ASSESSMENT OF THE OPERATIONAL STATUS OF SANITATION AND HYGIENE MASTER PLAN 2011

Kamal Adhikari
Sociologist
National Water Supply and Sanitation Training Centre
Department of Water Supply and Sewerage
Email: kamal.anthro@gmail.com

Abstract: This paper has assessed the operational status of Sanitation and Hygiene Master Plan 2011. The WASH sector policies, Master Plan, studies, field level activities and opinion of sector experts and stakeholders were reviewed for this assessment. The Government of Nepal has enforced the Master Plan to unify stakeholders' efforts and scale up sanitation. The Master Plan has aimed to achieve ODF status in Nepal by 2017. Local level planning, sanitation conferences, triggering and financing have given an added impulse to localize the Master Plan, which has led to remarkable increase in ODF coverage. For this assessment, few indicators were set by considering core elements of the Master Plan. The Master Plan is complied particularly in establishing local body's leadership, multi-sector stakeholder collaboration and unified planning. Lack of allocation of 20% of the WASH sector budget to sanitation, continuation of poor hand washing practices, no use of toilets in ODF declared areas and lack of users’ friendly toilets in households, public places and schools shows non-compliances. However, Nepal will achieve national goal of universal sanitation within the given timeframe provided aggressive and output-oriented sanitation interventions are held.

Keywords: actors, compliance, push, stakeholders, unified

Introduction:

Two Nepalese slogans on sanitation remind the year 2008. These popular slogans are Haamro Gharma Charpi Chha Haami Laai Yesma Garwa Chha (we are proud of having toilets in our homes) and Poorna Sarsafaima Pratiwaddata Haami Sawaiko Yekyawaddata (our solidarity towards the commitments for total sanitation) (IYS Desk Nepal 2008). Though these slogans seem intangible, profound emotion on sanitation embedded in them sought wider public attention in the following days. That year the world community was dedicated to launch the International Year of Sanitation (IYS) to promote global attention on sanitation. The Government of Nepal took a historical initiative to formulate the Master Plan on Sanitation in the same year. The Steering Committee for National Sanitation Action chaired by the Department of Water Supply and Sewerage (DWSS) facilitated to formulate the much awaited Master Plan in collaboration with the IYS 2008 Desk Nepal and stakeholders. National Planning Commission and six Ministries (Physical Planning and Works, Local Development, Education, Health and Population, Women Children and Social Welfare, Finance and Environment) are the signatories of the Master Plan (GoN 2011).

The Sanitation and Hygiene Master Plan 2011 was endorsed by the Council of Ministers and launched by the President of Nepal. It has set a target of Open Defecation Free (ODF) Nepal by 2017. This is a historical document of the Water Supply, Sanitation and Hygiene (WASH) sector owned by the top level state entities and recognized by cross-sector stakeholders. The Master Plan has institutionalized the leadership of local bodies such as District Development Committee (DDC), municipality and Village Development Committee (VDC) and multi-stakeholders' institutions such as National Sanitation and Hygiene Steering Committee.
(NSHSC), National Sanitation and Hygiene Coordination Committee (NSHCC), Regional WASH Coordination Committee (R-WASH-CC), District WASH Coordination Committee (D-WASH-CC), Municipality WASH Coordination Committee (M-WASH-CC) and VDC WASH Coordination Committee (V-WASH-CC). A wing called sanitation taskforce provides technical support to these coordination mechanisms in respective levels.

The existing sanitation coverage is uneven among different ecological regions and socio-economic groups. The Terai region is lagging behind in the national marathon of ODF although sanitation coverage there is increasing gradually in recent years. Expansion of environment friendly ODF status in urban areas still stands as a difficult task in the absence of faecal sludge management system. There is a lack of methodological clarity for mainstreaming squatters and slum dwellers (Adhikari 2012). The compact settlement, landlessness and lack of technical knowhow of toilet are other challenges. Lack of concrete strategies to revive toilets in disaster and earthquake hit areas has hampered ODF campaign.

We have entered the year 2017. This year is the deadline for achieving the national target of universal sanitation. This situation thus strongly demands innovative outlook and critical analysis of ongoing sanitation interventions vis-à-vis implementation of the Master Plan. This paper has therefore assessed operational status of the Master Plan in light of its compliance and non-compliance. This assessment is believed to give insight to the government and concerned development partners to give THE BIG PUSH to the sanitation sector for comfortably achieving the national target of universal sanitation within the given timeframe.

Materials and Methods:

Altogether 13 indicators were used to assess the operational status of the Master Plan. In order to set these indicators; guiding principles, strategies, institutional arrangement and plan of action of the Master Plan were considered. For this assessment, the WASH sector policies and Master Plan, study documents and field level activities were assessed and opinion of sector experts, practitioners, members of WASH-CCs and participants of the WASH sector trainings organized by the National Water Supply and Sanitation Training Centre (NWSSTC) were considered. For this assessment, following indicators and leading questions are adopted:

**Indicator-I: Policy convergence:**
- Have major WASH sector related policies, plans and sector initiatives complied with the target of the Master Plan?

**Indicator-II: Institutional arrangement and stakeholders' collaboration:**
- Are institutions like NSHSC, NSHCC and WASH-CCs formed in respective levels?
- Is there representation of cross-sector stakeholders in those coordination mechanisms?
- Are these coordination mechanisms and cross-sector stakeholders engaged in sanitation promotion activities?
- Is district sanitation unit established at DDC?
- Have end-users taken part in sanitation promotion activities?

**Indicator-III: Establishment of a technical advisory group:**
- Is a central level technical advisory group established to support implementation of the Master Plan?
Indicator-IV: ODF as a bottom line of all sanitation interventions:
- Have related agencies recognized ODF as a key output in their project documents?
- Have those agencies framed promotional activities to attain ODF status?
- Have those agencies collaborated with WASH-CCs for sanitation actions?

Indicator-V: Leadership of local bodies and establishment of VDC and municipality as the basic unit of program?
- Have DDC, municipality and VDC taken lead to formulate, endorse and enforce the strategic plan on sanitation (ODF and total sanitation)?
- Have concerned agencies recognized in their project documents VDC and municipality as the basic unit of sanitation intervention?
- Have Ward, school's catchments and Tole level sanitation programs complied with the VDC and municipality level strategic plan/unified plan on sanitation?

Indicator-VI: Unified plan on sanitation:
- Have all districts formulated the unified plan by aligning with the Master Plan?
- Have all municipalities and VDCs formulated the unified plan by aligning with the district level unified plan?
- Have unified plans set a common target and result framework, pooled local resources and established the periodic progress review mechanisms?
- Have unified plans addressed gender equality, social inclusion, disaster and climate change related issues and challenges?
- Are unified plans formulated through participatory process?

Indicator-VII: Locally managed resources for sanitation promotion:
- Have unified plans set the norms for mobilizing local resources?
- Have unified plan established resource pooling arrangements?
- Have unified plans discouraged traditionally held blanket subsidy?
- Have unified plans promoted pro-poor financing mechanisms?
- Have unified plans pooled stakeholders’ local level resources?
- Have WASH-CCs established locally managed sanitation fund?
- Have WASH-CCs introduced local level financing modalities?
- Have pro-poor communities accessed local resources for toilet construction?
- Are local level private entrepreneurs engaged in sanitation related business?
- Have stakeholders provided household level hardware subsidy for toilet construction?
- Have communities borrowed locally held loan for toilet construction?

Indicator-VIII: Introduction of different toilet options and promotion of users' friendly permanent toilets in households, schools and institutions:
- Have stakeholder introduced various toilet options in local communities and markets?
- Have users easily accessed to information about various toilets options?
- Do users have access to those toilets?
- Have all new buildings in rural and urban areas installed permanent toilets?
- Have all households and institutions constructed toilets before ODF declaration?
- Do those toilets possess child friendly, gender friendly and disabled friendly features?

Indicator-IX: Promotion of hygiene behaviors:
- Are behavioral change related approaches and materials developed and enforced?
• Are these materials appropriate locally?
• Are competent human resources engaged for community sensitization and triggering?
• Are advocacy and behavioral change related campaigns held regularly in all levels?
• Is hand washing with soap established as a core element of WASH promotion?
• Are hand-washing platform, soap and water available in households, schools, institutions and public places?
• Are Menstrual Hygiene Management (MHM) related facilities available in schools, institutions and public places?

Indicator-X: Total sanitation intervention:
• Is national level guideline on total sanitation formulated and enforced?
• Have existing unified plans on ODF outlined strategic direction for total sanitation?
• Have different level WASH-CCs formulated and enforced unified plans on total sanitation immediately after ODF declaration?
• Have district, municipality and VDC level unified plans on total sanitation included promotional actions as envisaged by the Master Plan?

Indicator-XI: Monitoring and evaluation:
• Are local level monitoring and evaluation mechanisms and indicators established?
• Are self and joint monitoring process institutionalized?
• Are effective post-ODF triggering, monitoring, evaluation and follow up activates held in local levels?

Indicator-XII: Research, development and knowledge management
• Are research, development, knowledge management and sharing avenues established in different levels?
• Are locally appropriate toilet designs developed and disseminated?
• Are formative and action research held for sanitation and hygiene promotion?

Indicator-XIII: Establishment of sanitation fund and rewards
• Is national sanitation fund established and mobilized?
• Are national, regional, district and program level plus special reward established?
• Are individuals and institutions rewarded in different levels?

Results and Discussion:

The above indicators and leading questions were followed while collecting and synthesizing information about operational aspects of the Master Plan. The information thus collected is presented from national perspective though relevant local level cases are also considered. The overall operational status of the Master Plan and findings are as follows:

• NSHSC, NSHCC and regional, district, municipality and VDC level WASH-CCs are formed with representation of the cross-sector actors. WASH-CCs are established in Ward, Tole and school's catchments too. These coordination mechanisms and grass root level institutions/groups are engaged in planning, implementation and monitoring of ODF campaign. The meetings of these WASH-CCs are held regularly especially during preparation of ODF declaration. District sanitation unit which was supposed to be established in all 75 DDCs is not fully materialized. But it is in place, for example, in the program districts of Rural Water Supply and Sanitation Project in Western Nepal. The conferences on sanitation, strategic planning and review workshops, joint-monitoring and ODF declaration ceremonies have promoted stakeholders' ownership and collaboration. Community people take part enthusiastically during ODF declaration events which are appeared as the socio-cultural festivals. In some districts, there is a feeble coordination between D-WASH-CC and M-WASH-CC.

• As envisaged by the Master Plan, a central level technical advisory group has not been established so far. However, National Sanitation Taskforce and Terai Sanitation Task Force have been providing technical supports to NSHCC and the government.

• The WASH sector related government and non-government organizations have recognized ODF as a key outcome of all sanitation interventions. Apart from stand alone sanitation program budget of the government, development partners have mobilized sanitation dedicated foreign funds like Global Sanitation Funds (GSF) in different districts. WASH in school intervention is also emphasized under ODF campaign. The development partners have established collaboration with NSHCC and WASH-CCs for operational purpose. However, the practice of Memorandum of Understanding between them and WASH-CCs is not a common phenomena.

• All concerned stakeholders have adopted leadership of local bodies for sanitation promotion. The unified plan which is popularly known as strategic plans is formulated and enforced under the leadership of local body-led WASH-CCs. The strategic plan is endorsed by respective DDC, municipality and VDC councils. Wards, Toles and school's catchments level WASH-CCs follow municipality and VDC level target, strategies and action procedures. In general, secretariats of WASH-CCs have lacked adequate and dedicated budget, human resources and logistic arrangements. It has hampered coordination, monitoring and knowledge management.

• ODF campaign is held by enforcing strategic plan on sanitation. The strategic plan consists of target, strategies, mapping of stakeholders and resources, social norms and code of conducts, promotional actions, plan of action and monitoring arrangement. Participatory interactions and discussions are held among stakeholders in the strategic planning process. All districts have enforced strategic plan for ODF. However, all VDCs and municipalities have not formulated it though they have been conducting ODF campaigns. All ODF declared districts, municipalities and VDCs have not developed strategic plan on total sanitation. These days, formulation of 'WASH Plan', 'Water Users' Master Plan' and 'City Wide Sanitation Plan' is also getting popular. The DWSS is planning to introduce 'Sanitation Safety Plan' which was discussed during 6th South Asian Conference on Sanitation held in Bangladesh in 2015.

• WASH-CCs have identified local level resources in their strategic plans. The Basket planning arrangement is common for sanitation promotion. These days, Blanket hardware subsidy granted for household toilet construction has been discouraged largely. However, local bodies and WASH-CCs provide some supports to pro-poor and disadvantaged communities by following norms and criteria set locally. In some districts, donation, sanitation trust fund, reward and recognition and other such support and financing mechanisms also prevail. For example, in Dang district,
Daanvers (heroes of generosity), have provided cash and material supports to needy neighbors. Besides, local entrepreneurs and micro-finance institutions have produced and supplied non-local sanitation materials. This was observed especially in Bardiya, Chitwan and Arghakhanchi districts. Some VDCs in Terai districts have promoted supply of concrete rings. The business houses and private sector agencies are still reluctant to run sanitation business in local communities. The governments’ effort is inadequate for promoting public-private-partnership in sanitation. Nevertheless, sanitation marketing held in some Terai districts has strengthened supply chain. In rural areas, loan is not a common financing practice for household toilet construction. Remittance has triggered households’ decision for toilet construction. The national level sanitation fund is not established so far. It is pity that 20% of the WASH sector budget is not allocated for sanitation promotion in the wider sectoral level.

- WASH-CCs have widely recognized permanent structure of toilets (at least up to the plinth level) as a pre condition for ODF declaration. The toilet designs and standard operating procedures are not readily available for end-users. There is lack or no use of toilet (slippage) even in ODF declared areas. For example, a study conducted in 5,517 households in 27 wards in Kapilvastu, Nawalparasi, Rupandehi and Gulmi districts shows some interesting results. In the 23 ODF declared wards 94% had a toilet; only three of the individual 27 wards had 100% toilet coverage. Of 3,385 households, 11% reported that children under five did not use the toilet. In all those cases where there was a toilet, improved or unimproved in 4,329 households, 91% of these were used by all family members (RWSSP-WN 2016). Often, households and institutional toilets are not friendly for children, women, aged and people with disabilities. The existing toilets lack disaster resilient features too. WASH-CCs lack data, information management system, adequate human resources, logistic materials and contingency plan on disaster. ODF status is not maintained across highways even though their adjoining communities are declared as ODF zones.

- Hygiene promotion is a key concern of all stakeholders. Triggering approach has been widely adopted for sensitizing stakeholders. It has brought a radical change on the front of capacity development. However, there is a visible lack of competent human resources for effective triggering and mass sensitization at community and sectoral levels. There is also lack of locally compatible promotional materials for behavioral change and build up process. The national level behavioral change communication strategies and formative research on sanitation are not in place. For media advocacy, journalist WASH-CC is active in some districts like Pyuthan and Parsa. The sanitation sector is overwhelmed by ODF campaign so that hand washing with soap and other key behavioral aspects are shadowed. The socio-cultural dogma and practice like Chhaupadi in the western part of the country and easy acceptance open defecation in the Terai communities have killed the true spirit of ODF status. The issues of MHM are not addressed adequately though stakeholders have had grave concern over it. There are inadequate efforts to establish soap as a medicinal item at operational level. Hand washing with soap often gets less priority over toilet construction. In general, people have not perceived bitter fact of faecal oral contamination caused by open defecation and the profound positive health impacts of hand washing with soap at critical times. Hand washing practice is hampered in school by poor management of water. In most cases, soap is not readily available in public toilets, schools and road side hotels and restaurants. The tippy tap and group hand washing platforms in schools have resolved such problems to some extent.

- In 2012, DWSS and WHO piloted the Total Sanitation Model VDC program in some districts by following 5+1 indicators (use of toilet, hand washing with soap, use of
safe water, use of safe food and clean home plus clean environment). NSHCC has formulated the Total Sanitation Guidelines based on sectoral learning. The guideline has made the scope of total sanitation wider than what the Master Plan has envisaged. Though there are some small initiatives like '7 Flags Approach to Total Sanitation' (Panthi 2016), 'Star Approach in School' and 'Clean Home', the pace of overall total sanitation intervention is less encouraging as compared to ODF initiative. So far, there are very few total sanitation declared areas in Nepal. Often, WASH-CCs and communities are found in lethargic condition particularly after ODF declaration as if attainment of ODF status is their ultimate destination of sanitation. Existing strategic plans on sanitation lack clear outlook of total sanitation intervention immediately after ODF declaration. The linkage between ODF and total sanitation interventions is missing at operational level though there is a strong advocacy for it.

- WASH-CCs have established monitoring and evaluation systems in respective levels. The sanitation taskforce or a monitoring team comprising of 5 to 9 members are engaged in ODF monitoring, verification and endorsement process. Joint-monitoring mechanism is established at district, municipality and VDC levels. The joint-monitoring team comprises of members from WASH-CC, mass media and political parties. Self-monitoring is common in schools and communities. Such monitoring is led by the child clubs and community groups (like women's group) to curb open defecation practices. Local level monitoring indicators are mentioned in the strategic plans. The monitoring report is documented in the secretariat of WASH-CCs. In general, post-ODF monitoring, reward, evaluation and follow-up are feeble in most of the districts, municipalities and VDCs. These days, WASH-CCs have widely used sanitation card to persuade people to install toilets and monitor progress. The card has remarkably contributed to increase household toilet coverage but its effectiveness for behavioral change promotion is often questioned. It is therefore a high time to assess effectiveness of such locally innovated tools as well. On the other hand, Kapilvastu district has initiated a noble approach for encouraging households to build and use toilet by sending a request letter (card) signed by advisor, chair and member secretary of D-WASH-CC. These types of positive innovations have proved to be very effective in persuading the households.

- There are some efforts for knowledge management in the WASH sector. The establishment of WASH resource center in national and sub-national levels, sanitation newsletters published by the NSHCC secretariat, the WASH Sector Status Reports of the Sector Efficiency Improvement Unit, training manual developed by R-WASH-CC Surkhet, project progress report of development partners and national and sub-national levels monitoring, learning visits and progress review workshops have strengthened knowledge management and learning alliance. The new avenues for sharing of sector learning and innovations are emerging gradually. For example, the first historical WASH Expo held in 2015 at the premises of NWSSTC has cultivated the collaborative culture among stakeholder for achieving better sector outcomes through learning, network building and expanding business relation (NWSSTC 2015). Similarly, use of social medias especially facebook pages and groups like Nepal Sanitation Forum has provided platform for discussions, sharing of information and positive competitions among the sector actors. However, the sanitation sector lacks formative and action research as well as innovations on toilet technologies.

- Titles like 'sanitation ambassador' and 'sanitation champion' are used to recognize sanitation promoters. Local level stakeholders have promoted reward and recognition mechanisms and established sanitation matching fund to stimulate the ODF campaign.
The national sanitation fund as well as national, regional, district, program level rewards and special rewards are not established so far.

There is an enabling policy environment to localize the Master Plan and run focused sanitation intervention. The Joint Sector Review process has contributed to harmonize sector activities. Participation of the president, vice-president, prime minister, speaker, ministers, law makers, senior political leaders, top level bureaucrats and artists in sanitation events has raised the profile of sanitation. Sanitation conferences have triggered mass action for speedy ODF campaign. The sector triggering has strengthened broad based alliance, wider sectoral linkages, comprehensive planning, effective community mobilization, massive cost-sharing and resource pooling arrangements and intensive political mobilization (Adhikari 2015).

The inclusion of sanitation in local body's Minimum Condition Performance Measure framework has given adequate thrust to increase financial investment, program inputs and sanitation momentum. The NSHCC-led monitoring missions and target bound intensive sanitation interventions have stimulated ODF campaign in the Terai regions. Local innovations like engagement of sanitation commandos, establishment of sanitation trust fund, sanitation patrolling, dispatch of request letter to household for toilet construction and conduction of sanitation mobile camp, Sarsaafai Satyagraha, Sarsaafai Sangarsha Sibir, Lota Chhinne Abhiyan and Sarsaafai Vikshyatan have further synergized ODF campaign.

The contributions of School Led Total Sanitation, Community Led Total Sanitation, Community Led Total Behavioral Change in Hygiene and Sanitation, National Sanitation Week Campaign, ecological sanitation, sanitation festivals and local innovations are mainstreamed under WASH-CC's unified plan. This has largely synergized sanitation campaign. The role of Non Governmental Organizations, Federation of Drinking Water and Sanitation Users Nepal, mass media, social and religious leaders, youth, local clubs and community groups has remained instrumental for community sensitization.

Nepal's sanitation campaign is characterized uniquely. It is a comprehensive nationwide campaign which has effectively engaged people from all regions, all religions, all creeds, all classes, all genders, all castes, all ethnicities, all languages, all age groups and all vocations for a common cause of improved sanitation and hygiene. The Master Plan has unified efforts of various segments of people to produce ODF status in the same manner as a hydro power plant produces electricity through collection of water from different sources.

Nationwide sanitation coverage was mere 43% till 2010 (NMIP/DWSS 2011). The rate of ODF declaration increased amazingly after enforcement of the Master Plan. A remarkable success has been achieved against the milestone set by the Master Plan: 60 % coverage by 2012/13, 80% coverage by 2014/15 and 100% coverage by 2016/17. The data show that the country could achieve 62 % coverage by 2012/13 (CBS 2012) and 82 % coverage by 2014/15 (NMIP/DWSS 2014). The data estimated by the secretariat of NSHCC at the DWSS shows that sanitation coverage by January 2017 is 87 % against 100 % coverage by 2016/17 and 38 of 75 districts, 2388 of 3157 VDCs, 131 of 217 municipalities and 2 of 14 zones have been declared as ODF areas. The sanitation coverage could be more than 90% till date, if earthquake of 2015 had not collapsed the massive number of household toilets.

The government has established sanitation as a priority program in the annual development framework and it has recognized sanitation as a basis for health, dignity and development through different policies and plans. This situation has led to sanitation social movement.
which is triggered by multi-stakeholders’ collaboration (UNICEF 2015). The different development sectors have adopted lessons from ongoing ODF and total sanitation interventions. For example, declaration of ‘indoor smoke free households’ and ‘total literate VDCs’ is getting popular. The new outlook like ‘cross border sanitation intervention’, ‘environment friendly ODF’ and ‘sanitation tourism’ (Adhikari 2015) are also highlighted in the sanitation sector. The ODF campaign has given impact on social dynamism and community empowerment that are key drivers for local ownership (Paudel 2015). Nepal’s sanitation campaign has visibly contributed to rural development by fostering social inclusion and harmony, institutional development at grass-root level, development of local leadership, community’s entrepreneurship development and participatory planning.

**Conclusion:**

The Master Plan is a widely adopted WASH sector document which is well recognized by both inter and intra-sector stakeholders. The Master Plan has established sanitation and hygiene as the cross-cutting theme of development, aligned stakeholders' efforts and promoted unified planning and resource-pulling arrangements. This assessment shows that the Master Plan is complied particularly in establishing local body's leadership, multi-sector stakeholders' collaboration and unified planning. Lack of allocation of 20% of the WASH sector budget to sanitation, continuation of poor hand washing practices, no use of toilets in ODF declared areas and lack of users' friendly toilets in households, public places schools shows non-compliances.

Nepal's sanitation sector has accumulated ample of good learning, innovations and creations. The Master Plan is one of such remarkable innovations, which is recognized by cross-sector stakeholders with high level of ownership and emotional attachment. It has enabled cross-sector collaboration, led speedy nationwide ODF campaign and prepared a basic foundation for total sanitation intervention. Nevertheless, manifestation of poor achievements in behavioural domains and ODF slippage shows that sanitation sector is yet to identify and apply key psycho-social determinants that strongly triggers human mind to internalize sanitation as an integral part of basic life process like eating food and wearing clothes.

Overall, four categories of people surfaced in national sanitation campaign. The pioneer had spontaneously adopted toilet quite ahead of enforcement of the Master Plan. The early adopters had internalized need of ODF status and promoted toilet at the early stage of sanitation game. The late adopters were persuaded through application of triggering actions and enforcement of social code of conducts. The laggards are still lying in dormant stage. The last category is the most difficult area to tackle with prevailing sanitation approaches.

If some people truly require external supports, it is a high time for the state to massively flow creatively crafted and carefully targeted lucrative incentive packages to mainstream those unheard, untouched and unable segments of the society at the appropriate point of time in 2017. Also, thousands of sanitation camps need to be established in nooks and corners of communities and massive local level campaigners should be engaged to run result-oriented aggressive sanitation missions. The capable people still remaining away from sanitation game will be mainstreamed by the powerful current of ODF campaign and tremendous moral pressure thus generated locally. Then a dream of national goal of universal sanitation will be achieved within 2017 and the country will embark on a journey for a noble mission of total sanitation by aligning with globally recognized Sustainable Development Goal target. This will lead to more equitable and prosperous sanitation sector of Nepal.
References:

- Sector Efficiency Improvement Unit (SEIU)/Ministry of Physical Planning and Works (MPPW) 2011. *WASH Sector Status Reports*.

Note: This paper has been published in a technical journal of Water, Sanitation, Health and Environment issued on the occasion of World Water Day 2017 (Volume: 15, Issue: 1, Page: 45-53, ISSN-2091-0851) by the Society of Public Health Engineers, Nepal (SOPHEN).