sector in the long run. Promotion means raising customer awareness, enhancing production and sales, satisfying consumers with quality service and pursue them pay for the service. It is one of the four basic elements of the market mix, which includes the four P's: price, product, promotion, and place.

#### Strategic Actions

- Procedures and reporting requirements will be established for the multi Sector Actor platforms to allow for a meaningful participation of all relevant sector actors for robust engagement and decision-making and monitoring processes at different levels; and
- The SEIU under MoWSS will be provided with adequate resources for effective action to better address emerging challenges for improvement in policy, coordination, accountability and responsiveness in the sector. The key role of SEIU will be to promote improved sector governance and effectiveness through policy development and guidelines, monitoring of policy compliance, building the foundation for and facilitating effective implementation of SDP, organization of ANWRs, learning, sharing and innovation for sector development.
- Sector visibility will be increased through media campaign, WaSH fairs, WaSH expos, dissemination of WaSH promotional materials in other fairs (cultural events) and self-help clubs or organisations.
- Annual "sector calendar" will be prepared, displayed in common sector website of SEIU and updated regularly, it will be helpful and bring good understanding for all sector partners how and when the sectoral works will proceed.

### 8.6.3 Sector Convergence

SDP envisages sector convergence, i.e. all WaSH interventions will be executed under a single sector Ministry. Also, all sector actors including DPs, NGOs, civil society and the private sector will be contributing to the sector through one sector plan for one agreed outcome. In this context the sector will adopt the approach of Annual National WaSH Sector Review (ANWR). It will be organised after the end of the Fiscal Year and will accommodate all sector actors.

Sector Convergence brings the WaSH sector from fragmentation to coherent, harmonised and aligned sector. It envisages all WaSH interventions through one policy, one plan, one monitoring framework and one sector performance report.

#### Strategic Action

- Make policy provision to execute all WaSH interventions under the sector Ministry,
- All functions for basic service coverage under different institutions will be transferred to Local Government after 2017.

## 8.7 Monitoring & Evaluation

Theme areas: Monitoring & Evaluation, MIS/DSS and Planning.

Theme Objective: To establish M&E system to measure the performance of sector linking it to inputs, outputs and outcome.

Theme Outcome: Evidence based planning in WASH sector established.

Effective sector performance is a function of reliability of sector information as a basis for setting realistic targets and monitoring sector performance. Establishing sector information management systems linking inputs, outputs and outcomes is therefore absolutely essential.

### 8.7.1 Key Performance Indicators

The Nepal WaSH sector had developed and prescribed at times many good set of indicators such as SMART indicators, CREAM indicators and so on.

#### Strategic Actions

- The existing WaSH sector performance indicators will be reviewed and new set of performance indicators will be developed keeping in mind the SDG reporting obligations also. The KPIs will be reflecting at least the service delivery and regulatory aspects.

### 8.7.2 Information Management System and Reporting

The Nepal WaSH SDP calls for establishing a National WaSH Sector Management Information System (MIS) docked with decision support system (DSS) that has been once established and practised in Nepal WaSH sector. These tools will be used to plan and target investment in new programmes (and track its performance), and to identify Water and Sanitation Systems requiring repair, maintenance or rehabilitation.

The WaSH Sector MIS will be seen as integral set of all existing and or future discrete MISs such as Dash Boards, Web-based sites for data collection and updating, static databases that are updated manually etc. These all systems capture quantitative data on a regular basis, enabling the sector to track SDP progress and make management decisions regarding the sector. Sectoral MISs of Health and Education sectors, learning and sharing events in the sector, field visit studies, and evaluations will provide additional information needed to assess the effectiveness and efficiency of SDP implementation and to help make any mid-term corrections needed to ensure the WaSH sector continues in its designated course towards achieving set milestones of the SDP. The ANWR will review the information produced by the sector MIS/DSS.

#### Strategic Actions

- The Nepal WaSH sector will have one 'National WaSH M&E/MIS/DSS System'. This will be web based and GIS enabled system. Common people will have free and easy access to it. The National M&E system should have linkage and usages to the planning process of all WaSH agencies in Nepal. It will be owned and housed in MoWSS. Sector performance report will be prepared and published based on the performance as reflected in this National M&E/MIS/DSS system;
- Georeferenced and segregated data will be collected through Blanket Survey of W/S systems and linked to the National WaSH M&E system. Necessary guidelines will be developed and the existing data collection formats will be duly revised;
- Assessment of infrastructures, knowledge and ownership for M&E of core WaSH agencies carried out and Sector Monitoring and Evaluation Systems will be developed and operationalized for WaSH services. This M&E system will have the linkage with the planning process. This will be one of the major outputs during the inception phase of SDP;

- Performance of the WaSH sector will be assessed as per agreed sector plan and targets based on which an annual sector performance report will be prepared;
- At the local level, result-based fast track methods for collecting sectoral information under the leadership of WaSH CCs will be implemented. Joint field visits to monitor annual progress and to draw lessons for instituting improvements, as appropriate will be integral component;
- Sector M&E will be reinforced in line with the Minimum Condition and Performance Measures (MCPM) modality, being applied by MoFALD;
- All WaSH agencies will have their own Project Performance Monitoring System (PPMS) in place and has linkage to sector M&E system;
- Operation of the National M&E/MIS/DSS will gradually be transferred to the Regulatory Authority;
- The M&E/MIS/DSS will have close and interrelated relation with sectoral learning process and events;
- All water supply and wastewater systems will be given a unique ID and tied with sector MIS. The system ID will be mandatorily used while carrying out any interventions, be it new construction or repair/maintenance or rehab/reconstruction.

## 8.8 Continuous Quality and Service Improvement

Theme areas: Continuous Quality and service improvement, Construction Quality, Process, Methods, Regulation, System conformity, quality standards, SOP

Theme Objective: To institutionalize the systematic way to improve processes in WaSH sector

Theme Outcome: Processes Optimized

Continuous Quality and Service Improvement (CQSI) is a systematic way to improve processes, where actors define their goals and key outcomes for improvement in their system and services.

Common approach for improvement is to work harder to improve results, provide more training to staff whereas CQSI focuses on processes. The process assumes that staff are good enough, work hard enough and they have enough training. CQSI believes that every process can be improved and to improve outcomes, improve the process that creates those outcomes.

### 8.8.1 Service Quality Improvement

Utilities, directly or indirectly, are using a variety of management initiatives – i.e., management systems, voluntary programs, guidance books and manuals, benchmarking programs, and best practices – to improve utility performance in management areas such as safety, quality, finances, human resources, and environment. Some of these initiatives specifically support performance improvement at water and/or wastewater utilities; others support all types of organisations. Each of the initiatives support some or all of the elements of a continual improvement management system – the plan, do, check, act cycle - with some initiatives supporting certain elements more directly than others.

#### Strategic Actions:

- MoWSS will develop ‘Service Delivery Standards of Utilities’. The standard will define the service quality that each utility has to deliver. The standard will be mandatory and regulating body will measure the performance based on the standards set forth. The MoWSS will award the best performing utilities.
- The utilities will themselves develop the SOP/Process documents, Quality/Process Manual/ Business continuity procedures. The NWSSTC will capacitate utilities towards it.
- All large utilities will maintain financial transparency through financial auditing from registered auditor. They will publish financial report as a yearly progress report.
- The utilities will maintain and improve their service delivery quality by consumer Satisfaction survey. The utilities will respect the users’ impression.

### 8.8.2 Construction Quality Improvement

Quality in construction is defined as ‘meeting or exceeding the requirement of client/owners. This is attained by meeting the quality of the process and methods of construction. This involves economic studies of selection of types of material and methods to be included in design, ensuring that this design is in accordance with all applicable codes and regulation. The construction on the project should be performed according to the standards as adopted in the engineering practice.

#### Strategic Actions:

- Every project will develop its Quality Improvement plan and strictly follow it;
- The National Vigilance Centre (NVC) will technically audit the WaSH projects, the project will try to minimize non-compliance;

- The DWSS will prepare the “Technical Design Standards” and manuals, all WaSH professionals will follow them while designing the system. DWSS will further enhance these standards and manuals by developing standard software;
- At least one construction materials testing lab in each Provincial Directorates will be established mechanism of testing the materials, pipes and fittings will be developed and followed strictly;
- NWSSTC will establish central lab for testing of construction materials, pipes and fittings. It will also develop procedural guidelines for laboratory testing of different construction materials, pipes and fittings;
- Some of the currently used managerial methods to prevent construction failures like checkpoints, standardized documentation, communication procedures, safety plans and hazard scenarios will be applied in WatSan Project construction.

### 8.8.3 Sector Regulation

Due to the absence of an effective regulatory institution and mechanisms, WaSH policy provisions are not seriously adhered to. While the Water Tariff Fixation Commission (WTFC) Act, 2006 has provided for the establishment of a Commission to fix tariffs to be charged by service providers with an authority to monitor service providers to ensure compliance, it is more appropriate for commercially operated urban projects. The work of WTFC has suffered from lack of clarity of jurisdictional responsibilities, poor institutional set-up, and marked limits on its capacity and resources to regulate.

There is no regulating authority for surface and ground water quality monitoring.

#### Strategic Actions:

- There is need for monitoring surface and ground water quality. MoWSS will take lead role in monitoring the surface and ground water quality;
- Role and responsibility as well as jurisdiction of the WTFC will be further strengthened and clarified;
- In the long run when the federal governance will be set up in full fledge, the role of DWSS will be transformed from implementer to National WaSH Sector Regulatory Authority;

#### 8.8.3.1 Need for National Accountability Mechanisms

WatSan services are public, essential and monopolistic services. Effective service provision relies upon the actions of different Sector Actors (mainly government, administration and utilities). The provision of water services should preserve accountability of those different Sector Actors. The regulatory authority has the main responsibility to accomplish that target.

Usual accountability tools are: i) Plans and activity reports, ii) Cross-cutting administrative and financial control.

Other additional tools: i) Public consultations, ii) Advisory body (stakeholders') hearings, iii) Parliamentary hearings, iv) Assessment and public dissemination of the performance of the sector and the utilities.

#### Strategic Actions

A regulator is an independently responsible authority of MoWSS responsible for establishing, compliance monitoring and enforcing regulations in the WaSH sector. The role of DWSS will be converted gradually to take the role of WaSH sector Regulator with legislative changes, policy and strategies to monitor policy compliance and to ensure that service providers adhere to

service standards and equity. DWSS will have further responsibilities as "Water Supply and Sewerage Regulatory Authority" with the following features:

- DWSS will be mandated as Water Supply & Sewerage Regulatory Authority.
- Investigative authority and penalty power, with the regulatory body empowered to demand information from the service providers on service standards and compliance, setting tariff guidelines, and to levying penalties for non-compliance;
- Transparency with the public on policy compliance, quality and costing to both formal and informal service providers;
- Public participation to ensure that public interests are represented providing structured access on information to the citizens.
- The regulator will ensure a suitable assessment system about the performance of the sector and the utilities. Based on that system, the Regulator will carry out annual regulation cycles to assess the performance.
- The regulator will follow specific, clear, stable and rational regulatory procedures to assess not only situation in that specific year but also the evolution on time.
- Assess and publicly disseminate annually the key performance indicators (KPI) of the (~300) large water utilities, among others.

## 8.8.4 System and Process Conformity

The concept of system conformity will be introduced to Nepal WaSH sector. It should be looked as combination of both system classification and service levels. Its ultimate aim will be to ensure desired service level, improve functionality and long term sustainability. At the same time, it will ensure system requirements as indicated in system classification and motivates systems to upgradeto higher service level.

This SDP has defined system classification and service levels. There are certain parameters required by classification to fall in that category. If ay of parameters are lacking in the system, the service level will be in a lower category. This system conformity concept motivates the utilities to fulfil that category.

### Strategic Actions:

- The utilities with the help of sector agencies will develop its adequate key human resources as required in system classification(Table 10);
- The utilities with the help of sector agencies will meet the desired service standard as described in the Service Level Classification (Tables11-14).

## 8.8.5 Adhering to National Water and Wastewater Quality Standards

While the access to water supply has significantly increased over the past decade, the quality of the supplied water remains a big challenge. The water is not always safe even when it is supplied through systematic piped water systems. Many of improved or even treated/safe water may be contaminated during transmission, distribution and household use. Study shows that only 12-15% of people are reported to have access of treated water(JSR2 Technical Report, 2014-p23).

Due to the lack of an effective monitoring and surveillance system, National Drinking Water Quality Standards (NDQWS) is not adhered to across the sector creating serious health risks to the users. There is lack of wastewater quality standards.

### Strategic Actions

- The domestic and municipal effluent quality standards will be developed separately. The provisions as stated below will also be applicable to wastewater;
- NDWQS and guidelines will be revised and made available to the Sector Actor. Adherence to NDQWS by all the service providers will be strictly enforced. Collection of water quality information from water service providers and sharing it with surveillance and regulatory agency will be made mandatory. Based on results, incremental improvement plan will be made and implemented for ensuring safe water;
- Principles of water safety plan will be applied consistently during the project planning, design and operation phases by the service providers and users to ensure national water standards right from the source to the consumption points of the people. Guidelines on Water Safety Plan will be applied sector-wide through awareness raising, capacity building and advocacy measures for water testing, risk management, regulatory reporting and auditing;
- As a lead implementing agency for WaSH, DWSS will establish an institutional monitoring system on water and wastewater quality. Introducing specific interventions

such as regional, provincial, district water quality testing labs will be an integral part of water quality monitoring; while utilities will support this intervention by establishing their own testing facilities or outsourcing;

- Regularly monitoring of arsenic contaminated areas to better understand arsenic dynamics in the groundwater and assess the performance of mitigation options, and strengthening arsenic mitigation measures in the affected areas;
- Ministry of Health and its agencies will strengthen water quality surveillance system. Preparing a plan and conducting direct assessment based on random sampling covering at least 5% water supply systems annually will be a priority;
- Water Quality Surveillance reports will be produced and publicised regularly, the utilities should immediately initiate the action to dislocate the non-compliance as indicated by the surveillance report.
- To keep all WQ / WWQ testing laboratories functional, provision will be made to operate them in commercial line.



## 8.9 GESI

Theme areas:, non-discrimination, marginalization and exclusion, cross subsidy, diversity and inclusion.

Theme Objective: To make the WASH sector more inclusive in service provision.

Theme Outcome: Equality in WaSH services ensured.

The social inclusion/exclusion debate in Nepal focuses heavily on caste and ethnicity issues. Deprivation in the form of exclusion, and privilege in the form of inclusion vary across local context, levels of development and time. As a society moves forward, new form of deprivation or privilege may emerge and norms and values change (Gurung & Tamang, 2014).

The domains under the dimension of inclusion/exclusion may vary in different sectors. But the exclusion dimensions of GESI to WaSH services are gender, caste/ethnic groups/religious minority (social), poverty and remoteness. Gender discrimination is one of the main features of Nepali society, where men continuing to dominate the socio-economic realm and exists every cast/ethnic groups and location. The social dimension includes the prejudice and verbal abuse associated with the concept of "untouchable" and to discriminatory practice that occur due to prevailing social values and norms. Despite the economic growth, there is still poverty concentration in caste/ethnic groups and location/regions. Remoteness is another dimension of exclusion of access to WaSH services. All dimensions of exclusion mentioned above are equally important, relevant and interlinked to each other.

Safe water for all without discrimination is a human right. The human right to water and sanitation (HRWS) was officially recognized by the UN in 2010 and the WHO has an organizational commitment to support the realization of the HRWS. Through a resolution by all 192 member states at the 64<sup>th</sup> World Health Assembly in 2011, WHO committed to prioritise approaches that impact positively on women, children and the most vulnerable and poorest groups in the society (WHO, 2014).

The Article 35 (4) of the Constitution, Right to Health recognizes access to safe water and sanitation as a fundamental right.

Involvement at local level is the key to develop ownership and ensure sustainability in WaSH projects. Though the Rural WatSan Policy 2004 has provisions regarding local involvement; it is obvious that further improvisations be made in policy to further ensure inclusiveness. Concepts such as preferential modes of involvement for Women, Poor and Excluded (WPE) & marginalized groups and equity based water tariff lead to less financial burden for GESI stakeholders and encourage active participation. This results in development of ownership at local level for everyone in the community. The profiting utilities will be encouraged for corporate social responsibility (CRS) approach to address the GESI in WaSH services.

### Strategic Actions

Intrinsic to right based approach; the sector will adopt the reaching the unreached strategy, to the core principles of equity and empowerment approach to address the WaSH services issues. So that:

- Sector vision of "accessible safe water and sanitation services for all" will realized through one house one connection principle.
- Issues of marginalization and exclusion will properly be addressed through capacity development. While developing human resources in WatSan Systems, priority will be given from WPE groups.
- Cross subsidy mechanism within the community will be followed for WPE (In installation/Tariffs etc.)
- Specially prioritised projects that mainstream GESI in Large and Medium systems will be implemented.

## 8.10 WaSH in Special Situation

Theme areas: WaSH in Emergencies, Vulnerable, Scarce and Fragile Situation, Resiliency, Climate Change.

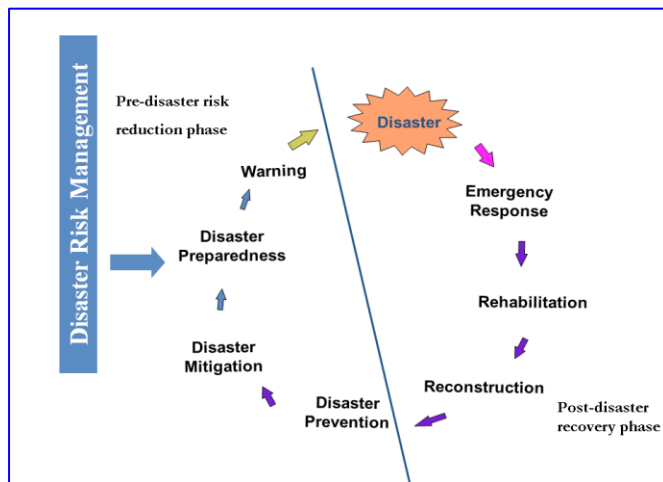
Theme Objective: To capacitate the sector enough to work in special situation.

Theme Outcome: WASH sector functioned in all situation

### 8.10.1 WaSH in Emergency Situations

### 8.10.2 Disaster Risk Management

The allocation of resources (human, financial, material and technical) is crucial on disaster management activities before, during and after the onset of the disaster event. It is a cross cutting issue, and its actions will often integrate several sectors. WaSH, food security, shelter, education, health and nutrition all sectors are negatively affected by disasters. Breakdown in one sector can cause secondary disaster and proper functioning of the sectors is often the key to limiting the impact and extent of disasters.



**Figure 24: The Disaster Risk Management Cycle**

WaSH is one of the biggest immediate priorities after a disaster event. Inadequate WaSH services can indeed cause disasters, while disasters can further degrade WaSH services; both resulting in increased risk. It is therefore necessary to consider disaster risk when developing WaSH services, whether in routine development phase or emergency phase. This is all about increasing resilience of WaSH services to natural disasters by knowing the risks and managing them to

the extent possible, through preventive and preparedness measures.

#### Strategic Actions

- Disaster risk management and climate change will be mainstreamed in the new water supply and Sanitation Policy and Act to create an enabling environment to address risk and vulnerabilities;
- Source protection, and augmentation where possible, will be made mandatory in project surveys, designs and implementation;
- Community resilience will be improved, among others, by increasing the physical robustness of WaSH assets, rehabilitation of infrastructure and mitigating disaster risk through improved analysis and practices; continually innovate to use improved technology that are best adapted to changing climates and to water saving practices in domestic consumption;
- Adaptive capacity will be improved against floods and landslides through community based water resource management which includes extending and sustaining improved water supply services, increasing water storage capacity, strengthening the monitoring of water availability, quality and use, facilitating community-level risk assessment while ensuring use of technologies and innovation that are best adapted to changing climates and water saving practices in domestic consumption and agriculture;

- Relief, response and recovery will be developed and implemented including strengthening capacities of community, service providers and coordinating agencies such as VWaSH, DWaSH and MWaSHCCs;
- Upto 1% budget of the WaSH sector will be allocated for climate change and disaster management and to timely reinstate projects affected by disasters;
- All WaSH agencies and utilities will have integrated adaptation and contingency plan;
- Stockpiles for WaSH response and vendor agreement for emergency purposes in all districts will be made as a preparedness measure;
- In line with the commitments expressed in the Sendai Framework, the state will take the primary role to reduce disaster risk; and the responsibility will be shared with other sector partners including Local Government, the private sector and other sector partners. The main aim will be to achieve substantial reduction of disaster risk and losses in lives, livelihoods and health and in the economic, physical, social, cultural and environmental assets of individuals, businesses, communities and countries.

### 8.10.3 Restoring and Rebuilding WaSH Services Post Earthquake

The April 25, 2015 massive earthquake and series of its aftershocks have caused a heavy damages and loss to WaSH infrastructure depriving sustainable access of WaSH services to the people and communities in 31 affected Districts.

The findings from the WaSH PDNA show that out of a total 11,288 water supply systems in the 14 severely affected Districts, 1,570 sustained major damages and 3,663 were partially damaged and that approximately 220,000 toilets were partially or totally destroyed. Likewise, of the total 16,433 water supply systems in the 17 moderately affected Districts, 747 sustained major damages and 1,761 were partially damaged and approximately 168,000 toilets were partially or totally destroyed.

The total needs for recovery and reconstruction, using the principle of building back better, is estimated at NRs 18.1 billion,

**Table 18: Total needs for recovery and reconstruction of WaSH infrastructures**

Nos. of Districts	Damages, NRs (b)	Losses, NRs (m)	Total effects NRs (b)	Total effects US\$(m)	Recovery needs NRs (b)	Recovery needs US\$(m)
31 Districts	10.5	873	11.4	114	18.1	181

Source: PDNA, NPC, 2015

#### Strategic Actions

- The 2015 earthquake tragedy underscores an urgent need to step up collective efforts to improve responses to disaster relief, recovery, rehabilitation and reconstruction, and for mitigating future disasters through build back better principle.
- The post 2015 Earthquake disaster recovery intervention costs will be loaded to the first phase of the SDP financing plan, being separately funded from the National Reconstruction Authority allocations.
- All WaSH infrastructures will be seismic retrofitted to make them more seismic resilient.

## 8.11 Sector Financing

Theme areas: Finance, Investment, Marketing, Cost recovery, CSR, Enterprise and Entrepreneurship, Water taxation and Aid Modalities.

Theme Objective: To generate financial resources and draw investment and create market thrust in WASH sector

Theme Outcome: WaSH sector financially self-sustained

### 8.11.1 Background

Main purpose of sector financing strategy is to i) Explore how domestic financial resources can be mobilized to ensure access and sustainable management of water and sanitation for all;

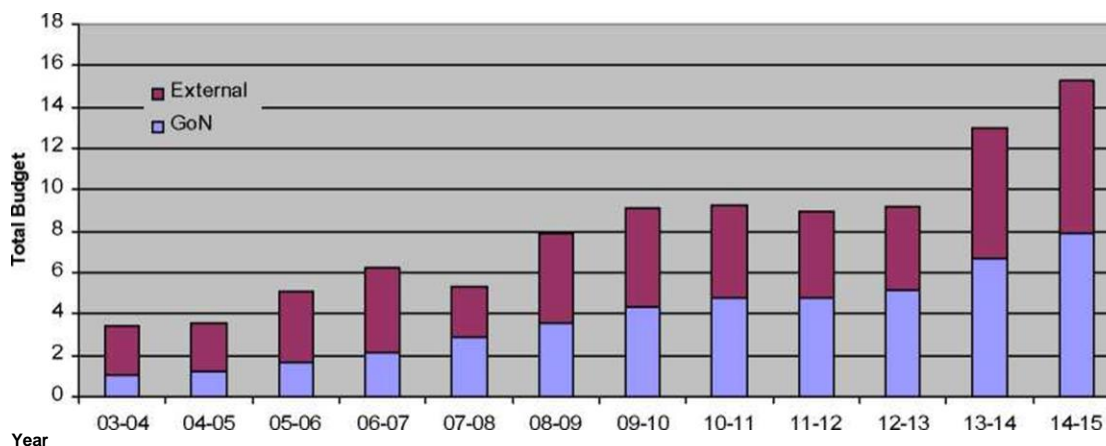
ii) Use it as a credible evidenced basis for effective Negotiation and dialogue with DPs for securing external funding for the implementation of the SDP.

iii) Mobilising resources for sustainable, social and economic development and maintenance of Ecosystems through sustainable WaSH services.

In the absence of consolidated financial information at the national and district levels, sector financing remains poorly tracked. The sector has undertaken limited analysis to analyse flows, efficiencies, expenditures, and value-for-money. The main source for sector financing is envisaged through the central government transfers coming from the sector Ministry and other Ministries (such as MoE, MoFALD and MoH) as per their WaSH plans; significant loans from ADB and WB; grants from UNICEF, JICA, Embassy of Finland, WHO and other bilateral agencies.

Figure 25 provides annual budget allocation trend both from internal GoN sources and DPs. Budget from local bodies and from (I) NGO are not included in the Figure. In the absence of total picture, considerable proportion of sector finance appears to be off-budget, which should be accounted for and included as part of sectoral spending.

**Figure 25: WaSH Sector Budget (Billion NRs)**



Source: Sector Status Report, 2014, SEIU, MoUD

## 8.11.2 WaSH Financing Strategies

Nepal WaSH sector should not always be depending on external supports. The SDP document envisages decreasing external support with time and expects to reduce it by half during the 15 year of SDP implementation.

This WaSH SDP is inbuilt with a WaSH sector financing plan to finance its implementation. It has articulated financing needs for SDP implementation to realize sector goals and targets, identified financing gaps and avenues for meeting the gaps, and developed financing models for SDP implementation.

### 8.11.2.1 Mobilizing Financial Resources

The SDP action points and milestones are diversified and so can be financed diversely by the government through public investment programmes; by households; by the non-government, cooperatives and community sectors; and by the private sector including through FDI. INGOs, charity foundations, and personal trusts can also be attracted in SDP financing.

The SDP financing strategy will have serious implications for the outreach of people to the WaSH services and their sustainability. In particular, the tariff and taxation system will have serious implications for the access of the poor to basic WaSH services. Thus incentive effects of well-designed tariff must be compatible with policy objectives.

### 8.11.2.2 Mobilization of Domestic Resources:

Obviously, the prime responsibility of implementation of the SDP is that of the GoN; and the role of the DPs would be to support the government. A large portion of investment in SDP will have to be financed from domestic resources which have to be sustainable. Scaling-up of investments will have to be done along with capacity development in the sector.

Due attention has to be made to ensure that deprived people's access to services is not compromised by tariff structure. It would not be rational to expect the private sector to be inclusive or concerned with affordability on the part of the poor. But this sector has a crucial role in promoting economic growth, generating jobs, and contributing to the public revenue basket. Besides, the CSR of the private sector and their role in social security and social protection can make a significant contribution in achieving the SDP targets.

In later years the cooperatives sector is emerging as the important development actor in Nepal. The growing number of cooperatives and their members indicate that this sector's initiatives can complement government and private sector initiatives for achieving the SDP targets. Particularly, their social businesses and concerns for their members and communities can complement public and private sector initiatives.

#### (a) Available Resources:

It is useful to consider the financial and other resources that are available to the nation to fill the gaps in WaSH. While excluding the issue of transfers of finances (subsidy) to the poor and the unserved, but rather considering the opportunity of an average household, and aggregating this to the national account, the following resources are available.

**Public:** Government funding derived from the national budgeting process (sourced from various taxations and other income accruing to the state);

Funding provided through loans and grants from development banks and other financial institutions government bonds.

**Public/ Private:** Loans from national financial institutions (TDF and similar);

Various hybrid arrangements that would defer payments for initial investments to the principal: PPP modalities such as BOOT/BOT.

**Service related:** Water rates, sanitation and sewerage transport and treatment charges, paid for by consumers, industries, institutions, etc. to KUKL, water boards, local water supply providers and community water supply user committees, and adequate for the cost recovery and regular operation and maintenance.

**(b) Investment for Local Service Improvement:**

- Connection charges that include a component to compensate for past investment or future improvement;
- Water and sanitation/sewerage rates that include a surcharge for future improvement;
- Private (bonds - possible for those who receive pensions or remittances) or local loans from local financial institutions;
- Other contributions to facilitate local service improvement: in kind, through voluntary work.

**Strategic Actions**

- The financing plan will be able to: (a) finance national and local WaSH plans with a focus on un-reached and un-served areas (b) allocate adequate resource to address functionality, (c) seek avenues for additional financial resources to address growing urban WaSH challenges in the municipalities, emerging and small towns, and (d) explore grants and loans from development/ commercial/ financing banks for improving service levels;
- The sector investment from the local body's own resources is not reflected in National sector budget (Red Book) though a significant investment is made out of this budget which is mainly borne by the local body's own internal revenues. Arrangements will be made to aggregating all such sector investments to accurately report the sector performance efficiency.
- Provision has been made in the financing strategy for richer households to bear some of the cost of water supply and sanitation. However, users' contributions will be decided on the basis of affordability of users to pay;
- Transparency in resource allocation will be enhanced, particularly from national to local levels with budget breakdowns;
- For the WaSH sector financing, exclusive financial intermediary will be established;
- The Utilities will start to pay the profit tax, the GoN will spend this tax in WaSH sector development;
- **Review of WaSH financing mechanism:** There is a need to develop a review mechanism to monitor the advancement of sector financing mechanism in a periodic manner. The Sector Finance TWG comprising of community of experts will take over this function and will regularly inform each other on the developments in their respective organisations and areas of work.
- **Advocate for financing SDG6:** (i) advocacy missions will be undertaken for mobilisation of domestic resources; (ii) support will be provided on national SDG planning and setting clear priorities for SDG6 on the wider development agenda.
- **Exploring Opportunities for WaSH Financing in Transition to SDGs:** From the global experiences, the following options will be explored as potential opportunities for WaSH

sector financing. These mechanisms are mostly reliant on mobilisation of internal resources in an innovative and creative way.

- 1) **WaSH Microfinance Facility** – giving small loans to entrepreneurs and consumers especially for HH connections and construction of sanitation facilities. WaSH cooperatives or the revolving fund available to the WUSC or Utility can be mobilised for this. This will be realised through some exemption in policy if needed, and encouraging banks and financing institutions.
- 2) **WaSH Financing Debt Fund:** Assistance will be provided to small/medium utilities by mobilizing domestic financing sectors.
- 3) **WaSH Financing Trust Fund** – Could be established by GoN and administered by Financial Intermediary or others.
- 4) **WaSH Emergency Revolving Fund** – will look to bridge the time gap between a funder’s commitment and the actual disbursement of cash.
- 5) **WaSH Common Vision Fund** – Utilities could make contributions to this fund for WaSH using own business models.
- 6) **Water Bank**– based on domestic resource mobilization (such as pension funds, insurance companies) using repayable finance to bridge the financing gap;
- 7) **Blue Fund**– Potentially a regionally or globally coordinated initiative to attract and channel funding to the WaSH sector. Efforts will be made to tap the international dedicated funds such as GSF, CC Funds etc. Blue Fund will be developed with other key partners.
- 8) **National Water/WaSH Financing Facility**– Domestic resource mobilization mechanism for the WaSH sector with characteristics of pooled investment projects, good governance framework and opportunity for blending private capital with public funding to promote pro-poor policies.
- 9) **Extractive Industries and Private Sector-** Industries such as mining or quarrying may either consume huge amount of water or may impact on natural flow conditions. As a compensatory measure, their role will be to support the water and sanitation sector needs to be better formulated.
- 10) **Other Mechanisms:** include using (i) blended funding, (ii) commercial financing, (iii) private equity, (iv) public financing, and (v) special taxes such as water tax, sanitation tax and use of 1% of taxes for WaSH;

### 8.11.2.3 External Resources - Foreign Aid Coordination and Effectiveness

As an under developed country with acute resource and capacity constraints, it is logical for Nepal to expect external cooperation, trade, investment and development assistance for its development efforts. Learning from the past, the external financing of the SDP must take into account the following:

- Aid commitments should be an integral part of the SDP implementation strategy;
- Aid should be untied and fungible enough to finance national priority programmes;
- Aid should be channelled through the national budget and sub-national level aid should be tailored to local priorities and programmes. Funding through NGOs should be coordinated with Local Governments;

- Aid coordination among DPs is critical for aid effectiveness. One window for UN's country support programmes should be implanted in practical terms;
- Aid in grants will have to be mobilized for the sector capacity development at national and sub-national levels.

### Strategic Actions

- **Joint Financing Agreements (JFA)** between GoN and DPs will be increasingly used to improve sector alignment; an essential aspect is a commitment on the donors' side to a policy of progressive alignment with national systems, leading to donors' use of government systems and a move towards longer term predictable funding to enable better planning and implementation;
- **Design and Operationalization of Financing Mechanisms:** DPs (UNICEF, WHO, World Bank, ADB and others) will support to (i) identify available guarantee funds (ii) explore commercial and development banks opportunities to leverage additional resources for on-going programs in the sector and (iii) together with Development Banks/Partners support utilities and Small & Medium Enterprises with credit worthiness;

#### 8.11.2.4 Cooperation for Sector Capacity Building

The international support must be led and reinforced by the national government so that capacity constraints do not impede the success of SDP implementation despite commitments, resource availability and willingness to carry forward the interventions. Capacity Development (CD) has been taken as an integral part of the SDP implementation strategy.

The global community can support the National Government to help address the capacity gaps. In particular, the institutional, MIS-related, and HR-related capacity gaps should be prioritized interventions and timely solved to enable the implementation of the SDP.

### Strategic Actions

- **Building capacity:** DPs will support to (i) document learning from other countries, experiences globally (ii) support WaSH professionals to better understand finance and Finance experts to understand the particular characteristics of the WaSH sector; (iii) develop a toolbox for training WaSH professionals on sector finance;
- **Conducting operational research:** a scoping mission will be conducted with the objectives of exploring the potential for the main innovative financing mechanisms identified and also test the private sector investment models;

#### 8.11.2.5 Aid Instrument or Aid Modality

Different types of aid modalities that are in practice in WASH sector are described as follows:

##### (i) Project Aid

Development assistance funds are used by donors themselves to implement a specific project agreed with the GoN, with donors retaining control of the project's financing and management. Examples are: Finnish projects such as RVWRMP and RWSS-WN, JICA supported WaSHMIP project etc.

##### (ii) Balance of Payments Support

It is currently mainly the domain of the IMF. Under this kind of support the funds go to the Central Bank and is vital for foreign exchange services.



### **(iii) Budget Support**

International development aid (fund) from donor (usually Donor Government and Development Banks) is provided directly to GoN through Ministry of Finance, which ultimately is fed into the budget for WaSH. Budgetary support is a method of financing a recipient country's budget through a transfer of funds from a donor country or financing agency to the recipient country's national treasury. The funds so transferred are managed in accordance with the recipient country's budgetary procedures.

Budget support widely varies in its form. It is provided in a variety of ways as follows:

- 1) **General Budget Support:** It is un-earmarked contributions to the government budget including funding to support the implementation of macro-economic reforms (SAPs, PRSPs etc.).
- 2) **Sector Budget Support:** Like general budget support, it is also an un-earmarked financial contribution to a recipient government's budget. However, in sector budget support, the dialogue between donors and recipient governments focuses on sector specific concerns, rather than on overall policy and budget priorities.

### **Off-budget and On-budget Dichotomy**

The budget brings together the spending and receipts of virtually all of the governmental activities. Generally, spending or revenues excluded from the budget totals by law is known as Off-budget provisions. It is common practice world-wide to put provisions such as: Social Security items and the Postal Services etc., under "off-budget", even though their spending and revenues are included in the unified budget. Such spending is usually excluded from budget caps. In the contrary the budget in Nepal, since long despite of unrelenting efforts, is excluding many investments that are not as per law. The aim of the SDP in this regard is make all sector partners to include or reflect all WaSH sector investments in national budget system. Private as well as funds from INGOs/NGOs are encouraged but again it should be reflected in sector/national budget system.

### **(iv) Pooled Funds**

Under this arrangement funds from many individual investors or donors are aggregated for the purposes of investment in WaSH interventions. Private investors in pooled fund investments benefit from economies of scale, which allow for lower trading costs per unit cost of investment, diversification and professional money management. The same principle is applicable to multiple individual WaSH Development Partners. The enormous advantages of investing in pooled fund vehicles make them an ideal asset for many investors. There are added costs involved in the form of management fees, but these fees have been steadily declining in later years with increased competition.

## **8.11.3 Challenges in Financing WaSH Sector**

### **In General:**

- Weak governance, lack of transparency and accountability and hence credibility problems with potential financiers;
- Question of affordability to WaSH services for poor section of population;
- Water and Sanitation taken as granted, Underpricing of WaSH services;
- Low operational efficiencies, low revenue collection rate, unexpectedly high NRW;
- High capital costs with relatively low rate of return in WaSH investments;

### **In Particular:**

- The SDP estimated that for Nepal to meet SDG targets on WaSH, NPR 110 billion is required per annum (at base price of 2016) while expenditure for WaSH was only one third of the need;
- NPR 26 billion had been allocated in FY 2072/73 while in FY 2073/74 NPR 32.16 billion has been allocated in WaSH sector.
- The current funding landscape for the sector is insufficient to meet the financial deficit and, most importantly, achieve SDG 6

A shared international solidarity is required, with a shared vision, strong cooperation between different countries and with strong partnerships, the noble objectives for the reduction of poverty, the SDGs of ensuring that all our populations have access to water and sanitation by 2030 can be realised.

### **8.11.4 Important Learning and Facts on Sector Financing**

It is implied from the trend analysis of the WaSH sector financing for the last few years that money is not necessarily the problem for the sector financing. Finances are available and sometimes the sector has even challenges to spend even when financial resources are made available. What the WaSH sector needs is to promote innovative ways to mobilise available resources. It also needs to learn how to develop bankable projects to attract funding.

### **8.11.5 Corporate Social Responsibility**

Corporate social responsibility (CSR) is a business approach that contributes to sustainable development by delivering economic, social and environmental benefits for all Sector Actors. CSR is a concept with many definitions and practices. The way it is understood and implemented differs greatly for each company and country. Moreover, CSR is a very broad concept that addresses many and various topics such as human rights, corporate governance, health and safety, environmental effects, working conditions and contribution to economic development. Whatever the definition is, the purpose of CSR is to drive change towards sustainability.

Utilities can invest in local communities in order to offset the negative impact their operations might have. Similarly, a utility might invest in research and development in sustainable technologies, even though the project might not immediately lead to increased profitability.

Adapting CSR initiatives into a Large WaSH utility means with bigger profits utility can support to small scale WaSH systems or women, poor and excluded (WPE) groups and builds a sense of trust with community/society. The support modality and area of CSR may vary in across location and across community and across time. It's a win-win-win situation and a smart decision for any utility to make.

### **Strategic Actions**

- The local Government will adopt CSR in its WaSH policy to address the GESI issues in WaSH services;
- Large profit making system utilities ensures equitable access of WPEs to WaSH facilities and support in leveraged tariff to them; and also support Point and/or Small systems under 'Centre-Periphery' principle;
- Corporate and business houses will be encouraged to spend on WaSH under their CSRs.

## 8.11.6 Investment and Marketing

Where ever feasible, water utilities should explore possibilities of water business within allowed limits. A good business plan can be of help in this connection. Marketing is not necessarily limited to business but looks beyond it, including communication with service recipients, suppliers, vendors etc.

### 8.11.6.1 Locally Managed Financial Support Mechanism for Sanitation

Inadequate budget and supply of water are barriers to realize sanitation outcomes at the local level. Utility Managers, User Committees or Local Authorities may have opportunities to establish dedicated funds such as Revolving fund and many other options.

#### Strategic Actions

- Integrated WaSH projects will have specific sanitation and hygiene components with dedicated budget lines (min 20% of the total WaSH budget, till need is felt). Local bodies will also allocate sufficient budget on sanitation to the approved WaSH plans through DCC/MC/VC block grants.
- As defined in the SHMP, sanitation system will discourage subsidy, promote local ownership and management while also addressing the specific needs of poor and socially excluded communities. The degree to which this is achieved is dependent on the type of sanitation system and support mechanisms for administration and software including behavioural change components and sanitation marketing initiatives.

### 8.11.6.2 Private Sector Involvement in WaSH

Private sector cannot be attracted in WASH unless and until water is not taken as commodity. Relying only on public investments in WASH may never meet the set sector targets- service levels and coverage. WaSH services can be provided equitably, sustainably and reliably to all section of the population only if value for money is respected and conducive environment prevails such that water entrepreneurs, vendors or service providers see opportunities for fair and competitive business in the WaSH services provision.

#### Strategic Actions required for encouraging Private Sector:

- Provide conducive and enabling environment for the private sector as local vendors, manufacturers, consulting firms, and service providers;
- Develop regulations for service quality and environmental protection;
- Provide technical and management support to strengthen the existing businesses and develop new businesses;
- Train private mechanics, motivators and water quality technicians, plumbers, drillers, etc.;
- Incorporate the concept of the tripartite participation in developing PPP models;
- Prepare a guideline for the PPP for the WSS sector;
- Appoint a facilitating and regulating agency for the participation of private sector and civil society;
- Services of accelerators encouraged to enhance participation of private sector in WaSH.

### 8.11.6.3 Sanitation Marketing

Creating conducive environment towards easy availability of sanitation materials is vital for sanitation promotion. Sanitation Marketing helps address both demand and supply sides. In most cases, easy availability of products and services creates demand. Sanitation marketing aims at sustainable access to improved sanitation facilities by rural households. It treats households as consumers and partners with private businesses to deliver sanitary products and services of their needs. It is essential to understand what products the target population needs and at what price they can afford for them. Hence sanitation marketing should apply both social and commercial marketing approaches to scale up the supply and demand.

#### Strategic Actions

- To take sanitation to scale, sanitation marketing will be promoted by combining demand-side and supply-side measures to generate widespread sanitation demand and increase the supply of sanitation products and services at scale;
- This approach will be designed to be responsive to the variation in demands from community members with different levels of existing sanitation service and resources, so as to enable community members to upgrade over time - an important factor for sustainability;
- Sani-marts will be established and Sanitation Marketing promoted in each Gaunpalika. Conducive environment will be created to attract small entrepreneurs or hardware stores to supply sanitation materials. In places where such private entrepreneurs would not be interested, provision will be made so that Gaunpalika itself could operate such Stores/ Sani-mart;

### 8.11.7 Cost Sharing, Cost Recovery and Financial Sustainability

From a commercial perspective, the aim for WaSH service providers is to generate enough revenue to cover their recurrent costs, with the capital costs of expanding infrastructure covered through a mix of cost sharing between public spending, investment from the service provider and community contribution. From the human development perspective there is a limit to cost recovery through tariff. That limit is the point at which water and sanitation services become unaffordable to poor households. Targeting full cost recovery would put water security beyond the reach of millions of people now lacking access to water services.

In the past all the modalities practiced some form of cost recovery approach based on their recognizing that cost sharing by the community contributes to building ownership of hardware components. The present practice for the water systems in the Kathmandu Valley is that the government provides 100% capital costs while citizens pay tariff fixed by the WTFC. Included in the water bill is some charge for meeting sewerage cost as well.

On the other hand, in the small towns, the government provides 70% of the capital cost while users pitch in 30% with 5% upfront cash and 25% of capital cost payment through tariff over a 20 years-period. Sanitation too is a joint responsibility with 85% of the capital cost borne by the GoN and the rest 15% shouldered by the local bodies/WUSCs in small towns.

It is essential that economic costs involved in operating Urban WaSH services are jointly shared and recovered at an appropriate level to ensure their long term sustainability and ownership. After all it is the local authorities who are to plan strategically so that expenditures on WaSH service provision is somehow recovered and at the same time, equity in WaSH services provision is ensured. Such plan can better be met with success from users' side if local authority leaders include it in their election declarations as part of their commitment to improve water governance and thereby WaSH service delivery.

## **Strategic Actions**

- In rural areas, principle of cost sharing by prevalent means of users' contribution will be continued. With introduction of HH connection, all such connections will be metered;
- O & M cost will be fully recovered both in rural as well as in urban areas, where as the prevalent strategies of partial investment cost recovery will be continued in urban areas;
- Prepaid meters will be first installed in the central/core business areas of townships and Avenues area, as a pilot project. Then it can be rolled out city-wide over a sufficiently longer period learning from successes;
- Flexible financing mechanisms with appropriate cost-sharing will be adopted depending upon socio-economic, geographic, technological and institutional characteristics for specific urban systems;
- Tariff system will be a function of affordable norms in Nepal while ensuring poor segments of the society are not left out. Specific measures will be adopted to ensure poor have access to and benefit from services;
- Care will be taken in system development, operation and maintenance to reduce financial burden to consumers by rationalizing designs, social audit practices through promotion of structured public consultations and introducing favourable financing;
- Adequate funding to deal with wastewater treatment, management of waste in an appropriate manner shall be made available by the Government within its resources on a priority basis for the urban areas; and
- Utilities will develop their Business plan, the BP should reflect the financial sustainability of the system

## **CHAPTER 9**

### **SDP COST ESTIMATE & INVESTMENT PLAN**

#### **9.1 Unit Rates**

The cost is estimated on the basis of unit rates and these unit rates has been taken on the following basis:

##### **Geographical/Ecological division of the country:**

The cost of water supply projects widely depends on geographical location. In Terai districts the cost of construction materials and cost of transportation are cheaper, while in hill area and mountainous area these costs increases. Also the cost of transportation drastically increases with the remoteness of the project area.

So districts in each region are divided into four categories: Terai, Terai-hilly, hilly, and mountainous. Districts with mostly plain area are categorised as Terai districts; Districts with mid hill of Mahabharat range as hilly districts; districts with high mountains and stretched to the Himalayas as mountainous and those districts which have Terai plain as well as Churia hill range are categorised as Teria-hilly. The number of districts in Terai, Terai-hilly, hilly and mountainous categories have come to be 17, 5, 41 and 12 respectively for this purpose.

##### **Region-wise prevalent rates:**

When the cost estimates of existing water supply projects were analysed, it is found that per capita cost varies not only with geographical division of districts, but also with development region of Nepal. So the per capita cost is assumed on the basis of both geographical and region wise.

#### **9.2 Cost Estimate**

The total estimated cost of implementing the SDP of WaSH is approximately NRs. 1,165 billion on the basis of present cost price of 2016 and inflated cost is NRs. 2,291.1 billion. This estimated cost includes all cost of milestones and action points of 11 Themes and recurrent costs. The estimation is carried out on the basis of present price of 2016 and is inflated to year wise basis to 2030, with inflation rate of 9.5%. The ratio of inflated cost to present price is 2.37. The total estimate also includes the cost required to address the population that increases during SDP period. The total cost with this consideration comes the overhead cost is assumed as 15% of the total cost. Recent trend of overhead/recurrent cost is 12 to 13% as the official setup is still based on 2045 BS Administrative Structure. So it is slightly increased and 15% is assumed. The total estimated cost includes peoples' participation and the percentage of participation is around 25% and Government/Donor contribution comes to be around 75% on the basis of net cost of the SDP (without overhead), because the public contribution is counted for construction works only.

The summary of costs based on present price cost and considering inflation are presented in tables below in intervals of 5-year period.

**Table 19: Cost estimate of SDP in present price value**

S.N.	Theme	Costs of WaSH SDP (2016-2030)			
		2016-2020	2021-2025	2026-2030	Total Cost
1	Access (reach), Utilization (Benefit Consumption)	192,702,476	192,328,390	187,743,120	572,773,986
2	Functionality and Sustainability of Services	8,115,200	10,103,500	10,128,050	28,346,750
3	Research, Learning, Alternative Technology, Technology Adaptation (Scaling up) and Innovation	1,076,532	1,449,970	1,326,445	3,852,947
4	Ecosystem, Water Augmentation and Production	12,748,500	117,107,750	94,906,250	224,762,500
5	Governance, Institutional Set up & Strengthening and Capacity Development	5,802,164	10,017,895	6,034,770	21,854,829
6	WaSH Diplomacy, Sector Convergence, Network, Communication & Promotion	20,800	38,000	38,000	96,800
7	Monitoring & Evaluation	903,000	970,000	970,000	2,843,000
8	Continuous Quality and Service Improvement	2,335,276	7,323,300	7,908,600	17,567,176
9	Gender Equality and Social Inclusion	120,000	318,000	159,000	597,000
10	WaSH in Special Situation (Scarce, Emergencies, Vulnerable and Fragile)	31,124,032	2,724,695	2,477,695	36,326,422
11	Finance, Investment, Marketing, Cost Recovery and CSR	1,815,000	1,815,000	2,732,500	6,362,500
<b>Total cost</b>		<b>256,762,980</b>	<b>344,196,500</b>	<b>314,424,430</b>	<b>915,383,910</b>
Cost for population growth during SDP period @ 1.35% per annum)		<b>8,783,530</b>	<b>33,941,928</b>	<b>54,960,701</b>	<b>97,686,159</b>
Subtotal		<b>265,546,510</b>	<b>378,138,428</b>	<b>369,385,131</b>	<b>1,013,070,069</b>
Overhead cost @15%		<b>39,831,977</b>	<b>56,720,764</b>	<b>55,407,770</b>	<b>151,960,510</b>
<b>Grand Total:</b>		<b>305,378,487</b>	<b>434,859,192</b>	<b>424,792,901</b>	<b>1,165,030,579</b>

**Table 20: Cost estimate of SDP with inflation of 9.5%**

S.N.	Theme	Costs of WaSH SDP (2016-2030)			
		2016-2020	2021-2025	2026-2030	Total Cost
1	Access (reach), Utilization (Benefit Consumption)	243,027,612	366,026,784	562,476,137	1,171,530,533
2	Functionality and Sustainability of Services	10,234,522	19,228,319	30,343,517	59,806,358
3	Research, Learning, Alternative Technology, Technology Adaptation (Scaling up) and Innovation	1,357,672	2,759,491	3,974,020	8,091,183
4	Ecosystem, Water Augmentation and Production	16,077,830	222,871,795	284,337,987	523,287,612
5	Governance, Institutional Set up & Strengthening and Capacity Development	7,317,423	19,065,398	18,080,105	44,462,926
6	WaSH Diplomacy, Sector Convergence, Network, Communication & Promotion	26,232	72,318	113,848	212,398
7	Monitoring & Evaluation	1,138,822	1,846,041	2,906,109	5,890,972
8	Continuous Quality and Service Improvement	2,945,143	13,937,224	23,694,071	40,576,438
9	Gender Equality and Social Inclusion	151,339	605,197	476,362	1,232,898
10	WaSH in Special Situation (Scarce, Emergencies, Vulnerable and Fragile)	39,252,214	5,185,457	7,423,150	51,860,821
11	Finance, Investment, Marketing, Cost Recovery and Corporate Social Responsibilities	2,288,996	3,454,188	8,186,537	13,929,721
	<b>Total cost</b>	<b>323,817,805</b>	<b>655,052,212</b>	<b>942,011,843</b>	<b>1,920,881,860</b>
	Cost for population growth during SDP period @ 1.35% per annum)	<b>11,585,756</b>	<b>66,342,040</b>	<b>167,346,587</b>	<b>245,274,383</b>
	<b>SubTotal</b>	<b>335,403,561</b>	<b>721,394,252</b>	<b>1,109,358,430</b>	<b>2,166,156,243</b>
	Overhead cost @15%	<b>50,310,534</b>	<b>108,209,138</b>	<b>166,403,765</b>	<b>324,923,436</b>
	<b>Grand Total:</b>	<b>385,714,095</b>	<b>829,603,390</b>	<b>1,275,762,195</b>	<b>2,491,079,679</b>

The cost of action points of the Themes based on present cost price of 2016 are presented in Annex 6, while the detailing of cost estimated is presented in separate volume.



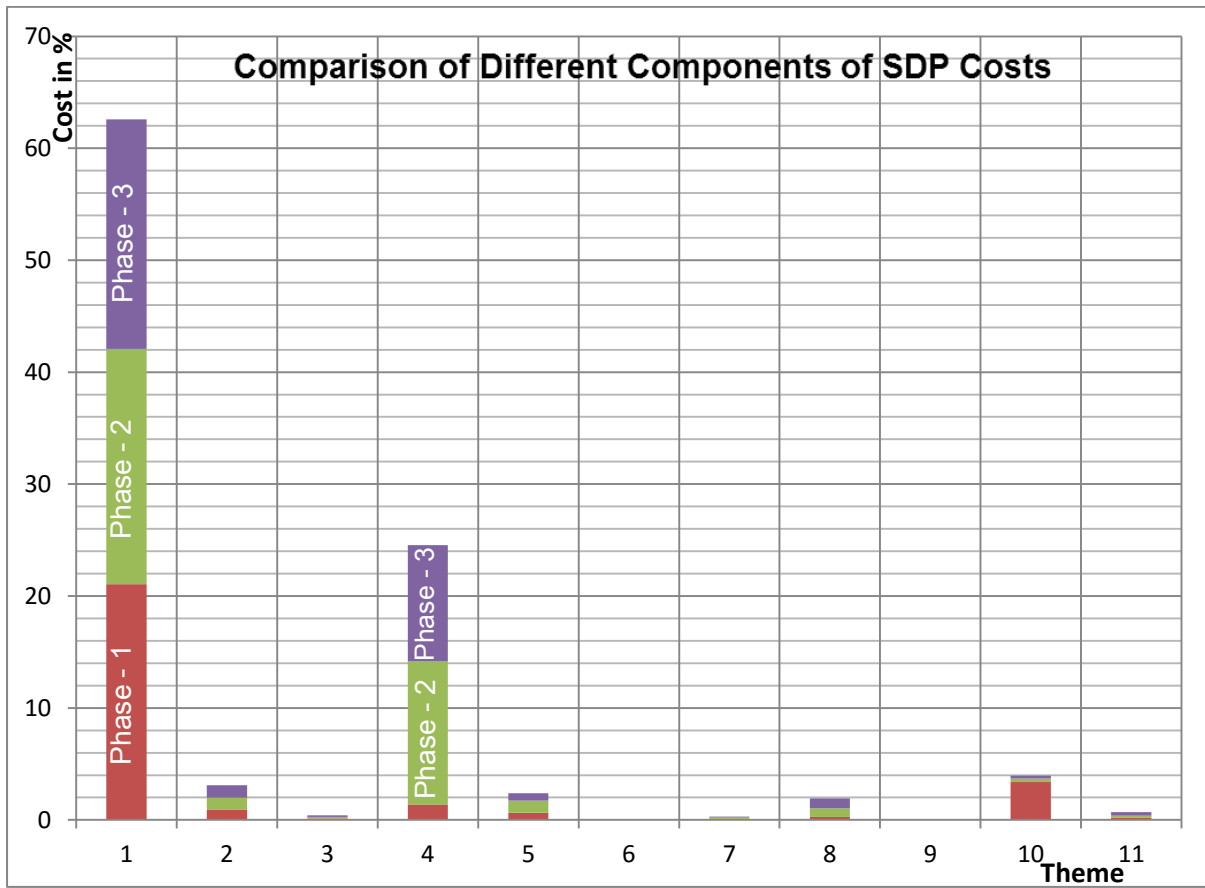
The budget required for the implementation of SDP is about the 75% of the total cost estimate of SDP as mentioned above. The budget requirement to implement SDP is presented at a five-year intervals below. An amount of 1654 billion Rs. is required for the implementation of SDP.

**Table 21: Requirement of budget for the implementation of SDP with inflation of 9.5%**

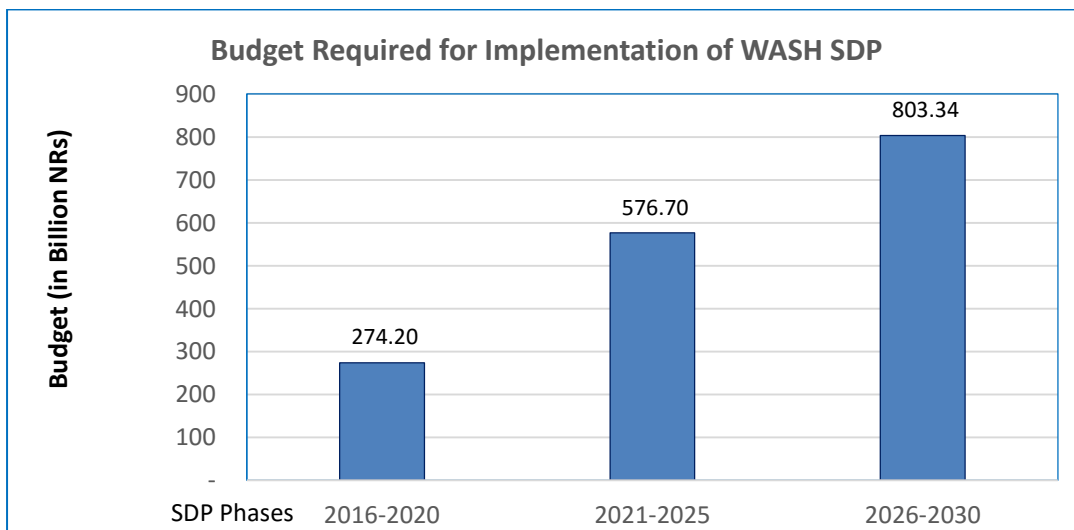
S.N.	Theme	Budget Requirement for WaSH SDP (2016-2030)			
		2016-2020	2021-2025	2026-2030	Total Cost
1	Access (reach), Utilization (Benefit Consumption)	205,260,539	335,691,879	513,850,673	1,054,803,091
2	Functionality and Sustainability of Services	2,619,198	5,252,432	8,400,370	16,272,000
3	Research, Learning, Alternative Technology, Technology Adaptation (Scaling up) and Innovation	1,496,660	3,173,416	4,570,123	9,240,199
4	Ecosystem, Water Augmentation and Production	10,830,143	191,323,442	230,138,018	432,291,603
5	Governance, Institutional Set up & Strengthening and Capacity Development	6,944,583	19,613,602	15,395,957	41,954,142
6	WaSH Diplomacy, Sector Convergence, Network, Communication & Promotion	28,917	83,167	130,925	243,009
7	Monitoring & Evaluation	1,255,408	2,122,947	3,342,025	6,720,380
8	Continuous Quality and Service Improvement	554,368	4,398,549	5,095,726	10,048,643
9	Gender Equality and Social Inclusion	166,831	695,977	547,816	1,410,624
10	WaSH in Special Situation (Scarce, Emergencies, Vulnerable and Fragile)	41,354,054	5,963,276	8,536,624	55,853,954
11	Finance, Investment, Marketing, Cost Recovery and Corporate Social Responsibilities	1,334,652	2,101,060	3,858,832	7,294,544
Total cost		<b>271,845,353</b>	<b>570,419,747</b>	<b>793,867,089</b>	<b>1,636,132,189</b>
Cost for population growth during SDP period @ 1.35% per annum)		<b>2,349,895</b>	6,281,905	9,475,172	<b>18,106,972</b>
Grand Total:		<b>274,195,248</b>	<b>576,701,652</b>	<b>803,342,261</b>	<b>1,654,239,161</b>

The detailed cost of milestones and action points are given in Annex-6. The budget required for SDP implementation is graphically represented in chart below.

**Figure: 26: Comparison of Costs of Different Components of SDP**



**Figure: 27 Budget Required for Implementation of WASH SDP**



### 9.3 Investment Plan

The contribution of GON, Foreign, and User/Utility is 54.53%, 23.74% and 21.73% respectively to the total cost of the SDP. The recent trend of Foreign Aid is decreasing and Government is providing more budgets. The trend is shown in table below.

**Table 22: Recent trend of GON to Foreign Aid in WaSH (without WWM)**

Year	Total Budget	GON	Donor		Contribution	
			Grant	Loan	GON ( %)	Donor ( %)
2010-2011	9.2	2.7	3.4	3.1	29.35	70.65
2011-2012	9.9	5	1.9	3	50.51	49.49
2012-2013	11	5.8	0.5	4.7	52.73	47.27
2013-2014	15.5	7.4	2.4	5.7	47.74	52.26
2014-2015	18.2	8.7	2.2	7.3	47.8	52.2
2015-2016	23	10.8	1.4	10.8	46.96	53.04
2016-2017	29.26	12.68	0.997	15.58	16.577	43.34

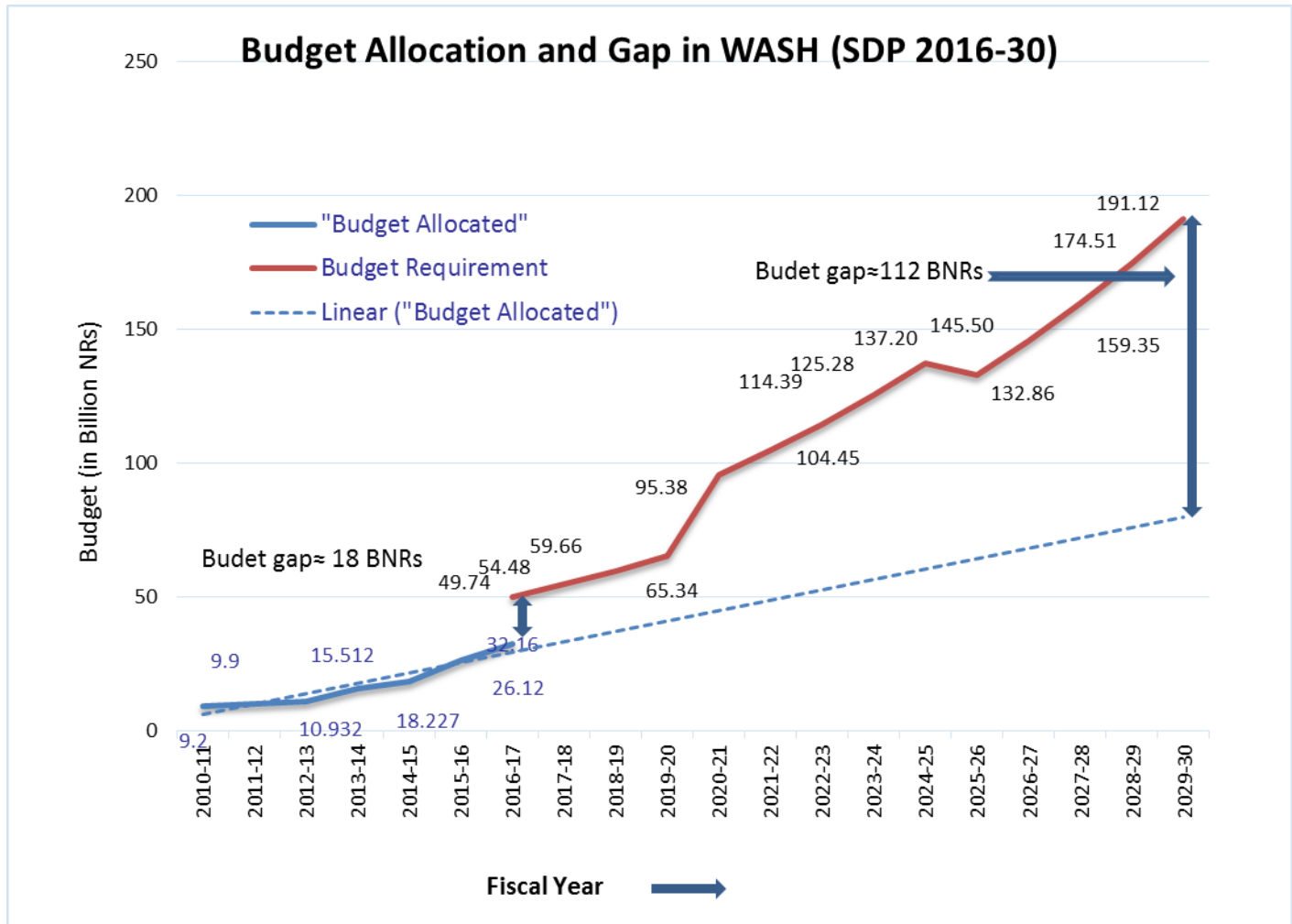
The recent annual budget is increasing linearly and comparing the budget- trend to the budget required to implement SDP, the gap seems large. The amounts of budget allocated in past 5 years are shown below.

**Table 23: Budget allocated in past 5 years**

Year	Budget Allocated in WaSH (in Billion NRs.)
2010-2011	9.2
2011-2012	9.9
2012-2013	11
2013-2014	15.5
2014-2015	18.2
2015-2016	26.12
2016-2017	32.16

The budget allocation and budget required to implement SDP is shown below. The allocation trend is also shown. According to this trend analysis and requirement, budget gap comes around 22 billion Rs. in 2017. The gap further increases in 2020, 2025 and 2030 and then become 31, 55 and 95 billion Rs. respectively.

Figure 28: The financing trend and budget required is shown in figure below:



## 9.4 Estimates of construction materials and labours required during SDP period

The major construction materials like stone, aggregate, sand, OPC cement, steel bar and pipe required are estimated based on the recent requirement in construction works of WASH projects and programmes. The skilled and unskilled manpower required for the construction work are also estimated. The requirement of materials and labours for SDP implementation are given in Table 24 below.

**Table 24: Total materials and labour required for SDP implementation**

S.No.	Description of items	Unit	Requirement for Period			Total
			2016-2020	2021-2025	2026-2030	
<b>A. Construction materials</b>						
1	Stone	m <sup>3</sup>	918,739	435,346	541,611	1,895,696
2	Aggregate	m <sup>3</sup>	522,767	557,338	609,856	1,689,962
3	Coarse Sand	m <sup>3</sup>	589,237	470,836	517,395	1,577,469
4	Cement	bag	6,546,050	6,084,116	6,591,521	19,221,687
5	Tor-steel bar	kg	65,118,516	84,527,842	83,739,047	233,385,405
6	Polyethylene pipe	m	82,564,811	36,216,928	26,658,415	145,440,154
7	Metal pipe	m	17,988,920	9,968,928	9,079,906	37,037,754
8	Fittings	no	4,034,632	1,503,599	1,247,820	6,786,050
<b>B. Skill and unskilled man power</b>						
1	Skilled labour	no	5,864,244	5,148,554	4,945,551	15,958,349
2	Unskilled labour	no	48,342,327	21,488,339	21,143,968	90,974,633

## 9.5 Estimates of manpower required for operation water supply systems

The man power to run, to maintain and repair the water supply systems are estimated. The total requirement of manpower are presented in Table 28 below.

**Table 25: Human resource requirement for WS Systems in 2030**

Description of HR	No of required man power
<b>A. Technical Manpower</b>	
VMW	28493
Meter Reader	2100
WSST	5250
Plumbing Inspector	1050
Overseer	850
Civil Engineer	300

Description of HR	No of required man power
<b>B. Administrative Manpower</b>	
Office helper	1000
Office assistant	1050
Store keeper	1050
Revenue assistant	1550
Accountant	1050

# CHAPTER 10

## SDP IMPLEMENTATION

The Plan will be implemented in three phases. The SDP period coincides with the SDG period.

### 10.1 First Phase (2016-2020)

This phase is divided into following three stages:

#### 10.1.1 Inception Stage (2016)

This phase, will consist of the following critical components which are absolutely essential to ensure that SDP begins in the right manner.

**Sector Development Plan Approval:** The SDP will be tabled for approval in June 2016 allowing for its full implementation from FY 2073-74.

**Institutional arrangement for SDP Implementation:** The MoWSS as sector Ministry has to take the lead role to execute the SDP.

**Legislation, Policy and Operational Manual:** The preparation of new WaSH Policy and Act and designate and giving mandate to regulatory body, and preparing an operational manual to aid SDP operationalization will be completed during the inception phase so that these instruments can support alignment and harmonization of the SDP to national priorities and strategies.

**Sector Capacity:** Capacity building of the Sector Actors is fundamental to the success of the sector development and improved performance. Roll out of sector capacity building plan will commence during the Inception Phase.

**Planning, Monitoring and Evaluation System:** Sector Planning, Monitoring and Evaluation Systems will be developed and operationalized for WaSH services. This entails design of Management Information System, recording and reporting at the national and local levels.

**Agreement among Sector Partners:** The added value of SDP implementation is a strategic compact between the GoN and Sector Actors for aligned and harmonized sector based on shared responsibility and mutual accountability. The key sector actors including the DPs and the NGOs will enter into agreements to guide their implementation strategies in accordance with the SDP. Memorandum of Understanding (MoU) between MoWSS and key sector actors including DPs will be undertaken on the SDP shifts and alignments.

**Coordination:** WaSH sector coordination structure will be streamlined by reorganizing the existing TWGs, and functioning of these TWGs will be made more robust to guide the implementation of the SDP in coordination with SEIU. These Groups will have amended set of ToRs and operating procedures.

**Alignment of Development Projects:** All new projects, including those which are in pipelines, will be aligned to the SDP framework so as to ensure they are clearly linked to national priorities, strategy and approaches articulated in SDP.

**Sector Finance Strategy:** The MoWSS, NPC and MoF and other relevant government agencies would seek finance for SDP from the GoN sources and the DPs as per the MoU concluded with GoN/MoF. All sector plan and budget would be reflected in the WaSH sector programme from FY 2016-17 onwards, while budget expenditure may have different modalities.

The SDP accompanied with its financing strategy, the MoWSS should take the lead in

coordination with the NPC to work out an implementation strategy by engaging its line organisations, external development partners and other sector partners. This will ensure that SDP action points are built in to sector ministry's programmes and development partners are on board to support their financing.

### 10.1.2 External Funding and Partnership Arrangements for Phase I

This SDP prescribes an **ONEWaSH Programme** for Nepal WaSH Sector in the plan period of 2016-2030. The Government of Nepal, upon approval of the SDP, will launch the Phase-I Programme which will bring together all sector partners towards a converged sector approach for effective and equitable ways of water and sanitation services delivery to the people of Nepal.

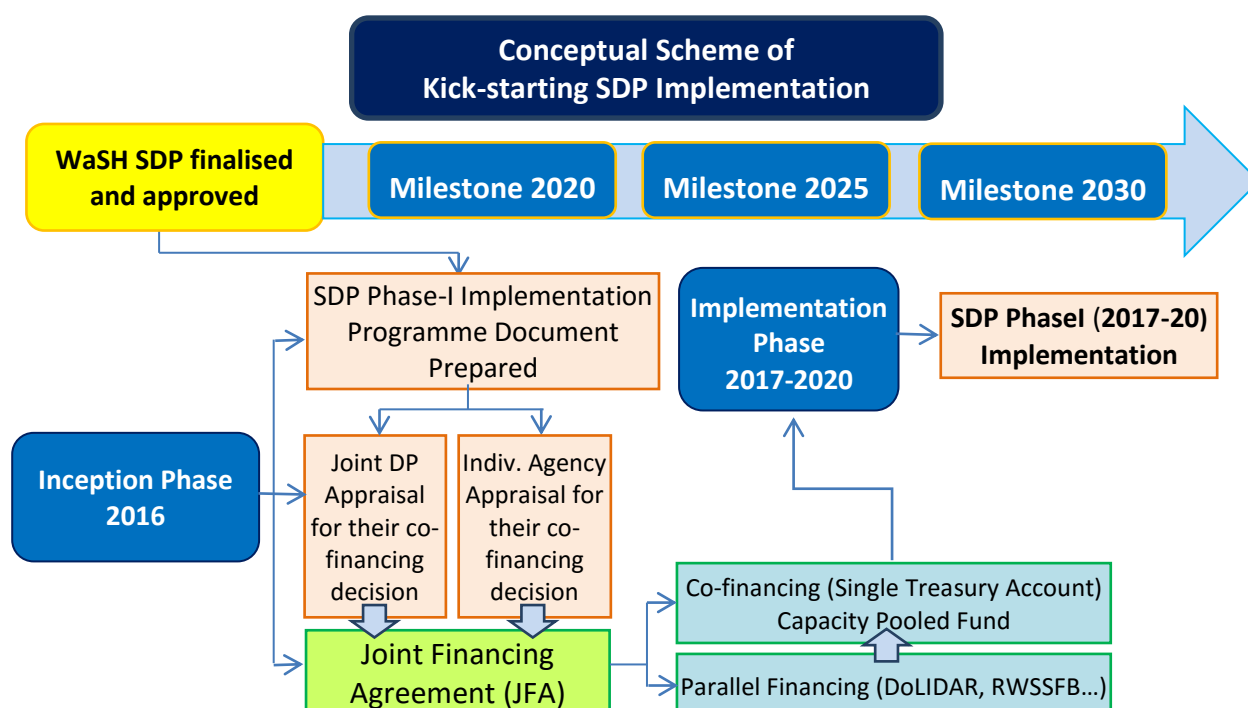
**The objective** of the SDP, planned for implementation by the GoN in collaboration with DPs, is to contribute to achieving the government's social and economic priorities in an equitable and sustainable manner.

Three **partnership arrangements** are proposed under the Phase-I Programme:

- (i) DPs as well as GoN contributing to a consolidated WaSH account,
- (ii) DPs contributing to Phase-I Programme through bilateral arrangements but following the same implementing principles and,
- (iii) DPs supporting the sector towards technical assistance to GoN authorities.

The management structures of the Phase-I Programme are composed of WaSH offices at federal, provincial and local levels. Inter-department coordination among concerned GoN agencies and sector partners will be maintained through coordination committees at respective levels through grouping together experts from water, health, education and finance authorities so that 'inter-departmental' dialogue for planning and attainment of results is ensured. The DWSS, at federal level under the Ministry of Water Supply and Sanitation, leads and provide the required guidance to the decentralized structures at different tiers.

**Figure 29: Conceptual Scheme of SDP startup**



### **10.1.3 Implementation Phase (2017-2020)**

Sector partners will enter into project/program implementation as per the agreed geographical coverage, set of results and implementation approach and modalities with GoN/MoWSS.

### **10.2 Second Phase (2021 – 2025)**

SDP will be tabled for approval during early 2016 allowing for full implementation of SDP from FY 2016-17. The added value of SDP implementation is a strategic compact between the GoN and Sector Actors for aligned and harmonized sector based on shared responsibility and mutual accountability.

It will further contribute to sector development through policy dialogue and joint analytical work, focusing on policy issues such as sector governance, institutional reforms, financing and sustainability of investments, sector capacity development and sector performance.

### **10.3 Third Phase (2026 – 2030)**

Basic coverage and upgrading of systems and services to meet basic level will have been achieved during phase I, while in phase II the sector will be in position to fully run the sector in a designated course. Sector capacity will have been developed almost at par. All procedural, standards and approach documents along with policy and legislative frameworks and tools will be in place and fully functional.

Hence the phase III will be largely striving towards achieving higher level services to as much of the population as possible. The WaSH Sector will have been engaged in some ambitious interventions such as bulk water distribution systems, impounding systems, sewerage networks development with treatment facilities and effective monitoring, surveillance and overall regulation for ensuring in achieving sector outcomes. Different credible WaSH funding modalities will be explored, developed and established which helps the sector to become self-propelled in the long run.

### **10.4 Yearly Plan of Operations - Annual Development Plans**

A more detailed working plan will be developed for yearly implementation of the SDP action points and milestones. The achievements of all sector agencies/partners against the annual plan targets will be reviewed in Annual National WaSH Sector Review. Based on the ANWRs, the SDP will be updated at the end of each phase before stepping to next phase.



## 10.5 Risks and Mitigation Measures

A number of internal and external risks can be foreseen during SDP implementation which could impinge upon its performance and effectiveness. These risks, along with mitigation measures, are given below.

**Table 26: Risks in SDP Implementation and Mitigation Measures**

Risk	Probability	Impact	Mitigation Measures
<b>Internal</b>			
Lack of political will to address sector reforms including enactment of new legal and policy framework as envisaged in SDP	Low	High	Lobby and influence for timely sector reforms and approval of WaSH Act, Rules, and Policy
Continued fragmentation of sector institutions with duplication of roles and responsibilities and unclear roles in federal structure for WaSH planning and management	High	High	Develop and operationalize time bound implementation of institutional framework with a clear roles and responsibilities.
Inadequate institutional and management capacity of sector institutions and professionals	Low	High	Earnest implementation of sector capacity building plan, Development of credible sector professionals to address sector challenges and sector priority
Insufficient sector budget including absence of sector financing strategy to finance effective implementation of SDP	High	High	Annual tracking of financial flows including that from non-state actors
<b>External</b>			
Prolonged Macro-economic instability	Medium	Medium	Continued influence for WaSH as a basic need and human right. Regular situation reviews to feed into sector planning process
Local elections are not held as planned	Low	Medium	Empowerment and strengthening of local WaSH institutions including WaSH CCs
Deterioration of security situation in certain parts of the country	Medium	Medium	Draw upon sector experience of operating in difficult situations with people-centered development with duty of care for staff / professionals
Frequent occurrence of large scale natural disasters	Low	High	Disaster preparedness, emergency response and community resilience approaches to minimize the risks
Global economy remains unstable affecting flow of extern. assistance and priority for other sector such as education, health etc.	Low	High	Ensure adequate funding from DPs to support for the realization of national as well as SDGWaSH goal and targets

## **10.6 Reviews and Revisions of the SDP**

### **10.6.1 Sector Performance**

An Annual Sector Performance Report will be prepared by the SEIU/MoWSS and shared with Government entities, Sector Actors and DPs. As a minimum requirement, the Annual Sector Performance Report shall consist of the standard format of progress assessment of the sector against Milestones covering the whole year with summary of results achieved against pre-defined annual targets.

### **10.6.2 Annual National WaSH Review**

Based on the Annual Sector Performance Report, an annual WaSH sector review will be conducted with the sector actors based on annual sector calendar to jointly assess the performance of SDP and appraise the Annual Work Plan for the following year. It will focus on the extent to which progress is being made towards Milestones, and that these remain aligned to appropriate outcomes.

During these Reviews, progress against targets will be assessed; intervention approaches and targeting will be critically examined; and ways of improving sector performance will be discussed. The outcome of these Annual National WaSH Sector Reviews will be used for updating the SDP on periodic basis.

### **10.6.3 Mid-term Review**

Mid-term review will be planned towards the end of the third year (2018) in the form of ANWR to track progress of SDP implementation and recommend adjustments to SDP.

### **10.6.4 SDP Revision**

During early 2020 (last year of first cycle), SDP will be substantially reviewed by the sector actors through TWGs and SSG in coordination with SEIU. Based on the review outcomes, SDP will be revised for implementation into the next cycle (2021-2025).

# CHAPTER 11

## FUTURE WATER

This It has been said since long that Nepal is rich in per capita water availability. Even maintaining this status, if not improving, would be a great achievement in the context of water stressed future due to rocketing population growth, industrialisation, global warming and climate change. The Nepal WASH Sector's ambition will be to find, develop and adopt always better, cheaper and more efficient ways of providing WASH services to the people of Nepal.

### 11.1 Global Scenario of Fresh Water

Researchers have forecasted (Joint Program on the Science and Policy of Global Change, MIT, 2014) that by 2050 more than half the world's population will live in water-stressed areas and about a billion or more will not have sufficient water resources.

#### 11.1.1 Fresh Water Stock

Fresh water does not have the same meaning as potable water. It is naturally occurring water on Earth's surface in ice sheets and ice caps, glaciers and icebergs, ponds and lakes, rivers and streams, and groundwater in aquifers and underground streams. Fresh water generally consists of low concentrations of dissolved salts and other total dissolved solids. It explicitly excludes seawater and brackish water. Usually, the surface fresh water and ground water is unsuitable for drinking without some form of purification due to the presence of chemical or biological contaminants.

Fresh water is a renewable and variable, but finite natural resource. It can be replenished only through the process of the hydrological cycle. However, if more fresh water is consumed than is naturally replenished, this may lead to fresh water depletion from surface and underground reserves leading to serious damage to environments. Of the whole water mass, less than only 2.9% is occupied by fresh water. Out of this, majority (1.75 - 2.0%) is located in icebergs and glaciers-almost inaccessible and only 0.6% is drinkable (source: Wikipedia, 2016).

#### 11.1.2 Future of Fresh Water

The fresh water supply is decreasing due to the increase in population through increasing life expectancy, the increase in per capita water use and the climate change effects and or global warming, which if continues causes to melt glaciers and snow caps. The World Bank has described the response by freshwater ecosystems to a changing climate in terms of three interrelated components: (i) water quality, (ii) water quantity and (iii) water timing. A change in one often leads to shifts in the others as well. With development advance, urbanisation and population growth lead to excessive water pollution. Subsequent eutrophication of water bodies may reduce the availability of fresh water.

Due to the increasing trend of population and an increase in the water consumption pattern, this situation will continue to get worse. A shortage of water in the future would be detrimental to the human population as it would affect everything from sanitation, to overall health and overall productivity. Keeping in view the future situation, this SDP has recommended to carry out studies on population bearing capacity of our cities and settlements from water supply potentiality perspective. Only that way we can make our cities and settlements sustainable, productive and thriving. On top of that, better allocation of resources and more efficient water conservation approaches may keep demand for water in Nepal under control even in the long

run. By scientifically managing our natural ecosystem and wise harnessing out of it will definitely pay a longer term return for Nepal in the context of water crisis deepening day by day globally, that would make bulk water export a more favourable plan. The separate theme on 'Ecology' is expected to serve for the purpose that Nepal WaSH sector should start to think in that direction.

## **11.2 Water Export: Potentials, Market and Modalities**

In view of the future fresh water situation discussed earlier, water export cannot be given primacy in Nepal. At the same time, realising that fresh water is renewable, though limited, and nature gifted, we can consider sharing this resource with thirsting people elsewhere on the principle of comparative and mutual benefits, staying within sustainable limits.

Scared of the foreseen global future water stress situation, it is world-wide trend of securing water resources. In view of this, Nepal should not make any delays in drafting and implementing policy and strategy on conservation of its sensitive fresh waters in particular and water security in general, by basing its actions on well supported evidence that such measures were needed to protect human and environmental health and conserve the resource. Such a national conservation strategy will not only serve the purpose of protecting our future water supply but provide a foundation for the country to assert its sovereignty over its own resources. In the context that, world is becoming water stressed, such conservation strategy, however, is not just about looking after our self-interest only.

### **11.2.1 Potential for Water Export**

Nepal Himalaya, with world's highest land- the 'Sagarmatha' or 'Mt. Everest', can be a good source of fresh water supply as well as a global brand name for water export. It will definitely have a separate 'status value' in the world market. In addition, there are enormous springs throughout the country with rich mineral content but left unused due to their improper location.

No assessment has been made till now, as what amount of clean water from glaciers, ice caps, snow-fed rivers and springs in Nepal is wasted annually. Reliable data are not available on even use of these precious resources. Source mapping programme prescribed in this SDP will reveal the potential of water for export purpose. Only those sources of such clean waters, located near to the settlements and at higher altitudes, have been tapped for local consumption, rest flows to the higher category streams and rivers and ultimately mixed to the saline water in the Bay of Bengal.

### **11.2.2 Market for Water Export**

Traditionally, water did not used to be a traded good. But with GATT or WTO, water is also included in the list of commodities ([www.wto.org/english/tratop\\_e/schedules\\_e/goods\\_schedules\\_e.htm](http://www.wto.org/english/tratop_e/schedules_e/goods_schedules_e.htm)). It is worth recalling the Dublin Principles (1992), the fourth principle of which states: "water has an economic value in all its competing uses and should be recognized as an economic good." However, it may not be profitable if the market is much far and the shipment/transfer cost offset the profit margin. Except for Bangladesh, Nepal's neighbours share the snow-capped Himalaya range. Even then, millions of people in India and Bangladesh are thirsting for drinking water and their economic status is going high day by day. These areas could be seen as tertiary markets.

World's most water scarce areas such as Gulf countries with high economic potential can be seen as secondary market. Though relatively far from Nepal, their economic capability may allow to afford for drinking 'pristine water from the top of the world'. They may take this opportunity as pride and glory. It is only the matter of promotion, economic diplomacy and sharp management skills that the Nepalese entrepreneurs should have. The day for this is not very far

away when the motorable road will reach up to Namche (very near to Kala Patthar or Black Mountain, the base camp to the Everest), the place above 4000m above mean sea level, where the glaciers from many heavenly peaks including the Everest, jumps down to get melted there. Similarly, avenues for Nepal's pristine water export will seemingly get broadened with opening up of envisaged North-South Trans-Himalayan railway and highways joining neighbouring China and India.

Though very limited, the prime market target should be aimed at the neighbouring China's huge computer and other industries of high precision. China has become the world's largest computer manufacturer. Manufacturing of computer wafers requires extremely pure freshwater. Again the question is of economy or profitability comes first. After connection of Nepal via railway network with China, the cost of transfer will be significantly cut down. Even then competition will be with that of pure water shipped from Canada or Alaska and the desalinated sea water, which though at present may seem prohibitively costlier, but with time technological advancement may bring this cost to bare optimum.

The World Water Commission foresees that desalination of sea water will be most economical way of getting water for drinking as well as industrial-use. Even then, the need for extremely pure water for particular industrial uses would still require freshwater. The tables below shows degree of water stress the countries are estimated by FAO.

**Table 27: Nepal & the Region: Situation of Internally Renewable Water Resources (IRWR)**

Countries in the Region	IRWR 2014 (m <sup>3</sup> /cap/year)	IRWR 2050 (m <sup>3</sup> /cap/year)
Afganistan	1450	-
Bangladesh	652	432
Bhutan	100671	-
China	1999	-
India	1103	792
Maldives	83	-
Nepal	6951	3873
Pakistan	251	171
Srilanka	2549	-
Bahrain	3	-
Israel	94	-
Kuwait	0	-
Qatar	25	-
Saudi	76	-
UAE	16	-

**Table 28: Water Stress Classification based on Per capita water availability (m<sup>3</sup>/year/capita)**

Quantity	Stress Condition
> 2000	No stress or Normal condition
< 1700	Stressful condition
< 1000	Severe Stress condition

Note: Internal renewable water resources (IRWR) is that part of the water resources (surface water and groundwater) generated from endogenous precipitation. The IRWR figures are the only water resources figures that can be added up for regional assessment and they are used for this purpose.

Source: FAO: AQUASTAT database, 2016

### **11.2.3 Water Export Modalities**

In addition to strong resistance from environmentalists, the basin transfer of water requires huge investment and operation costs. Whether or not the need, or in many cases pressures, for large-scale water exports continues to increase, depends mostly on future advances in sea water desalination technology.

There are already few water entrepreneurs in Nepal, exporting water tapped from high mountain springs, but in a small scale. The preferred way of water export should be in containers (jars) of no more than 20 litres. It is the common practice world-wide too.

As mentioned earlier Nepal water cannot have good commercial competitiveness, rather, it may have more 'status-value' in the international market, especially in wealthier countries. There is high opportunity to gain a fame of "Fresh Water from the top of the world- the Himalayas or Mt. Everest". However it is tricky and matter of economic and trade diplomacy as much as entrepreneurial skill. Nepalese entrepreneurs should be able to cash the status- consciousness of most wealthy people abroad.

### **11.3 Bulk Water Production and Distribution**

In the context of raising water stress and growing arsenic problems in ground waters in the Terai, the most promising and reliable mode of water supply seems to be the bulk water production and delivery to the settlements. Initially the Bulk line will be fed by snow-fed rivers, springs and deep-tube wells. The major perennial rivers in the long run may serve the major source of water supply in bulk. The Bulk line operators will probably trade water in bulk with local distribution utilities or supplier companies.

For the sake of effectiveness and economy in operation, management of such bulk water systems may have to be separated in terms of functions. It means that separate independent companies or utilities could exist for production, distribution and even for maintenance or revenue collection fronts. Unbundling of bulk water production and distribution functions becomes inevitable with growth in size of the system. Different MoUs will have to be concluded between the constituent companies with the concerned Authorities.

### **11.4 Basin Transfer and Impounding Reservoirs**

The Nepal WaSH Sector, in the mean time, should not lag behind in grabbing opportunities from future cross-sectoral endeavours such as river basin transfers and water impounding for whatever primary purpose. Even the tail water after new diversion and primary usage can be of use for water supply purpose downstream. Options of costs and benefit sharing should be explored jointly with those concerned developer agencies. In general, basin transfer is not feasible for single use in water supply alone, however, exploration of possible economic sites should not be flatly overlooked.

There is rumour on Sunkoshi-Kamala and Sunkoshi-Marinkhola diversions while Bheri-Babai diversion works are under construction these days. It should not in any way pretend from noticing the thirsting population of Dang Valley, which has a great potential of being developed into a prosperous city if water for both irrigation and drinking would be available. The WaSH sector should approach with the project executing agency so that it would realize the need for other usage of water also.

Hydropower schemes with high dams such as Budhigandaki, are another prospects for reliable

drinking water sources for downstream settlements. They could be reliable sources for E-W Bulk water supply system under consideration in this SDP.

For coordinated and participatory planning of water resources which aims to ensure equity, multiply the usage and benefits and ultimately address the peoples' aspirations and prosperity rather than sectoral interests alone, an umbrella sector institution like the Water and Energy Commission (WEC) and the National Planning Commission (NPC) will have to come up proactively towards responding to these issues.

## 11.5 Moving up the Sanitation Ladder

At present Nepal WaSH sector is on the bottom few steps of the sanitation ladder. The SDP intends to move further up the ladder by focusing on improvement of the sanitation technology options through converting unhygienic latrines to hygienic ones. All toilets in public places are to be provided with MHM facilities. Future public toilets will be only of glazed tile surfaced with 24 x 7 water availability.

**Table 29: The Sanitation Ladder**

Moving up the Sanitation Ladder	
Vision	9 Eco-Villages & Clean Green Cities
	8 Total Sanitation
Present Efforts	7 Pour-flush latrines connected to sewers with treatment plants
	6 ODF
	5 Pour-flush Latrines with Septic Tanks or open sewers
	4 Pour-flush Latrines with Pit
Surpassed	3 VIP Latrines
	2 Pit Latrines
Past	1 Open Defecation

Future cities and settlements will be ecologically balanced. All wastes produced will be recycled, recovered and reused to the maximum extent, within their boundaries. The vision for the future will be to have: properly managed wastes; adequate and safe water supply and well-functioning sewerage system; pollution control and beautiful, clean and green cities and settlements.

## Annex 1: Proposed Work Division of different tiers of Governments in Federal Setup

SN	Indicators	Regulation	Financial Mgmt	Service Delivery		Human Resource	Justification
	Key Activities			Mgmt.	Production		
1	Preparation of Act, Rules, Policy, Indicators, Norms, Guidelines and revision considering CC and DRM and WatSan services	F,P	F,P			F,P	Provincial Govt. responsibility in partnership with local government, NGOs, user association and private sector
2	Sharing of water resources in Inter-province level and conflict Management	F.	F,P	+	+	F	
3	Construction, O&M of large WatSan and sewerage systems in central and inter-province level,	F,P	F,P	F,P	F,P	F,P	National level, increase economy and spread of output
4	Study, research and appropriate technologies development	F,P	F, P, L	F, P, L	F, P, L	F, P, L	
5	Providing higher level WatSan services programme activities and promotion of water quality	F,P	F,P	F, P, L	F, P, L	F, P, L	
6	Institutional water supply & sanitation programme	F, P	F, P	L	L	L	
7	Industrial water supply & sewerage management programme	F, P	F, P	Private	Private	P, Private	
8	Projects which have to do EIA	F, P	F, P	F, P, L	F, P, L	F, P, L	
9	Promotion and conservation of underground water resource and improvement of Terai water supply programme	F, P	F, P	L	L	F, P, L	
10	Construction and operation of sewerage systems and treatment plants	F, P	F, P	L	F, P	F, P, L	
11	Policy preparation and implementation, regulation of sector convergence process	F, P	F, P	F, P	F, P	F, P	



12	Management information system	F, P	F, P	F, P	F, P	F.P.L.	
13	Development of PPP model and implementation - Privatization of W/S)	F, P	F, P	F, P, L	F, P, L	F, P, L	
14	Identify donor partners, agreement and implementation of agreement	F	F	F	F	F.]	
15	Master Plan (Coverage, Functionality, service level upgrade )	F, P	F, P	F, P	F, P	F, P	
16	Programmes that required high technology	F, P	F, P	F, P, L	F, P, L	F, P, L	
17	Water tariff fixation and implementation	F, P	F, P, L	F, P, L	F, P, L	F, P, L	
18	As per need of local Government prepare and implement Act, Rules and policy and projects based on province level Act, rules, Policy	P	P	P	P	P	
19	Construction, operation and management of medium level of water supply, sanitation and sewerage system	P	P	P, L	P, L	P, L	Increase economy and spread of output (foreign investment based on donors' criteria)
20	Inter-district /inter-local bodies level water supply projects	P	P	P, L	P, L	P, L	
21	Construction and management of cost recovery based projects	P	P, L	P, L	P, L	P, L	
22	Solid waste management and sanitation	L	L	L	L	L	
23	Construction and management of rural and urban small scale water supply and sanitation systems	L	P, L	L	L	L	a) Activities related to indicators and regulation in provincial government b) Whole Policy, Act, Rules related activities in federal government c) Remaining all activities in local government

24	Projects that need to do initial environmental examination	P	P	P	P	P	
25	Formulate and implement all water supply, sanitation and sewerage system projects of local Government	F, P	P, L	L	L	L	
26	Importance of water supply and sanitation and awareness creation programme promotion	L	L	L.	L	L	
27	Awareness creation on disaster risk management	F, P, L	F, P, L	F, P, L	F, P, L	P, L	
28	Regulatory role	F, P, L	F, P, L	F, P, L	F, P, L	F, P, L	
29	Monitoring and Evaluation (Technical, Financial and Social audits )	F, P, L	F, P, L	F, P, L	F, P, L	F, P, L	
30	Human resource development	F, P, L	F, P, L	F, P, L	F, P, L	F, P, L	
31	Coordination	F, P, L	F, P, L	F, P, L	F, P, L	F, P, L	
32	Budget management	F, P, L	F, P, L	F, P, L	F, P, L	F, P, L	
33	Crosscuttingissues	F, P, L	F, P, L	F, P, L	F, P, L	F, P, L	

Source: PREPARE report, MOGA,2015

Note :

1. Large projects – Population more than 10 thousand, Medium level projects – 2000 to 10000 population, Small projects – Less than 2000 population
2. F = Federal, P = Provincial, L = Local
3. The accountability of the government will bear in local government within itself and provincial government is in internal and federal

**Annex 2**  
**Acts, Regulations, Formation Orders, Policies, Master Plans and Standards**  
**Related to the Water Supply and Sanitation Sector**

**Acts:**

1. Water Tax Act 1966
2. Nepal Water Supply Corporation Act, 1989
3. Water Resource Act, 1992
4. Water Supply Management Board Act, 2006
5. Water Tariff Fixation Commission Act, 2006
6. Solid Waste Management Act, 2012

**Rules:**

1. Water Resource Rules, 1993
2. Environment Protection Rules, 1997
3. Drinking Water Rules, 1998
4. Kathmandu Valley Water supply Management Board Rules, 2007
5. Solid Waste Management Rules, 2013

**Directives/Formation Orders**

1. RWSSFDB formation Order 1995
2. High Powered Bagmati Civilization Integrated Development Committee (Formation) order, 2006
3. Melamchi Water Supply Development Board ( Formation) order, 1998

**Policies/Strategies:**

1. National Water Resources Strategy, 2002
2. Rural WatSan National Policy and Implementation Strategy, 2004
3. Urban WatSan National Policy, 2009
4. Climate Change Policy 2011
5. Communication Strategy: Nepal WASH SDP Phase 1: 2015-2016 (One WaSH: Our common resource and responsibility, SEIU, May 2015)

**Master Plan:**

1. National Water Plan, 2005
2. Bagmati Action Plan 2009
3. National Sanitation and Hygiene Master Plan, 2011

**Standards/Guidelines**

1. Standard Design & Implementation Guidelines 2002
2. NDWQ Standards & Implementation Guidelines 2005
3. Co-financing WSP Implementation Guideline 2011

### Annex 3: WaSH Institutional Mapping

Ministry/ Agency	Depart- ments	Major Programmes		Rural, Urban, Institu- tional	Donor Partner	Duratio n	Focus areas	Programme Areas
		No .	Name					
MoWSS	DWSS	1	Rural WSPs	Rural	GoN	regular	Basic WaSH	75 districts
		2	Sanitation Prg	R/U	GoN	regular	Sanitat/Hygiene	75 districts
		3	WQ imp. Prg.	R/U	GoN	regular	WQ improvement	75 districts
		4	NMIP	R/U	GoN	regular	Data/MIS	75 districts
		5	RWH progr	Rural	GoN	regular	Basic WaSH	75 districts
		6	Deep Tubewell	R/U	GoN	regular	WQ improvement	Terai & Vallies
		7	Rehab progr	R/U	GoN	regular	Basic WaSH	75 districts
		8	Sewerage Prg.	Urban	GoN	regular	Sanitation	Selected Cities
		9	Disaster mgt	R/U	GoN	regular	WaSH	On demand
		10	Dry area WSP	R/U	GoN	regular	WaSH	On demand
		11	Co-financing WSPs	R/U	GoN	regular	WaSH	On demand
		12	Terai WSPs	R/U	GoN	regular	WaSH	Terai districts
		13	Third Small Town Water and Sanitation Sector Project	Urban	ADB	08/2014- 01/2020	service delivery, capacity building, policy and regulation	26 small towns - Salyan, Rukum, Kapilbastu, Jhapa, Dhanusa, Sunsari, Ilam, Kaski, Siraha, Tanahun, Kailali, Nuwakot, Kanchanpur, Chitwan, Dadeldhura, Rautahar, Bajhang, Sarlahi, Khotang, Dolakha, Nawalparasi, Udayapur, Surkhet, Bhojpur, Tanahun, Rolpa
		14	Second Small Town Water and Sanitation Sector Project	Urban	ADB	09/2009- 03/2016	service delivery, capacity building, policy and regulation	21 small towns - Rupandehi, Dang, Morang, Arghakanchi, Jhapa, Baglung, Kailali, Panchthar, Kanchanpur, Chitwan, Jhapa, Nawalparasi, Kailali, Tanahun,

								Morang, Dailekh, Sankhuwasabha, Sunsari, Dhankuta, Palpa
		15	WASMIP II	Urban	JICA	2015-18		
	<b>Fund Board</b>		RWSS Improvement Project (RWSSIP 2)	Rural	WB	8/2014-06/2020	RWSS, long term sustainability	
	<b>Melamchi-1</b>		Melamchi Water Supply Project	Urban	ADB	12/2000-06/2017	Tunnel, Bulk Distribution System, cap dev	Sindhupalchowk, Kathmandu Valley
			Melamchi Water Supply Project (WTP)	Urban	JICA	3/2001-9/2018	Water quality improvement	Kathmandu Valley
	<b>Melamchi-2</b>		Kathmandu Valley Water Supply Improvement Project	Urban	ADB	08/2011-06/2016	Bulk Distribution system, distribution network improvement, cap dev	Kathmandu Valley
			Kathmandu Valley Water Services Sector Development	Urban	ADB	12/2003-12/2014	KUKL operations management, cap dev	Kathmandu Valley
			Kathmandu Valley Wastewater Management Project	Urban	ADB	04/2013-06/2019	Sewer network, treatment plant, capacity dev	Kathmandu Valley
	<b>NWSC</b>		Pokhara Water supply Project	Urban	JICA		Water quality improvement	Pokhara City
			Municipal Water Supply Systems	Urban	GoN	Regular	Water Supply and Sanitation	21 + Municipal Areas
<b>MOUD</b>	Bagmati		Bagmati High Level ...	Urban	GoN	Regular	Sewer network, treatment plant, River Flow Management	Bagmati Basin in Ktm. Valley
	<b>DUDBC</b>	1	Secondary Towns Integrated Urban Environmenta	Urban	ADB	07/2010-06/2016		

			I Improvement Project					
		2	Integrated Urban Development Programme	Urban	ADB	02/201 2- 12/201 7		
		3	Urban Governance Development Programme	Urban	WB			
<b>MOFALD</b>	<b>DoLIDAR</b>	1	Rural Village Water Resources Management Project, phase II	Rural	Finland	9/2010- 7/2015	RWSS, irrigation, MHP, livelihoods	Names
		2	RVWRMP, phase III	Rural	Finland	7/2015- 7/2020		Names
		3	Rural WatSan Project, WN II	Rural	Finland			Names
		4	NAPA WaSH (NGO project)	Rural	Finland	1/2014- 12/201 6	RWSS	Nawalparasi and Palpa
		5	Community Development Programme under LGCDP II	Rural	DFID	07/201 4- 06/201 7	RWSS	Names of 19 districts
		6	Water Supply Projects (District)	Rural	GoN	Regular	Water Supply and Sanitation	All Districts
<b>MOE</b>	<b>DOE</b>	1	School WaSH Program	Rural/Urban				All Districts
		2						
<b>MOH</b>	<b>DOHS</b>	1	WQ Surveillance					All Districts
		2						
<b>MOWCS W</b>	<b>DWDO</b>	1	WaSH Programme					All Districts
		2						
<b>MOPAC</b>	<b>PAF</b>	1	WaSH Programme					All Districts
		2						

UNICEF	Budget support programme to GoN to be put into respective agencies	1	UNICEF Country Programme Action Plan 2013-2017 (CPAP), Aligning for Action – Sanitation and Water for All in the Context of CC in Nepal		UNICEF Regular Resources	01/2013-12/2017	WaSH (incl. sanitation, school WaSH, rural water supply, emergency WaSH, disaster risk reduction and hand washing with soap.	15 focus districts
		2	UNICEF Country Programme Action Plan 2013-2017 (CPAP), Accelerating Sanitation, Hygiene and Water for All in Off-Track Countries		DFID - Thematic Global	11/2013-03/2016	WaSH (incl. sanitation, school WaSH, rural water supply, emergency WaSH, disaster risk reduction and hand washing with soap.	Name of 7 districts
		3	UNICEF Country Programme Action Plan 2013-2017 (CPAP), Aligning for Action – Sanitation and Water for All in the Context of CC in Nepal		FINLAND - Country Level	01/2011-12/2015	WaSH (incl. sanitation, school WaSH, rural water supply, emergency WaSH, disaster risk reduction and hand washing with soap.	23 districts
		4	UNICEF Country Programme Action Plan 2013-2017 (CPAP), Aligning for Action – Sanitation and Water for All in the Context of CC in Nepal		SIDA - Thematic Global	01/2016-12/2017	WaSH (incl. sanitation, school WaSH, rural water supply, emergency WaSH, disaster risk reduction and hand washing with soap.	
JICA	Supporting through On-budget programs of GoN as mentioned above							

<b>DFID</b>		1	Rural Water and Sanitation Programme Phase V- Implementing Partner-GWS	Rural		06/2012-06/2020		39 districts
<b>USAID</b>		1	Safe WaSH II	Rural		07/2014-06/2019		
		2	Suaahara-Integrated Nutrition Project	Rural		08/2011-08/2016		
<b>UN Habitat</b>		1	Global Sanitation Fund Nepal		WSSCC	10/2010-09/2017		
		2	Support My School Campaign		Coca Cola Foundation	01/2013-4-2015		
<b>SNV</b>		1	WaSH Results Programme		DFID	04/2014-03/2018		
		2	Civil Society WaSH Fund		DFAT + DGIS	05/2014-06/2018		
		3	Small towns sanitation and hygiene		DGIS	01/2013-12/2014		
		4	Functionality of Rural Water Supply Services		DGIS	01/2013-12/2014		
<b>WHO</b>		1						
		2						
<b>WaterAid</b>								
<b>Plan Nepal</b>								
<b>Save the Children</b>								



<b>Helvetas</b>								
<b>Practical Action</b>								
<b>World Vision</b>								
<b>European Union</b>								
<b>NEWAH</b>		1	Rural WASH Service	Rural	WaterAid Nepal	Apr 2016- Mar 2017 Apr 2016- Dec 2016	WASH (including MHM)	Sindhuli,Udaypur, Siraha,Gorkha, Morang
		2	Increasing Access to Improved WASH Services ( including rehab of WASH in EQ affected districts)	Rural	charity: water	Aug 2015 – Jul 2016	WASH	Sindhuli, Baglung, Chitawan, Gorkha, Dhading, Nuwakot
		3	ChaldoRakhaun	Rural	charity: water	Apr 2016 – Jul 2017	Follow up of WASH projects	Sindhuli,Baglung, Chitawan,Dhading, Nuwakot
		4	Improving access to WASH services	Rural	IMC	Nov 2015- Nov 2016	WASH	Gorkha
		5	Increasing access to improved WASH services	Rural	SIMAVI (Water Alliance Nepal)	Feb 2016 – Nov - 2016	WASH	Gorkha
		6	Increased access to WASH & create livelihood opportunities	Rural	RAIN Foundation (Water Alliance Nepal)	Mar 2016- Nov 2016	WASH	Gorkha
		7	WASH response	Rural	CONCERN worldwide	Aug 2015 - Jul 2016	WASH	Gorkha
		8	SABAL	Rural	Save the Children/USAI	Dec 2014-	WASH Promotion	Sindhuli, Okhald, Ramechhap,Khota

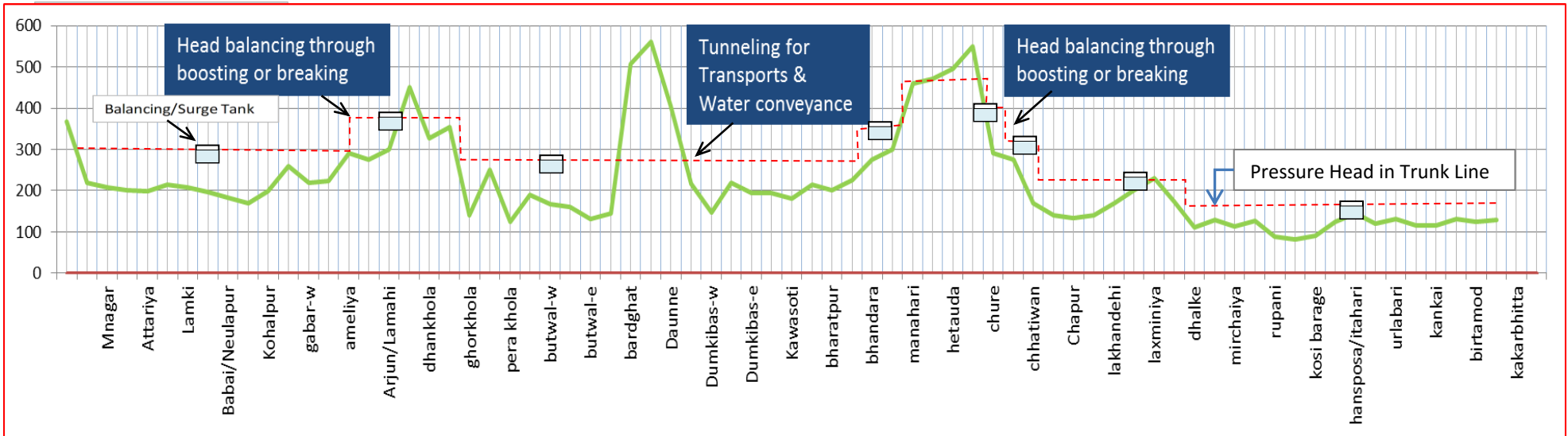
					D	July 2019		ng, Udayapur, Makwanpur
		9	(WASH) program	Rural	Plan Nepal	Jul2015 - Jun 2016	WASH Promotion	Morang
<b>ENPHO</b>								
<b>NRCS</b>								
<b>CARE Nepal</b>								
<b>Lumanti</b>								

ANNEX - 4

PROGRAM AREAS OF WASH PARTNERS



## Annex5: Indicative Longitudinal Profile of Proposed East - West Bulk Water Supply Trunk Line & Approximate 'HGL'



### General Notes:

#### 1. Sources of water feeding to the trunk:

- Snow-fed perennial rivers in the high mountains with convenient alignment.
- Springs nearby the trunk or collectors requiring almost zero treatment.
- Deep tube wells (around 77 numbers) nearby the trunk alignment in alluvial plain with solar pumping arrangement.
- Impounding Reservoirs nearby the trunk alignment.

All those sources will be fed to the East-West trunk-line through North-South feeders through 'manifolds'.

#### 2. Head or flow balancing will be attained with boosting (pumping) or breaking the pressures with BPTs/Surge Tanks/Pressure release valves etc.

3. Number of feeding pipes from various water sources at different locations through 'manifolds' will also help in maintaining almost constant pressure head and flow balance to ensure meeting demand at different load points.

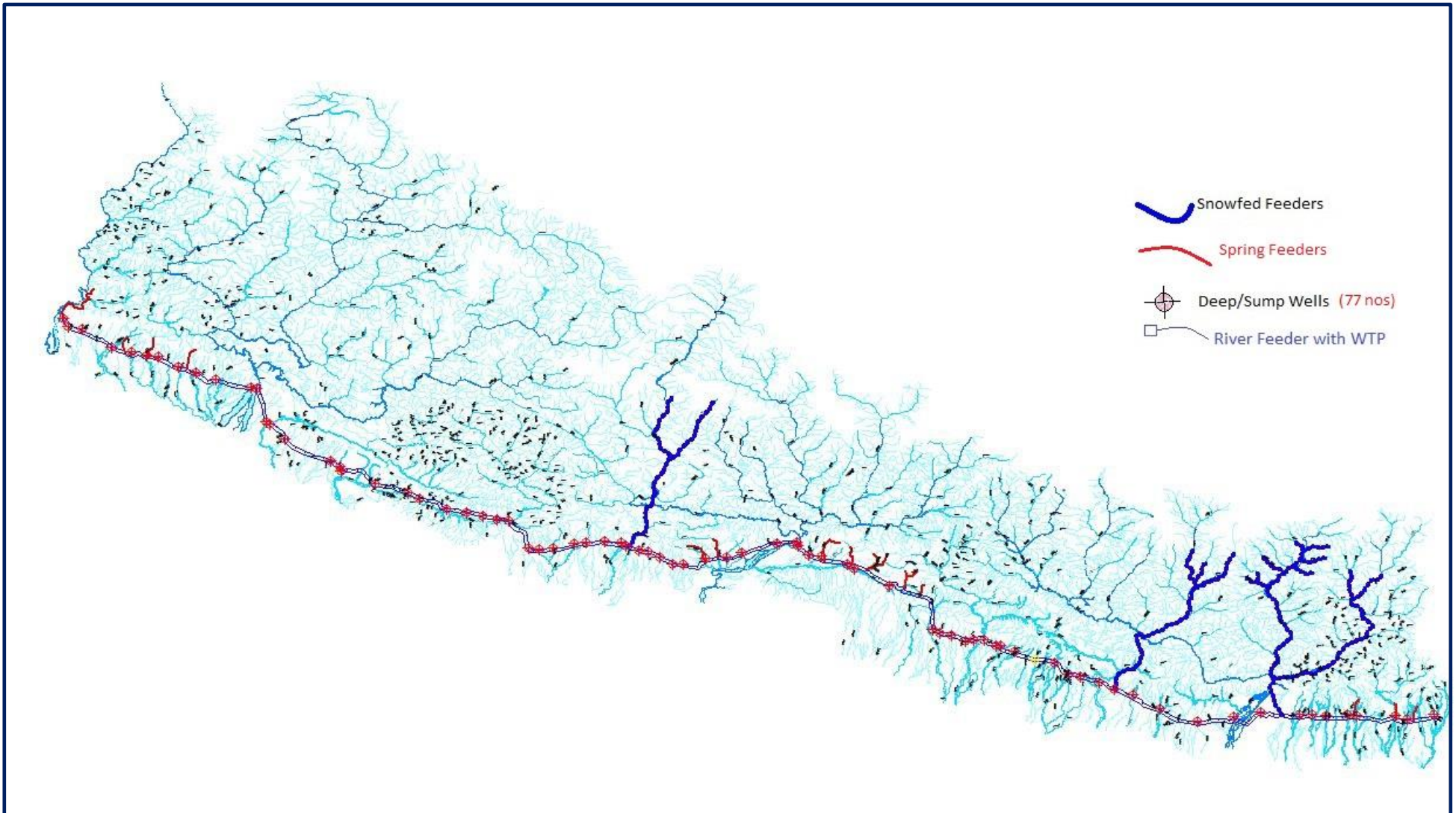
4. The system will preferably be constructed through PPP or fully private financing aiming with full cost recovery. Provision will be made for separation of gross production and distribution fronts by establishing separate companies. Connections will apparently be completely metered, and most probably prepaid metering.

## PROGRAM AREAS OF WASH PARTNERS



- USAID U
- Water Aid W
- PLAN P
- SNV Nepal S
- RWSSP-WN F1
- RVWRMP F2
- UNICEF O
- JICA ¥
- OXFAM φ
- NEWAH 💧
- NWA N
- HELVETAS H

**Annex 6: Indicative Layout Plan of Proposed East - West Bulk Water Supply Trunk Line & Envisaged Sources of Supply**



## Annex 7 Estimates for Construction Materials and Labours Required for SDP implementation

### 8.1 Access and Utilisation (Estimated Cost NRs. 57,27,73,985 thousand)

Key Areas	Action Points	Responsible Key Agency	Implementing Agency	Monitoring Agency	Linkage to SDG	Baseline 2015	Milestones 2020	Milestones 2025	Milestones 2030	
Basic Service Coverage for all (59606577)	Reaching the unreached (59606577)	MoWSS	All Implementers	MoWSS	6.1	15% unreached	Basic water supply to all achieved (49420977)			
			All sector actors			6.1	2127/3157 VDCs	ODF (100%) achieved (10185600)		
Service level improvement (513167408)	WASH Planning (90000)	MoWSS	WSSDO <sup>(1)</sup>	DWSS <sup>(2)</sup>	6.1	NA	Integrated district WASH plan prepared (75000)	District Integrated WASH plan updated (75000)	District Int. WASH plan updated (75000)	
	Provision of safe and affordable water supply services (291624708)		WSSDO	DWSS	6.1	79110	W/S facilities provided in public institutions and public places (840000)	Continuation (40000)	Continuation (40000)	
			DWSS, Boards, NWSC, Others	MoWSS	6.1	15% (High + Medium)	25% population have access to medium level service (58610268)	40% population have access to medium level service (63004564)	50% population have access to medium level service (10700794)	
							15% population have access to high level service (39756732)	30% population have access to high level service (49695924)	50% pop. have access to high level service (66261228)	
	Provision of adequate and equitable sanitation services (218845000)	MoWSS	All sector actors	MoWSS	6.2	NA	Total Sanitation (20%) of HHs (953000)	Sustained total Sanitation in 50% of HHs (1429500)	Sustained Total San in 100% HHs (2382500)	
			WSSDO	DWSS	6.2	NA	Sanit. facilities provided in public institutions and public places (4400000)	Continuation (2400000)	Continuation (4000000)	
		MoWSS					None	Sanitation Plan prepared in all mega and large system areas (300000)	Sanitation Plan prepared in in all mega and large and 50% Medium system areas (1590000)	Sanitation Plan prepared in all mega, large and Medium system areas (1590000)
			DWSS, Boards, Bagmati, Others	MoWSS	6.2	None	20% large & mega systems have wastewater management (WWM) system (25200000)	50% large & mega and 25% medium systems have WWM system (71400000)	All large & mega and 25% Medium systems have WWM system (96600000)	
	Local Govt	Local Govt/ Utility	Local Govt	6.2	None	SWM in all municipal areas (1800000)	SWM in all municipalities & Large/Mega WS system areas 1600000)	SWM in all municipalities & all medium to mega WS System areas (3200000)		

Key Areas	Action Points	Responsible Key Agency	Implementing Agency	Monitoring Agency	Linkage to SDG	Baseline 2015	Milestones 2020	Milestones 2025	Milestones 2030
Service level improvement	Hygiene promotion in institutions (Enabling environment, Awareness and Access to Hardware) (1750000)	DWSS	WSSDO	MoWSS	6.2	NA	100% new institutional and public toilets will have MHM facilities inbuilt in them, 50% Existing facilities will be upgraded to meet MHM needs (875000)	100% new institutional and public toilets will have MHM facilities inbuilt in them, 50% Existing facilities will be upgraded to meet MHM needs (875000)	100% (new and existing) institutional and public toilets will have MHM facilities inbuilt in them, (cost included in new structures itself)
	Promotion of behavior and communication change (875700000)	DWSS	All sector actors	MoWSS	6.2	NA	IEC materials developed, produced and disseminated (285900)	Continuation (285900)	Continuation (285900)
Service Utilization (cost included in Theme 5)	Awareness raising among consumers on Economic utilisation of saved time, equitable and sustainable benefit consumption	Utility	Utility	MoWSS	6b	None	10% users awared on sustainable and equitable service utilisation (cost included in Theme 5)	50% users awared on sustainable and equitable service utilisation (cost included in Theme 5)	100% users awared on sustainable and equitable service utilisation (cost included in Theme 5)

Note: (1) WSSDO is assumed to be the lowest WASH office at sub-national level planning & implementation for the transition period until full-fledged federal governance setup is accomplished;

(2) DWSS will be gradually transformed into a Sector Regulatory Authority by transferring implementing function to Sub-national WaSH Institutions and at the same time, increasing regulatory functions;

(3) Here, Public Institutions means Schools (non private), colleges, Health Care Facilities (HCFs), Gaunpalika Offices, Police/Security Posts (but large barracks and establishments will not be counted for this purpose and will be tackled seperately as special case).



**Table 15: Estimates of Public Institutions and Places**

Category	Numbers	Remarks/Source
Schools, community	29272	<a href="http://www.doe.gov.np/files/Files/Final_Flash%20Report">http://www.doe.gov.np/files/Files/Final_Flash%20Report</a>
Schools, institutional	5510	<a href="http://www.doe.gov.np/files/Files/Final_Flash%20Report">http://www.doe.gov.np/files/Files/Final_Flash%20Report</a>
Colleges		Not considered
Gaunpalika Offices	3157	<a href="https://en.wikipedia.org">https://en.wikipedia.org</a>
HCFs	3157	one in each present VDC
Birthingcenters	3157	one in each present VDC
Market/Jatra/Temple/Public Fairs Places (assumed)	3157	one in each present VDC
TOTAL	<b>79110</b>	

## 8.2 Functionality and Sustainability (Estimated Cost NRs. 2,83,46,750 Thousand)

Key Areas	Action Points	Responsible Key Agency	Implementing Agency	Monitoring Agency	Linkage to SDG	Baseline 2015	Milestones 2020	Milestones 2025	Milestones 2030
Bench Marking (92550)	System BM with Segregated Data collection (as per service classification) (62550)	DWSS	DWSS	MoWSS	6.1-6.2	MIS/DSS not functional	MIS System with segregated and classified Data operationalized, (45000)	Continuation, Best practices identified and accepted (13500)	Continuation (13500)
	System categories (30000)	WSSDO				NA	The nature of dysfunctionality categorized into social, technical, managerial and financial components with appropriate solutions; 3 star approach adopted (10000)	3-Star approach adopted in functionality of systems, Reward system Introduced for best functional systems in each district (10000)	Continuation (10000)
Legalisation of WUAs (153000)	Registration of WUAs in DWRC (153000)	WSSDO				15% (NMIP 2014)	All of the sources as well as the WUAs are duly registered at the concerned DWRC. Registered Systems given with priority for Post Construction Support (PCS) (153000)		
Service Support (1340400)	Establishment of Service Support Centres (590400)	WSSDO/ Provincial Offices	WSSDO	DWSS	6.1-6.2, 6a	None	Provincial/District Support Unit established with the responsibility to act as service support centre (180400)	Continuation (205000)	Continuation (205000)
	Water supply systems support with sustainability model (750000)	MoWSS	All implementers	MoWSS	6.1-6.2, 6.4	None	Sustainability Model like (Life cycle Approach and Support Modality) adopted in at least 1 project in each district (75000)	Continuation for additional 300 projects (300000)	Continuation for additional 375 projects (375000)

<b>Key Areas</b>	<b>Action Points</b>	<b>Responsible Key Agency</b>	<b>Implementing Agency</b>	<b>Monitoring Agency</b>	<b>Linkage to SDG</b>	<b>Baseline 2015</b>	<b>Milestones 2020</b>	<b>Milestones 2025</b>	<b>Milestones 2030</b>
Assets Management ((410000))	Preparation of Assets management guideline and asset evaluation of WUSC (410000)	MoWSS	WSSDO	DWSS			Asset evaluated for 30% existing projects (123000)	Asset evaluated for 70% existing projects (164000)	Asset evaluated for 100% existing projects (123000)
System reinstatement (26350800)	Regular repair and maintenance (26350800)	MoWSS	WSSDO	DWSS			All existing projects in conditions (7528800)	All existing projects in conditions (9411000)	All existing projects in conditions (9411000)

### 8.3 Innovation and Technology Adaptation (Estimated Cost NRs. 38,52,950 Thousand)

Key Areas	Action Points	Responsible Key Agency	Implementing Agency	Monitoring Agency	Linkage to SDG	Baseline 2015	Milestones 2020	Milestones 2025	Milestones 2030
R&D for Sustainability of systems and services (3325250)	Budget Allocation for R&D (3325250)	MoWSS (NWSSTC)	NWSSTC	MoWSS	6a	NA	0.5% Budget Allocated/ Academic & Research Institutes engaged on Research and application based on 11 themes (953831)	Continuation (1247472)	Continuation (1123947)
Promotion of Technology and Innovation (527700)	Common platform development for knowledge, learning, sharing and promotion at center and provincial levels (527700)	NWSSTC	NWSSTC	MoWSS	6.4, 6a	NA	Peer learning event organised annually (Learning & Sharing include formation of interest groups; Common website development, sector gathering; Orientation of WASH actors towards new ideas/ innovations/ technologies from producers and or suppliers side) (120000)	Continuation (200000)	Continuation (200000)
			NWSSTC	MoWSS	6a	NA	Efficiency rating framework developed and; Efficiency rating of commonly used WASH related technologies carried out continuously (2700)	Promotion of efficient technologies (2500)	Continuation (2500)

#### 8.4 Ecosystem and Water Production (Estimated Cost NRs. 22,47,62,500 Thousand)

Key Areas	Action Points	Responsible Key Agency	Implementing Agency	Monitoring Agency	Linkage to SDG	Baseline 2015	Milestones 2020	Milestones 2025	Milestones 2030
Ecosystem Management (41422500)	River Health Management (RHM) (15010000)	MoWSS	RB Authority	MoWSS	6.6	Bagmati River (with its tributaries in the Ktm. Valley)	National River Health Management Framework (NRHMF) developed and its implementation initiated in 5 highly polluted rivers, Continuous monitoring of rivers passing through urban settlements (5010000)	River Health Management Program implemented in 5 highly polluted rivers, Rivers passing through urban settlements monitored continuously (5000000)	Continuation (5000000)
	Water Shed management, Water augmentation (26542500)	Local Govt	Local Govt	Provincial Gov	6.6, 6.1	NA/71000 settlements	20% settlements have constructed at least one Pond of prescribed size (1750000)	30% settlements have at least two Pond of prescribed size; All Ponds maintained annually (3500000)	50% settlements have at least two ponds; Annual campaign for pond cleaning & maintenance conducted in each settlement (3500000)

Key Areas	Action Points	Responsible Key Agency	Implementing Agency	Monitoring Agency	Linkage to SDG	Baseline 2015	Milestones 2020	Milestones 2025	Milestones 2030
Ecosystem Management	Water Shed management, Water augmentation	Household	Household	Local Govt	6.6, 6.1	NA/ 5800000 HHs	One HH, one recharge pit (prescribed size) maintained in 20% of HHs; The recharge pits maintained regularly (2382500)	One HH, one recharge pit maintained in 50% of HHs; The recharge pits maintained regularly (3573750)	One HH, one recharge pit maintained in 100% of HHs; The recharge pits maintained regularly (5956250)
		Utility	Utility	MoWSS	6.6	NA	Water Source of all Large and mega systems protected (450000)	Water Source of all Large, mega & 40% Medium systems protected (2120000)	Water Source of all Large, mega & 60% Medium systems protected (3180000)
Water Production (1833400000)	Reduction of Non-revenue Water (NRW) (2970000)	Utility	Utility	MoWSS	6.4	NA	All Large/Mega Utilities reduce NRW by 25% (900000)	All Large/Mega Utilities reduce NRW further by 25% (990000)	All utilities have NRW less than 25% (1080000)
		Utility				None	Prepaid meters introduced starting from central/core business areas of townships and Avenues area, as a pilot project. (Included in theme 1)	Pre-paid metering plan rolled out citywide based on learning from past successes. (Included in theme 1)	Scaleup and continuation (Included in theme 1)
		Utility	Utility	MoWSS	6.4	29% (in 2015)	Metered connection in 50% of HHs served by Large and Medium systems ((Included in theme 1)	Metered connection in 75% of HHs served by Large and Medium systems (Included in theme 1)	Metered connection in 100% of HHs served by Large and Medium systems (theme 1)

Key Areas	Action Points	Responsible Key Agency	Implementing Agency	Monitoring Agency	Linkage to SDG	Baseline 2015	Milestones 2020	Milestones 2025	Milestones 2030
Water Production	Bulk Water Production (1802500000)	MoWSS	DWSS	MoWSS	6.1	NA	Feasibility Study and DPR of East West Trunk line W/S Project (along E-W Highway to feed major settlements of Terai) (500000)	30% of E/W Trunkline Project implementation completed (774000000)	60% of E/W Trunkline Project implementation completed (516000000)
			DWSS	MoWSS	6.1, 6.6	NA	Feasibility Study and DPR preparation of at least 7 impounding reservoirs (one in each province) for W/S Project	At least 7 WS projects with impounding reservoirs for W/S Project initiated	Completion of at least 7 WS projects with impounding reservoirs
	Wastewater reuse (120000)	Utilities	Utility	MoWSS	6.3, 6a	NA	15% of effluent water produced through WWTP of 10 large systems reused in agriculture/ recharge (6000)	25% of effluent water produced through WWTP of 40 large systems reused in agriculture/ recharge (24000)	50% of effluent water produced through WWTP of 150 large systems reused in agriculture/ recharge (90000)

### 8.5 WaSH Governance, Institutional Setup and Capacity Building (Estimated Cost NRs. 2,18,54,827 Thousand)

Key Areas	Action Points	Responsible Key Agency	Implementing Agency	Monitoring Agency	Linkage to SDG	Baseline 2015	Milestones 2020	Milestones 2025	Milestones 2030
Governance (3429400)	Increasing transparency, accountability, responsiveness and meaningful participation in WASH sector (2550000)	Utilities	Utilities	MoWSS	6a, 6b	None	10% of WASH institutions have in place: -own Charter -service charter -public hearing -Proactive disclosure of information (510000)	25% of WASH institutions have in place: -own Charter -service charter -public hearing -Proactive disclosure of information (765000)	50% of WASH institutions have in place: -own Charter -service charter -public hearing -Proactive disclosure of information (1275000)
	Social audit (879400)	MoWSS	Utilities/ Projects	MoWSS		NA	All projects undergo social audit (297000)	All rehabilitated and reconstructed projects had undergone social audit (291200)	All rehabilitated and reconstructed projects had undergone social audit (291200)
Empowerment of WASH Institutions (6174875)	Capacity Dev Master Plan preparation (9000)	NWSSTC	NWSSTC	MoWSS	6a	Need Assessment, HRD strategy	Capacity Dev Master Plan prepared (5000)	CDMP updated (2000)	CDMP updated (2000)
	Empowerment of WASH Institutions Establishment of Lead capacity development institution in WASH (600000)	MoWSS	NWSSTC	MoWSS	6a	NWSSTC	National WASH Academy established, capacited and operationalised (600000)	National WASH Academy strengthened and operationalised (250000)	National WASH Academy strengthened and operationalised (250000)





Key Areas	Action Points	Responsible Key Agency	Implementing Agency	Monitoring Agency	Linkage to SDG	Baseline 2015	Milestones 2020	Milestones 2025	Milestones 2030
Sector Capacity Development (6650552)	Capacity development of WASH professionals (6650552)	MoWSS/SEIU/DPS				Negligible	At least 1% of WASH budget spent on Capacity devment; 'WaSH Governance and Accountability Fund (WGAF)' established (1907662)	At least 1% of WASH budget spent on Capacity development, SGAF operational (2494943)	Continuation (2247947)
Institutional set up in the course of implementation of federal governance (5600000)	Establishment of new WASH institutions in Fed/Provincial and Local tiers of governments (5600000)	GoN/MoWSS				NA	Provincial WASH institutions established (700000)	Muniipal/Village WASH Offices established (4900000)	

**8.6 WaSH Diplomacy and Sector Convergence (Estimated Cost NRs. 96,800 Thousand)**

Key Areas	Action Points	Responsible Key Agency	Implementing Agency	Monitoring Agency	Relevance to SDG	Baseline 2015	Milestones 2020	Milestones 2025	Milestones 2030
Sector Convergence (Direct cost not needed)	Integrate all WASH interventions run by other Ministries under the umbrella of Ministry of Water Supply and Sanitation (MoWSS)	MoWSS	All Ministries currently engaged in WASH interventions	MoWSS		The Sector is looked after by more than 4 ministries	All WASH interventions executed under MoWSS, MoWSS as one window Ministry for WASH, All functions for basic service coverage under different institutions transferred to Local Government (post 2017) (No cost)	MoWSS continues to be the lead Ministry for WASH sector, All functions for basic service coverage under different institutions carried out by Local Government (No cost)	MoWSS continues to be the lead Ministry for WASH sector, All functions for basic service coverage under different institutions carried out by Local Government (No cost)
Sector Cohesion (20800)	Establishing sector Communication, Alignment & Harmonization (20800)	MoWSS	<b>SEIU/MoWSS</b>	MoWSS		JSR on biannual basis	Annual National WaSH Review conducted annually, Sector Status Report Published annually (4800)	ANWR conducted annually, Sector Performance Report Published annually (M&E feeds to it) (8000)	ANWR conducted annually, Sector Performance Report Published annually (M&E feeds to it) (8000)
		MoWSS	All implementers	MoWSS	6.1-6b	Annual Dev. Program	SDP implemented (Cost embedded in other )	SDP reviewed, updated and implemented (Cost embedded in other )	SDP reviewed, updated and implemented (Cost embedded in other )

Key Areas	Action Points	Responsible Key Agency	Implementing Agency	Monitoring Agency	Relevance to SDG	Baseline 2015	Milestones 2020	Milestones 2025	Milestones 2030
Sector visibility (76000)	Networking and Promotion (76000)	Sector Actors	Sector Actors	MoWSS		NA	Promotional activities: media campaign, WASH fares, WASH expos, dissemination of WASH promotional materials in other fairs (cultural events), self-help clubs or organisations (16000)	Broadening and Continuation (30000)	Broadening and Continuation (30000)

**8.7 Monitoring & Evaluation (Estimated Cost NRs. 28,43,000 Thousand)**

Key Areas	Action Points	Responsible Key Agency	Implementing Agency	Monitoring Agency	Relevance to SDG	Baseline 2015	Milestones 2020	Milestones 2025	Milestones 2030
Blanket Survey (2600000)	Data Collection/ Survey /Updating/ Unique System ID (2600000)	DWSS	DWSS	MoWSS	6.1	NMIP 2014, Around 70000 settlements	Georeferenced segregated data collected (linked to M&E system) (800000)	Updated every year and surveyed every 5 years (900000)	Updated every year and surveyed every 5 years (900000)
Sector Performance measurement (80000)	Establishment/ Operationalization of WASH sector M&E MIS/DSS linking to evidence based planning (80000)	Regulator	MoWSS	Regulator		Adhoc planning	WASH sector Monitoring Framework/MIS/DSS developed, Planning process integrated with sector M&E system (50000)	Operational M&E Framework/MIS/DSS, WASH sector M&E system Integrated with cross-sectoral MIS (15000)	Operational M&E Framework / MIS / DSS, Integrated with cross-sectoral MIS, (Regulatory Authority has started taking responsibility of sector performance monitoring and reporting) (15000)

Key Areas	Action Points	Responsible Key Agency	Implementing Agency	Monitoring Agency	Relevance to SDG	Baseline 2015	Milestones 2020	Milestones 2025	Milestones 2030
Project Monitoring (150000)	Development of project performance monitoring system (project design and monitoring framework, project performance report, project completion report, project performance audit report) (150000)	Project Management	Project Management	MoWSS		None	All WASH agencies have PPMS in place and has linkage to sector M&E system (50000)	Continuation (50000)	Continuation (50000)
Capacity Development for M&E (13000)	Assessment of infrastructures, knowledge and ownership required for effective M&E (13000)	MoWSS	MoWSS	Regulator		None	Assessment of infrastructures, knowledge and ownership for M&E of core WaSH agencies carried out (3000)	Continuation (5000)	Continuation (5000)
	Capacity Development (Included in theme 5)		NWSSTC	MoWSS	6a	NA	Capacity Development of WaSH agencies for M&E initiated (Included in theme 5)	All core WASH agencies capacitated for M&E (Included in theme 5)	Continuation (Included in theme 5)







Key Areas	Action Points	Responsible Key Agency	Implementing Agency	Monitoring Agency	Relevance to SDG	Baseline 2015	Milestones 2020	Milestones 2025	Milestones 2030
Service Quality Improvement	Assurance of water quality	Utility	Utility	MoWSS	6.3	NA	Water quality testing facilities/ mechanism available in 25% small systems (if lab is not available conveniently) (23025)	Water quality testing facilities/mechanism available in 50% small systems (46050)	WQ testing facilities/ mechanism available in 100% small systems (92100)
	Surveillance (194500)	MoH	DPHO/DOHS	MoH	6.3	Surveillance Guideline prepared	Surveillance reports produced and publicised in all large and 25% of medium system (29500)	Surveillance reports produced and publicised in all large and 50% of medium system (56000)	Surveillance reports produced and publicised in all large and medium system (109000)
	Assuring Water Safety (12112500)	DWSS/Utility	WSSDO	DWSS	6.3	WSP implemented in less than 2% of system	Water Safety Measures implemented in 25% Systems (956250)	Water Safety Measures implemented in 75% Systems (4781250)	Water Safety Measures implemented in 100% Systems (6375000)
Compliance with design, construction, service standards, policy/legal obligations (1203500)	Technical Audits (38500)	MoWSS	DWSS	MoWSS		Few projects in adhoc basis	Atleast 10 large, mega projects in a year undergone Technical audit from NVC (sample) (6000)	Atleast 10 large, mega and 10 medium projects in a year undergone Technical audit from NVC (sample) (15000)	Atleast 10 large, mega and 10 medium and 10 small projects in a year undergone Technical audit from NVC (sample) (17500)

Key Areas	Action Points	Responsible Key Agency	Implementing Agency	Monitoring Agency	Relevance to SDG	Baseline 2015	Milestones 2020	Milestones 2025	Milestones 2030
Compliance with design, construction, service standards, policy/legal obligations	Financial Audits (400000)	Utility	Utility/GoN Offices	MoWSS		NA	All Large, mega and at least 1000 Medium systems per year undergone Financial audit from registered auditor (45000)	All Large, mega and at least 2000 Medium systems per year undergone Financial audit from registered auditor (280000)	All Large, mega and at least 3000 Medium systems per year undergone Financial audit from registered auditor (75000)
	Standards Formulation	MoWSS	DWSS	MoWSS		Guidelines available	Design standards prepared	Design Standards updated	Design Standards updated
	Promotion and Encouragement in production/ use of quality goods and construction materials (1203500)	Producers & Manufacturers	DWSS	MoWSS			At least one construction materials testing lab in each Provincial Directorate identified and established. All projects carry out testing of construction materials in compliance with standard specs. (70000)	At least one construction materials testing lab in each district identified and established. All projects carry out testing of construction materials in compliance with standard specs. (680000)	All projects mandatorily carry out testing of construction materials in compliance with standard specifications (Included in project cost)

Note: (1) During the transition, DWSS will be delegated the both roles of implementer and Regulator

### 8.9 GESI (Estimated Cost NRs. 5,97,000 Thousand)

Key Areas	Action Points	Responsible Key Agency	Implementing Agency	Monitoring Agency	Relevance to SDG	Baseline 2015	Milestones 2020	Milestones 2025	Milestones 2030
GESI in WASH services (597000)	Equitable Service provision (Included in theme 1)	MoWSS	Utility	MoWSS	6a	Basic water to all	Equitable service realised through private connection	Continuation	Continuation
	Promoting inclusive capacity development (Included in theme 5 and 7)	Implementing Agency	Implementing Agency	MoWSS	6a	NA	Dissaggregated data generated (SDG), HRD encouraged from WPE groups of project area (eg. production of Sub-overseer/VMSW/Manager should be included in Project construction estimates),	HRD encouraged from WPE groups of project area (eg. production of Sub overseer/ VMSW/Manager should be included in Project construction estimates),	Continuation
	Ensuring inclusive and equitable access to service (Additional cost not needed)	Utility	Utility	MoWSS	6.1	NA	Cross subsidy mechanism within the community developed for WPE (In installation/Tarriffs etc.)	Continuation	Continuation
	Mainstreaming GESI (597000)	MoWSS	Implementing Agency	MoWSS		GESI mainstreaming ongoing	GESI mainstreamed in all mega and Large systems (120000)	GESI mainstreamed in all mega and Large and 20% Medium systems (318000)	GESI mainstreamed in all mega and Large and Medium systems (159000)



**8.10 WaSH in Special Situation (Estimated Cost NRs. 3,63,26,421 Thousand)**

Key Areas	Action Points	Responsible Key Agency	Implementing Agency	Monitoring Agency	Relevance to SDG	Baseline 2015	Milestones 2020	Milestones 2025	Milestones 2030
Prepared-ness (503250)	Prepositioning of key items, Capacity building, Resource Allocation, Maintaining Supply chain (Transportation and Vendor Agreement) (503250)	Local Administration/ WSSDO	Local Administration/ WSSDO	DWSS	6.1, 6.2	NA	District Preparedness Response Plan (Contingency Plan) prepared (112500)	Continuation and updating (2250)	Continuation and updating (2250)
					6.1, 6.2	NA	Stockpiles available for WASH response/ Vendor agreement for emergency purposes in all districts (112500)	Continuation (187500)	Continuation (187500)
Response (6650552)	Needs assesment, Emergency response planning, Response (6650552)	Local Administration/ WSSDO	Local Administration/ WSSDO	DWSS	6.1, 6.2	NA	All emergencies dealt with successfully (No extra cost needed)	Update and implementation (No extra cost needed)	Update and implementation (No extra cost needed)
						Negligible	1% of sector budget allocated for disaster response and preparedness (1907662)	Continuation (2494943)	Continuation (2247947)

Key Areas	Action Points	Responsible Key Agency	Implementing Agency	Monitoring Agency	Relevance to SDG	Baseline 2015	Milestones 2020	Milestones 2025	Milestones 2030
Response	Needs assesment, Emergency response planning, Response	NWSSTC	NWSSTC	MoWSS	6a	NA	350 Human Resource developed for emergency (from among WASH practitioners, 5x75) WASH response activities under capacity development, Risk Based HR roster Prepared (Cost included in theme 5)	Continuation (Cost included in theme 5)	Continuation (Cost included in theme 5)
Water Scarcity (280000)	Population carrying capacity mapping from WASH perspective (280000)	MoWSS	DWSS	MoWSS		Cities are getting water stressed	Population carrying capacity determined in all Sub/Metropolitan areas (200000)	Population carrying capacity determined in all old Municipal areas (40000)	Population carrying capacity determined in all new Municipal areas (40000)
Disaster Resilient WaSH structures (28892619)	Restoring and Rebuilding WASH Services Post Earthquake (22000000)	MoWSS	DWSS	MoWSS		NA	Cross cutting (included in other themes) (22000000)		
	Retrofication of WaSH structures of Mid-western and Far-western region (6892619)	MoWSS	DWSS	MoWSS			WaSH structures in Mid-western and Far-western region retrofitted (6892619)		
Mitigation		WSSDO	WSSDO	DWSS		NA	Cross cutting (included in other themes)		
Adaptation		WSSDO	WSSDO	DWSS		NA	Cross cutting (included in other themes)		

### 8.11 Sector Financing (Estimated Cost NRs. 63,62,500 Thousand)

Key Areas	Action Points	Responsible Key Agency	Implementing Agency	Monitoring Agency	Relevance to SDG	Baseline 2015	Milestones 2020	Milestones 2025	Milestones 2030
Finance (3000000)	Establishment of Financial institution/ Intermediary (3000000)	MoWSS	MoWSS	MoF		TDF, Fund Board	Financial intermediary established Insurance / Maintenance soft loan / Grant from financial intermediary available to Utilities (1000000)	Maintenance Bank/ Financial Institution/ Cooperative/ Trust/Fund/ Lottery established, (1000000)	Continuation (1000000)
	Taxation	Utilities	Utilities	MoWSS		KUKL users	Proportion of Utilities paying tax for watsan 5% (High level only)	Proportion of Utilities paying tax for watsan 10 % (High & Medium level)	Proportion of Utilities paying tax for watsan 25 % (High & Medium level)
	CSR	Utilities	Utilities	MoWSS		NA	Utilities initiate CSR	Continuation	Continuation
Investment (162500)	Increasing sector investment/ Expanding WASH Market	Sector actors	Sector actors	MoWSS		Increment in annual allocation 10-15 %	Sector investment increased by 80 %	Sector investment increased by 50 %	Sector investment increased by 40 %

Key Areas	Action Points	Responsible Key Agency	Implementing Agency	Monitoring Agency	Relevance to SDG	Baseline 2015	Milestones 2020	Milestones 2025	Milestones 2030
Investment	Implementing Business Plan of utilities (162500)	Utilities	Utilities	Regulator		NA	50% of mega, Large utilities prepared and implemented Business plan (15000)	10% of mega, large utilities prepared and implemented Business plan (15000)	100% of large and 25% of Medium Utilities prepared and implemented Business plan (132500)
Marketing (320000)	Sanitation Marketing & Establishing and promoting Sani Marts or WaSH hardware and service centre (320000)	Entrepreneurs and Implementers	Entrepreneurs and Implementers	DWSS	6b	NA	Sanitation Marketing & Sani Marts or WaSH hardwares and service centres available at 25% VDCs, (800000)	Sanitation Marketing & Sani Marts or WaSH hardwares and service centres available at 50% VDCs, (800000)	Sanitation Marketing & Sani Marts or WaSH hardwares and service centres available at 100% VDCs, (1600000)
		Gaupalika (where no entrepreneurs interested)	Gaupalika (where no entrepreneurs interested)	DWSS	6b	NA			



### Annex 8: Summary of Costs of SDP Themes

(Cost are in '000 NRs.)

Theme No.	Theme	Cost for 2020				Cost for 2025				Cost for 2025			
		GON	External	User	Total cost	GON	External	User	Total cost	GON	External	User	Total cost
1	Access and Utilization	90,013,371	57,628,230	45,060,875	192,702,477	75,772,533	77,609,157	38,946,698	192,328,388	61,699,223	87,442,453	38,601,444	187,743,120
2	Functionality and Sustainability	1,360,968	522,992	6,231,240	8,115,200	1,628,100	771,800	7,703,600	10,103,500	1,628,190	809,960	7,689,900	10,128,050
3	Innovation and Technology Adaptation	753,572	322,959	-	1,076,531	1,014,980	434,992	-	1,449,972	928,513	397,934	-	1,326,447
4	Ecosystem and Water Production	6,038,000	1,752,000	4,958,500	12,748,500	85,549,600	1,868,400	29,689,750	117,107,750	64,913,200	1,882,800	28,110,250	94,906,250
5	WaSH Governance, Institutional Setup and Capacity Building	3,485,162	1,510,000	807,000	5,802,162	8,228,293	733,400	1,056,200	10,017,893	3,212,072	1,256,500	1,566,200	6,034,772
6	WASH Diplomacy and sector convergence	4,160	16,640	-	20,800	7,600	30,400	-	38,000	7,600	30,400	-	38,000
7	Monitoring & Evaluation	608,000	295,000	-	903,000	655,500	314,500	-	970,000	655,500	314,500	-	970,000
8	Continuous Quality and Service Improvement	236,150	162,600	1,936,525	2,335,275	1,222,750	787,000	5,313,550	7,323,300	437,000	1,042,000	6,429,600	7,908,600
9	Gender Equality and Social Inclusion	24,000	96,000	-	120,000	63,600	254,400	-	318,000	31,800	127,200	-	159,000
10	WASH in Special Situation	19,840,740	9,904,768	1,378,524	31,124,031	2,184,217	540,476	-	2,724,693	1,986,620	491,077	-	2,477,697
11	Sector Financing Strategies	832,000	128,000	855,000	1,815,000	832,000	128,000	855,000	1,815,000	864,000	256,000	1,612,500	2,732,500
	<b>Cost of 11 Theme Areas</b>	<b>123,196,123</b>	<b>72,339,189</b>	<b>61,227,664</b>	<b>256,762,976</b>	<b>177,159,173</b>	<b>83,472,525</b>	<b>83,564,798</b>	<b>344,196,496</b>	<b>136,363,718</b>	<b>94,050,824</b>	<b>84,009,894</b>	<b>314,424,436</b>
	Cost for pop increase @ 1.35% p.a.	4,391,765	2,635,059	1,756,706	8,783,530	16,970,964	10,182,578	6,788,386	33,941,928	27,480,351	16,488,210	10,992,140	54,960,701
	<b>Total</b>	<b>127,587,888</b>	<b>74,974,248</b>	<b>62,984,370</b>	<b>265,546,506</b>	<b>194,130,137</b>	<b>93,655,103</b>	<b>90,353,184</b>	<b>378,138,424</b>	<b>163,844,069</b>	<b>110,539,034</b>	<b>95,002,034</b>	<b>369,385,137</b>
	Overhead cost @15%	19,138,183	11,246,137	9,447,656	39,831,976	29,119,521	14,048,265	13,552,978	56,720,764	24,576,610	16,580,855	14,250,305	55,407,771
	<b>Grand Total:</b>	<b>146,726,071</b>	<b>86,220,385</b>	<b>72,432,026</b>	<b>305,378,482</b>	<b>223,249,658</b>	<b>107,703,368</b>	<b>103,906,162</b>	<b>434,859,188</b>	<b>188,420,679</b>	<b>127,119,889</b>	<b>109,252,339</b>	<b>424,792,908</b>