

“सस्तो, सुलभ वैज्ञानिक प्रविधिको विकास गरौं”

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Water and Waste Water

Regional Conference

On

**“Water Resource Management in the Context of
Gorkha Earthquake-2015”**

&

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Rural WASH Policy and Practice in Context of Water Resource Management



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Background

Water, Sanitation and Hygiene (WASH) is fundamental for human health and broad-based economic development. It has been widely accepted nationally and internationally as one of the preconditions for sustainable development. Nepal has reached to nearly 87 percent of total population with basic drinking water service and to 87.3 percent with basic sanitation facilities. (WASH Sector Status Report, 2016).

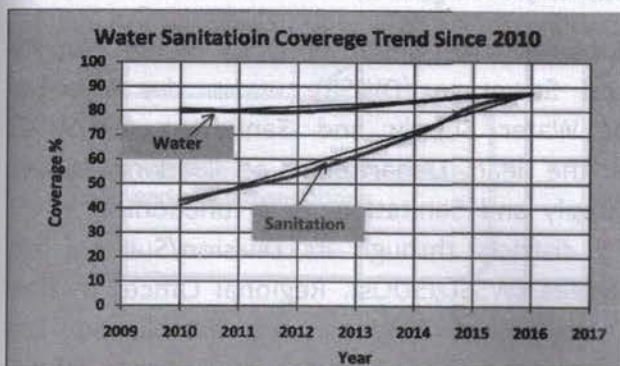


Figure 1: Water supply and sanitation coverage trend since 2010 (Source: WASH Sector Status Report, 2016)

However, fully functionality of water services is being challenged with only 25.4 percent of total schemes are well-functioning and 36.1 percent schemes need minor repair and maintenance. (NMIP, 2014). On the irrigation side, 2.641 million hectares of the total land is arable, out of which, only 1.766 million

hectares is irrigable. By the end of fiscal year 2014/15, total of 1,374,869 hectares land have irrigation facilities. (Economic Survey, 2015). On hydropower side, the official number declared that Nepal's total capacity for hydropower is 83,000 megawatts. However, some studies claim the total capacity as 85,000 megawatts. (Nepal hydro electricity, 2017). Currently, there are 23 hydropower plants in operation producing 568.7 megawatts. (ippan, 2017). All these show that water has important role for its utilization in diversified areas for broad-based economic development. Large part of the world is getting difficult to meet increasing demand of water (Falkemark, M. and Lannerstand, M., 2004). Proper management and utilization of available water resources is a concern of governments and development actors as a major component of sustainable development. Freshwater is a finite and vulnerable resource. Integration of sectoral water plans and programmes within the framework of national economic and social policy, is of a great importance. The fragmentation of responsibilities for water resources development among sectoral agencies is impediment to promoting integrated use of water. It, therefore, requires an effective implementation and coordination mechanisms. (par. 18.6., Ch. 18, Agenda 21).

Water Resource Policies: Foundation of Legislation

Government of Nepal approved Water Resources Strategy (WRS) in January 2002 with an objective to improve the living standard of Nepalese people in a sustainable manner. In order to implement the activities defined by the Water Resource Strategy, the Water and Energy Commission Secretariat (WECS) developed the National Water Plan (2005) of Nepal, which emphasizes the integrated water management concept. According to the plan, "the IWRM is defined as a process that promotes the coordinated development and management of water, land and related resources to maximize the resultant economic and social welfare in an equitable manner without compromising the sustainability of vital ecosystems".

Water Resource Act 1992 has segregated the priority of different uses of water in the following way:

- 1) Drinking water and domestic use,
- 2) Irrigation,
- 3) Agricultural use such as animal husbandry, fisheries,
- 4) Hydroelectricity,
- 5) Cottage industry (e.g. water mill or grinder), industrial enterprises and mining,
- 6) Navigation,
- 7) Recreational use, and
- 8) Other uses.

Further, new Constitution of Nepal has expressed the commitment of the state for the development of water resources (article 51). It states "the state shall pursue a policy of prioritizing national investment in water resources based on people's participation and making a multi-utility development of water resource". However, there are many laws and related acts are yet to be developed to unfold the statements of constitution into practices.

Historical Background of Institutional Arrangements

In 1966, Ministry of Water Resources was established with Department of Irrigation and

Water Supply. This department was segregated into two separate departments: Department of Water Supply and Sewerage (DWSS) and Department of Irrigation and Meteorology (DIM) in 1972. At the same time, Ministry of Panchayat and Local Development (MPLD) had been given the responsibility for small-scale village level water supply scheme construction as part of its local development program. Only such schemes had been constructed through this arrangement which had a system up to 1500 population, no more than 5 kilometer pipeline and below NPR 50,000 investment. Beyond this criteria, the schemes had been implemented by DWSS through contractors or consultants. (Boot and Heijnen, 1988). In 1984/85, these two departments (DoI and DWSS) were segregated into two different ministries. DWSS came under Ministry of Housing and Physical Planning (MHPP), later on Ministry of Urban Development and now Ministry of Water Supply and Sanitation. Similarly, DoI came under Ministry of Water Resources and later on Ministry of Irrigation.

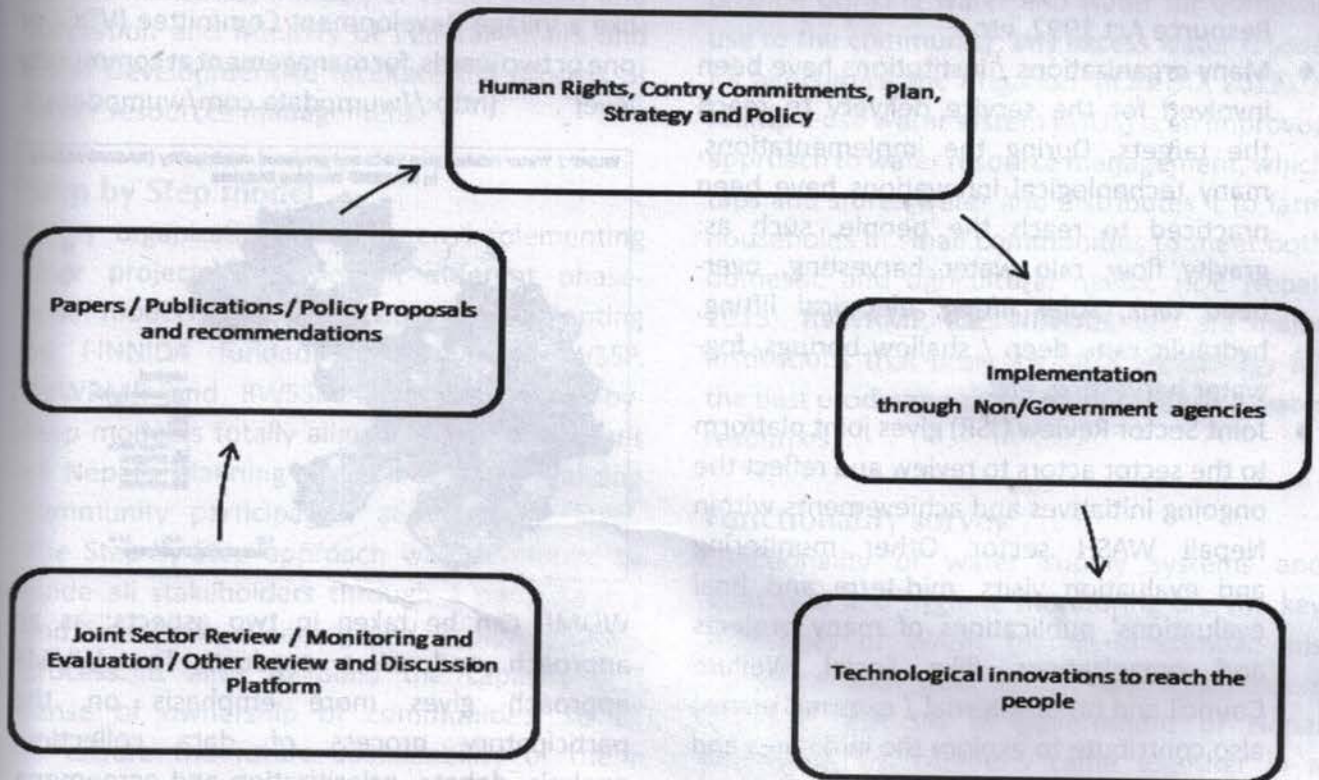
Recently, the Department of Water Supply and Sewerage (DWSS), under the Ministry of Water Supply and Sanitation (MOWSS) is the lead Department of Drinking Water Supply and Sanitation. It is functioning in all 75 districts through its Division/Sub-division Offices (WSSD/SDOs). Regional Offices in five Development Regions are established for monitoring. The Ministry of Federal Affairs and Local Development also works on Water and Sanitation in all the 75 districts through its Technical Department named Department of Local Infrastructure Development and Agricultural Roads (DoLIDAR) whose district office is called District Technical Offices (DTO). The District Development Committee (DDC) is the local body at the district level. The District Water Supply, Sanitation and Hygiene Coordination Committee (D-WASH-CC) has been

formed with DDC Chairperson as the chair and chief of WSSD/SDOs as the Member Secretary and other key sector agencies as members. This committee develops the District Level Strategy for Sanitation promotion. All the concerned agencies work collectively. For open defecation free (ODF) and Total Sanitation promotion movement the Municipality and VDC level WASH Coordination Committees (M/V-WASHCC) have been formed. Similarly, The Regional WASH Coordination Committees (RWASH-CC) have been formed in the five Regions. A National Sanitation and Hygiene Coordination Committee (NSHCC) has been formed at the central level to coordinate partners. Above that the National Sanitation and Hygiene Steering Committee (NSHSC) comprising related Ministries has been formed as the directing body. (SACOSAN V, Nepal: Country paper on Sanitation, 2013).

Organizations/ Institutions Involved in WASH sector

To achieve the current coverage of WASH, numbers of organizations / institutions have contributed government's efforts, such as United Nations Children's Fund (UNICEF), government of Finland - RVWRMP/ RWSSP-WN, HELVETAS, United Mission to Nepal (UMN), WaterAid, Plan Nepal, Save the Children, UK Aid, USAID, World Bank, Asian Development Bank, Rural Water Supply Sanitation Fund Development Board (RWSSFDB - Fund Board), UN-HABITAT, Danish International Development Agency (DANIDA), Lutheran World Federation (LWF), Charity Water, SIMAVI, World Vision International, number of other Community Based Organizations (CBOs), etc.

Policy-Practice Cycle



The figure summarizes how policy and practice link together:

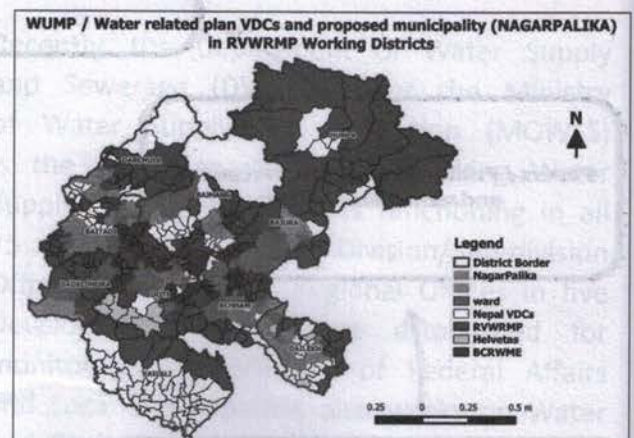
- There are some basic human rights and duty bearers should prioritize to realize those rights by the rights holders. For example: United Nations General Assembly explicitly recognized the human right to water and sanitation and acknowledged that clean drinking water and sanitation are essential to the realization of all human rights. (UN General Assembly, Resolution 64/292, 2010).
- All countries, including Nepal, have obligations on the commitments made in international platforms, like in UN, Millennium Development Goals, SACOSAN, etc. and it is her duty to materialize those commitments into practice facilitating through different plan, strategies and policies, such as: Five-year Plans, Water Resources Strategy, National Water Plan, Sanitation and Hygiene Master Plan, Water Resource Act 1992, etc.
- Many organizations / institutions have been involved for the service delivery to reach the targets. During the implementations, many technological innovations have been practiced to reach the people, such as: gravity flow, rain water harvesting, overhead tank, solar lifting, electrical lifting, hydraulic ram, deep / shallow borings, fog-water harvesting, etc.
- Joint Sector Review (JSR) gives joint platform to the sector actors to review and reflect the ongoing initiatives and achievements within Nepali WASH sector. Other monitoring and evaluation visits, mid-term and final evaluations' publications of many projects and organizations (like Social Welfare Council and other internal / external teams) also contribute to explore the initiatives and achievements.
- From these publications and other research papers explore the status, gaps, weaknesses and opportunities. On these ground,

there is always room to revisit the current plans, strategy and policies for further improvements.

Some important initiations to support policies in context of water resource management

Water Use Master Plan (WUMP)

"The WUMP is a participatory and inclusive approach for integrated planning and management of water resources. Taking Integrated Water Resource Management (IWRM) as the foundation, it assesses the total water budget and its potential uses focusing on a unit area. The WUMP encompasses capacity development of local communities and local institutions to improve the planning for equitable and efficient use of water to improve water supply and livelihoods. This is particularly important within a smaller unit of a watershed like a Village Development Committee (VDC) or one or two wards, for management at community level". (<http://wumpdata.com/wumpdata/>).



WUMP can be taken in two aspects: as an approach and as a product. The WUMP approach gives more emphasis on the participatory process of data collection, analysis, debate, prioritization and agreement, and recording the results for public display. It incorporates many issues such as the inclusion of all stakeholders (especially women and

disadvantaged or vulnerable groups); and an integrated and coordinated planning for synergy with other sectors associated with water, health and livelihoods. WUMP as a product is a plan for optimal use of water resources considering overall water resource, hygiene and sanitation, water demands and potential uses in a holistic and integrating way for sustainable development. Building Climate Resilience of Watersheds in Mountain Eco-Regions (BCRWME) is also developing detail plan for scoping water use. Hence, in any form of water use master plan, it is important for best way of water management. The map explains about the area of water use master plans already developed by different organization in context of proposed new state restructures by the respective districts in Far-western development region. Recently, Guideline on the application of the Water Use Master Plan (WUMP) has been developed jointly by two ministries, Ministry of Water Supply and Sanitation and Ministry of Federal Affairs and Local Development to facilitate the process of water resources management.

Step by Step model

Many organizations have been implementing their projects' activities in different phase-wise models. WASH activities, implementing by FINNIDA funded projects: like RWSSP, RVWRMP and RWSSP-WN through Step-by-Step model is totally aligned with Government of Nepal's planning process and are realizing community participation at significant level. The Step-By-Step approach was developed to guide all stakeholders through a participatory and interactive planning and implementation process. It aims to build the capacity and sense of ownership of communities, so as to ensure the future sustainability of these highly decentralized community-managed rural infrastructure schemes. The Step-By-Step Manual builds on the lessons learned in the RVWRMP Phase I (2006-2010) in Mid and Far

Western regions, as well as earlier experiences in Rural Water Supply and Sanitation Support Program in Western zone (1990-2005).

The Step-By-Step Approach guides multiple stakeholders through the planning, implementation and post-construction phases. It breaks down the complex principles of good local water governance and Integrated Water Resources Management into achievable steps (in parallel with capacity building of the stakeholders involved).

Multi Use Water System (MUS)

Multiple-use water system (MUS) is a community-managed system that caters mainly to small landowners and marginal households in rural and areas. It can help to alleviate poverty and increase food security for poor and marginalized groups. The first priority is to provide drinking water and water for domestic use to the community; any excess water is used for agriculture and irrigation. (ICIMOD, 2013). A multiple use water system (MUS) is an improved approach to water resource management, which taps and stores water and distributes it to farm households in small communities to meet both domestic and agricultural needs. (iDE Nepal, 2015). RVWRMP, IDE, NEWAH, etc. are major institutions that promote MUS technology for the best productive utilization of available water resources.

Functionality survey

Functionality of water supply systems and sanitation and hygiene monitoring are the key challenges of WASH sector. To combat this challenge with joint effort, key stakeholders like line agencies of government of Nepal and other organizations came together in a common agenda to work. RVWRMP, Drinking Water Supply and Sanitation Division Offices, UNICEF and DDCs meet together and conducted functionality survey in two districts: Dadeldhura

(as a pilot) and Baitadi utilizing SEIU's platform as a central database of Akvo Flow's dashboard. Altogether 1495 (457 in Dadeldhura and 1038 in Baitadi districts) drinking water supply schemes (census of both districts) were visited and used

data for district level strategic planning process. Some findings are presented in the following figures (figures 2 and 3):

Figure 2: System run months in a year

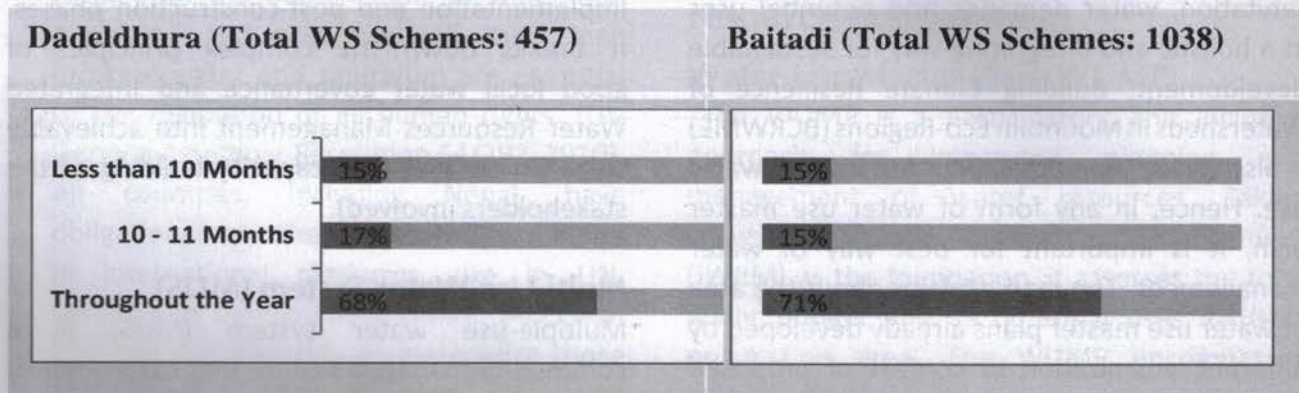


Figure 3: Current Status of Operation & Maintenance of Water Supply System

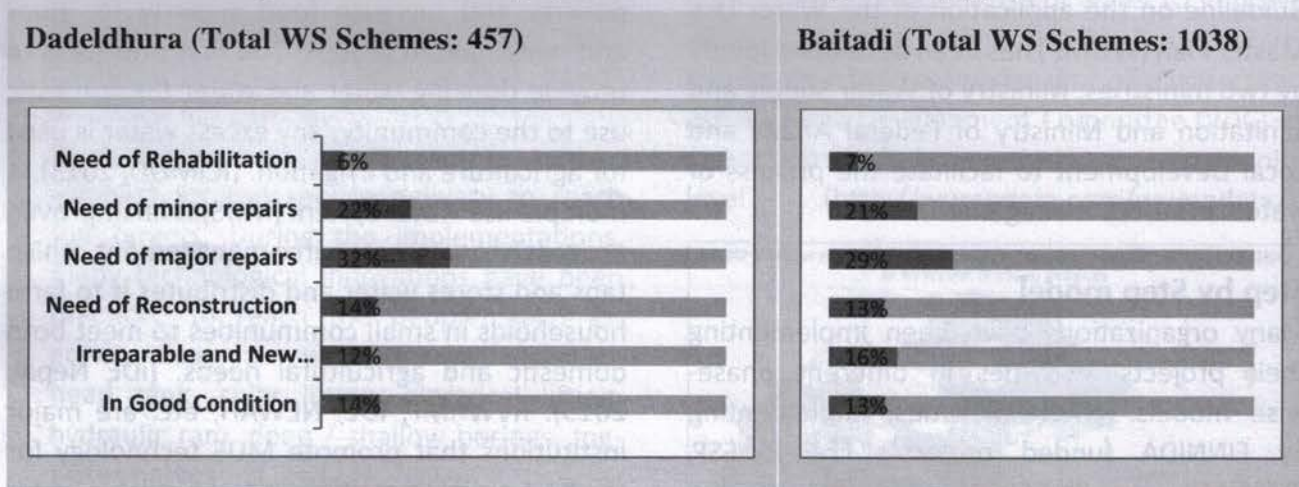
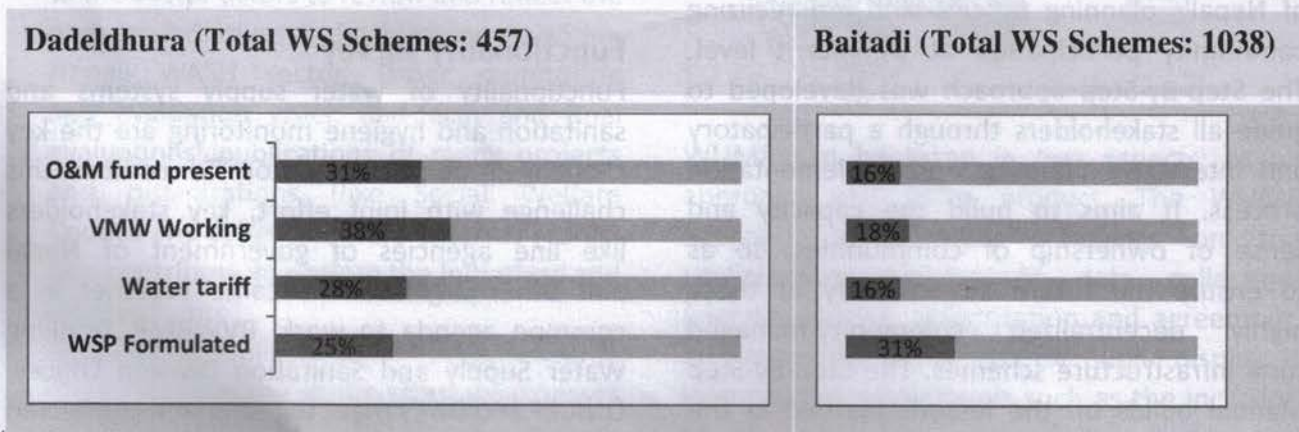


Figure 4: Status of other key indicators of water schemes



Key Challenges on policy and practice

Reaching to the unreached people

Still 13 percent of the total population is left to have access to basic water supply facilities and 12.7 percent is left to have sanitation facilities. It is still hard to identify and reach to this number at the community level in terms of geographical location. This needs in depth survey and analysis to address the WASH issues.

Sanitation in Terai and Menstrual Hygiene in Mid/Far West Region

Sector is facing major challenge to achieve sanitation coverage in terai communities, especially eight terai districts. Literacy, poverty and availability of natural resources (community

forest) are also very low in these districts. On the other hand, "Chhaupadi" (unhygienic and separately staying in different vulnerable hut during menstruating period) system is deeply rooted in far and mid far western region. These are the most concerned issues to be combated to achieve total sanitation in Nepal.

Functionality

Although the water supply coverage is high, the functionality status of the schemes is very low (25.4% well-functioning and 36.1% need minor repair). (NMIP, 2014). It is clear that, not only coverage is important, but also the sustainability aspects should be considered in every phase and steps of the system.

Region	No. of schemes	Percentage of the schemes									
		Whole-year supply	Well-functioning	Need minor repair	Need major repair	Need rehabilitation	Need reconstruction	Have WSST	Adequate tools	WSUC registered	O&M fund
EDR	8904	65.3	27.2	37.4	9.2	19.0	7.1	30.9	30.2	35.9	4.8
CDR	9680	71.7	25.0	36.4	10.4	20.2	7.9	29.6	35.5	44.5	3.7
WDR	13075	69.7	24.3	39.5	7.9	19.9	8.4	31.3	33.2	30.9	3.8
MWDR	5169	65.8	25.9	32.0	9.3	19.6	12.9	37.8	36.5	37.1	6.3
FWDR	4377	64.5	25.5	34.7	10.4	20.6	8.7	30.1	42.4	49.6	5.9
Mountain	5404	56.5	22.2	36.1	10.7	20.1	11	23.4	30.2	28.9	4
Hill	33967	68	24.5	36.3	8.6	19.1	8.2	30.5	33.1	37.1	3.9
Tarai	1834	65	34.1	31.1	9.2	18.8	6.8	57.9	52.9	56.1	11.6
Nepal	41205	68.2	25.4	36.1	9.2	19.8	8.6	31.5	34.5	37.9	4.5

Institutional harmonization

Since, water has the characteristics of multiple uses, it is important to optimal utilization in different uses as far as possible. There is standalone institution for individual use. For example, DWSS focuses on the drinking water and domestic use of water, Department of Irrigation focuses on irrigation, etc. If water

resource is applicable for multiple uses with a single design, there are limitations in those institutions. From water resource management perspective, institutional harmonization is very important for the optimal use of water as well as to cope with the climate change effects.

Recommendations

- Water Use Master Plan (WUMP): To avoid the duplication and to assess the proper utilization with community participation, WUMP is important. Before planning any water resources, if there is WUMP, it is not only easy to plan, but also water resources are optimally utilized for the benefit of people with available water resources.
- Step-by-Step Model: As mentioned in the above statement, Step-by-Step model seems good to replicate in development activities.
- MUS and institutional harmonization: For the optimization of water resources, MUS seems appropriate model. However, institutional harmonization, among different sectors, like water supply, irrigation, micro-hydro, etc. is needed to materialize this system.
- Joint efforts of sector actors are important to assess the water service status as well as identification of unreached population. There are possibilities to have joint monitoring, especially different surveys.
- Special attention on terai sanitation and Menstrual Hygiene in Mid/Far West Region is needed with creatively innovated triggering tools.

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हाम्रो साम्गा प्रतिबद्धता पूर्ण सरसफाईमा ऐक्यबद्धता

सफा घर आगन चर्पी खाना र पानी

नियमित गरौं हात धुने बानी

“पानी जीवन हो त्यसैले संरक्षण गरौं,
सदुपयोग गरौं र उचित व्यवस्थापन गरौं”

विश्व पानी दिवस-२०१७, को हार्दिक शुभकामना



खानेपानी तथा सरसफाई डिभिजन कार्यालय

तेह्रथुम



RVWRMP
Nepal-Finland Cooperation

RURAL VILLAGE WATER RESOURCES MANAGEMENT PROJECT, PHASE III (Nepal-Finland Co-operation)

Rural Village Water Resources Management Project (RVWRMP) is supported by the Government of Nepal (GON) and the Government of Finland (GOF). It is continuation of financial and technical support that GOF has provided to water sector in Nepal since 1989. Phase I (2006-2010), Phase II (2010-2016), is followed by Phase III (2016-2021).

RVWRMP works in the form of ten district-based sub-projects under the District Development Committees (DDCs). It is active in nine hilly and mountainous districts of the Far and Mid-Western Nepal, and six hill VDCs of a Terai district. The ten districts are: Achham, Baitadi, Bajhang, Bajura, Dadeldhura, Dailekh, Darchula, Doti, Humla, and Kailali. Out of these Dailekh and Humla are located in Mid-Western Region and the other districts in Far Western Region.

RVWRMP is a water resources management project which, in addition to water supply and sanitation, supports community-based irrigation, micro-hydro power, improved cooking stoves and water mills, number of environmental improvements as well as home gardens, sustainable livelihoods and institutional capacity building activities. The broad range of activities address poverty and as such, provide ample opportunities to develop different approaches promote good practices and trigger a range of ideas for improved well-being in these very remote villages.

Project Purpose (Specific Objective): Universal access to basic WASH services, and establishment of functional planning and implementation frameworks for all water uses and livelihoods promotion in the project area.

- Percentage of population using safely managed drinking water services
- All districts have declared ODF by 2017 and follow the post-ODF strategy as per total sanitation guidelines.
- Improved capacity of the local governance to provide effective WASH, irrigation, energy service delivery

Key Achievements of the Project Phase I and Phase II (2007-2015)

RVWRMP, working in remote VDCs of Far and Mid-western districts has proven a successful model working under umbrella of local government. Despite of remoteness and poverty, it has demonstrated remarkable achievement due to intense support of all stakeholders and effective leadership of MFALD/DoLIDAR at central level and respective DDCs at district level. Some of the key physical progress of the project in past is outlined below;

- 242,904 people benefitted from 651 water Supply schemes
- 462,752 people benefitted from basic sanitation facilities (84,137 household toilets promoted)
- 37,981 people benefitted from 112 irrigation schemes irrigating 1,052 hectare of land.
- 38,421 people benefitted from 18 micro hydro plants generating 735 kW renewable energy.
- 11,678 people benefitted from 9 improved cooking stoves.
- 32,774 families established home garden for vegetable and spices production
- 15 cooperatives developed and 10,296 shareholders organized with accumulation of 10,300,000 share capital.
- Water Use Master Plan prepared in 109 VDCs, 5 districts declared open defecation free, 11 VDCs declared in-house smoke free and 15 VDCs declared chhau-hut free.